



A Management Plan for the Janet Butterfield Brooks Wildlife and Environmental Area 2022 - 2032

Hernando County, Florida



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



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and Wildlife
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MEMORANDUM

TO: James Parker
Office of Environmental Services
Division of State Lands
Florida Department of Environmental Protection

FROM: Jackie Bucheck
Land Conservation and Planning
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission

SUBJECT: Janet Butterfield Brooks Wildlife Environmental Area
Ten Year Management Plan Update
Acquisition and Restoration Council (ARC) Public Hearing

DATE:

Enclosed are the Janet Butterfield Brooks Wildlife and Environmental Area Management Plan and the Land Management Plan Compliance Checklist. This Plan is being submitted for the Division of State Lands compliance review and for review for the next available ARC meeting Agenda. Please contact Jackie Bucheck at Jacqueline.Bucheck@MyFWC.com if there are any questions related to this plan. Thank you for your assistance.

TH/JB

Enclosures

cc: Keith Singleton
Shauna Allen
Tom Houston

**A Management Plan
for the
Janet Butterfield Brooks Wildlife and Environmental Area**

Hernando County, Florida

Owned by the Board of Trustees of the Internal Improvement Trust Fund
Managed by the Florida Fish and Wildlife Conservation Commission



April 2022

Approved Melissa Tucker Digitally signed by Melissa Tucker
Date: 2022.04.29 11:59:27 -04'00'
Melissa Tucker, Director
Division of Habitat and Species Conservation

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)

Common Name of Property: Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA)

Location: Hernando County, Florida

Acreage Total: 319 acres

Acreage Breakdown:

<u>Land Cover Classification</u>	<u>Acres</u>	<u>Percent of Total Area</u>
Baygall	0.76	0.24%
Bottomland forest	4.35	1.36%
Depression marsh	1.30	0.41%
Mesic flatwoods	29.24	9.18%
Mesic hammock	57.51	18.06%
Road	10.81	3.39%
Sandhill	118.05	37.07%
Successional hardwood forest	17.02	5.35%
Upland hardwood forest	57.81	18.16%
Upland pine	21.57	6.77%

*GIS-calculated acreage for land cover classification varies slightly from actual total acreage.

Lease/Management Agreement No.: 4594 (Appendix 12.1)

Use: Single X

Management Responsibilities:

Multiple _

Agency FWC

Responsibilities

LEAD, LESSEE (Wildlife and Environmental Area, resource protection, law enforcement)

Designated Land Use: Wildlife and Environmental Area

Sublease (s): None

Encumbrances List: None

Type Acquisition: Donation from The Nature Conservancy through FWC's Fish and Wildlife Habitat Program

Unique Features: Natural: Natural communities including sandhill and upland hardwood forest.

Archaeological/Historical: One documented within the JBBWEA.

Management Needs: Habitat restoration and improvement; hydrological preservation and restoration; invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.

Acquisition Needs/Acreage: 585 acres FWC Additions and Inholdings list; 8,796 acres remaining in the Annutteliga Hammock Florida Forever Project (Figure 12).

Surplus Lands/Acreage: None

Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 12.2 and 12.3)

DO NOT WRITE BELOW THIS LINE (FOR DIVISION OF STATE LANDS USE ONLY)

ARC Approval Date _____ BTIITF Approval Date: _____

Comments: _____

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

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	ii; 1
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	9
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	9-10
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	ii; 2; Appendix 12.1
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	4-7; 65
6	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide Information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	36
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i>	18-2.021	64-70
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	34
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)	9
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	2-7

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	34-36
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	32-34
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	34-36
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	9-10; 49-73
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	49-73

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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	49-73; 81
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)	32-36; 60-62
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	32-36
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Appendix 12.17
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	36; 49-73
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	N/A; 34-35
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	Appendix 12.12
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	35-36

*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	10; Appendix 12.2 and 12.3
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)	10
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	10; Appendix 12.2 and 12.3
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Appendix 12.2
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	N/A; 49
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	N/A; 49
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	N/A; 49
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	N/A; 49

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	12-15; Appendix 12.5
33	Insert FNAI based natural community maps when available.	ARC consensus	16-17
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	11-32
35	Location and description of known and reasonably identifiable renewable and non-renewable resources of the	18-2.018 & 18-2.021	15-23; 30-32

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
	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.		
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	30
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	30
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	56-57; Appendix 12.4 and 12.11
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	23-28; Appendix 12.11
40	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	29-30; Appendix 12.7
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)	49-78
42	Habitat Restoration and Improvement	259.032(10) & 253.034(5)	
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.	↓	49-78
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.	↓	73-77
42-C.	The associated measurable objectives to achieve the goals.	↓	73-77
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>	↓	49-78; Appendix 12.10
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.		78-81; Appendix 12.15
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	30; 63; Appendix 12.12
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
44-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
44-D.	Related activities (see requirement for #42-D).	↓	49-78
44-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15
45	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5)	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78; Appendix 12.11
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
45-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
45-D.	Related activities (see requirement for #42-D).	↓	49-78
45-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	27-29; 57-60
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	Appendix 12.16
48	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5)	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
48-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
48-D.	Related activities (see requirement for #42-D).	↓	49-78
48-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	2; 30-31
50	Location and description of known and reasonably identifiable renewable and non-renewable resources of the	18-2.021	30-31; 62

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
	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.		
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	30-31; 62
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	30-31; 62
53	Hydrological Preservation and Restoration	259.032(10) & 253.034(5)	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
53-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
53-D.	Related activities (see requirement for #42-D).	↓	49-78
53-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i>	18-2.018, 18-2.021 & per DHR's request	32; 63
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	32; 63
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	63; Appendix 12.13
57	Cultural and Historical Resources	259.032(10) & 253.034(5)	
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
57-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
57-D.	Related activities (see requirement for #42-D).	↓	49-78
57-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15

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

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. <i>See footnote.</i>	253.034(5)	64-65
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).	↓	49-78
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
59-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
59-D.	Related activities (see requirement for #42-D).	↓	49-78
59-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	60-62; 64-65
61	Public Access and Recreational Opportunities	259.032(10) & 253.034(5)	
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-78
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73-77
61-C.	Measurable objectives (see requirement for #42-C).	↓	73-77
61-D.	Related activities (see requirement for #42-D).	↓	49-78
61-E.	Budgets (see requirement for #42-E).		78-81; Appendix 12.15

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	iii-x
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	ii
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	36-48
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	49-78
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	253.034(5)	78-81; Appendix 12.15

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
	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.		
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)	78-81; Appendix 12.15
68	A statement of gross income generated, net income and expenses.	18-2.018	78-81; Appendix 12.15

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

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Management Plan Acronym Key

Acronym	Definition
ADA	Americans with Disabilities Act
ARC	Acquisition and Restoration Council
BEBR	Bureau of Economic and Business Research
CF	Conservation Florida
DACS	Department of Agriculture and Consumer Services
DEP	Department of Environmental Protection
DHR	Florida Department of Historical Resources
DRP	Division of Recreation and Parks
DSL	Division of State Lands
F.A.C.	Florida Administrative Code
FFS	Florida Forest Service
FISC	Florida Invasive Species Council
FLAM	Florida Landscape Assessment Model
FNAI	Florida Natural Areas Inventory
F.S.	Florida Statute(s)
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
GIS	Geographic Information Systems
GPS	Global Positioning System
IMPP	Internal Management Policies and Procedures
JBBWEA	Janet Butterfield Brooks Wildlife and Environmental Area
IPCC	Intergovernmental Panel on Climate Change
LAP	Landowner Assistance Program
LMR	Land Management Review
MAG	Management Advisory Group
MSL	Mean sea level
NRCS	National Resources Conservation Service
NSS	National Speleological Society
OBVM	Objective-Based Vegetation Management
PASO	Public Access Services Office
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
USFWS	United States Fish and Wildlife Service
WCPR	Wildlife Conservation Prioritization and Recovery
WEA	Wildlife and Environmental Area

1 Introduction and General Information

Located within the Brooksville Ridge province of west-central Florida, the Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA) is emblematic of some of the area's last tracts of older growth longleaf pine sandhill forests and hardwood hammocks. The JBBWEA is part of the southernmost extent of the unique Annatteliga Hammock. This feature is a vast mix of mesic hammock, upland hardwood forest, and bottomland forest that contains unique plant assemblages. The clay laden soils, karst topography with limestone at or near the soil surface, natural fire exclusion, and southern and northern limits of many plant species, all combine in this area of the state to form the Annatteliga Hammock. As such, it conserves and protects a remaining fragment of this ancient forested system ecotype providing habitat for a keystone sandhill species, the gopher tortoise (*Gopherus polyphemus*) and many sandhill dwelling plants beneath the towering longleaf pine (*Pinus palustris*) trees. Donated by The Nature Conservancy (TNC) to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Board of Trustees) and managed by the Florida Fish and Wildlife Conservation Commission (FWC), the JBBWEA conserves habitat important for imperiled species that occur on the site such as the gopher tortoise and Southeastern American kestrel (*Falco sparverius paulus*) and provides opportunities for research and environmental education on the importance of the conservation of these species.

Public access to the JBBWEA is restricted to FWC staff for management purposes in accordance with the restrictions in the deed of donation of the property to the state. Recreational opportunities are limited to guided educational tours with approval and guidance from FWC staff. However, numerous other public conservation lands in close proximity of the JBBWEA, such as the Chinsegut Wildlife and Environmental Area and the Chassahowitzka Wildlife Management Area, offer a wide variety of public outdoor fish- and wildlife-based recreational opportunities.

This Management Plan serves as the basic statement of policy and direction for the management of the JBBWEA and has been developed to guide each aspect of the JBBWEA's resource and operational management for the ten-year planning period. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and cultural resources found on the JBBWEA. Furthermore, it identifies the FWC's management intent, goals, objectives, as well as identifying challenges and potential solutions.

This Management Plan is submitted for review to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees through the Florida Department of Environmental Protection's (DEP) - Division of State Lands (DSL), in compliance with Chapters 253 and 259, Florida Statutes (F.S.), and Chapters 18-2 and 18-4, Florida Administrative Code (F.A.C.). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of the DSL. Terms (Appendix 12.6) used in this Management Plan describing management activities conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

1.1 Location

The JBBWEA consists of approximately 319 acres and is located in Hernando County (Figures 1 and 2), lying in Sections 1 and 2; Township 22 South; and Range 18 East (Figure 3). The JBBWEA is located approximately seven miles northwest of Brooksville and 55 miles north of Tampa. Other municipalities near the JBBWEA in Hernando County include Brookridge, North Weeki Wachee, and Spring Hill. The JBBWEA is bordered to the north by Fickett Hammock Preserve. The area east of the JBBWEA is owned by an industrial concrete company that has a mining operation on the site. The southern boundary borders rural areas of predominantly pasture, intact sandhill, and pine plantation. There is also a small subdivision to the west. The JBBWEA is not located within a designated Area of Critical State Concern.

1.1.1 Proximity to other Public Conservation Lands

The JBBWEA is located in the vicinity of an extensive network of conservation lands, including lands managed by the Southwest Florida Water Management District (SWFWMD), the DEP, Hernando County, and the FWC. Federally owned properties in the vicinity include Chassahowitzka National Wildlife Refuge located northwest of the JBBWEA. Several Florida Forever projects (Figure 4) are also located in the vicinity of the area.

Tables 1 and 2 list the Florida Forever projects and conservation lands within a 15-mile radius of the JBBWEA, including lands managed by public and private entities that conserve cultural and natural resources within this region of Florida.

Most of the conservation lands listed in Table 2 are owned in full-fee by a public entity. However, some of these areas fall within a less-than-fee ownership classification where the land is owned and being managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement on the land.

Table 1. Florida Forever Projects within a 15-mile Vicinity

Project Name	GIS Acres
Annutteliga Hammock	8,740.79
Crossbar/Al Bar Ranch	12,439.90
Florida's First Magnitude Springs	6,040.30
Florida Springs Coastal Greenway	8,855.49
Southeastern Bat Maternity Caves	597.58
Strategic Managed Area Lands List (S.M.A.L.L.)	11,527.00
Withlacoochee River Corridor	3,286.12

Table 2. Conservation Lands within a 15-mile Vicinity

Federal Government	Managing Agency
Brooksville Plant Materials Center	USDA
Chassahowitzka National Wildlife Refuge	USFWS
Florida Fish and Wildlife Conservation Commission Janet Butterfield Brooks WEA Management Plan	

Crystal River National Wildlife Refuge	USFWS
State of Florida	Managing Agency
Chassahowitzka Wildlife Management Area	FWC
Chinsegut Wildlife and Environmental Area	FWC
Crystal River Preserve State Park	DEP-DRP
Ellie Schiller Homosassa Springs Wildlife State Park	DEP-DRP
Perry Oldenburg Wildlife and Environmental Area	FWC
Weeki Wachee Springs State Park	DEP-DRP
Withlacoochee State Forest	DACS-FFS
Withlacoochee State Trail	DEP-DRP
Yulee Sugar Mill Ruins Historic State Park	DEP-DRP
Water Management District	Managing Agency
Annatteliga Hammock	SWFWMD
Chassahowitzka River and Coastal Swamps	SWFWMD
Weekiwachee Preserve	SWFWMD
Local Government	Managing Agency
Al Bar Ranch	Pinellas County
Bluebird Springs State Park	Citrus County
Chinsegut Hill Conference Center	Hernando County
Cross Bar Ranch Wellfield	Pinellas County
Fickett Hammock Preserve	Hernando County
Jumping Gully Preserve	Pasco County
Lake Townsen Preserve	Hernando County
Linda Pedersen Preserve/Jenkins Creek Preserve	Hernando County
Peck Sink Preserve	Hernando County
Private/Public Conservation Organization	Managing Agency
Ahhochee Hill Sanctuary	Florida Audubon Society
Cummer Family Land Trust Preserve	North Florida Land Trust
Cumming Preserve	Tampa Bay Conservancy
Nature Coast Mitigation Bank	Terra Blue Environmental
Upper Coastal Mitigation Bank	EarthBalance

Acronym Key	Agency Name
DACS-FFS	Florida Department of Agriculture and Consumer Services-Florida Forest Service
DEP-DRP	Florida Department of Environmental Protection, Division of Recreation and Parks
FWC	Florida Fish and Wildlife Conservation Commission
SWFWMD	Southwest Florida Water Management District
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

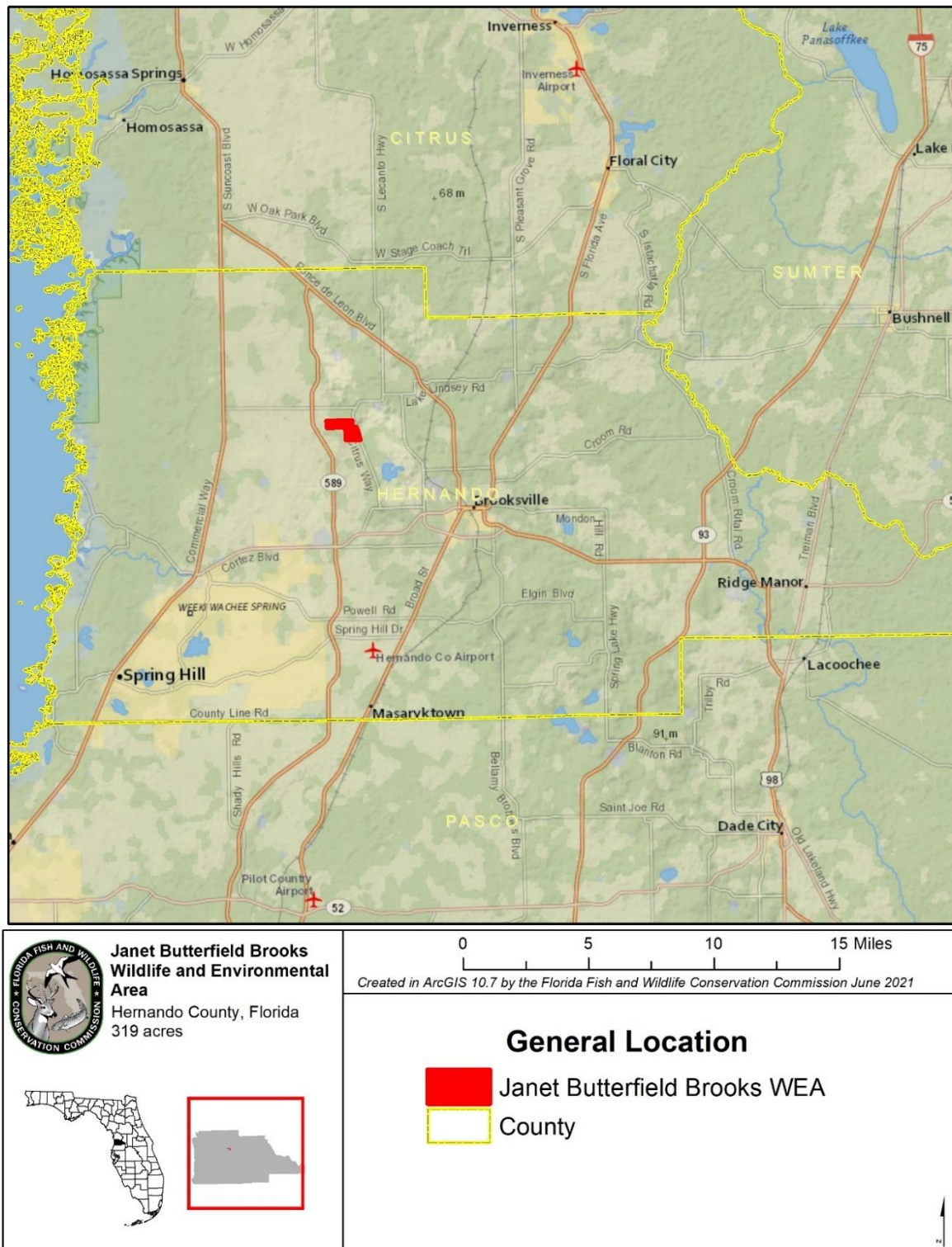


Figure 1. General Location of the JBBWEA

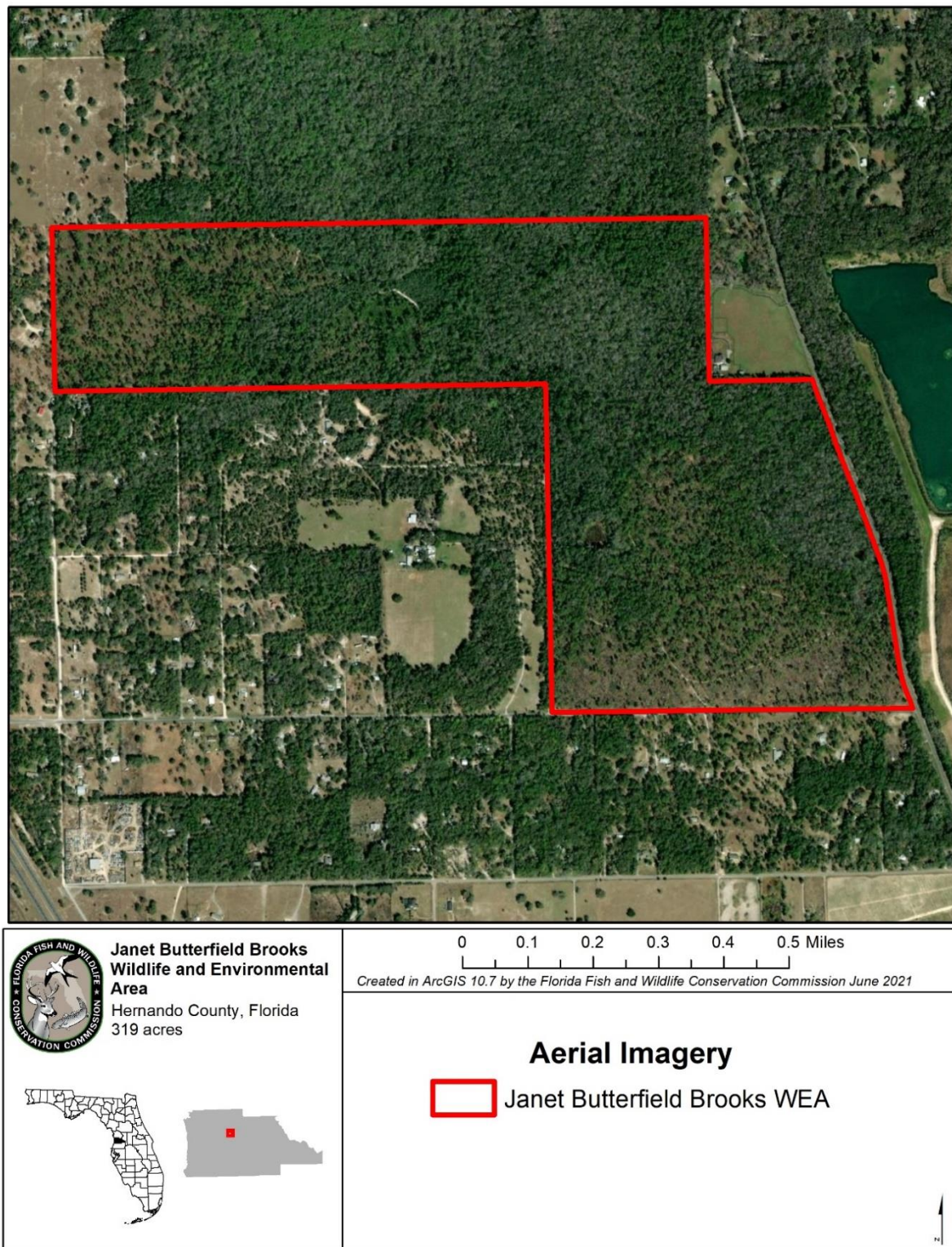


Figure 2. The JBBWEA Boundary and Aerial Imagery

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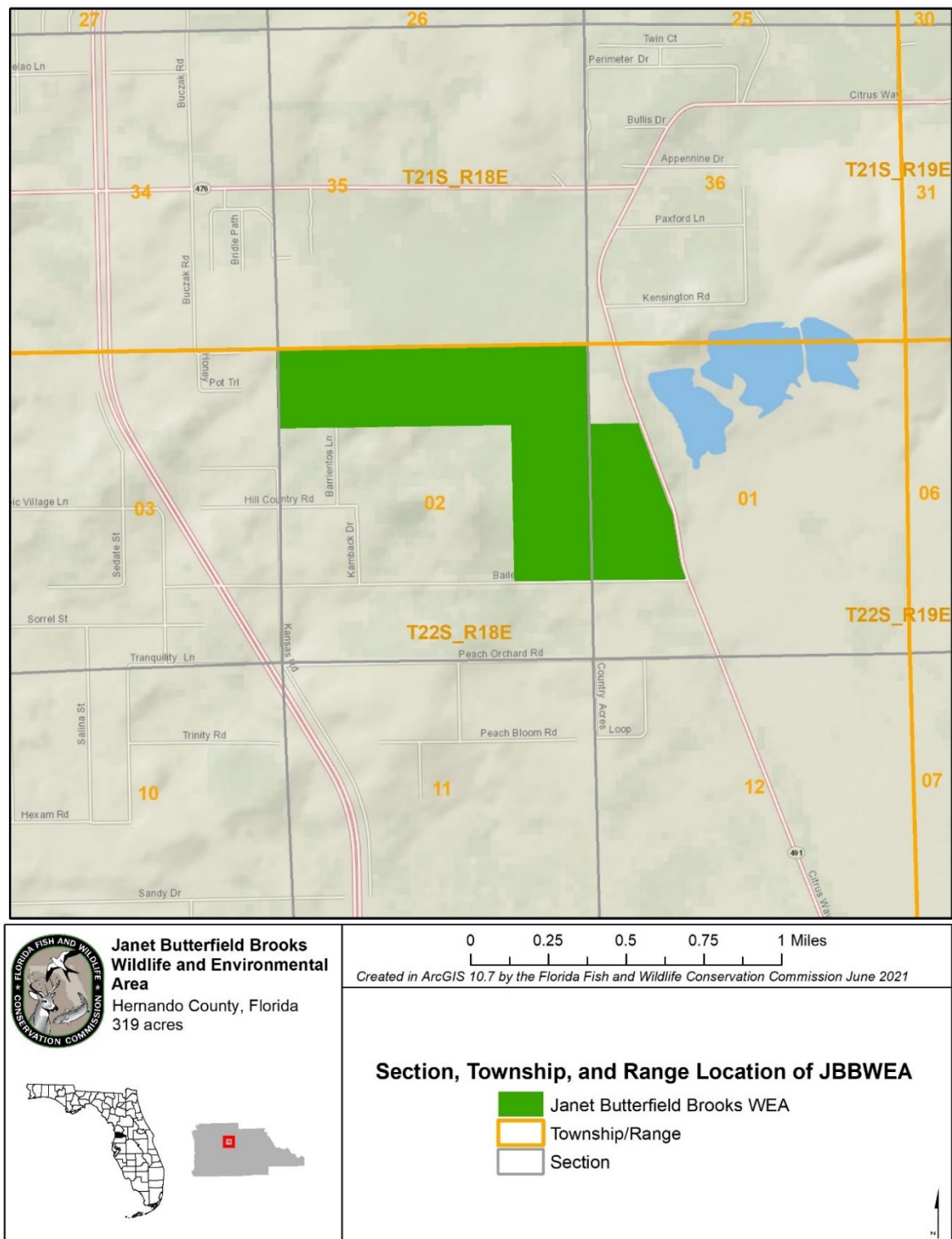


Figure 3. The JBBWEA Proximity Map with Section, Township, and Range

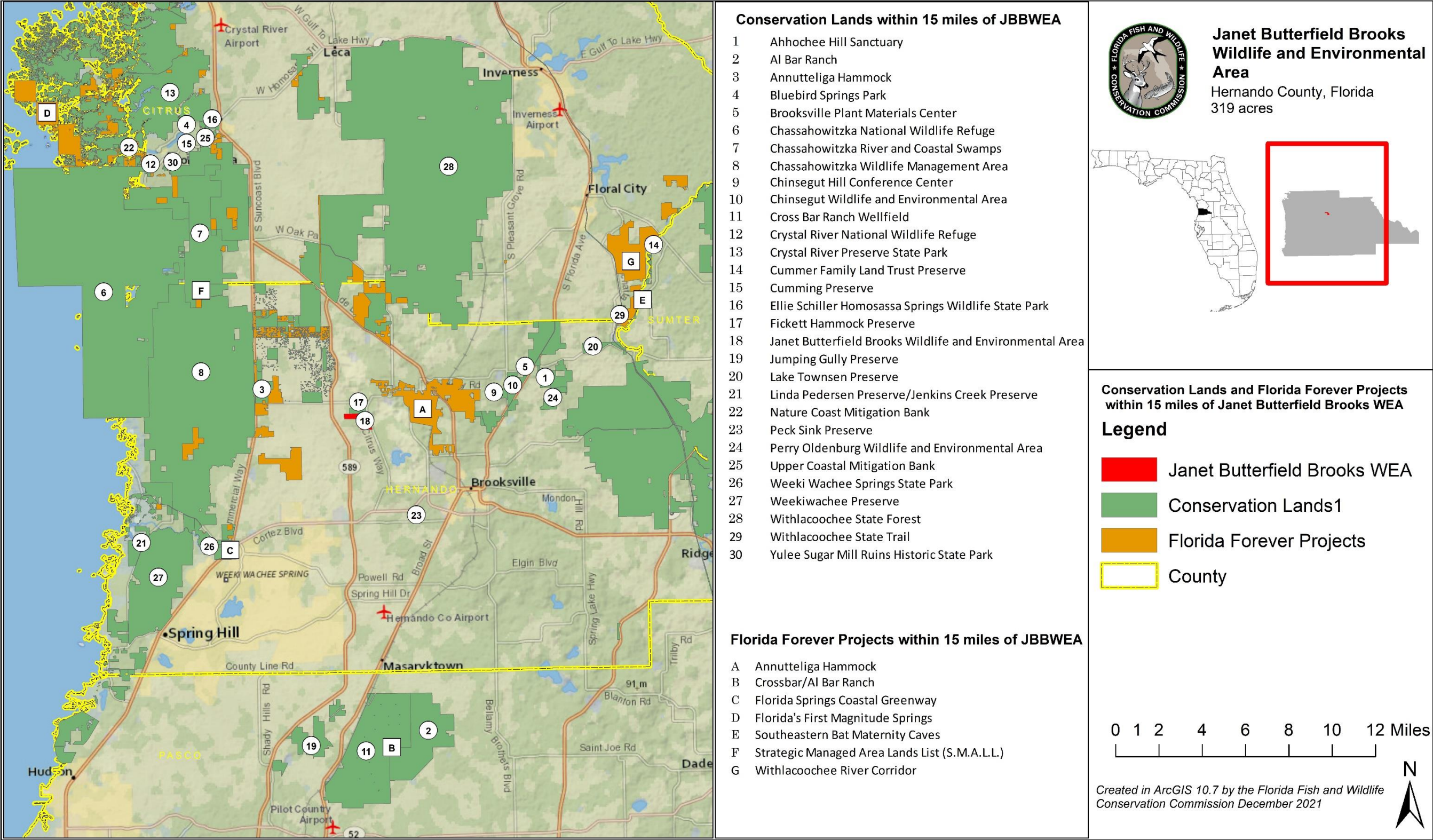


Figure 4. Nearby Conservation Lands and Florida Forever Projects

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1.2 Acquisition

1.1.2 Acquisition History

This parcel was originally donated to TNC by Ms. Janet Butterfield Brooks with deed restrictions that do not allow any consumptive use of the property and general access by the public. Under the FWC's Fish and Wildlife Habitat Program, TNC donated the land now established as the JBBWEA to the Board of Trustees in 2008 with the same deed restrictions. Subsequently, the area was then leased to the FWC for management.

1.1.3 Purpose for Acquisition of the Property

The Board of Trustees acquired the JBBWEA for the purpose of establishing a Gopher Tortoise Mitigation Park in order to provide optimum habitat for listed wildlife populations. The JBBWEA allows for limited access for environmental education and research opportunities guided and supervised by the FWC in accordance with the donation conditions and covenants.

The FWC implemented the Mitigation Park Program in 1988 to provide land use regulatory programs with an alternative to on-site wildlife mitigation under Section 372.074, F.S., which establishes the Fish and Wildlife Habitat Program for the purpose of acquiring, assisting other agencies or local governments in acquiring, or managing lands important to the conservation of fish and wildlife. Under this authority, the FWC, or its designee, is responsible for managing these lands for the primary purpose of maintaining and enhancing their habitat value for fish and wildlife and compatible fish and wildlife based public outdoor recreation. It also consolidates mitigation within a geographical region by buying larger and more manageable tracts, which are established as Wildlife and Environmental Areas (WEAs). All of the WEAs established through this program are managed primarily to protect and enhance habitat important to upland endangered or threatened wildlife, especially the gopher tortoise. The Mitigation Park Program has since been discontinued, but the 14 mitigation tracts, including the JBBWEA, acquired through the program continue to be actively managed by the FWC for their original purposes of acquisition and conservation.

1.2 Title Interest and Management Authority

As State-owned lands, title to the JBBWEA is vested in the Board of Trustees. On December 22, 2008, the Board of Trustees, entered into a 50-year lease agreement (Lease Agreement Number 4594) granting the FWC management authority for the JBBWEA. Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 597, and 870 of the F.S. These constitutional provisions and laws provide the FWC the authority to protect, conserve, and manage the State's fish and wildlife resources.

"General public access of any type, including hunting, is not allowed on the Janet Butterfield Brooks Wildlife and Environmental Area. The access is restricted by deed to agency staff for

management purposes (which would include law enforcement) and authorized agency guided educational access.”

The Board of Trustees’ Lease Agreement Number 4594 with the FWC also directs the FWC to “manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 259.032(11), F.S....” The lease agreement further directs the FWC to “implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.018(2)(h), F.A.C., which have been selected, developed, or approved by lessor, lessee, or other land managing agencies for the protection and enhancement of the leased premises.”

1.2.1 Encumbrances

There are no known encumbrances to the property.

1.3 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting in Hernando County, Florida on September 1, 2021, to obtain input from both public and private stakeholders regarding management of the JBBWEA. Results of this meeting were used by the FWC to develop management goals and objectives and to identify opportunities and strategies for inclusion in this Management Plan. A summary of issues and opportunities raised by the MAG, as well as a listing of participants, is included as Appendix 12.3. Further, a public hearing, as required by Chapter 259.032(10), F.S., was held in Hernando County on October 27, 2021, to solicit input and comments from the public regarding this Management Plan. A Management Prospectus was made available to the public 30 days prior to the hearing. The report of that hearing is also contained in Appendix 12.3. A website is also maintained for receipt of public input at <https://myfwc.com/conservation/management-plans/terrestrial/>. Further testimony and input are received at a public hearing held by ARC. Input received from all public involvement efforts has been considered in the development of this Management Plan.

1.4 Planning Philosophy

The FWC’s planning philosophy focuses on producing conservation outcomes that align with the needs of an ever-changing world. The FWC emphasizes consensus-building from the beginning of the planning process in order to engage, understand, and incorporate the ideas of the various interests, user groups, and communities that it serves. To achieve this holistic management approach, the FWC convenes a MAG meeting which engages stakeholders from various user groups, and a public hearing in which the public can provide formal testimony. The FWC also engages field staff, as well as other FWC staff expertise and other agency experts, in developing this Management Plan, thereby facilitating development of meaningful management intent language.

Furthermore, the FWC maintains transparency and accountability throughout the development and implementation of the Management Plan by following a “living document” concept which

links each plan with the previous plan by reporting on the objectives, management activities, and projects accomplished over the last planning timeframe (previous ten years; see Section 4).¹ This Management Plan serves as the guiding framework to implement an adaptive management process and content will be evaluated throughout the planning period to achieve comprehensive conservation goals (Section 5.2). As needed, amendments to this Management Plan will be presented to the DSL and ARC for review and consideration.

2 Natural and Cultural Resources

2.1 Physiography

2.1.1 Topography and Geology

Florida has a storied geological history. The State of Florida is a part of the Florida platform that extends into the Atlantic Ocean and extends over 100 miles into the Gulf of Mexico. During the Paleozoic and Mesozoic ages, volcanic and sedimentary rock formed to create the base layer of what is now Florida. Due to rifting and tectonic shift, North America broke away from Pangea and during this time the panhandle of Florida was underwater. Due to the waterway separating Florida from the rest of the United States, sediments eroding from the Appalachian Mountains kept Florida waters clear. This also created a limestone layer that, due to karstification, created the intricate aquifer and cave system in Florida. The final stage that brought Florida into the geologic condition represented today was the northern movement of the continent and receding water levels. This event also created the panhandle of Florida which is characterized by siliciclastic sediments created by the erosion of previously deposited rocks. Through these changes, Florida has a mosaic of geologic formations and soil types.

Hernando County, including the JBBWEA, is part of the Central or Mid-peninsular physiographic zone of Florida. Within the Mid-peninsular zone, the JBBWEA is located in the Brooksville Ridge physiographic province. The Brooksville Ridge occupies most of Hernando County and extends easterly from about U.S. Highway 19 to U.S. Highway 301. The Brooksville Ridge is made up of two distinct parts: the eastern/western edges and a central area, in which the JBBWEA is located.³

The central part of the Brooksville Ridge ranges in elevation from about 100 feet to more than 200 feet above the mean sea level (MSL). This rolling area consists of poorly drained to well drained, sandy to clayey soils. Natural forest vegetation consists of pine and hardwoods. Much of this area is cleared and used for crops and pasture. Land elevation at the JBBWEA ranges from approximately 120 to 200 feet above MSL. The JBBWEA does not contain beaches, dunes, or virgin timber.³ The only geologic unit found at the JBBWEA is Miocene. The undifferentiated Hawthorn Group occurs at or near the surface near the southern flank of the Ocala Platform from Gilchrist County southward to Pasco County with isolated occurrences in Pinellas County. Correlation of these sediments to the formations of the Hawthorn Group exposed to the east and in the subsurface is uncertain. There is little to no phosphate present in

these sediments and fossils are rare. Ages have not been documented but stratigraphic position suggests inclusion in the Hawthorn Group. These sediments may be residual from the weathering and erosion of the Hawthorn Group.⁵

The Hawthorn Group sediments on the Brooksville Ridge are deeply weathered and, in some outcrops, look like Cypresshead Formation siliciclastics. The undifferentiated Hawthorn Group sediments are light olive gray and blue gray in non-weathered sections to reddish brown in deeply weathered sections, poorly to moderately consolidated, clayey sands to silty clays, and relatively pure clays. These sediments are part of the intermediate confining unit/aquifer system and provide an effective aquitard, except where perforated by karst features. Hard-rock phosphate deposits are associated with the undifferentiated Hawthorn Group sediments on the eastern flank of the Brooksville Ridge. The hard rock phosphate deposits were formed by the dissolution of phosphate in the Hawthorn sediments and redeposition in karst features. The major mineral resources of Hernando County which have been, or potentially could be economically important are limestone and sand. Limestone, sand, and associated gravel are mined for use in construction and various other industrial purposes.⁵

2.1.2 Climate

The climate of Hernando County, like most of peninsular Florida, is humid and subtropical, with long, warm, and humid summers and mild, dry winters. In the summer, temperature tends to remain relatively constant from day to day, with high temperatures being tempered by clouds and frequent afternoon rain showers. In the winter, on the other hand, temperatures tend to vary considerably due to dry, cold air coming in the form of cold fronts from the north. Annual mean high and low temperatures are 82.1- and 61.4-degrees Fahrenheit (F), respectivelyⁱ. August is the hottest month with mean temperatures of 82.2 degrees F, while January is typically the coolest month with a mean temperature of 57.9 degrees F. Mean annual rainfall is about 53.2 inches with June-September being the period of highest precipitation.²

2.1.3 Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) data were used to identify the JBBWEA soil series and soil depth to water table (Figures 5 and 6). The map units described in the soil survey of the JBBWEA are distributed as shown in Figure 5. Analyses of depth to water table for map units occurring within the JBBWEA are also provided in Figure 6. The NRCS defines a soil map unit as: "a collection of soil areas or non-soil areas (miscellaneous areas) delineated in a soil survey⁴." Soil map units may contain multiple soil components, which are given names that are unique identifiers. Appendix 12.5 lists the names and official map unit descriptions of areas delineated on the detailed soil maps in a soil survey or by miscellaneous areas in the survey area as determined by the NRCS. Analysis of depth to water table for map units occurring within the JBBWEA are also provided in Appendix 12.5.

Soils found within the JBBWEA are generally associated with the upland ridge between U.S. Highways 19 and 301 and are thus primarily consisting of excessively drained to somewhat poorly drained, nearly level to sloping soils. Candler fine sand is the most common soil type

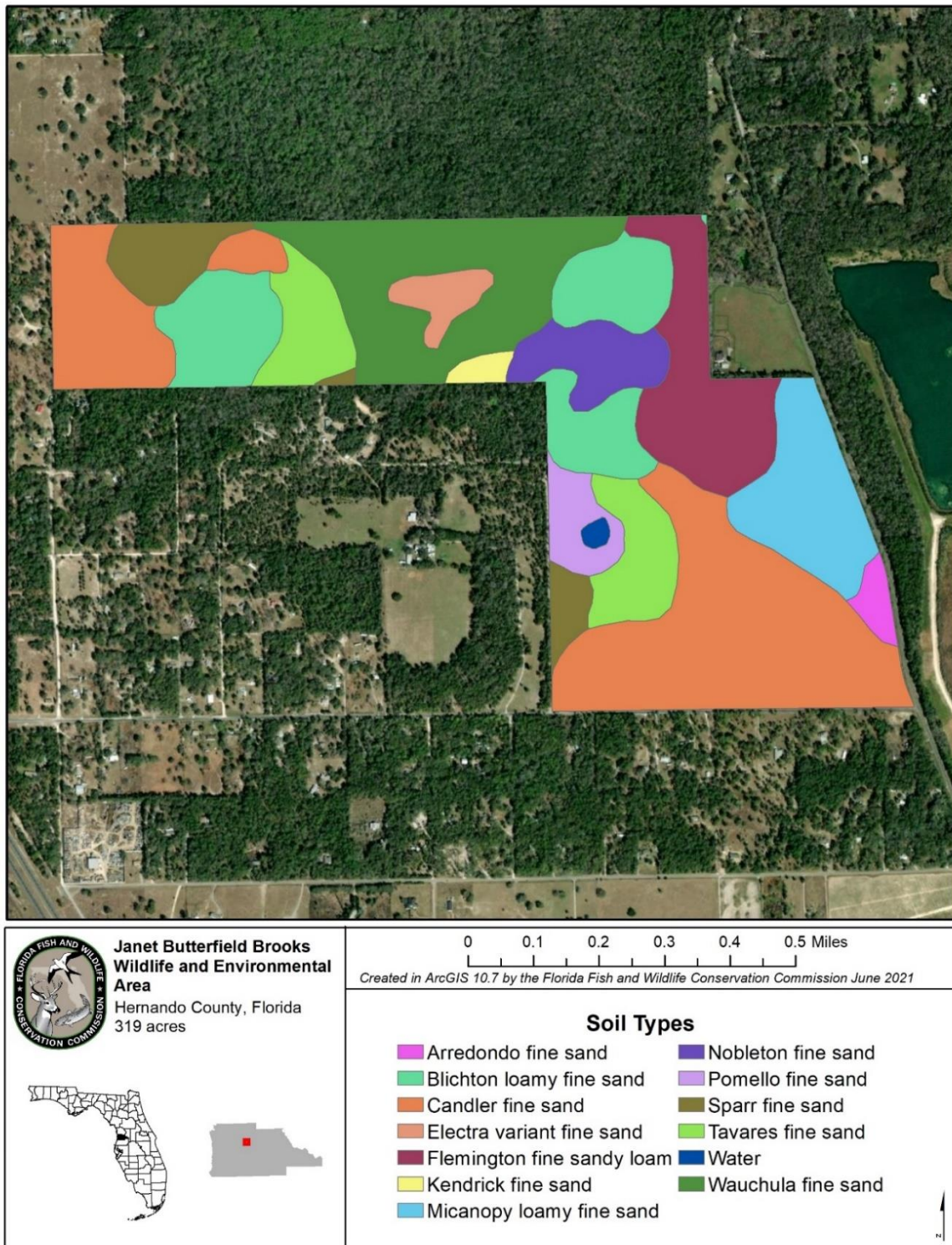


Figure 5. The JBBWEA Soil Types

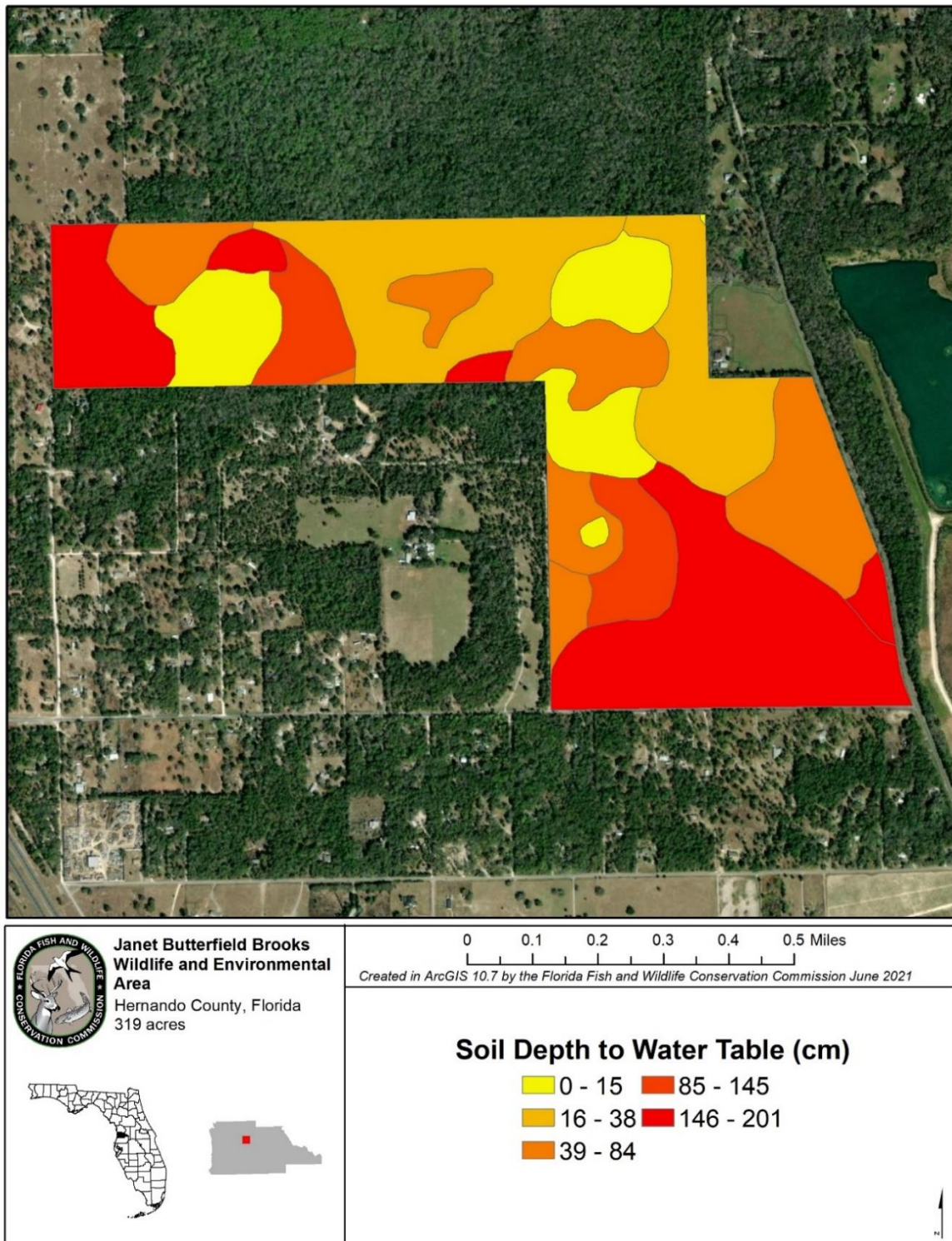


Figure 6. The JBBWEA Soil Depth to Water Table (cm)

found at the JBBWEA and makes up approximately 30% of the area. Another 15% of the area is comprised of Wauchula fine sand, as well as 14% Blichton loamy fine sand. The other less prominent fine sands on the area include Flemington fine sandy loam (10%), Tavares fine sand (8%), Micanopy loamy fine sand (8%), Sparr fine sand (5%), Nobleton fine sand (4%), Pomello fine sand (3%), Electra variant fine sand (2%), and Arredondo fine sand (1%).⁴

2.2 Vegetation

The FWC manages the lands in the WMA system using a proactive natural community-focused approach. As applied by the FWC, natural resource management starts by classifying lands into distinct natural communities. The FWC then conducts management activities to maintain or enhance each communities' structure and function. Land management that has a positive influence on natural community conditions benefits species occurring in these habitats.

Through the services of the Florida Natural Areas Inventory (FNAI), the FWC has mapped the current and historic natural and altered communities of the JBBWEA and documented eight natural and altered community types existing on the JBBWEA (Table 3, and Figures 7 and 8).

Additionally, plant species found on the JBBWEA have been documented and recorded by either FWC staff or contractors (Appendix 12.4). Currently, 12 rare plant species have been documented as occurring on the area (Table 4) and 16 non-native and invasive plant species (Table 5) (Sections 2.2.2 and 2.2.3).

Table 3. Natural and Altered Community Types on the JBBWEA

Community Type	GIS Acres	Percentage
Baygall	0.76	0.24%
Bottomland forest	4.35	1.36%
Depression marsh	1.30	0.41%
Mesic flatwoods	29.24	9.18%
Mesic hammock	57.51	18.06%
Road	10.81	3.39%
Sandhill	118.05	37.07%
Successional hardwood forest	17.02	5.35%
Upland hardwood forest	57.81	18.16%
Upland pine	21.57	6.77%

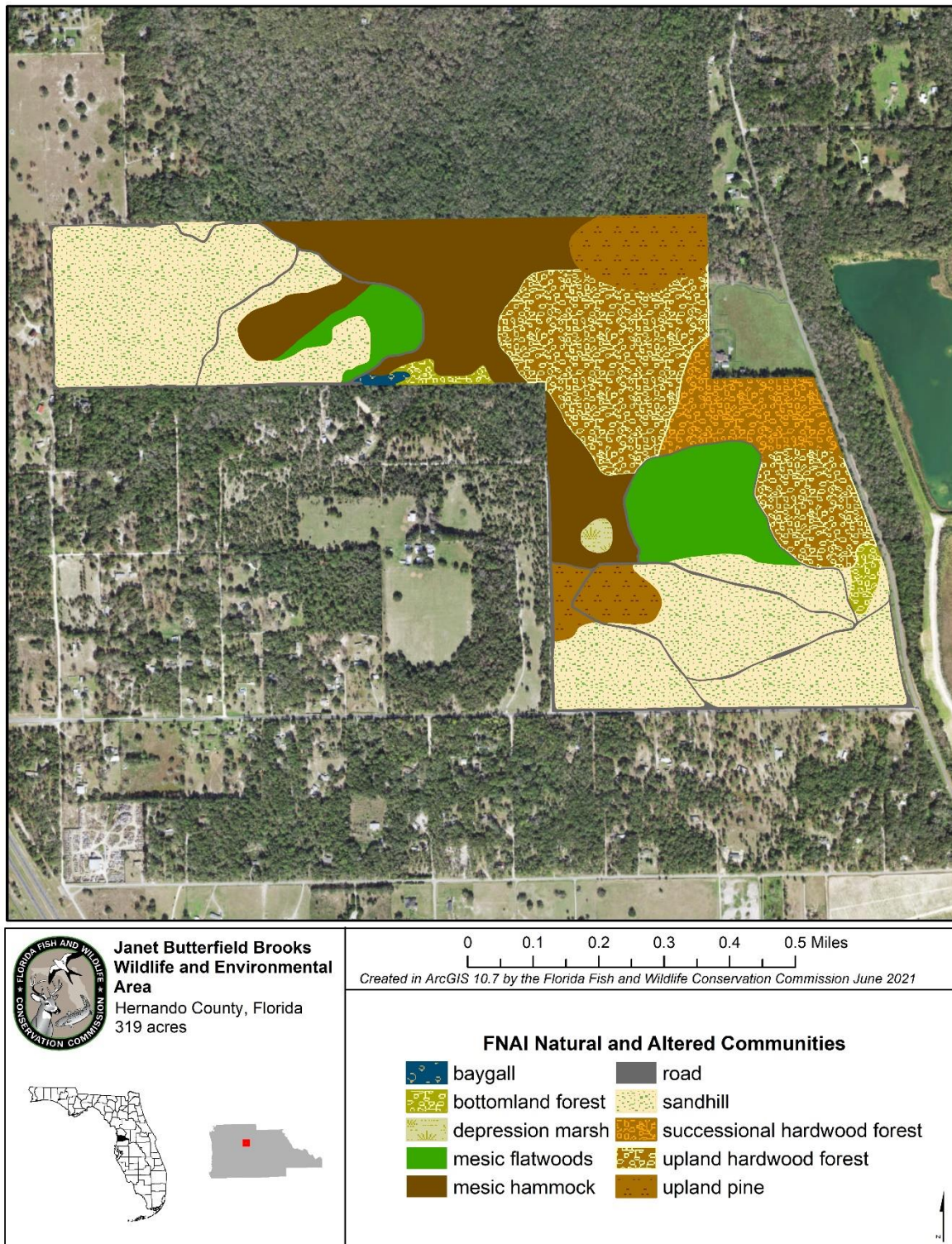


Figure 7. FNAI Natural and Altered Communities for the JBBWEA

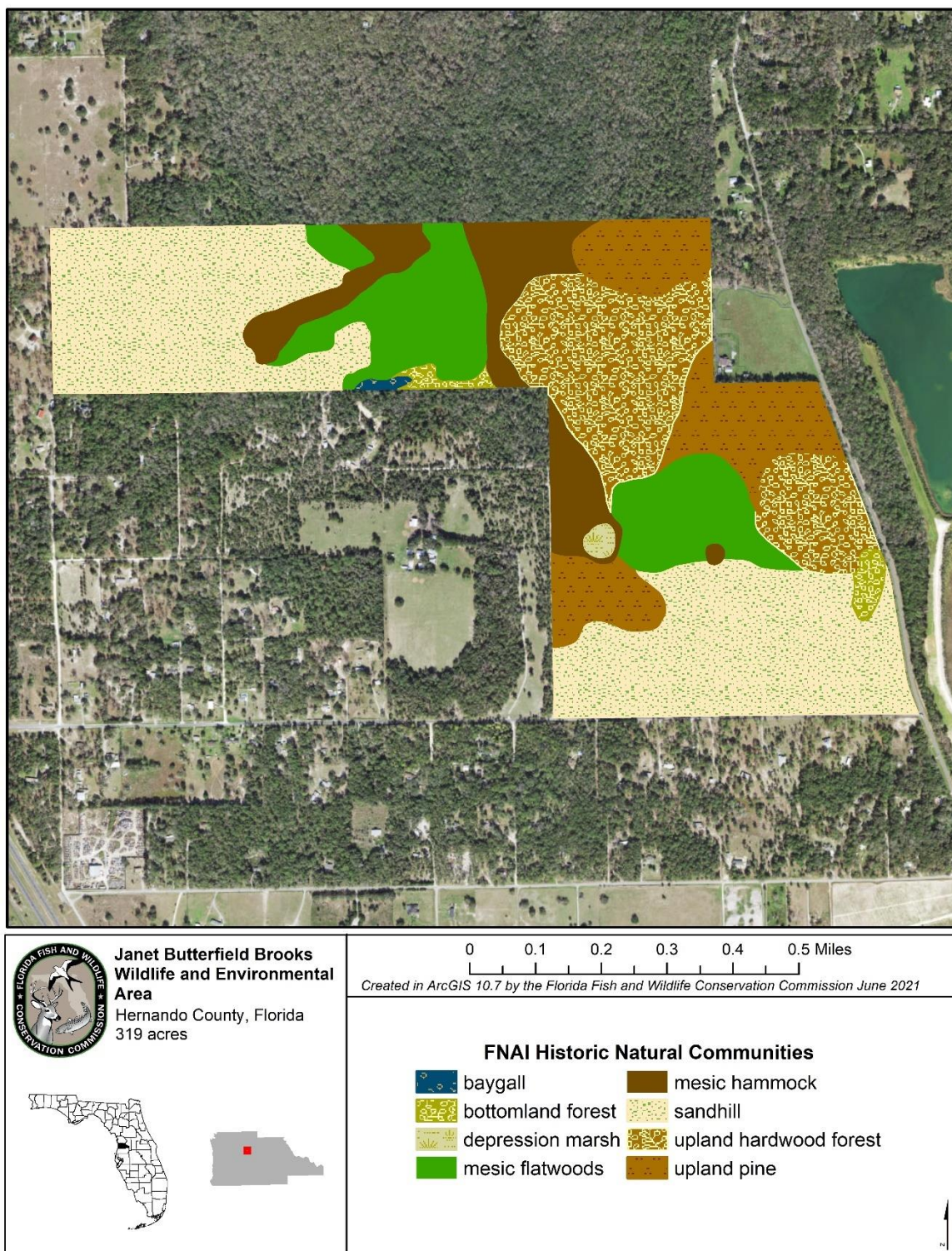


Figure 8. FNAI Historic Natural Communities for the JBBWEA

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
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2.2.1 FNAI Natural Community Descriptions

The primary natural communities found within the JBBWEA are sandhill, upland hardwood forest, and mesic hammock. The FNAI natural and altered community descriptions for the JBBWEA are as follows:

Baygall (0.76 acres)

Baygall is an evergreen, forested wetland of bay species with an open to dense tree canopy and is situated at the base of a slope or in a depression. This is a small community at the JBBWEA that occupies less than one acre. The canopy includes loblolly bay (*Gordonia lasianthus*) and sweetbay (*Magnolia virginiana*). Large gallberry (*Ilex glabra*) is the primary shrub. Herbs are typically absent or few in baygall and are represented here by two invasive species: old world climbing fern (*Lygodium microphyllum*) and Caesarweed (*Urena lobata*). These species are found along the forest perimeter where offsite disturbance is high.

Bottomland Forest (4.35 acres)

Bottomland forest is characterized as a low-lying, closed-canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and groundcover of ferns, herbs, and grasses. The JBBWEA supports two examples of this community with a combined acreage of just under five acres. This community occurs as a transition situation between hydric communities and surrounding forested uplands. The bottomland forest in the extreme southeastern portion of the property contains an unusual sinkhole-like community that appears to hold water year-round. This included community is less than half an acre and therefore was not mapped as a separate community.

Canopy constituents of bottomland forest at the WEA include sweetgum (*Liquidambar styraciflua*), swamp laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), and cabbage palm (*Sabal palmetto*). These same species, with the exception of live oak, are also found within the subcanopy layer. Shrubs include American hornbeam (*Carpinus caroliniana*), common buttonbush (*Cephalanthus occidentalis*), sweetgum, southern magnolia (*Magnolia grandiflora*), bluestem palmetto (*Sabal minor*), and cabbage palm. The sparse herb layer includes big carpetgrass (*Axonopus furcatus*), sedge (*Carex* sp.), beaked panicum (*Coleataenia anceps*), and non-native Caesarweed.

Depression Marsh (1.30 acres)

Depression marshes are typically small wetlands that are round in shape and are dominated by herbaceous species. These marshes often dry out during periods of low rainfall, and as a result, burn more frequently and completely than basin marshes. The substrate is usually sand with deepening peat toward the center. Because water depth in depression marshes usually increases toward the center, vegetation typically forms distinctive zones corresponding to water depth and permanence. Only one example of depression marsh exists at the JBBWEA. This community is currently surrounded entirely by mesic hammock. The surrounding hammock has been disturbed in the past, presumably by trespassers conducting illegal Native American

artifact excavations. This type of disturbance should be monitored and deterred to preserve the important cultural resources of this site.

The sparse canopy of younger mature trees includes sweetgum. Subcanopy trees are lacking. The moderately dense shrub stratum includes common buttonbush, sweetgum, wax myrtle (*Morella cerifera*), and loblolly pine (*Pinus taeda*). Terrestrial, emergent, and aquatic herbs present within this depression marsh are bluestem (*Andropogon* sp.), chalky bluestem (*Andropogon virginicus* var. *glaucus*), dogfennel (*Eupatorium capillifolium*), soft rush (*Juncus effusus* ssp. *solutus*), creeping primrosewillow (*Ludwigia repens*), primrosewillow (*Ludwigia* sp.), maidencane (*Panicum hemitomon*), beaksedge (*Rhynchospora* sp.), humped bladderwort (*Utricularia gibba*), and Virginia chain fern (*Woodwardia virginica*). Epiphytes are limited to Spanish moss (*Tillandsia usneoides*).

Mesic Flatwoods (29.24 acres)

Mesic flatwoods is characterized by an open canopy of tall pines and a dense, low ground layer of low shrubs, grasses, and forbs. This community currently comprises ~30 acres of the JBBWEA, a reduction of some 18 acres from its historic extent. Reduced fire frequency has allowed mesic hammock to advantageously expand into these former mesic flatwoods. Historically, mesic flatwoods gently graded into hammock as dictated by irregular natural fire events. In the future, fires from the surrounding sandhill community will be allowed to creep into and spread through this community if fuels and weather permit. Mechanical disturbances should not be necessary to manage this community. This community is naturally protected from fire by its topographic landscape position, its adjacency to the greater Annutteliga Hammock, and being partially isolated from fire by the seepage stream to the east.

The moderate to well-developed canopy includes mature longleaf pine and loblolly pine. The sparse subcanopy layer is limited to longleaf pine and live oak. The shrub stratum, by comparison, is quite dense, especially for species less than six feet in height where densities exceed 75 percent cover. Shrub species within mesic flatwoods are coastalplain staggerbush (*Lyonia fruticosa*), wax myrtle, wild pennyroyal (*Piloblephis rigida*), water oak (*Quercus nigra*), winged sumac (*Rhus copallinum*), and saw palmetto (*Serenoa repens*). The density of the shrub layer naturally reduces herb diversity and cover to small amounts of bluestem, wiregrass (*Aristida stricta*), candyroot (*Polygala nana*), bracken fern (*Pteridium aquilinum*), sweet goldenrod (*Solidago odora*), and the invasive cogongrass (*Imperata cylindrica*). Due to the landscape position of this community, the herbaceous groundcover was presumably always sparse. Vines are observed infrequently but include yellow jessamine (*Gelsemium sempervirens*) and earleaf greenbrier (*Smilax auriculata*).

Mesic Hammock (57.51 acres)

Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. Mesic Hammock is not a fire-maintained natural community, though prescribed fire in adjacent communities that is allowed to burn into mesic hammock may convert it to the

pyrogenic community they border. The mesic hammock and upland hardwood forest at the JBBWEA account for the southern terminus of the unique Annutteliga Hammock.

Canopy trees within the mesic hammock include red cedar (*Juniperus virginiana*), sweetgum, loblolly pine, sand live oak (*Quercus geminata*), swamp chestnut oak (*Quercus michauxii*), water oak, and live oak. Subcanopy species include sweetgum, coastalplain staggerbush, southern magnolia, sand live oak, swamp laurel oak, water oak, and live oak. Shrubs are quite dense throughout the JBBWEA's mesic hammocks and associated species are gallberry (*Ilex glabra*), sweetgum, coastalplain staggerbush, fetterbush (*Lyonia lucida*), southern magnolia, sand live oak, water oak, live oak, saw palmetto, sparkleberry (*Vaccinium arboreum*), southern arrowwood (*Viburnum dentatum*), and Walter's viburnum (*Viburnum obovatum*). Neither epiphytes nor vines are a common component although Spanish moss and cat greenbrier (*Smilax glauca*) are present, respectively. The herbaceous layer of mesic hammocks is often sparse or nonexistent, as at the JBBWEA. The size, species composition, and amount of variation within the mesic hammock community at the JBBWEA and in the greater Annutteliga Hammock region is unique to the state. Here many plants find safe harbor either at their northern or southern range limits, depending upon species. Often times the distinction between mesic hammock and upland hardwood forest becomes inseparable. For this site, these two communities often form a unique mosaic forest.

Sandhill (118.05 acres)

Sandhill is characterized by a canopy of widely spaced pine trees, a sparse midstory of deciduous oaks, and a moderate to dense groundcover of grasses, herbs, and low shrubs occurring over a rolling topography with deep, well drained sands.

Sandhill occurs on the southernmost and westernmost portions of the JBBWEA. Portions of these sandhills that are receiving regular fire represent high quality examples of this natural community. The primary canopy tree is longleaf pine, with swamp laurel oak and water oak co-occurring in more fire excluded sections of this community. Common associates within the subcanopy are longleaf pine, Carolina laurelcherry (*Prunus caroliniana*), turkey oak (*Quercus laevis*), swamp laurel oak, water oak, live oak, and cabbage palm. These same species also occur in the shrub layer and are complemented by gopher apple (*Geobalanus oblongifolius*), coastalplain staggerbush, wax myrtle, pricklypear (*Opuntia humifusa*), bluejack oak (*Quercus incana*), sand post oak (*Quercus margarettae*), winged sumac, saw palmetto, Florida bully (*Sideroxylon reclinatum*), shiny blueberry (*Vaccinium myrsinites*), southern arrowwood, Walter's viburnum, Adam's needle (*Yucca filamentosa*), and Hercules' club (*Zanthoxylum clava-herculis*). Herbs are correspondingly more common in well-burned areas of sandhill and are represented by Elliott's bluestem (*Andropogon gyrans*), arrowfeather threeawn (*Aristida purpurascens*), wiregrass, Florida Indian-plantain (*Arnoglossum floridanum*), Florida greeneyes (*Berlandiera subacaulis*), coastalplain chaffhead (*Carphephorus corymbosus*), Maryland goldenaster (*Chrysopsis mariana*), summer farewell (*Dalea pinnata*), tall elephantsfoot (*Elephantopus elatus*), centipede grass (*Eremochloa ophiuroides*), dogtongue wild buckwheat (*Eriogonum tomentosum*), slender flattop goldenrod (*Euthamia caroliniana*), Carolina frostweed

(*Crocanthemum carolinianum*), roundleaf bluet (*Houstonia procumbens*), blazing star (*Liatris* sp.), narrowleaf silkgrass (*Pityopsis graminifolia*), bracken fern, blackroot (*Pterocaulon pycnostachyum*), lopsided indiagrass (*Sorghastrum secundum*), forked bluecurls (*Trichostema dichotomum*), common blue violet (*Viola sororia*), and the invasive cogongrass. Cogongrass is most common along the southern boundary/road interface. Wiregrass is common at this site and creates a continuous fine fuel layer across the forest floor of this community. Vines are not a significant sandhill component but do include earleaf greenbrier. This community also harbors a very high-density population of gopher tortoises. Many areas of sandhill at the JBBWEA are currently in reference quality condition.

Upland Hardwood Forest (57.81 acres)

Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. This community typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover. The moisture retentive properties of clayey soils and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, helping to maintain high relative humidity within the community.

The diverse and well-developed canopy layer includes pignut hickory (*Carya glabra*), sugarberry (*Celtis laevigata*), sweetgum, southern magnolia, eastern hophornbeam (*Ostrya virginiana*), loblolly pine, Carolina laurelcherry, swamp laurel oak, swamp chestnut oak, water oak, and live oak. These species also occur in the subcanopy together with Florida maple (*Acer saccharum* ssp. *floridanum*), red cedar, and cabbage palm. Among the shade tolerant shrubs are Florida maple, American hornbeam, roughleaf dogwood (*Cornus asperifolia*), eastern hophornbeam, wild coffee (*Psychotria nervosa*), shortleaf wild coffee (*Psychotria sulzneri*), swamp laurel oak, water oak, needle palm (*Rhapidophyllum hystrix*), bluestem palmetto, cabbage palm, Florida bully, bully (*Sideroxylon* sp.), winged elm (*Ulmus alata*), sparkleberry, and non-native sour orange (*Citrus x aurantium*). The herbaceous layer, by contrast, is sparse but includes ebony spleenwort (*Asplenium platyneuron*), woodoats (*Chasmanthium* sp.), bedstraw (*Galium* sp.), partridgeberry (*Mitchella repens*), sarsaparilla vine (*Smilax pumila*), white crownbeard (*Verbesina virginica*), and common blue violet. Epiphytes present within the upland hardwood forest are resurrection fern (*Pleopeltis michauxiana*), Bartram's air-plant (*Tillandsia bartramii*), and Spanish moss. There is an abundance of vines, including yellow jessamine, trumpet honeysuckle (*Lonicera sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), earleaf greenbrier, saw greenbrier (*Smilax bona-nox*), cat greenbrier, lanceleaf greenbrier (*Smilax smallii*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*). Non-native plant species in this community occur infrequently and include mimosa (*Albizia julibrissin*), coral ardisia (*Ardisia crenata*), camphor tree (*Cinnamomum camphora*), cogongrass, and skunk vine (*Paederia foetida*). It should be noted that wild coffee and shortleaf wild coffee grow as a dominant groundcover cover species in this community and typically do not exceed one foot in height. This occurrence is approaching the northern limit of both species' natural range. This community reaches its southern limit within the state at this location. Many of the

northern upland hardwood forest species begin transitioning here to vegetation more representative of a hammock community. Both of these communities occur at the JBBWEA and within the greater Annutteliga Hammock region in a complex mosaic where the distinction between the two is often indistinct.

Upland Pine (21.57 acres)

Upland pine is a woodland of widely spaced pines with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. Though typically present as low shrubs and occasional midstory trees, hardwood species can form a dense midstory (subcanopy and tall shrub layers) in areas that have experienced a lack of fire for many years. Fire frequency is closely tied to herb diversity and fire excluded upland pine typically has a sparse herb layer.

This community supports a canopy of longleaf pine with included pignut hickory, sweetgum, southern magnolia, swamp laurel oak, swamp chestnut oak, and live oak. A similar suite of species exists in the subcanopy. Common shrub species are American hornbeam, roughleaf dogwood, American strawberrybush (*Euonymus americanus*), sweetgum, wild coffee, cabbage palm, saw palmetto, sparkleberry, and southern arrowwood. Wiregrass is persisting in the herbaceous layer with bedstraw, partridgeberry, and bracken fern. Epiphytes are limited to Spanish moss. Among the numerous vining species are yellow jessamine, trumpet honeysuckle, invasive skunk vine, cat greenbrier, sarsaparilla vine, lanceleaf greenbrier, and eastern poison ivy. Fire has been excluded from this community long enough to allow upland hardwood species to expand into this habitat and can make determining the historic vegetation types difficult. The presence of longleaf pine and/or wiregrass was used to determine the extent of the upland pine community at the JBBWEA. These species would have needed open conditions with high amounts of light initially to become established. These conditions typically do not occur within this community at the present time.

Altered Communities

Road (10.81 acres)

Roads are areas that are paved or unpaved, maintained by the FWC, and used for vehicular traffic. This includes two-tracks used regularly by area staff to access and manage the WEA regardless of public accessibility.

Successional Hardwood Forest (17.02 acres)

Successional hardwood forest is a closed-canopied forest dominated by fast growing hardwoods such as laurel oak (*Quercus hemisphaerica*), water oak, and/or sweetgum, often with remnant pines. These forests are either invaded natural habitat (i.e., mesic flatwoods, sandhill, upland pine, upland mixed woodland) due to lengthy fire-suppression or old fields that have succeeded to forest. The subcanopy and shrub layers of these forests are often dense and dominated by smaller individuals of the canopy species. Successional hardwood forests can contain remnant species of the former natural community such as turkey oak, saw palmetto,

gallberry, and infrequently wiregrass. Additionally, species such as beautyberry (*Callicarpa americana*), muscadine, and sparkleberry are common. Restoration of these forests includes mechanical tree removal and reintroduction of fire. Where characteristic herbaceous species (e.g., wiregrass) have been lost, reintroduction via seed or plants may be necessary to restore natural species composition and community function.

2.2.2 Imperiled Plants

For the purposes of this Management Plan, the term “imperiled species” as it relates to plants refers to plant species that DACS or the USFWS designated as endangered or threatened. This designation is commonly known as “listed species”, and all names and status determinations were derived from Florida’s Regulated Plant Index Rule (5B-40.0055 F.A.C.) that is maintained by DACS.

FWC biologists, alongside FNAI, conducted a rare plant survey in 2013-2014 fiscal year on the JBBWEA and identified 12 imperiled plant species, of which five are state endangered, four are state threatened, and two are federally endangered or threatened (Table 4). The protections afforded plants that occur on conservation lands, in conjunction with management actions including invasive plant removal and prescribed fire, will continue to maintain and enhance habitat for these and other rare plants. As such, these species should persist under planned management on the JBBWEA.

In addition to the imperiled plants, three plants State listed as commercially exploited, are known to occur on the JBBWEA (Table 4). The FWC will continue to monitor the known occurrences of these species and report any illegal collection to the appropriate authorities.

Table 4. Imperiled Plant Species Observed at the JBBWEA

Scientific Name	Common Name	Status
<i>Clitoria fragrans</i>	Pigeon wings	SE, FT
<i>Epidendrum conopseum</i>	Green-fly orchid	CE
<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	Scrub buckwheat	SE, FT
<i>Garberia heterophylla</i>	Garberia	ST
<i>Malaxis unifolia</i>	Green adder’s-mouth orchid	SE
<i>Matelea floridana</i>	Florida spiny-pod	SE
<i>Matelea gonocarpos</i>	Angle pod	ST
<i>Matelea pubiflora</i>	Sandhill spiny-pod	SE
<i>Osmunda cinnamomea</i>	Cinnamon fern	CE
<i>Pycnanthemum floridanum</i>	Florida mountain-mint	ST
<i>Rhapidophyllum hystrix</i>	Needle palm	CE
<i>Zephyranthes atamasca</i>	Rainlily	ST

Acronym	Status
CE	Commercially Exploited
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

It is possible other imperiled species occur on the JBBWEA, and, if encountered, staff will document these occurrences. Florida's imperiled species are adapted to natural communities and should continue to benefit from the FWC's ongoing and planned management to maintain and enhance natural community structure and function. Under the FWC's management, these species have a higher probability of persistence than in the absence of this management. However, while habitat management provides overall benefits to a host of species reliant upon these natural communities, imperiled species sometimes require specific attention.

Angle Pod (*Matelea gonocarpus*) - Angle pod is an herbaceous, perennial vine and like other members of the *Matelea* genus, its leaves and stems produce a milky sap when cut or injured. This species prefers moist well-drained, sunny, or semi-shaded areas in alluvial forests, basin swamps, baygalls, blackwater streams, bottomland forests, hydric hammocks, maritime hammocks, mesic hammocks, shell mounds, upland hardwood forests, and upland pine communities. Angle pod may occur along wooded roadsides, and on the edges of sinkholes. Even though angle pod occurs in upland pine communities which require frequent fire (2-3 year), it is sensitive to fire, surviving in fire shadows. Managers work to vary the seasonality and severity of prescribed burns and allow prescribed fires from adjacent fire-maintained communities to naturally burn into and naturally extinguish in its' preferred communities. Since *Matelea* species are difficult to distinguish without flowers or fruits, flowering or fruiting is the best time for conducting surveys or verifying species identity. Angle pod flowers from June to August, and fruiting occurs from August to October. Staff may be able to distinguish this species from other *Matelea* species by its yellow or greenish-brown petals without a network of veins, and its lance shaped fruits that are smooth. Altered fire regimes, fire suppression, and hydrologic disturbances negatively affect this species; therefore, staff will work to avoid constructing fire breaks in ecotones, restore ecotones by removing existing roads and fire breaks, and maintain and restore the natural hydrology.

Cinnamon Fern (*Osmunda cinnamomea*) - Cinnamon fern, state commercially exploited, is a large terrestrial fern that occurs in many natural communities in Florida, both wet and dry. While this species grows in many communities that the FWC typically does not actively manage, if conducting management activities near known occurrences, efforts are made to protect known occurrences from chemical and mechanical treatments. This species does not require fire. However, some of the natural communities in which cinnamon fern occurs are fire adapted, and this fern resprouts after fire. Illegal collecting and hydrological disturbances negatively affect this species; therefore, staff protect areas with known occurrences and maintain and restore the

natural hydrology where practicable. As fronds are present year-round, cinnamon fern can be identified throughout the year.

Florida Mountain-Mint (*Pycnanthemum floridanum*) - Florida mountain-mint is a shrub-like perennial herb that prefers open to partial shaded areas in sandhills, upland mixed woodlands, upland pines, mesic hammocks, and the ecotone between upland hardwood forests and pinelands. This species also occurs in mesic and wet flatwoods, and along roadside ditches. It is unclear if Florida mountain-mint requires fire for its survival. However, most of this species' preferred habitats require fire, so staff apply prescribed fire to ensure species diversity, create mosaic habitats, and allow prescribed fire from adjacent communities to burn into and extinguish naturally in ecotones when feasible. Hydrological disturbances and fire suppression negatively affect this species' preferred habitats; therefore, staff should maintain and restore the natural hydrology where practicable, and prescribed fire should occur with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse herbaceous cover. Flowering, which occurs from July to August, is the best time for conducting surveys or verifying species identity.

Florida Spiny Pod (*Matelea floridana*) - Florida spiny pod is an herbaceous, perennial vine and like other members of the *Matelea* genus, their leaves and stems produce a milky sap when cut or injured. This species prefers to grow and flower in moist well-drained soils and sunny or semi-shaded areas in mesic hammocks, upland mixed woodlands, and upland pine communities. However, Florida spiny pod is also able to grow and flower in full shade. Florida spiny pod requires a fire regime that includes frequent (1-3 year) fire to maintain and promote the open grassy habitats that it favors, with most fire occurring during the growing season. Since *Matelea* species are difficult to distinguish without flowers or fruits, flowering or fruiting is the best time for conducting surveys or verifying species identity. Florida spiny pod flowers from May to July, and fruiting occurs from August to October. Staff may be able to distinguish this species from other *Matelea* species by its black, cup-shaped, appendaged corona, maroon petals, and lance shaped fruits that are covered in fleshy spines. Altered fire regimes, fire suppression, and hydrologic disturbances negatively affect this species; therefore, avoid constructing fire breaks in ecotones, restore ecotones by removing existing roads and fire breaks, and maintain and restore the natural hydrology.

Garberia (*Garberia heterophylla*) - Garberia is a slow-growing perennial evergreen shrub that prefers partial to full sun and well-drained sandy soils in coastal strand, dry prairie, mesic flatwoods, sandhill, scrub, scrubby flatwoods, and xeric hammock. This species requires fire during the growing season that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. Garberia is well adapted to growing season fires by vigorously re-sprouting, strong seedling establishment, and producing flowers five months after exposure to fire. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Flowering, which occurs from September to November, is the best time for conducting surveys or verifying species identity.

Green Adder's-mouth Orchid (*Malaxis unifolia*) - Green adder's-mouth orchid is a single leaf orchid that prefers alluvial forests, mesic flatwoods, slope forests, shrub bogs, and upland hardwood forests. This species does not require fire, and it typically prefers non-pyrogenic habitats. Excepting mesic flatwoods that burn often, most of its preferred habitats occasionally burn during periods of drought so staff should allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting and habitat alteration negatively affect this species; therefore, protect known occurrences from collection and alteration. Flowering, which occurs from February to May (peaking in April), is the best time for conducting surveys or verifying species identity.

Green-fly Orchid (*Epidendrum conopseum*) – Green-fly orchid is an epiphytic orchid that grows on many different trees, and prefers moist to wet areas in basin swamps, bottomland forests, depression marshes, maritime hammocks, sinkholes, and upland hardwood forests. It may occur in dome swamps, floodplain swamps, hydric hammocks, and mesic hammocks. This species does not require fire, but staff should allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting and hydrological disturbances negatively affect this species; therefore, protect areas with known occurrences, and staff should maintain and restore the natural hydrology where practicable. Flowering, which occurs from June to October, or fruiting, which occurs from September to January, is the best time for conducting surveys or verifying species identity.

Needle Palm (*Rhapidophyllum hystrix*) – Needle palm is a small shrubby palm that prefers basin swamps, bottomland forests, floodplain swamps, hydric hammocks, mesic hammocks, sinkholes, slope forests, and upland hardwoods forests. Even though this species is not fire tolerant, staff should allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting and habitat alteration negatively affect this species; therefore, protect known occurrences and make sure not to negatively influence areas with known occurrences. Surveys or species identification may occur throughout the year for this species.

Pigeon Wings (*Clitoria fragrans*) - Pigeon wings is a long-lived, erect, perennial herb that prefers open well-drained sandy soils in sandhill, scrub, and scrubby flatwoods. This species is well adapted to growing season fire that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. It responds positively to fire by vigorously flowering and re-sprouting, and seedling establishment increases after a fire. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create the openings this species prefers. The best time for conducting surveys or verifying plant identity is during flowering, which occurs from May to June (open, cross-pollinated flowers) and from early July to early September (non-opening, self-pollinating flowers).

Rainlily (*Zephyranthes atamasca*) - Rainlily is a perennial herb that prefers the closed canopied bottomland forests, hydric hammocks, mesic hammocks, upland hardwood forests, and upland mixed forests. This species does not require fire; however, it vigorously flowers following fires. Hydrological disturbances, illegal collecting, and fire suppression in flatwoods negatively affect this species; therefore, staff should maintain and restore the natural hydrology where practicable, protect areas with known occurrences, and apply prescribed fire conducted within flatwoods with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse herbaceous cover. Flowering, which occurs from January to May, is the best time for conducting surveys or verifying species identity.

Sandhill Spiny Pod (*Matelea pubiflora*) - Sandhill spiny pod is an herbaceous, perennial vine and like other members of the *Matelea* genus, their leaves and stems produce a milky sap when cut or injured. This species prefers to grow and flower in xeric well-drained soils in sunny or semi-shaded areas in sandhill and scrub communities. Sandhill spiny pod requires a fire regime that includes frequent fire that reduces the encroachment of woody species and creates open areas that allow sunlight to reach the ground. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes, varying by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create openings this species prefers. Sandhill spiny pod is identifiable all year by its unique trailing habit, and the best time for conducting flower surveys is from April to June and fruiting surveys is from August to October.

Scrub Buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*) – Scrub buckwheat is a long-lived, non-clonal herbaceous perennial that is endemic to Florida. This species prefers open areas in ecotones between sandhill, oak-hickory scrub, and turkey oak barrens. Scrub buckwheat also occurs in sandhill and scrub communities. This species requires fire to maintain and create open areas. Fire stimulates scrub buckwheat's flowering and seedling establishment. Although intense fires may kill some scrub buckwheat plants, this species has a high (>90%) resprouting rate and most plants will produce flowers within the 1st year post-fire. Scrub buckwheat will steadily decline after a fire as open spaces decline. Altered fire regimes and fire suppression negatively affect this species, therefore, apply site-specific fire regimes. Prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create openings this species prefers. Flowering, which occurs from May to October, is the best time for conducting surveys or verifying species identity. However, individual plants may flower, following fire, at various times of year.

2.2.3 Invasive and Non-native Plants

FWC biologists and contractors have documented 16 non-native and invasive plant species (Table 5) on the JBBWEA. Species that are considered invasive are species that (a) are nonnative to a specified geographic area; (b) were introduced by humans (intentionally or unintentionally); and (c) do or can cause environmental, economic, or human harm. The FWC

relies on the Florida Invasive Species Council (FISC) for the categorization of invasive plant species.

Table 5. Non-native and Invasive Plant Species Observed on the JBBWEA

Scientific Name	Common Name	FISC Category
<i>Albizia julibrissin</i>	Mimosa	I
<i>Ardisia crenata</i>	Coral ardisia, scratchthroat	I
<i>Cinnamomum camphora</i>	Camphor tree	I
<i>Citrus x aurantium</i>	Sour orange	
<i>Crotalaria lanceolata</i>	Lanceleaf rattlebox	
<i>Crotalaria spectabilis</i>	Showy rattlebox	
<i>Dioscorea bulbifera</i>	Air-potato	I
<i>Eremochloa ophiuroides</i>	Centipede grass	
<i>Imperata cylindrica</i>	Cogongrass	I
<i>Lygodium microphyllum</i>	Old world climbing fern	I
<i>Melia azedarach</i>	Chinaberry	II
<i>Melinis repens</i>	Natalgrass	I
<i>Paederia foetida</i>	Skunk vine	I
<i>Paspalum notatum</i>	Bahiagrass	
<i>Urena lobata</i>	Caesarweed	I
<i>Youngia japonica</i>	Oriental false hawksbeard	

2.3 Fish and Wildlife Resources

As described above, the JBBWEA has a variety of natural communities and habitat types that support a wide array of imperiled and more common wildlife species. Active wildlife management practices contribute to the conservation of wildlife species on the area. The JBBWEA's mesic hammock and flatwoods, sandhill, and other natural communities provide critical habitat for resident and migratory wildlife. The FWC maintains an inventory of fauna occurring on the JBBWEA listed in Appendix 12.4, including mammals, birds, reptiles, amphibians, and invertebrates.

2.3.1 Imperiled Fish and Wildlife

For the purposes of this Management Plan, the term "Imperiled Species" refers to plant and animal species that are designated as Endangered, Threatened, or a Species of Special Concern by the FWC, or that are designated as Endangered or Threatened by the USFWS. This designation is also commonly known as "listed species." Table 7 outlines all imperiled fish and wildlife that have been observed on the JBBWEA.

Table 6. Imperiled Wildlife Species occurring on the JBBWEA

Common Name	Scientific Name	Status
Gopher tortoise	<i>Gopherus polyphemus</i>	ST
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST

Acronym	Status
FT	Federally Threatened
ST	State Threatened

At its November, 2016, Commission meeting, the FWC approved Florida's Imperiled Species Management Plan (<http://myfwc.com/wildlifehabitats/imperiled/plan/>), which included changes to the listing status for many wildlife species. Subsequent rule changes (68A-27.003 and 68A-27.005 F.A.C.) came into effect since the approval of the Florida's Imperiled Species Management Plan and have been incorporated into this Management Plan. All federally listed species that occur in Florida are included in Florida's Endangered and Threatened Species list (<https://myfwc.com/media/1945/threatened-endangered-species.pdf>) as federally-designated Endangered or federally-designated Threatened. Species that are not federally listed, but which have been identified by the FWC as being at some level of risk of extinction, are listed as state-designated Threatened. Additionally, the FWC continues to maintain a separate Species of Special Concern category. This category was reviewed as part of Florida's Imperiled Species Management Plan, with the majority of the species previously contained within the category either being removed from Florida's Endangered and Threatened Species list due to conservation success, or having their status changed to state-designated Threatened.

2.3.2 Invasive and Non-Native Wildlife Species

In addition to the species listed in Appendix 12.4, one invasive and non-native wildlife species has been documented on the JBBWEA, the wild hog (*sus scrofa*). The FWC will continue to document any occurrences of invasive and non-native species found on the JBBWEA. More information on monitoring and management of invasive and non-native wildlife can be found in Section 5 and Section 6.

2.3.3 FNAI Element Occurrences

A diversity of wildlife species is found on the JBBWEA. The FNAI element occurrence records include two occurrences of wildlife species in the vicinity of the JBBWEA. The FWC uses the FNAI Element Occurrences database to assist in identifying and recording resources on FWC managed areas. This database also aided staff in the development of the species tables found in Appendix 12.7. As defined by FNAI, an "element" is any exemplary or rare component of the natural environment, such as a species, natural community, bird colony, spring, sinkhole, cave, or other ecological feature. An element occurrence is an area of land and/or water in which a species or natural community is, or was, present. FNAI assigns a rank to each "element" occurrence. This ranking system was developed by NatureServe and the Natural Heritage

Program Network which assigns a global rank (element's worldwide status) or state rank (status of element in Florida). The FNAI ranking system and definitions are located on the following website: https://www.fnai.org/PDFs/Rank_and_Status_Explanation.pdf. Appendix 12.7 contains a letter from FNAI authorizing the FWC to utilize their database for the purpose of identifying known plant and animal resources.

2.4 Forest Resources

Timber resources include some natural communities that may eventually need thinning to improve habitat condition. Thinning of the forest over-story, hydrological restoration, and reintroduction of prescribed burning are important factors in enhancing natural communities and improving wildlife habitats in these areas. Pine dominated upland communities planted with off-site pines may be reforested over time, with longleaf pine or other site appropriate species. Degraded or disturbed bottomland hardwood sites will be allowed to reforest naturally with native oaks, hardwoods, and other appropriate native species.

2.5 Water Resources

No hydrological resources exist on the JBBWEA (Figure 9). However, extensive flooding from heavy rains occurs in low-lying areas on the JBBWEA. A small depression marsh is seasonally inundated with water and seepage streams occur at two locations within the mesic hammock vegetative community. During the last management period, a hydrological assessment/study was proposed to identify potential hydrology restoration needs in the floodplain. Additionally, the JBBWEA intersects with the boundary for the Chassahowitzka Wildlife Refuge Outstanding Florida Waters. The JBBWEA is not within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation.

2.6 Beaches and Dunes

There are no beaches or dunes within the boundary or immediate vicinity of the JBBWEA.

2.7 Mineral Resources

The only geologic unit present at the JBBWEA is Miocene. The major mineral resources of Hernando County which have been, or potentially could be, economically important are limestone and sand. There are currently no known mineral resources within the boundary of the JBBWEA.

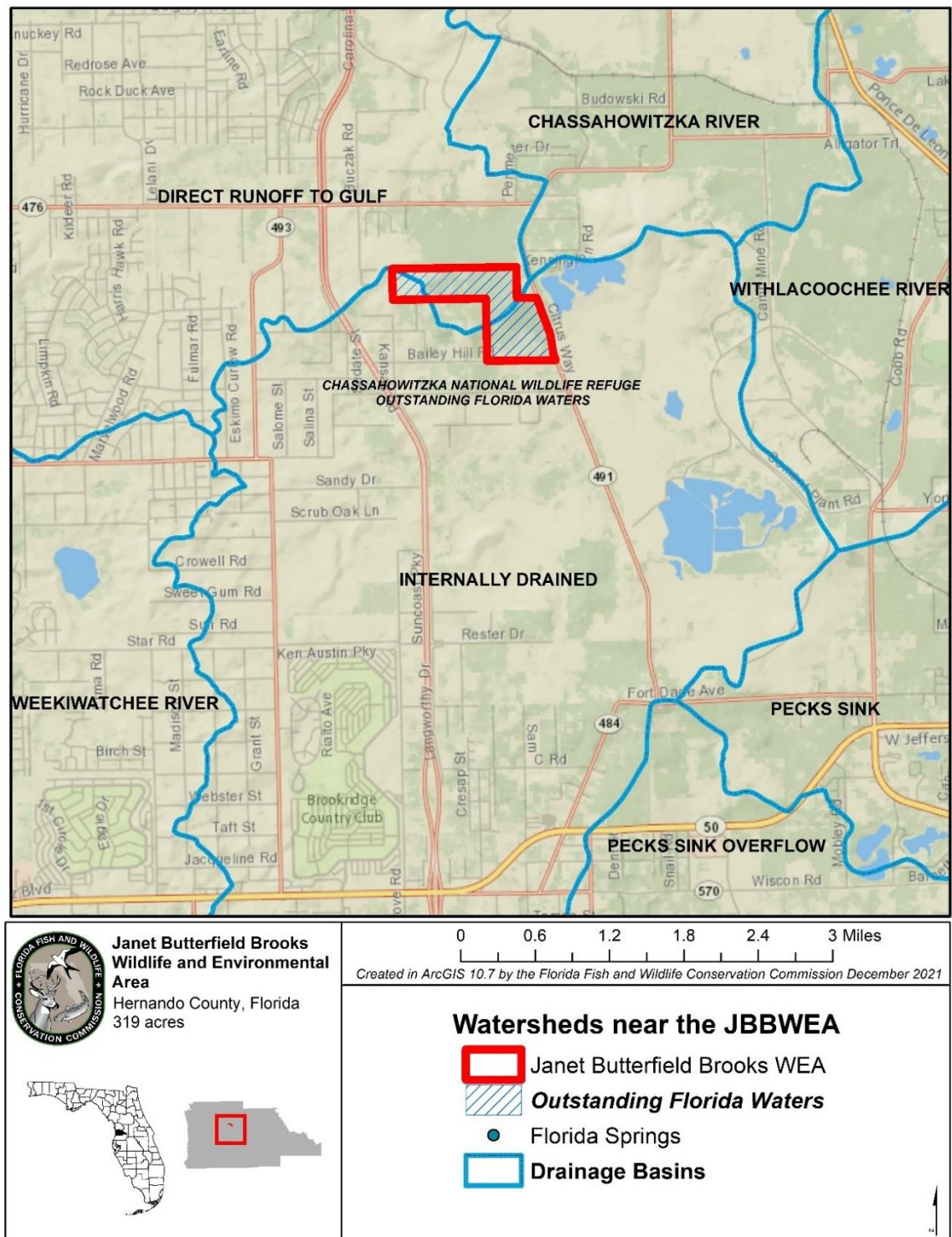


Figure 9. The JBBWEA Water Resources

2.8 Cultural Resources

The Florida Master Site File (FMSF), maintained by the Florida Department of State's Division of Historical Resources (DHR), is the State of Florida's official inventory of cultural resources, archaeological and historical survey reports, and other manuscripts relevant to historic preservation in Florida. Categories of resources recorded at the FMSF include archaeological sites, historical structures, historical cemeteries, historical bridges, and historical resource groups (comprised of historic districts, landscapes, and linear features).

To date, the FMSF indicates that two previous cultural resource surveys have been conducted within the vicinity of the JBBWEA. One archaeological site, the Bailey Hill Homestead (FMSF #HE00334), has been recorded on the JBBWEA. The Bailey Hill Homestead is 124 acres in size but only a portion of the site intersects with the JBBWEA. The FWC will consult with the DHR to determine the necessary actions for resource inventory and preservation. All identification, assessment, and preservation strategies will be developed in consultation with the DHR.

2.9 Scenic Resources

Scenic resources of the JBBWEA include the views of pinelands and hardwood forests, among others. Complete descriptions of the natural communities found on the JBBWEA can be found in Section **Error! Reference source not found..1** of this Management Plan.

3 Uses of the Property

3.1 Previous Use and Development

The first Paleoindian inhabitants of Florida arrived at least 13,000 years ago. While these and subsequent native inhabitants of Florida were largely fisher-gatherer-hunters, subsequent cultures began to produce domesticated crops, such as maize, beans, squash, and other crops for a growing and increasingly sedentary population. For thousands of years before Europeans arrived, Native peoples thrived in South Florida by hunting, fishing, and gathering of wild plants and shellfish. The decimation of these cultures began shortly after the arrival of Europeans, either by the introduction of disease—to which the Native Americans had no resistance—or through outright conflict. In modern day Florida, the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida are federally recognized tribes, the Muscogee Nation of Florida is state recognized, and the Muscogee, along with several other tribes, have active petitions for federal recognition.

By the time Europeans arrived, the landscape of Florida had been shaped and modified by Native Americans. Along with novel agricultural practices, the Spanish, and later, the British and other settlers, brought cattle, hogs, horses, and other livestock to Florida. Social programs such as British agricultural land grants led to the proliferation of intensive agriculture throughout the state.

Agricultural practices such as rangeland cattle grazing quickly became crucial to the economy of the state, and Central Florida in particular, from the 16th through the 20th century. The influx of settlers and resulting intensification of agricultural practices led to additional landscape alteration, continuing a trend that had been occurring for centuries. This alteration was quickly outpaced by Florida's boom-and-bust economies of the 19th and 20th centuries. The ensuing widespread environmental modification would permanently transform the cultural and ecological landscape of the state.

Historical development associated with the early settlement of the JBBWEA is similar to other early settlements in west-central Florida. Exploitation of timber resources and agricultural development were the main factors that opened the area to settlers. Early in the 20th century, lumbering and naval stores industries followed the railroad south. At first, large stands of pine were milled for turpentine, then the larger saw timber was cut, and finally the pulpwood was removed. However, prior to state acquisition, timber harvesting appears to have been the primary commercial use of this site with no apparent evidence of alteration of the land for more developed agricultural uses.

Mrs. Janet Butterfield Brooks began acquiring the land which is now the JBBWEA when she moved to Hernando County in 1944. She lived with her husband, John C. Brooks, in a one-story pioneer farmhouse on property adjoining the area and for many years protected the land from logging and mining operations. In December of 1974, Mrs. Brooks chose to donate the 319 acres of land to the Florida Chapter of TNC due to their commitment to preserve and protect important natural areas in the country. Since 1974 agricultural and residential development steadily increased in the areas surrounding the JBBWEA, and mining activities began to the east.

3.2 Current Use of the Property

Currently, the JBBWEA is managed for the conservation and protection of fish and wildlife habitat. A wide range of operational and resource management actions are conducted on the JBBWEA each year including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive species maintenance and control; road repairs and maintenance; imperiled species management, monitoring and protection; facilities and infrastructure maintenance and repair; conservation acquisition and stewardship activities; cultural resources monitoring and protection; and research related activities.

The JBBWEA is being managed as a single-use conservation land. Consistent with the original conditions of the donation deed outlined above, the JBBWEA will only provide limited, non-consumptive, guided fish and wildlife resource-based public outdoor recreation and educational opportunities that are consistent with the non-consumptive deed restrictions, while protecting the natural and cultural resources found on the area.

3.3 Adjacent Land Uses

Currently, the JBBWEA shares part of its northern boundary with the Fickett Hammock Preserve, a county park owned and managed by Hernando County. Rural and residential properties, including a large pasture, surround the rest of the tract. Cemex, a concrete manufacturer, owns several hundred acres east of the JBBWEA where it currently operates a sand mining operation.

The 2020 U.S. Census estimates that there are 192,186 people living in Hernando County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2030, there will be 218,200 people living in Hernando County. The BEBR population projections for the counties surrounding Hernando County for the year 2030 are as follows: Citrus County – 162,400; Pasco County – 635,700; Sumter County – 190,000.

The current zoning ordinance for JBBWEA is Conservation. According to Hernando County's Comprehensive Plan, this designation allows for timbering (with a management plan) and limited resource-oriented recreational activities such as hiking, picnicking, and fishing. Accessory residential units for security purposes may also be allowed. Hernando County's future land use maps indicate that the JBBWEA will continue to be designated and zoned as Conservation. Lands immediately adjacent to the JBBWEA are classified as agriculture, conservation (Fickett Hammock Preserve), and mining (across State Road 491).

3.4 Visitation and Economic Benefits

Specific deed restrictions do not allow public access or consumptive use of resources on the JBBWEA. Therefore, visitation on the JBBWEA is and will remain very low. Because visitation is minimal and limited to FWC-guided visits, an FWC economic analysis for the JBBWEA has not been generated.

3.5 Single- or Multiple-use Management

The JBBWEA is being managed as a single-use conservation land. Consistent with the original conditions of the donation deed outlined above, the JBBWEA will only provide limited, non-consumptive, guided fish and wildlife resource-based public outdoor recreation and educational opportunities that are consistent with the non-consumptive deed restrictions, while protecting the natural and cultural resources found on the area. Any natural and cultural resources of the JBBWEA will be managed under the guidance of the ARC, the Conceptual State Lands Management Plan, and as outlined in the original purposes for acquisition.

3.5.1 Analysis of Multiple-use Potential

As mentioned previously, the JBBWEA is to be managed as a single-use conservation land, due to deed of donation restrictions. The multiple-use concept was not deemed appropriate for this area. The following actions or activities have been considered under the single-use concept as possible uses to be allowed on the JBBWEA. Uses classified as "Approved" are considered to be in accordance with the purposes for acquisition, as well as with the Conceptual State Lands

Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the Agency Strategic Plan. Uses classified as "Conditional" indicate that the use may be acceptable but will be allowed only if approved through a process other than the management plan development and approval process (e.g., special-use permitting, managed-area regulation, and rule development). Uses classified as "Rejected" are not considered to be in accordance with the original purpose of acquisition or one or more of the various forms of guidance available for planning and management:

	<u>Approved</u>	<u>Conditional</u>	<u>Rejected</u>
Apiaries			✓
Astronomy			✓
Bicycling			✓
Cattle grazing			✓
Citrus or other agriculture			✓
Ecosystem services and maintenance	✓		
Ecotourism			✓
Environmental Education		✓	
First-responder training			✓
Fishing			✓
Geocaching			✓
Hiking			✓
Horseback riding			✓
Hunting			✓
Linear facilities			✓
Military training		✓	
Preservation of cultural resources	✓		
Primitive camping			✓
Protection of imperiled species	✓		
Off-road vehicle use			✓
Shooting sports park			✓
Soil and water conservation	✓		
Timber harvest			✓
Wildlife observation		✓	

3.5.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on the JBBWEA are made in accordance with the requirements of Section 253.034(10) F.S., and other applicable Florida constitution, statute, rule, and policy requirements, as well as other provisions governing applications for proposed incompatible uses or linear facilities on state-owned conservation lands. Upon approval and implementation of this management plan, any proposed future uses that have been classified herein as Rejected, or other proposed future uses that are determined to be

incompatible with the purposes of acquisition or other management authorizations and guidance, will be forwarded for review and approval consideration to the DEP-DSL, ARC, and the Board of Trustees prior to any incompatible use or linear facility being authorized on the JBBWEA.

3.5.3 Assessment of Impact of Planned Uses of the Property

To communicate the FWC's planned uses and activities, specific management intentions, long- and short-term goals and with associated objectives, identified challenges, and solution strategies have been developed for the JBBWEA (Sections 5 -7). A detailed assessment of the benefits and potential impacts of planned uses and activities on natural and cultural resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.6 Acreage Recommended for Potential Surplus Review

On conservation lands where the FWC is the lead manager, the FWC evaluates and identifies recommended areas for a potential surplus designation by the DSL, ARC, and the Board of Trustees. This evaluation consists of GIS modeling and analysis, aerial photography interpretation, analysis of fish and wildlife resources, a review of resource and operational management needs, and a review of public access and recreational use of the area. Also, the FWC considers recommendations for surplus lands as they relate to Florida's "No Net Loss of Hunting Lands" legislation (Ch. 379.3001 F.S.), as well as surplus restrictions for lands acquired through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or through other federal grant programs.

The evaluation of the JBBWEA by the FWC has determined that all portions of the area are being managed and operated for the original purposes of acquisition and remain integral to the continued conservation of important fish and wildlife resources. Therefore, no portion of the JBBWEA is recommended for potential surplus review.

4 Accomplished Objectives from the JBBWEA Management Plan 2014 – 2024

This section is dedicated to reporting the extent to which the Objectives described in the JBBWEA Management Plan 2014 – 2024 were successfully completed. Accomplishments for the JBBWEA during the previous planning timeframe are further discussed in more comprehensive detail throughout **Section 5 Management Activities and Intent** of this Management Plan. Additionally, goals and objective for the 2022 – 2032 planning period are outlined in **Section 6 Resource Management Goals and Objectives – 2022 – 2032**.

The following resource management goals and objectives from the 2014 – 2024 JBBWEA Management Plan describe the planned activities for the JBBWEA during the 2014 – 2024 planning period. The degree to which the FWC was able to accomplish the planned activities during this period is reflected as **Percent Accomplished** for each associated Objective.

Goals and Objectives	Percent Accomplished
Habitat Restoration and Improvement	
Goal 1: Improve extant habitat and restore disturbed areas.	
Short-term (August 2014 – August 2016)	
Objective 1: Prescribe burn 50 acres of pyrogenic communities on the area per year. <i>Comment: FWC staff burned 91 acres of fire adapted communities during the short-term planning period.</i>	91%
Objective 2: Maintain 95 acres (67% of pyrogenic communities on the area) per year within 2 - 3 year target fire return interval. <i>Comment: From 2014 through 2016 FWC staff maintained 91 acres of pyrogenic communities within the fire return interval.</i>	96%
Objective 3: Develop and implement prescribed burn plan. <i>Comment: The prescribed burn plan continues to be implemented and utilized on the JBBWEA.</i>	100%
Objective 4: Conduct habitat/natural community improvement on 5 acres per year including uplands mowing of road shoulders and firebreaks. <i>Comment: Approximately 13 acres of habitat improvement activities was conducted in fiscal year 2014/2015, and an additional 117 in 2015/2016.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 5: Continue to prescribe burn 50 acres of pyrogenic communities on the area per year. <i>Comment: From 2014 through 2021 FWC staff burned approximately 508 acres of fire adapted communities.</i>	100%
Objective 6: Continue to maintain 140 acres (100% of pyrogenic communities on the area) per year within 2 - 3 target fire return interval. <i>Comment: All fire adapted communities on the JBBWEA have been maintained within the established fire return interval.</i>	100%

Objective 7: Implement OBVM program. <i>Comment: Objective Based Vegetation Monitoring (OBVM) continues to be implemented on the JBBWEA in order to achieve OBVM established desired future conditions.</i>	100%
Objective 8: Continue to conduct habitat/natural community improvement on 5 acres per year including uplands mowing of road shoulders and firebreaks. <i>Comment: From 2014 through 2021 FWC staff continued to conduct habitat/natural community improvements on the area and mowed approximately 181 acres.</i>	100%
Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration	
Goal 2: Maintain, improve, or restore imperiled species populations and habitats.	
Short-term (August 2014 – August 2016)	
Objective 1: Continue to implement a Wildlife Conservation Prioritization and Recovery (WCPR) strategy. <i>Comment: The JBBWEA WCPR strategy was developed in 2013 and has continued to be implemented on the area.</i>	100%
Objective 2: Continue to collect opportunistic imperiled wildlife species occurrence data including Eastern indigo snake and Sherman's fox squirrel. <i>Comment: FWC staff continues to collect opportunistic wildlife species occurrence data on the JBBWEA.</i>	100%
Objective 3: Continue to collect opportunistic imperiled wildlife species occurrence data. <i>Comment: FWC staff continues to collect opportunistic imperiled wildlife species occurrence data on the JBBWEA.</i>	100%
Objective 4: Continue to maintain and monitor one Southeastern American kestrel box. <i>Comment: FWC staff continues to maintain and monitor the Southeastern American kestrel box on the area.</i>	100%
Objective 5: Conduct a gopher tortoise burrow survey. <i>Comment: A gopher tortoise burrow survey was unable to be conducted until the 2017-2018 fiscal year.</i>	0%

Long-term (August 2014 – August 2024)	
Objective 6: Continue to implement WCPR Strategy by managing identified habitats and monitoring identified species. <i>Comment: The JBBWEA WCPR strategy was developed in 2013 and has continued to be implemented on the area.</i>	100%
Objective 7: Continue to maintain and monitor one Southeastern American kestrel box. <i>Comment: FWC staff continues to maintain and monitor the Southeastern American kestrel box on the area.</i>	100%
Objective 8: Continue to collect opportunistic imperiled wildlife species occurrence data including Eastern indigo snake and Sherman's fox squirrel. <i>Comment: FWC staff continues to collect opportunistic wildlife species occurrence data on the JBBWEA.</i>	100%
Objective 9: Conduct a gopher tortoise burrow-scoping survey by 2019 to generate a population estimate on the area. <i>Comment: A gopher tortoise burrow-scoping survey was conducted in the 2017-2018 fiscal year.</i>	100%
Other Wildlife (Game and Non-game) Habitat Maintenance, Enhancement, Restoration, or Population Restoration. Goal 3: Maintain, improve, or restore game and non-game species populations and habitats.	
Short-term (August 2014 – August 2016)	
Objective 1: Assess past monitoring and research conducted by TNC to determine additional opportunities for enhancing plant and wildlife inventory data. <i>Comment: FWC staff assessed past monitoring and research conducted by TNC to determine additional opportunities for enhancing plant and wildlife inventory data.</i>	100%
Objective 2: Continue to collect opportunistic wildlife occurrence data. <i>Comment: FWC staff continues to collect opportunistic wildlife species occurrence data on the JBBWEA.</i>	100%
Long-term (August 2014 – August 2024)	

Objective 3: Develop and maintain a wildlife and plant inventory. <i>Comment: FWC staff continues to maintain a wildlife and plant inventory on the JBBWEA.</i>	100%
Objective 4: Continue to collect opportunistic wildlife occurrence data. <i>Comment: FWC staff continues to collect opportunistic wildlife species occurrence data on the JBBWEA.</i>	100%
Exotic and Invasive Species Maintenance and Control Goal 4: Remove exotic and invasive plants and animals and conduct needed maintenance-control.	
Short-term (August 2014 – August 2016)	
Objective 1: Annually survey and treat at least 40 acres or 12%, of the entire unit, of Florida Exotic Pest Plant Council (FLEPPC) Category I and Category II invasive exotic plant species. <i>Comment: FWC staff continues to annually treat FLEPPC Category I and II invasive and non-native plant species on the JBBWEA.</i>	100%
Objective 2: Continue to conduct exotic plant survey and mapping. <i>Comment: A rare plant survey of the area was conducted in the 2013-2014 fiscal year, which included mapping of found invasive and non-native plant species.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 3: Continue to annually survey and treat at least 40 acres or 12%, of the entire unit, FLEPPC Category I and Category II invasive exotic plant species. <i>Comment: FWC staff continues to annually treat FLEPPC Category I and II invasive and non-native plant species on the JBBWEA.</i>	100%
Objective 4: Continue to monitor for FLEPPC invasive exotic plant species. <i>Comment: FWC staff continues to monitor for FLEPPC invasive and non-native plant species on the JBBWEA.</i>	100%
Public Access and Recreational Opportunities Goal 5: Provide public access and recreational opportunities.	

Short-term (August 2014 – August 2016)	
Objective 1: Continue to provide guided interpretative environmental education access consistent with deed restrictions for supervised access. <i>Comment: FWC staff continues to provide guided interpretive environmental education access consistent with deed restrictions for supervised access.</i>	100%
Objective 2: Develop a website for interpretation and education. <i>Comment: A website for the JBBWEA was determined not needed at this time due to restricted public access.</i>	0%
Long-term (August 2014 – August 2024)	
Objective 3: Identify compatible guided public access uses and develop appropriate protocol for providing for public access consistent with deed restrictions for supervised access. <i>Comment: FWC staff have developed protocols for providing supervised public access consistent with deed restrictions.</i>	100%
Hydrological Preservation and Restoration	
Goal 6: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.	
Short-term (August 2014 – August 2016)	
Objective 1: With assistance from SWFWMD, continue to monitor potential hydrological impacts from adjacent land uses. <i>Comment: FWC staff continues to monitor for potential hydrological impacts from adjacent land uses.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 2: Conduct or obtain a site hydrological assessment to identify potential hydrology restoration needs <i>Comment: A site hydrological assessment was not feasible during this planning period.</i>	0%
Objective 3: If determined necessary, implement hydrological restoration plan.	0%

<i>Comment: Due to the hydrological assessment not being feasible during this planning period, a hydrological restoration plan has not yet been implemented on the JBBWEA.</i>	
Objective 4: Continue to monitor potential hydrological impacts from adjacent land uses. <i>Comment: FWC staff continues to monitor for potential hydrological impacts from adjacent land uses.</i>	100%
Forest Resource Management	
Goal 7: Manage timber resources to improve or restore natural communities for the benefit of the wildlife.	
Short-term (August 2014 – August 2016)	
Objective 1: Cooperate with the FFS or a professional forestry consultant in regards to completing a Timber Assessment. <i>Comment: A timber assessment was not conducted on the JBBWEA until the 2017-2018 fiscal year.</i>	0%
Objective 2: Consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate. <i>Comment: FWC staff continues to consult and cooperate with the FFS on all appropriate and allowed forest management activities on the area.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 3: Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate. <i>Comment: FWC staff continues to consult and cooperate with the FFS on all appropriate and allowed forest management activities on the area.</i>	100%
Cultural and Historical Resources	
Goal 8: Protect, preserve, and maintain the cultural and historical resources.	
Short-term (August 2014 – August 2016)	
Objective 1: Ensure all known sites are recorded in the DHR Master Site file. <i>Comment: Currently, there is one recorded archaeological site at the JBBWEA known as the Bailey Hill Homestead.</i>	100%

Objective 2: Continue to monitor, protect, and preserve as necessary one identified site, the Bailey Hill Homestead. <i>Comment: FWC staff continues to annually monitor and report on the one recorded archaeological site on the area.</i>	100%
Objective 3: Ensure management staff has DHR Archaeological Resources Monitoring training. <i>Comment: Local FWC staff are Archaeological Resources Management certified.</i>	100%
Objective 4: Follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources. <i>Comment: FWC staff continues to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural resources.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 5: Cooperate with DHR to manage and maintain known existing cultural resources. <i>Comment: FWC staff continues to cooperate with the DHR to manage and maintain the one recorded archaeological site on the JBBWEA.</i>	100%
Objective 6: Continue to monitor, protect, and preserve as necessary one identified site, the Bailey Hill Homestead. <i>Comment: FWC staff continues to annually monitor and report on the one recorded archaeological site on the area.</i>	100%
Objective 7: Coordinate with DHR for cultural resource management guideline staff training. <i>Comment: The FWC continues to coordinate with the DHR for cultural resource management guideline staff training.</i>	100%
Objective 8: Coordinate with DHR to assess the need for conducting a cultural resource survey. <i>Comment: FWC staff has coordinated with the DHR and expressed the need for a formal, site-specific archaeological survey on the JBBWEA.</i>	100%
Objective 9: Continue to monitor the one known recorded site and submit updates of additional sites to DHR for inclusion in their Master Site file. <i>Comment: FWC staff continues to annually monitor and report on the one recorded archaeological site on the area.</i>	100%

Objective 10: Continue to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources. <i>Comment: FWC staff continues to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.</i>	100%
Capital Facilities and Infrastructure Goal 9: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.	
Short-term (August 2014 – August 2016)	
Objective 1: Continue to maintain two perimeter signs and one plaque. <i>Comment: FWC staff continues to maintain one perimeter sign and one plaque. The second perimeter sign was destroyed by a hurricane and not replaced since the area is not open to the public.</i>	100%
Objective 2: Continue to maintain ~2 miles of roads. <i>Comment: FWC staff continues to maintain all roads on the JBBWEA.</i>	100%
Objective 3: Continue to maintain ~2.7 miles of firebreaks. <i>Comment: FWC staff continues to maintain all firebreaks on the JBBWEA.</i>	100%
Objective 4: Continue to maintain ~2.3 miles of fences. <i>Comment: FWC staff continues to maintain all fences on the JBBWEA.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 5: Continue to maintain two perimeter signs and one plaque. <i>Comment: FWC staff continues to maintain one perimeter sign and one plaque on the JBBWEA. The second perimeter sign was destroyed by a hurricane and not replaced since the area is not open to the public.</i>	100%
Objective 6: Continue to maintain ~2 miles of roads. <i>Comment: FWC staff continues to maintain all roads on the JBBWEA.</i>	100%

Objective 7: Continue to maintain ~2.7 miles of firebreaks. <i>Comment: FWC staff continues to maintain all firebreaks on the JBBWEA.</i>	100%
Objective 8: Continue to maintain ~2.3 miles of fences. <i>Comment: FWC staff continues to maintain all fences on the JBBWEA.</i>	100%
Land Conservation and Stewardship Partnerships	
Goal 10: Enhance wildlife conservation, resource, and operational management through development of an optimal boundary.	
Short-term (August 2014 – August 2016)	
Objective 1: Identify important wildlife resources, habitat, landscape-scale linkages, and wildlife corridors for operational/resource management that may be important to the continued viability of fish and wildlife populations in the region. <i>Comment: During the development of the JBBWEA Management Plan, the FWC developed an Additions and Inholdings list for the area to determine potential habitat and resource needs to further enhance the area.</i>	100%
Objective 2: Develop a Conservation Action Strategy. <i>Comment: Conservation Action Strategies were discontinued during this planning period.</i>	0%
Objective 3: Contact and inform adjoining landowners about the FWC Landowners Assistance Program to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements. <i>Comment: FWC staff regularly discusses the voluntary Landowner's Assistance Program with multiple adjoining landowners.</i>	100%
Objective 4: Identify and recommend parcels for addition to the FWC acquisition list. <i>Comment: FWC staff continues to work to identify and pursue any potential conservation acquisition needs and regularly interact with adjoining landowners and other agencies and assess potential conservation stewardship partnerships.</i>	100%
Objective 5: Identify potential non-governmental organization partnerships and grant program opportunities. <i>Comment: The FWC continues to work towards identifying partnerships and grant opportunities as needed and appropriate.</i>	100%

Objective 6: Conduct a landowner assistance/conservation stewardship partnership workshop for adjoining landowners as feasible. <i>Comment: The FWC assessed the need for and the feasibility of a landowner's assistance/conservation stewardship partnership workshop and determined it unnecessary at this time.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 7: To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed optimal conservation planning boundary for JBBWEA as deemed necessary. <i>Comment: The FWC regularly reviews and updates the JBBWEA Additions and Inholdings list to determine if any additions or revisions are necessary.</i>	100%
Objective 8: Continue to identify and recommend parcels for addition to the FWC acquisition list. <i>Comment: FWC staff developed an Additions and Inholdings List for the JBBWEA, and the FWC has identified nominations to the FWC Additions and Inholdings which are included in Section 5.11 of this Management Plan.</i>	100%
Objective 9: Pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow. <i>Comment: FWC staff continues to work to identify and pursue any potential conservation acquisition needs and regularly interact with adjoining landowners and other agencies to assess potential conservation stewardship partnerships.</i>	100%
Objective 10: Coordinate landowner assistance/conservation stewardship partnership workshop as deemed appropriate. <i>Comment: The FWC assessed the need and feasibility of a landowner's assistance/conservation stewardship partnership workshop and determine it unnecessary at this time.</i>	100%
Objective 11: Periodically (at least every three to five years) continue to contact and meet with adjacent landowners for willingness to participate in the Conservation Action Strategy. <i>Comment: FWC staff regularly discusses the voluntary Landowner's Assistance Program with multiple adjoining landowners.</i>	100%
Climate Change	

Goal 11: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on natural resources, including fish and wildlife, and the operational management of the JBBWEA.	
Short-term (August 2014 – August 2016)	
Objective 1: Coordinate with the FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBBWEA. <i>Comment: FWC staff continues to coordinate with the FWC-Fish and Wildlife Research Institute (FWRI) Climate Change Adaptation Initiative including participating in climate change workshops.</i>	100%
Long-term (August 2014 – August 2024)	
Objective 2: Continue to coordinate with the FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBBWEA. <i>Comment: FWC staff continues to coordinate with the FWC-FWRI Climate Change Adaptation Initiative including participating in climate change workshops.</i>	100%
Objective 3: Incorporate appropriate climate change monitoring protocols and management strategies into the OBVM program for the JBBWEA. <i>Comment: FWC staff continues to assess the need for updating monitoring protocols and management strategies into the OBVM program for the JBBWEA.</i>	100%
Objective 4: Incorporate appropriate climate change adaptation strategies into the WCPR for JBBWEA. <i>Comment: FWC staff continues to assess the need for incorporating climate change strategies into the WCPR program for the JBBWEA.</i>	100%
Objective 5: As appropriate, update the JBBWEA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of JBBWEA's fire-adapted habitats. <i>Comment: FWC staff continues to assess the need for updating the JBBWEA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change.</i>	100%
Objective 6: As science, technology, and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document and address potential	100%

climate change; assess the need to incorporate public education about climate change into the update of the Recreation Master Plan. <i>Comment: FWC staff continues to assess the need to document, incorporate, and provide education on evolving science, technology, and policy on climate change.</i>	
Research Opportunities	
Goal 12: Explore and pursue cooperative research opportunities.	
Short-term (August 2014 – August 2016)	
Objective 1: Continue to cooperate, explore, and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute, etc. <i>Comment: FWC staff continues to explore cooperative research opportunities with universities and other research entities.</i>	100%
Objective 2: Cooperate with the USGS phenology climate change project. <i>Comment: Cooperation with the USGS phenology climate change project was not feasible during this planning period.</i>	0%
Long-term (August 2014 – August 2024)	
Objective 3: Explore and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute, etc. <i>Comment: FWC staff continues to explore cooperative research opportunities with universities and other research entities.</i>	100%
Objective 4: Continue to cooperate with researchers, universities, and others as appropriate. <i>Comment: FWC staff continues to cooperate with researchers, universities, and others as appropriate.</i>	100%
Objective 5: Continue to assess the need for and pursue research opportunities as appropriate. <i>Comment: FWC staff continues to assess the need for research opportunities as appropriate.</i>	100%

5 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve, or otherwise use fragile natural resources and nonrenewable cultural resources. In general, the FWC management intent for the JBBWEA is to restore and maintain natural communities in a condition that sustains ecological processes and conserves biological diversity, especially fish and wildlife resources. The FWC will utilize the best available data, guidelines, and natural resource management practices to achieve these outcomes in accordance with the original purposes for acquisition. Furthermore, as noted earlier, the management activities described in this section are in compliance with those of the Conceptual State Lands Management Plan.

5.1 Land Management Review

On-site reviews of conservation and recreation lands that exceed 1,000 acres and are titled in the name of the Board of Trustees are required every five years by Section 259.036, F.S. These reviews determine whether the lands are being managed for the purposes for which they were acquired and whether they are being managed in accordance with their land management plan adopted pursuant to Section 259.032, F.S. According to statute, the review team “shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan.” Because the JBBWEA is smaller than 1,000 acres, a land management review has not been conducted on the area.

5.2 Adaptive Management

Adaptive management is “learning by doing”;⁴ it is the adjustment or modification of conservation actions to achieve a desired conservation goal. In practice, adaptive management is a rigorous process that includes sound planning and experimental design with a systematic evaluation process that links monitoring to management.^{4, 5} Adaptive management requires flexibility for implementation, but should be fitted over a fundamentally sound, well-planned design.

An adaptive management process produces the strongest inference and most reliable results when experimental design components are incorporated into the monitoring process. Adaptive management is most rigorously applied in an active format when components of experimental design (i.e., controls, replication, and randomization) are included in the monitoring process.^{4, 5} Incorporating valid statistical analyses of results will further enhance the value of the adaptive management process. However, in some situations, rigorous experimental design procedures can be relaxed without invalidating monitoring results. In a passive format, adaptive management can involve applying a conservation action at a site, observing the results, and adjusting the action in the future if warranted.^{4, 5}

Proposed adaptive management, monitoring, and performance measures are developed through literature reviews and FWC staff meetings. Overall, a results-based approach is incorporated into this Management Plan, for which effective monitoring is an integral component. The FWC will monitor conservation actions, species, habitats, and major threats to the conservation of the natural and cultural resources of the JBBWEA.

5.2.1 Florida Landscape Assessment Model

The FWC has developed the Florida Landscape Assessment Model (FLAM) as a Geographic Information Systems (GIS)-based assessment tool that incorporates a wide variety of landscape and wildlife species data. The FLAM evaluates the Florida landscape based upon important natural resources and habitat needs of wildlife as a way to identify ecologically significant lands in the state, and to assess the potential impacts of management and land-use changes. The FLAM was developed to provide technical assistance to various local, regional, state, and federal agencies, and entities interested in wildlife needs and conservation in order to: (1) determine ways to avoid or minimize project impacts by evaluating alternative placements, alignments, and transportation corridors during early planning stages, (2) assess direct, secondary, and cumulative impacts to habitat and wildlife resources, and (3) identify appropriate parcels for public land acquisition for wetland and upland habitat mitigation purposes. The FLAM ranks habitat from 0-10; a rank of 10 being of greatest value. The FLAM (2020) indicates that the JBBWEA has a very high mean wildlife value of 8.7 (Figure 10).

5.2.2 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of the JBBWEA. Monitoring and performance measures are important, but often overlooked elements of conservation planning. Monitoring provides the critical link between implementing conservation actions and revising management goals.

Monitoring is the systematic, repeated measurement of environmental characteristics to detect changes, and particularly trends, in those characteristics. Monitoring provides essential feedback, the data needed to understand the costs, benefits, and effectiveness of planned conservation actions and the management projects undertaken to address them.²

For natural communities, monitoring protocols are established through FWC's Objective-Based Vegetation Management (OBVM, Section 5.3.1) program, which monitors how specific vegetative attributes are responding to FWC management. For locally important fish and wildlife species, monitoring protocols are established through the FWC's Wildlife Conservation Prioritization and Recovery (WCPR, Section 5.4.2) program. FWC staff may monitor additional fish and wildlife species when deemed appropriate. Invasive plant and animal species (Section 5.7) are also monitored as needed and appropriate. Cultural resources (Section 5.9) are monitored with guidance from the Florida DHR.

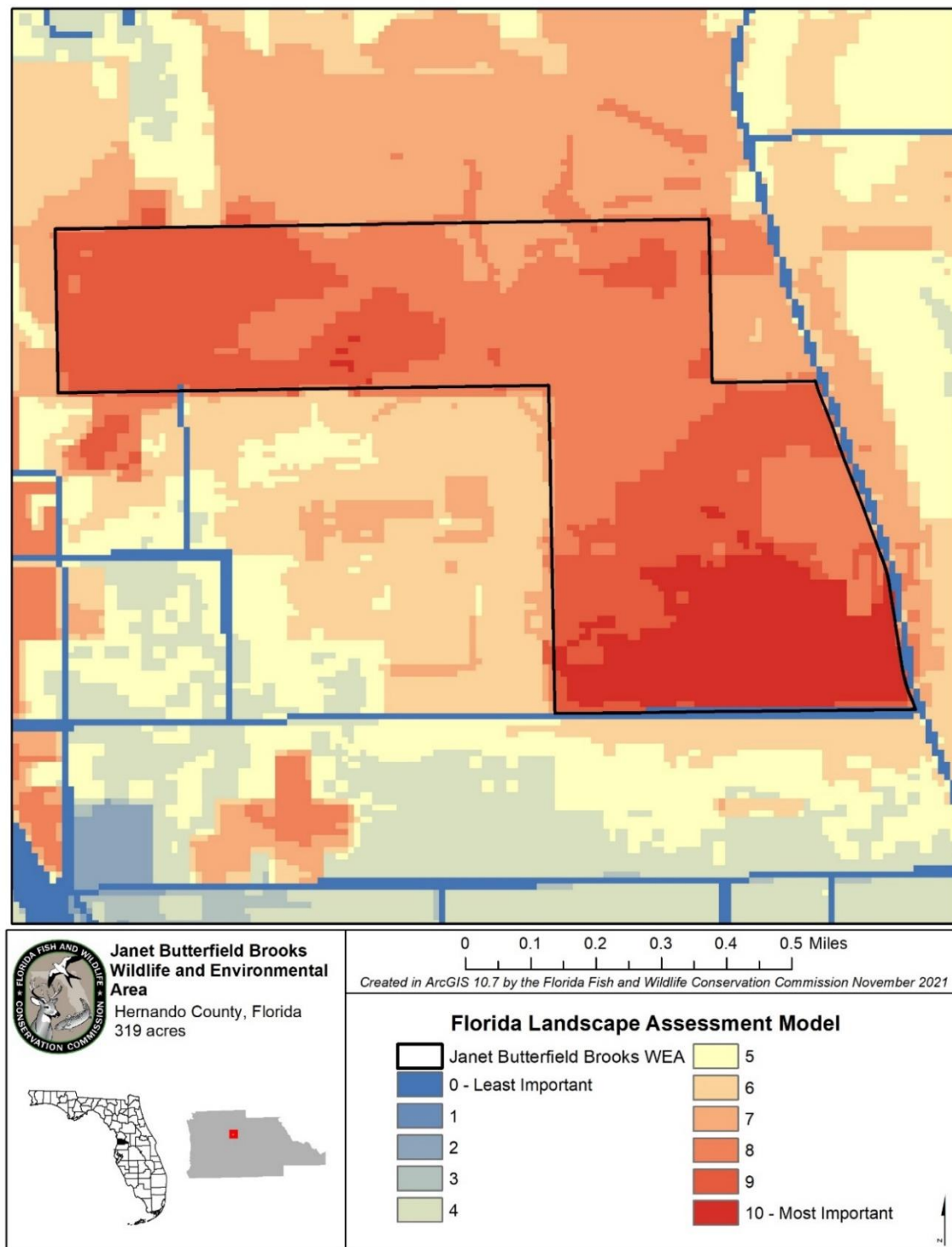


Figure 10. Florida Landscape Assessment Model

5.2.3 Performance Measures

Performance measures include qualitative or quantitative measures used to provide an estimate or index of the characteristic of interest, and to chart the overall progress of conservation actions towards specific goals. Successful monitoring programs and their associated performance measures provide natural resource professionals with valuable feedback on the effectiveness of conservation actions and make it possible to implement a more flexible adaptive management approach. An adaptive management approach ultimately will be more efficient and effective when it tracks inputs, incorporates an effective monitoring program that integrates performance measures, and evaluates results against desired goals.

5.2.4 Implementation

The JBBWEA Management Plan serves as the guiding framework to implement this adaptive management process. It serves as the underpinning for the integration of management programs (OBVM, WCPR, PASO, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of the JBBWEA and resolve conservation threats to fish and wildlife and the habitats they occupy. Based on evaluations of project results, the conservation actions are revised as necessary, and the adaptive management process is repeated.

5.3 Habitat Restoration and Improvement

On the JBBWEA, the FWC will focus on managing for native habitat diversity, emphasizing maintenance of natural communities, and restoration of disturbed areas. The JBBWEA has functioning natural communities including sandhill and upland hardwood forest that the FWC will continue to manage and protect. On any disturbed upland sites, the FWC intends to continue natural community restoration. Restoration may be achieved on disturbed areas by the re-introduction of fire, restoring historic hydrological conditions, and/or the use of mechanical or chemical forest management techniques as appropriate.

5.3.1 Objective-Based Vegetation Management

The FWC uses a comprehensive resource management approach to improving FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of the FWC's management philosophy. OBVM is a monitoring tool used by the FWC to monitor how specific vegetative attributes are responding to management.

The first step in implementing OBVM is to map the current, and in most cases the historic natural communities, on the managed area using the FNAI Natural Community Classification. A natural community, as defined by FNAI, is a distinct and recurring assemblage of populations of plants, animals, fungi, and microorganisms naturally associated with each other and their physical environment. The FWC contracts with FNAI to provide these mapping services and plans to have natural community maps recertified for most areas on a five-year basis.

FNAI has conducted surveys and mapped the current and historic natural communities on the JBBWEA. New acquisitions that may occur on the area will be mapped for natural and altered communities.

After natural communities have been mapped, FWC land managers identify those natural communities that will influence and guide management decisions, known as the actively managed natural communities. Through OBVM monitoring, the FWC collects data on specific vegetation attributes that provide insight about natural community conditions. This information will be used to guide and prioritize management efforts on the area. Because the FWC is interested in the overall effect of management on the natural communities, OBVM data is analyzed area wide, at the natural community level, and not the management unit level.

Vegetation monitoring samples the 12 OBVM core attributes, with the results being compared to the desired future conditions (DFCs). Measurable habitat management objectives, referred to as DFCs, have been established by FNAI for each actively managed natural community. DFCs are the acceptable range of values for quantifiable vegetation attributes, such as basal area, shrub height and cover, and ground cover. The FWC collaborated with FNAI to identify 'reference sites' for each actively managed natural community and applied the OBVM monitoring methodology at these reference sites to determine what attribute values occur in a high-quality community (<https://www.fnai.org/species-communities/reference-communities>). FWC staff generally use reference site attribute values when setting DFCs for actively managed natural communities.

All monitoring performed under OBVM is completed using the program's Standard Operating Procedures. Consistent, long-term monitoring of managed natural communities will quantify changes in habitat conditions, provide information on the cumulative effects of management activities, and measure progress towards meeting management objectives for DFCs. Measured changes in vegetation conditions are intended to be used to inform future land management actions.

Overall, natural community mapping, OBVM structural sampling, and a plant species list provide FWC staff with baseline data indicating natural community structure, distribution, and condition on the area. Comparing the monitoring results to desired future conditions provides important information on the structural condition and composition of a natural community at a given point in time. OBVM sampling is repeated every 5-years and comparisons with past OBVM monitoring data allows changes over time to be detected. Using this information, managers can evaluate, adjust, and modify their management practices to better natural community condition. By comparing natural community mapping products through the years, managers can track progress in moving altered communities to functioning natural communities.

5.3.2 Prescribed Fire and Fire Management

Historically, periodic spring and summer fires occurred in fire-adapted communities under natural conditions. Plant species composition reflects the frequency and intensity of these fires.

In the absence of fire, fallow fields on former longleaf sites follow a successional pattern through mixed pine-hardwood forests to an exclusively hardwood community rather than to the original plant community. The plant species composition may differ slightly on poorer soils of the slash pine flatwoods, but the dominant role of fire in controlling hardwoods is equally important in either ecosystem.

Fire exclusion has altered the plant species composition on portions of the area likely resulting in a loss of fuel and complicating the return to the desired “natural” fire management regime. Site-specific combinations of prescribed fire, mechanical and chemical vegetation control, and reforestation are likely actions that will be needed to restore the area to historic natural communities.

The FWC employs a fire management regime to maintain or increase both species and habitat diversity and will continue a prescribed burning program on the JBBWEA in accordance with natural community management objectives. As fire moves across a landscape, some areas carry fire better than others. Areas with higher fine fuel loads typically burn more evenly and with greater intensity. Areas with lower fuel loads or wetland areas typically will not carry fire as evenly, and usually burn at a lower intensity. Employing a burning program with different fire frequencies, intensities, and seasonality (dormant season vs. growing season) of prescribed burns creates habitat diversity and a mosaic of vegetation patterns. This mosaic landscape will have characteristics of both frequently and infrequently burned areas, benefitting the greatest suite of flora and fauna.

On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. When extensive, this condition creates unsuitable habitat for many wildlife species. Used in conjunction with prescribed fire, mechanical control of brush by roller chopping, mowing, shredding, or incidentally by equipment during timber thinning operations, can reduce shading and encourage the grasses and forbs that best sustain prescribed fire. Mowing and roller chopping can be a valuable management tool, enabling the use of prescribed fires in areas heavily impacted by dense woody vegetation. However, used inappropriately, roller chopping may damage the herbaceous ground cover, especially wiregrass. Therefore, the FWC will work to limit its use to situations where burning can only be accomplished by a mechanical reduction of woody vegetation.

Whenever possible, existing firebreaks such as roads and trails, as well as natural breaks such as creeks and wetlands, will be used to define management units. Disk harrows, mowing, and foam lines will be used as necessary to minimize disturbance and damage created by fire plows.

The transitional areas between two adjacent but different natural community types are known as ecotones. With the exception of wildfire suppression, mechanical soil disturbance in wetland ecotones will be avoided in order to protect habitats for important rare species that often occur between upland and wetland margins. Creation of firebreaks will be avoided in wetland margins

unless necessary to defend the boundary of a managed area. When safe, fires are allowed to burn into the edges of marshes, swamps, and other wetlands in order to maintain these habitats. With some exceptions, most fire managed natural communities are best maintained, or improved, with fire returns of ≤ 3 years, preferably during the spring and early summer months when appropriate.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan has been developed and implemented for the JBBWEA (Appendix 12.10). This plan includes, but is not limited to, delineation of burn management units, descriptions of prescribed fire methodology, safety, and smoke management guidelines.

During the previous 10-year planning period, 100% of the area's fire adapted communities have been treated with prescribed fire. Currently, approximately 100% of the fire-adapted communities are maintained within the recommended fire return intervals. As further outlined in the area's Prescribed Burn Plan, the FWC plans to continue to conduct prescribed burning on the area's fire adapted communities and keep 100% of the area being maintained within the recommended fire return intervals during this planning period. Other challenges that continue to impact the implementation of prescribed fire on the area are described further in Section 7. The continuing benefits of prescribed fire on the area's wildlife habitats, along with other ongoing habitat restoration activities, that are being implemented on the JBBWEA are discussed in more detail below.

5.3.3 Habitat Restoration and Improvement Activities

Significant habitat management activities have taken place within many of the natural communities of the JBBWEA over the course of the previous management period beginning in 2014. As stated previously, all management units with fire-adapted natural communities will continue to be treated with prescribed fire, most on a repeated basis as established within the Prescribed Burn Plan. This has aided in the improvement and restoration of native ground cover and wildlife habitat throughout the JBBWEA. In addition to conducting prescribed burning, 228 acres of mechanical treatments have also occurred on the area including shredding and mowing.

Continuing habitat management activities on the JBBWEA will focus on enhancing natural communities, maintaining recommended fire return intervals for fire adapted communities, treating and removing invasive plant species, and controlling vegetation through mowing and shredding as needed. Chemical and mechanical treatments may also be implemented in some natural or altered communities, like mesic hammock, in order to restore these areas to an earlier successional condition. Invasive species control is more extensively discussed in Section 5.5, below. Further specific habitat management and improvement objectives planned for the JBBWEA are described in Section 6 below.

5.4 Fish and Wildlife Management, Enhancement, and Population Restoration

5.4.1 Fish and Wildlife

Across the JBBWEA, the size and diversity of natural communities creates a mosaic that supports a wide variety of fish and wildlife species, including imperiled and more common species. The FWC uses the term “locally important species” to encompass imperiled species, as well as a select group of common species, that occur on the area and can help guide management activities. By managing the area’s natural communities for locally important species, the FWC will ensure the area meets the needs of all species that use the same natural communities. To support this goal, the FWC emphasizes conservation, protection, and management of natural communities in order to protect and enhance populations of fish and wildlife found on the JBBWEA. Natural communities vital to locally important species on the JBBWEA include sandhill, upland hardwood forest, and mesic hammock.

To guide species management, the FWC takes a proactive, science-based approach on FWC-managed lands in conjunction with input from species experts and individuals with knowledge of the area. Management practices are designed to restore, enhance, or maintain natural communities with emphasis on the needs of locally important species. Locally important species (resident and migratory) will be managed for optimum richness, diversity, and abundance. This will be further augmented by following approved Federal and FWC species recovery plans, guidelines, and other scientific recommendations for these species. Guided by these recommendations, land management activities, including prescribed burning, will further address locally important species requirements and habitat needs.

For locally important species population monitoring, the FWC takes a tiered approach. Using taxa inventory monitoring and opportunistic observations, staff identify which species occur on the JBBWEA and track diversity through time. In addition, when appropriate, staff monitor specific species to track population status. Wildlife experts help identify the monitoring approach best applied on the area to inform how management is influencing the populations. Using this tiered monitoring approach, the FWC will gather information about the species using the area, and how select species are responding to management. Section 5.4.2 and Appendix 12.11 provides further information on FWC’s comprehensive species management strategy for all locally important wildlife and their respective habitats.

5.4.2 Locally Important Species: Wildlife Conservation Prioritization and Recovery

The FWC has identified the need to: 1) demonstrate optimal wildlife habitat conservation on FWC-managed lands; 2) develop science-based performance measures to evaluate management; 3) recover imperiled species; and 4) prevent future imperilment of declining wildlife species. To help meet these needs, the FWC uses a comprehensive resource management approach to maintain FWC-managed areas. Restoring the form and function of Florida’s natural communities is the foundation of this management philosophy. The FWC uses the OBVM program to monitor how specific vegetative parameters are responding to the FWC

management and uses the WCPR program to ensure management is having the desired effect on wildlife.

The WCPR program helps assess locally important wildlife species' needs and opportunities, prioritize what the FWC does for locally important species, prescribe management actions to aid in species recovery, prescribe monitoring to allow evaluation of the species' response to management, and ensure the information is shared with others. To determine specific management and monitoring actions needed for each species, the FWC considers the species' status on the area; the current condition of the area's natural communities; the amount and spatial arrangement of the species' potential habitat on the area and adjacent lands; the species' response to management; and any local overriding factors (e.g., status of species in the region, local declines, or extirpations). Staff then combine these assessments with area-specific management considerations to develop a Wildlife Management Strategy for the area (Appendix 12.11). Each area-specific Strategy prescribes management actions to achieve and identifies monitoring to verify progress towards meeting desired outcomes. By providing the FWC managers with information on actions they should undertake, the FWC intends for the Strategy to assure the presence and persistence of Florida's native wildlife, as managing habitat for locally important species will benefit the host of other species that use these natural communities.

During the previous planning period, the FWC conducted a gopher tortoise burrow survey to monitor the local population. The FWC also monitored one Southeastern American kestrel nest box. These locally important species projects, along with other ongoing locally important species management activities, will continue to be implemented in accordance with the JBBWEA WCPR Strategy.

Through the actions of this program, the FWC facilitates fulfilling the needs of locally important wildlife species on the JBBWEA. In the long-term, by implementing the WCPR Strategies on FWC-managed lands and continuing to assess wildlife species' needs, the FWC will continue to play an integral role in aiding the recovery of locally important species and preventing the future imperilment of declining wildlife species.

5.4.3 Nuisance Animal Species

The FWC also works to address nuisance animal behavior on the JBBWEA. The FWC will continue to monitor impacts of nuisance animal behavior on the area and implement mitigation strategies as needed and appropriate.

5.5 Invasive and Non-native Species Maintenance and Control

With non-native and invasive species populations continuing to grow in Florida, the FWC takes a proactive and comprehensive approach to the monitoring and management of invasive and non-native plants and animals, as well as pests and pathogens, on FWC managed areas. Non-native species are those species that do not originate from Florida. These species are often introduced as a result of deliberate or accidental human activities and are closely monitored by

the FWC for potential future impacts. If a non-native species is found to cause or is likely to cause environmental or economic harm to humans, it is then classified as an invasive. On the JBBWEA, the FWC has established a variety of control measures for the management of any found non-native or invasive plant and animal species as further outlined in Section 5.5.1 and 5.5.2 of this Management Plan.

5.5.1 Invasive Plant Species

The FWC will continue efforts to control the establishment and spread of Florida Invasive Species Council (FISC) Category I or II plants on the JBBWEA while using the most current control technologies (CCT) which may include mechanical, herbicide, and biological control. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices and CCT for their application. More information regarding herbicides used on FWC's lead managed areas can be found here:

<https://edis.ifas.ufl.edu/pdf%5Cwg%5Cwg20900.pdf>

Invasive plant species known to occur on the JBBWEA include: natalgrass, air-potato, Caesarweed, camphor tree, cogongrass, coral ardisia, mimosa, old world climbing fern, and skunk vine. (Table 5). During the previous planning period 171 acres of infestation have been searched and treated and an estimated 171 acres have been placed into maintenance rotation. Currently, approximately 54% of the JBBWEA is considered as having achieved maintenance rotation, and an estimated 46% of the JBBWEA remains to be surveyed, monitored, and treated as appropriate, as guided by the FWC's Invasive Plant Management Section.

Maintenance rotation is defined as having a given area/acreage with invasive species infestations reduced to a level where no ecological harm will occur by skipping any treatment for a period of one- to several-years, depending on the species. Maintenance rotation is not necessarily synonymous with eradication, which is usually impractical to achieve.

Maintenance rotation intervals for invasive plants vary greatly by species. Generally, woody species that form canopies will need a thorough initial treatment and a follow-up treatment the next growing season. Thereafter, the maintenance rotation treatment will need to follow seed germination and seedling/sapling regrowth patterns, with subsequent treatments being necessary every two- to ten-years, depending on initial infestation level, seed bank presence, and likely new dispersal into the area from neighboring populations of these species. Woody species that dominate the midstory will need a treatment regimen similar to those that form canopies, except the subsequent retreatment rotation would be every two- to five-years.

Herbaceous species that can affect the midstory and canopy, including vines, weak lianas, and climbing ferns need to be detected and treated as early as possible. These need to have an aggressive initial treatment, followed by yearly treatments, until the populations no longer affect the midstory. At this point, a two- to three-year rotation, with treatment as necessary, will keep these infestations in maintenance rotation.

Herbaceous and weakly woody species that only dominate the groundcover can be particularly challenging. This group is diverse, and includes species such as coral ardisia, Caesarweed, and cogongrass. The rotation intervals can vary from treatments once every two- to three-years (for coral ardisia), to annual treatments, to as many as four treatments in a growing season depending on the species. For this reason, rotation intervals for these species should be developed in coordination with the FWC's Invasive Plant Management Section. Infestations requiring multiple treatments in a growing season should also be mapped individually, because their treatment plans may differ from the rest of the invasive plants in any given unit.

The FWC will continue to focus control and maintenance activities on areas identified as having invasive plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring activities. Natural disasters such as tropical cyclones, flooding, wildfire, and drought can both negatively and positively impact maintenance rotation of an area and affected acreage should be re-surveyed following any of these events to reassess the maintenance state of the area.

The degree of maintenance effort for invasive plant occurrences often varies substantially by species, level of disturbance, environmental conditions, other land management activities such as timber harvesting, groundcover restoration, etc., and can also be affected by the status of ongoing eradication and control efforts. FWC staff will take special effort to treat invasive species in coordination with mechanical treatments and prescribed fire so optimal results are achieved. Treatment strategies for invasive plants will be adjusted over time as conditions change on the JBBWEA. Changes may include hydrological restoration, wildfire, and reintroduction of endangered plant/animal species. Ongoing invasive plant species objectives and challenges for the JBBWEA are further detailed in Section 6 below.

Additionally, the FWC will continue efforts to control the introduction of invasive species, as well as pests and pathogens, on the JBBWEA by requiring all personnel, both contracted and the FWC, to follow the FWC Decontamination Protocol. FWC area staff will continue to work closely with FWC's Invasive Plant Management Section for guidance and assistance on treatments and management of invasive species on the area.

5.5.2 Invasive and Non-native Fish and Wildlife Species

The FWC continues to work towards minimizing the adverse impacts of non-native and invasive fish and wildlife species in Florida. This task is accomplished through prevention, early detection, rapid response, control and management, and education and outreach. Early detection and rapid response are a critical defense against the establishment of invasive fish and wildlife. The FWC monitors and removes non-native species, responds to new invasions, and continues to assess the risk of species not yet present in our state. Rule 68-5, F.A.C., Federal Lacey Act, and certain F.S. govern the importation, possession, and use of non-native fish and wildlife. Rule 68-5, F.A.C., identifies Conditional and Prohibited non-native species in Florida. More information on these regulations can be found here:

<https://www.fws.gov/injuriouswildlife/> and

<https://www.flrules.org/gateway/chapterhome.asp?chapter=68-5>. Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida's native species and habitats or could pose threats to health and welfare of the people of Florida. The FWC relies on monitoring efforts and current science including risk determination, supplemental documentation, and research to identify possible invasive species. In order to further assist the FWC's effort on invasive fish and wildlife identification and removal, the FWC encourages the public to utilize the FWC's Exotic Species Hotline at 888-Ive-Got1 (483-4681) or to visit www.IveGot1.org to report observations of non-native species. More information on these public reporting options and other components of the Wildlife Impact Management Section's Nonnative Fish and Wildlife Program can be found here: <https://myfwc.com/wildlifehabitats/nonnatives/>.

To address the presence of non-native and invasive fish and wildlife on the JBBWEA, FWC area staff will continue to work closely with FWC's Wildlife Impact Management Section for guidance and assistance. The FWC also relies on public assistance and participation in the control of invasive fish and wildlife species. Executive order 17-11 authorizes the lethal take of non-native reptiles on 25 FWC-managed lands. Trappers and nuisance wildlife control operators can also apply for an eradication and control permit to assist in the capture of Prohibited non-native species on private and public lands including WMAs. More information on this permit process can be found here: <https://myfwc.com/wildlifehabitats/nonnatives/rule-development/trappers/>. Due to the growing concern related to the impacts of several non-native species, the FWC and partners take a proactive and coordinated approach towards the removal of non-native species.

An invasive animal species of concern throughout the state and on the JBBWEA is the wild hog. These animals have high reproductive rates, and when populations reach high densities, wild hogs can significantly degrade natural communities through foraging activity (rooting). The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate wild hog control measures as necessary. Wild hog populations may be managed by trapping, as necessary, to aid in minimizing the negative impacts caused by wild hog populations on the area.

5.6 Public Access and Recreational Opportunities

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife resource based public outdoor recreational opportunities for FWC-managed lands. However, access to the JBBWEA is restricted by deed to the FWC staff for management purposes. Recreational opportunities are limited to guided educational tours with approval from the FWC staff in accordance with the donation conditions and covenants.

As previously noted, numerous other public conservation lands in close proximity of the JBBWEA offer a wide variety of public outdoor natural resource based recreational opportunities.

5.6.1 Americans with Disabilities Act

When public facilities are developed on areas managed by the FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336). As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions. Recreation facilities in semi-primitive or primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA⁷ where:

1. Compliance will cause harm to historical resources, or significant natural features and their characteristics.
2. Compliance will substantially alter the nature of the setting and therefore the purpose of the facility.
3. Compliance would not be feasible due to terrain or prevailing construction practices.
4. Compliance would require construction methods or materials prohibited by federal or state statutes, or local regulations.

5.6.2 Public Access Carrying Capacity

Baseline carrying capacities for users on FWC-managed lands are established by conducting a site-specific sensitivity analysis using available data for the site. The intent of the carrying capacity analysis is to minimize wildlife and habitat disturbance and to provide the experience of being “immersed in nature” that many visitors to FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use also requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacity, as necessary. The carrying capacity generated through this process will be used as a tool to help assess and monitor guided educational programs on the area.

Based on an analysis of the overall approved uses and the anticipated proportional visitation levels of the various user groups, the FWC has determined that the JBBWEA can currently support 12 visitors per day. However, any access to the area will be limited to guided tours for educational opportunities and research in accordance with deed restrictions. The public access carrying capacity will be periodically reevaluated as needed and appropriate.

5.6.3 Wildlife Viewing

The JBBWEA hosts a wide variety of native wildlife species, both resident and seasonally migratory. However, access to the general public is restricted. Opportunities that allow visitors' enjoyment for observation and photography require prior approval and are limited. The quality of habitat found on the JBBWEA attracts a suite of wildlife species including various birds, mammals, reptiles, and amphibians throughout the JBBWEA.

5.6.4 Hunting

Hunting is prohibited on the JBBWEA due to the small size and characteristics of the site as well as non-consumptive use deed restrictions.

5.6.5 Fishing

Few water features exist within the established boundary of the JBBWEA, and deed restrictions prohibit consumptive uses. Therefore, no fishing opportunities exist.

5.6.6 Hiking and Trails

At this time, public access is not allowed on the JBBWEA. Therefore, the potential for trail connectivity to other conservation areas is not possible. Essential roads will be stabilized to allow all-weather management operations. Unnecessary roads, fire lanes, and hydrological disturbances will be abandoned or restored as practical. Infrastructure development shall be as necessary to allow limited, public access and to provide facilities, security, and management of the property.

Approximately four miles of fire breaks may be used as walking trails for guided visits.

5.6.7 Bicycling

Bicycling is prohibited as it is not considered to be in accordance with the original purpose of acquisition.

5.6.8 Equestrian

Horseback riding is prohibited on the JBBWEA. Deed restrictions in conjunction with the small size, limited facilities and natural conditions present at the JBBWEA are not conducive to equestrian use.

5.6.9 Camping

Camping is prohibited on the JBBWEA. Camping on the JBBWEA is not feasible due to the low carrying capacity, small size of the area and natural vegetative conditions present on the JBBWEA, nor does it conform to the deed restrictions. However, there are several public and private camping areas in the general region that provide many diverse camping opportunities.

5.6.10 Geocaching

Geocaching is prohibited on the JBBWEA in accordance with the deed restrictions.

5.6.11 Environmental Education

No formal structured environmental education program exists on the JBBWEA. However, environmental education is a conditionally approved activity. The FWC will continue to encourage and participate in environmental education partnership opportunities as appropriate.

5.7 Hydrological Preservation and Restoration

5.7.1 Hydrological Assessment

No hydrological resources exist on the JBBWEA. However, extensive flooding from heavy rains occurs in low-lying areas on the JBBWEA. A small depression marsh is seasonally inundated with water and a seepage stream occurs within the mesic hammock vegetative community. During the last management period, a hydrological assessment/study was proposed to identify

potential hydrology restoration needs in the floodplain. The FWC will work to complete a hydrological assessment on the JBBWEA during this planning period if feasible.

5.7.2 Water Resource Monitoring

In cooperation with the SWFWMD, natural water regimes will be re-established to the extent feasible and appropriate. This is consistent with the primary purpose for the acquisition of the JBBWEA and relates directly to the water quantity and quality aspects of the ecosystem.

The FWC will cooperate with the DEP and the SWFWMD to develop and implement any surface and ground water quality and quantity monitoring protocols for the JBBWEA. In this capacity, the FWC will primarily rely on the expertise of the SWFWMD and the DEP to facilitate these monitoring activities as needed. As guided by the DEP and the SWFWMD, the FWC may independently conduct or contract for water resource monitoring on the JBBWEA.

5.8 Forest Resource Management

A Timber Assessment of the forest resources of the JBBWEA was conducted by Natural Resource Planning Services in 2018. The management of forest resources will be considered in the context of the Timber Assessment and the overall land management goals and activities. More information on the forest resources occurring at the JBBWEA are found in Section 2.4.

Pursuant to OBVM management goals, the FWC will continue to manage timber resources for wildlife benefits and natural community function. Deed restrictions allow no consumptive use of the property, so timber harvesting is prohibited, however some thinning activities may take place if needed to improve habitat conditions. When safe and appropriate, snags will be protected to benefit cavity-nesting species. The primary management technique for encouraging reforestation is protection of young trees and seedlings on these sites from damage. However, where natural regeneration is lacking, supplemental plantings of seedling pines should be used. Planting trees on these sites is used to better ensure successful reforestation.

5.9 Cultural Resources

A review of the FMSF indicates that one cultural resource has been recorded on the JBBWEA. Additionally, two previously conducted cultural resource surveys have been conducted within the vicinity of the area. In cooperation with the DHR, the FWC will continue to monitor and report on all recorded sites annually.

The FWC will consult with the DHR to determine the procedures necessary to identify, assess, and preserve any unrecorded or unevaluated cultural resources that may be present within the JBBWEA. In addition, the FWC will ensure area management staff has the latest DHR Archaeological Resource Management (ARM) training. The FWC will follow the DHR's *Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties*, and, in accordance with Sections 267.061(2)(a,b), F.S., the FWC will consult with and allow the DHR a reasonable opportunity to comment prior to any undertaking that may impact historic properties. Furthermore, should any previously unidentified

resources be located on the JBBWEA, the FWC will prepare and submit all necessary documentation to the FMSF.

5.10 Capital Facilities and Infrastructure

The FWC's land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure necessary to effectively conduct operational and resource management activities. For these reasons, planned capital facilities and infrastructure will focus on improving access, hydrology, or other resource and operational management objectives.

Current capital facilities and infrastructure on the JBBWEA include approximately 4.59 miles of firebreaks which serve as service roads, approximately four miles of boundary fence, two picnic tables, one perimeter sign, and one plaque.

As described in Section 2.4.1 of this Management Plan, for any public facilities that are developed on areas managed by the FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336).

5.11 Land Conservation and Stewardship Partnerships

Landscape conservation is an approach that brings people together across geographies, sectors, and cultures to collaborate on connecting and conserving our diverse landscapes at a large scale – across public and private lands and regardless of political and jurisdictional boundaries. The goals of conservation at the landscape scale are to **conserve** ecosystems, habitats, and species on a large scale and across all borders. Landscape conservation can only be fully achieved by pooling together resources and **connecting** staff, partners, and stakeholders to **collaborate** on conservation at the larger landscape scale.

The end goal is a resilient and adaptive landscape and economy that can support future generations of Florida. Thriving landscapes and habitats produce a range of benefits such as protecting our water and air, mitigating climate change, and providing habitat for fish, wildlife, and plants. In addition, productive landscapes power local and regional economies by supporting sustainable activities including fishing, farming, ranching, forestry, recreation, and tourism. Maintaining these benefits as Florida is facing ever-increasing significant land and water issues is paramount. Population growth, habitat loss and fragmentation, land use changes, invasive species, water crises, and climate change can threaten Florida's future. To successfully manage these challenges for the long term, there is a growing need for conservation work to be done at a larger scale and with multiple partners that can pool their resources and incorporate best scientific practices.

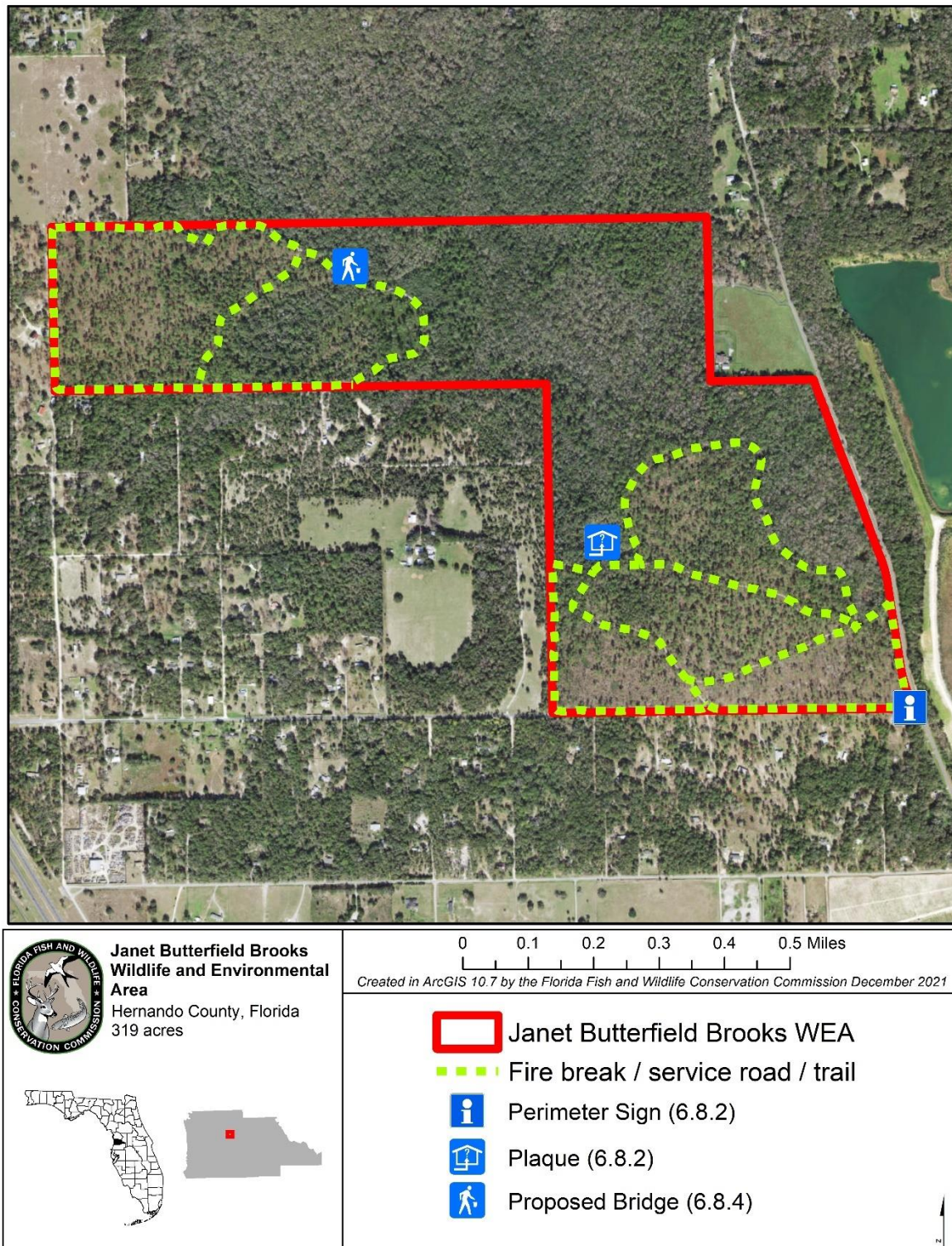


Figure 11. Facility Locations on the JBBWEA

5.11.1 FWC’s Landscape Conservation Strategic Initiative

The FWC and its partners have a legacy of excellent conservation work, much of which has been done at a landscape scale. To ensure Florida’s natural resources are conserved for future generations, the FWC has launched the Landscape Conservation Strategic Initiative (LCSI) to serve as a catalyst for implementing further forward-looking and strategic conservation measures. In September 2021, the FWC adopted an official Landscape Conservation policy for the agency, defining a holistic conservation approach with supportive guidelines. The primary goal of the LCSI is to achieve conservation outcomes that are large-scale, long-lasting, and cost-effective, and to establish durable partnerships with government agencies, conservation organizations, private landowners, academic institutions, stakeholders, and other partners. This includes proactive, long-range planning that is multi-purpose and encompasses multiple stakeholders and jurisdictions. Additionally, using a variety of tools, FWC staff will prioritize actions that are within identified target conservation areas. These goals will be achieved through the development and monitoring of clear, specific, and measurable indicators and targets that allow FWC staff to track conservation actions and assess landscape conservation outcomes.

5.11.2 Decision Support Tools

Florida Conservation Blueprint

The Florida Conservation Blueprint (Blueprint) is a spatial plan that identifies shared conservation priorities across Florida. The Blueprint was developed by the Peninsular Florida Landscape Conservation Cooperative (PFLCC) for the cooperative, incorporating strategies from a suite of partners. The Blueprint supports spatial conservation planning to inform conservation actions and investment. The Blueprint provides planners and managers across organizations the opportunity to align their efforts to protect fish and wildlife habitat, improve quality of life for people, and develop strong economies. The Florida Conservation Blueprint can be accessed from the Florida Conservation Planning Atlas. The FWC uses the Blueprint to help guide and prioritize landscape conservation actions and acquisition opportunities (Figure 12).

Other Decision Support Tools

There are additional data and tools that have been developed as decision support tools for identifying and prioritizing areas for conservation action as well as to guide resource (i.e., time, staff, and funding) allocation. These tools include, but are not limited to, FLAM (Section 5.2.1), Critical Lands and Water Identification project (CLIP), the Florida Ecological Greenways Network (FEGN), FNAI element occurrences database, Simple Map Viewer, Fire Map Viewer, Florida Springs Dashboard, Climate Adaptation Explorer, and the Florida Ecological Report Cards. Tools and supporting data can be found at www.fnai.org or on the Florida Conservation Planning Atlas.

5.11.3 Conservation Stewardship and Partnership Opportunities

Private Lands Partnerships

The FWC recognizes the interconnected needs of protecting and enhancing private property values and rights and creating new markets and economies that support the conservation value

of private working lands. Private landowners seeking assistance with habitat management will likely find it offered within the FWC Landowner Assistance Program (LAP). The FWC LAP program provides many opportunities for conservation minded landowners to obtain the assistance and advice of FWC staff and programs for improving land conservation practices on their lands. The LAP routinely conducts workshops for interested landowners to interact with FWC staff and learn how they may participate in the program. The FWC employs biologists who are available to provide wildlife-related assistance with land use planning and habitat management. In addition, the LAP works with landowners to enroll in the Natural Resources Conservation Service conservation cost-share programs in order to assist with implementation of wildlife friendly practices. There are many forms of assistance that include technical, financial, educational, and various forms of recognition that seek to award landowners who manage their wildlife habitat responsibly. At the time of the plan development, no specific land stewardship workshops had been conducted for landowners adjacent to the JBBWEA. The FWC will continue to evaluate the level of interest and efficacy of providing technical assistance to adjacent private landowners on enhancing the conservation management of their lands. More information on FWC's LAP program and online habitat management tools are available online at: <http://myfwc.com/conservation/special-initiatives/lap/>.

Landscape Conservation Partnerships

The FWC will continue to work with partners including government entities, private organizations, and academic institutions on collaborative landscape conservation efforts and acquisition opportunities. Potential partners for the JBBWEA and surrounding areas include the SWFWMD, the FFS, TNC, the USFWS, Hernando County, the DEP, Conservation Florida, and other organizations and potential grant program opportunities. The FWC will continue to commit staff time and other resources to regularly providing information to partners regarding landscape conservation science, opportunities, and progress.

5.11.4 Land Acquisition

Using identified tools outlined previously, the FWC works to identify lands within or adjacent to FWC-managed areas that are important for the conservation of fish and wildlife, serve as a link or corridor to other publicly owned property, enhance the protection or management of the property, would create a more manageable boundary configuration, or have a high resource value that would otherwise be unprotected. Preservation of these lands can be accomplished through fee-simple or less-than-fee acquisition. The FWC works to pursue these opportunities through the FWC Additions and Inholdings Acquisition program, supporting DEP/Board of Trustees acquisition and addition of lands within the Florida Forever program, and continued partnership with other agencies and private organizations on acquisition of identified lands.

Less-Than-Fee Acquisition

Less-than-fee acquisitions, also known as conservation easements, are voluntary agreements between a landowner and government agency or conservation organization that acquires certain rights to a landowner's property for long-term conservation of the land, while the landowner still retains ownership of their property. The agreement is designed for landowners to

continue to manage their land to maintain a working landscape in a manner that also enhances the conservation benefits provided by their land. These voluntary agreements to conserve land, support the goals of landscape conservation. Less-than-fee acquisition is not only a means of conserving land but is also a cost-effective means for governmental and non-governmental organizations to protect land, while also providing economic and tax benefits to the landowner and local economy.

Fee-Simple Acquisition

Fee-simple acquisition is the process of acquiring complete ownership of the land. Fee-simple acquisition can be accomplished through the State's Florida Forever program or through grant programs and acquisition partnerships. The Florida Forever program is a land acquisition program with the purpose of conserving natural and cultural resources throughout the State. The DEP, as staff to the Board of Trustees, or Governor and Cabinet oversees the program. The Florida Forever program replaced the Preservation 2000 program, and since these programs' inception, nearly three million acres have been conserved throughout the State.

FWC's Additions and Inholdings Acquisition Program

Per F.A.C. 18-2.021, the FWC identifies parcels located directly in or adjacent to the subject area that can be recommended for acquisition through the FWC Additions and Inholdings Acquisition program. Several properties, equaling approximately 585 acres, have been identified for recommended acquisition under the auspices of FWC's Additions and Inholdings Acquisition program for the JBBWEA (Figure 12). Consistent with Florida Forever program criteria, parcels on the list have been ranked High, Medium, or Low priority based on a score generated by a GIS-based resource evaluation model, along with technical input from FWC staff. The order of acquisition priority may be changed as necessary based on factors including available funding necessary to complete a particular acquisition project, changing development pressures, landowner willingness, funding partnerships, unique acquisition opportunities like bargain sales (less than 80% of appraised value), and donations.

The FWC Additions and Inholdings Acquisition List is updated through time, thus staying up to date for land ownerships, County parcel records, land conservation opportunities, and evolving management challenges. The FWC frequently analyzes, evaluates, and prioritizes its recommended conservation actions in a systematic, comprehensive, and consistent manner over time. At this time, the FWC often recommends full-fee acquisition of the lands on the FWC Additions and Inholdings Acquisition List for the JBBWEA to optimize the conservation of fish and wildlife, public access and use, and overall resource and operational management of the area. However, as mentioned previously, the FWC may also pursue less-than-fee acquisition with adjacent landowners. Though it should be noted that landowner preference is often the key element in determining whether to pursue a full fee or less-than-fee acquisition.

Parcels on the FWC Additions and Inholdings Acquisition List will be acquired if possible, according to their priority ranking for acquisition, as funding availability allows, and based on the landowner's willingness to sell their lands. Participation in any FWC acquisition is entirely

voluntary and at the sole discretion of willing landowners. The FWC also continues to assist and support the DEP/Board of Trustees in the acquisition or recommended acquisition of the remaining lands within the Annutteliga Hammock Florida Forever project as essential to the long-term conservation of wildlife and other elements important to the ecosystem function on the JBBWEA.

Alternative Options

Along with the several land acquisition options described previously, alternative land protection methods are also available. The state accepts donations of land, life estate, and first-right-of-refusal. Life estate is an alternative that allows a landowner to reside on their property during their lifetime, however, ensures state ownership after passing. Additionally, there is also the option that a landowner could offer the state a first-right-of-refusal. After a first offer is denied by a landowner, the first-right-of-refusal option provides the state with a change to purchase the land in the future. The state offers several alternative possibilities to obtaining the rights and/or ownership to land for conservation purposes, which furthers conversation-based goals and objectives for Florida's future.

5.12 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For the JBBWEA, the FWC will continue to assess and identify research and environmental education partnership opportunities as appropriate. Research proposals involving the use of the area are evaluated on an individual basis. All research activities on the JBBWEA must have prior approval by the FWC.

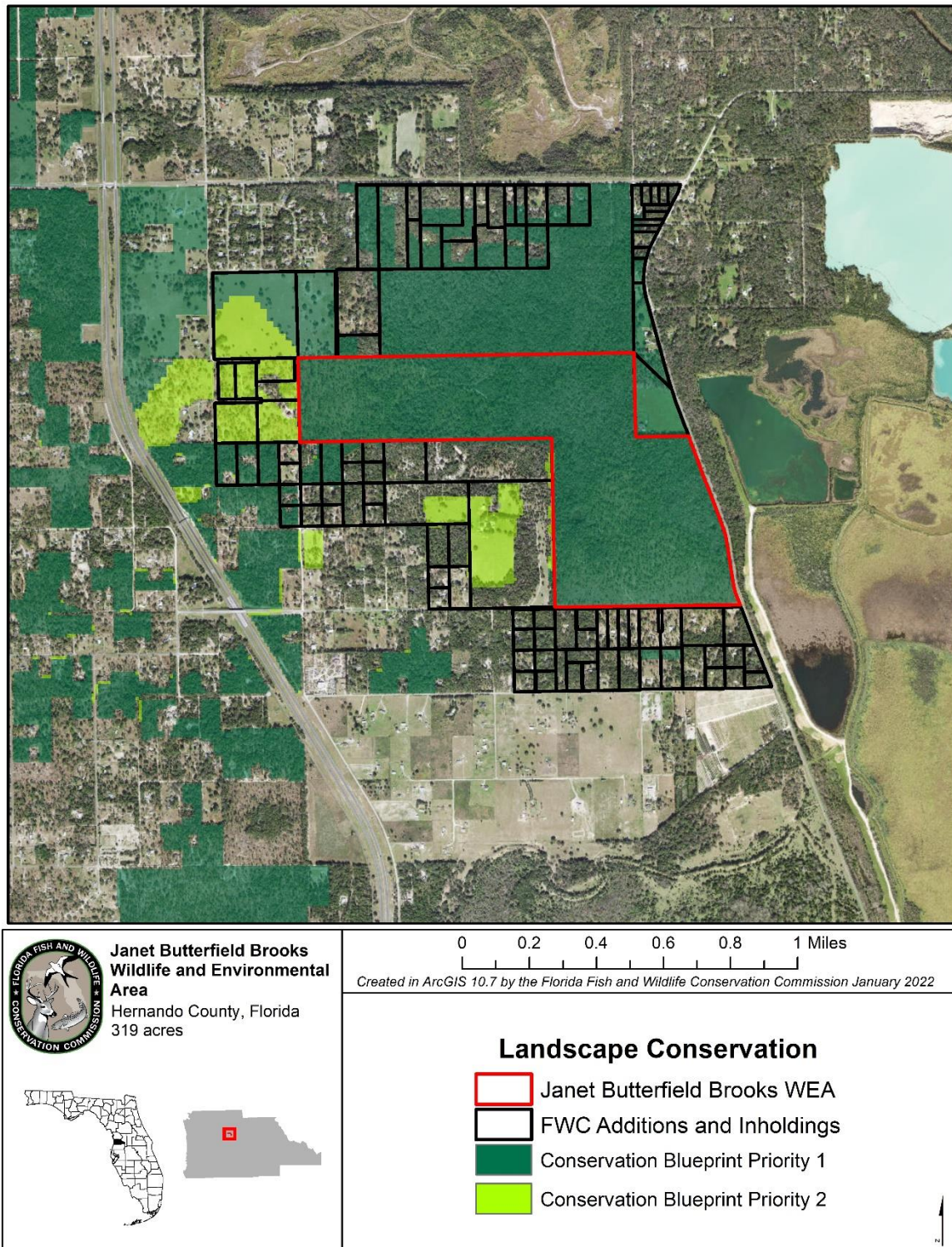


Figure 12. Additions and Inholdings and Conservation Blueprint

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

5.13 Cooperative Management and Special Uses

5.13.1 Cooperative Management

The FWC is responsible for the overall management and operation of the JBBWEA as set forth in the lease agreements with the Board of Trustees. In keeping with the lease agreements, and in order to conduct its management operations in the most effective and efficient manner, the FWC cooperates with other agencies to achieve management goals and objectives described in this management plan. These include cooperating with the DHR to ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 12.13) are followed with regard to any ground-disturbing activities. In addition, the FFS assists the FWC by providing technical assistance on forest resource management. Also, the FWC cooperates and consults with the SWFWMD and the DEP for the monitoring and management of both ground and surface water resources and the overall management of the JBBWEA.

5.13.2 First Responder and Military Training

First-responder (public governmental police department or agency, fire, and emergency medical service personnel) training and military training are conditionally allowed on the JBBWEA. Such activities are considered allowable uses only when undertaken intermittently for short periods of time, and in a manner that does not impede the management and public use of the JBBWEA and causes no measurable long-term impact to the natural resources of the area. Additionally, FWC staff must be notified and approve the training through issuance of a permit prior to any such training taking place on the JBBWEA. Any first-responder or military training that is not low-impact, intermittent and occasional would require an amendment to this management plan, and therefore will be submitted by the FWC to the DSL and ARC for approval consideration prior to authorization.

5.14 Climate Change

Florida's unique ecology and topography make impacts from climate change particularly acute and likely to affect multiple economic, agricultural, environmental, and health sectors across the state. The impact of climate change on wildlife and habitat is already occurring, from eroding shorelines and coral bleaching to increases in forest fires, severe weather events, and saltwater intrusion into inland freshwater wetlands.

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is proceeding at a rate where there will be unavoidable impacts to humans, wildlife, and habitat. Given current levels of heat-trapping greenhouse gas emissions, shifts in local, regional, and national climate patterns including changes in precipitation, temperature, increased frequency, and intensity of extreme weather events, rising sea levels, tidal fluctuations, and ocean acidification are projected to accelerate. The average global temperature has increased in recent decades, and continued greenhouse gas emissions may result in projected global average increases of 2 –11.5° F by the end of the century.⁹

This apparent change in global climate is likely to disrupt natural processes; in some areas, climate change may cause significant degradation of ecosystems that provide services such as clean and abundant water, sustainable natural resources, protection from flooding, as well as hunting, fishing, and other recreational opportunities. Consequently, climate change is a challenge not only because of its direct effects, but also because of its potential to amplify the stress on ecosystems, habitats, and species from existing threats such as exponential increases in surface and ground water use, habitat loss due to increased urbanization, introduction of invasive species, and fire suppression.

Potential impacts that may be occurring as a result of climate change include: change in the timing of biological processes, such as flowering, breeding, hibernation, and migration;^{10, 11, 12} more frequent invasions and outbreaks of invasive species;¹³ and loss of habitat in coastal areas due to sea level rise.¹⁴ Some species are projected to adjust to these conditions through ecological or evolutionary adaptation, whereas others are projected to exhibit range shifts as their distributions track changing climatic conditions. However, the highly developed Florida coastline and significant projected urban growth in the state in coming decades is likely to make it difficult or impossible for many species and habitats to shift their ranges in response to a changing climate. Those species that are unable to respond to changing climatic conditions are projected to go extinct. Some estimates suggest that as many as 20% - 30% of the species currently assessed by the IPCC are at risk of extinction within this century if global mean temperatures exceed increases of 2.7 – 4.5° F.¹⁵ A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the effects of climate change on Florida's conservation lands are just beginning to be studied and are not yet well understood. The FWC has a program in place to increase our understanding of the impacts of climate change on Florida's natural resources and to develop strategies to help wildlife and habitats adapt to changing conditions. While it may not be possible for natural resource managers to prevent or reverse the impacts of climate change, management actions can increase the resilience of natural systems. For example, the FWC follows a process that includes monitoring, evaluating, and determining what specific actions, if any, are recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation, and the possible spread of invasive species. Currently, the FWC is continuing its work on the development of future adaptation strategies. However, as noted above, the effects of climate change may become more frequent and severe within the time period covered by this Management Plan.

For these reasons, there is a continuing need for increased information and research to enable adaptive management to cope with potential long-term climate change impacts. The most immediate actions that the FWC can take are to work with partners to gather the best scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive management strategies to enhance the resiliency of natural communities to adapt to climate change, and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a

species. The FWC has conducted multiple species and habitat vulnerability assessments in recent years, and these models are important tools to help managers assess the severity of climate change impacts. As impacts from climate change continue to accelerate, the FWC will consider the need for updating or conducting additional vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC managed land.

To address the potential impacts of climate change on the JBBWEA, Goals and Objectives have been developed as a component of this Management Plan (Section 6.11). Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the JBBWEA Management Plan in the future.

5.15 Soil and Water Conservation

Soil disturbing activities will be confined to areas that have the least likelihood of experiencing erosion challenges. On areas that have been disturbed prior to acquisition, an assessment will be made to determine if soil erosion is occurring, and if so, appropriate measures will be implemented to stop or control the effects of this erosion.

6 Resource Management Goals and Objectives

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted in order to achieve an overall desired future outcome for the JBBWEA. The objectives listed within each management goal offer more specific management guidance and measures and are considered the necessary steps to be completed to accomplish the management goals. Many of the objectives listed have specific end-of-the-calendar-year target dates for completion and all of them are classified as having either short-term (less than two years) or long-term (up to ten years) timelines for completion.

6.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Long-term (UP TO 10 YEARS)

1. Contract for recertification of mapping of current natural communities.
2. Utilize OBVM monitoring to evaluate actively managed natural communities and adjust management efforts to meet desired future conditions.
3. Continue to implement the Prescribed Burn Plan (Appendix 12.10).
4. Continue to conduct habitat/natural community improvement using management techniques such as shredding, timber thinning, mowing, discing, native vegetation planting, and prescribed fire.

6.2 Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

Goal: Monitor, maintain, improve, or restore imperiled species populations and habitats.

Long-term

1. Continue to implement WCPR Strategy (Appendix 12.11) by managing identified habitats and monitoring imperiled species.
2. Continue to collect and record opportunistic wildlife species occurrence data.
3. Update the WCPR Strategy.

6.3 Other Wildlife (Game and Non-game) Habitat Maintenance, Enhancement, Restoration, or Population Restoration

Goal: Monitor, maintain, improve, or restore game and non-game species populations and habitats.

Long-term

1. Continue to monitor locally important wildlife species, as identified in the WCPR Strategy.
2. Continue to collect and record opportunistic wildlife species occurrence data.

6.4 Invasive and Non-native Species Maintenance and Control

Goal: Remove and conduct needed maintenance control on invasive and non-native plants and animals.

Long-term

1. Monitor JBBWEA for the level of infestation of FISC Category I and Category II invasive plant species and treat as needed and appropriate.
2. Continue to monitor presence of non-native wildlife and implement control measures as needed and feasible.

6.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Long-term

1. Continue to provide guided interpretive environmental education access consistent with deed restrictions for supervised access.
2. Communicate and collaborate with partners on potential additional environmental education opportunities.

6.6 Hydrological Preservation and Restoration

Goal: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.

Long-term

1. As feasible, conduct or obtain a site Hydrological Assessment to identify potential hydrology restoration needs.
2. To enhance natural hydrological functions, install and maintain low-water crossings and culverts as appropriate.
3. Pending Hydrological Assessment, implement Hydrological Restoration Plan as feasible and appropriate.

6.7 Forest Resource Management

Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.

Long-term

1. Continue to utilize the Timber Assessment for guidance on activities including reforestation and prescribed burning based on restoration and maintenance needs of the natural communities and other established management goals.
2. Coordinate with the FFS or a professional forestry consultant to obtain an updated Timber Assessment.
3. Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

6.8 Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.

Short-term (UP TO TWO YEARS)

1. Install a well for prescribed fire, as funding allows.

Long-term

2. Monitor infrastructure annually for visitor impacts.
3. Continue to install and maintain fences on the area as needed and appropriate.
4. Explore the feasibility of constructing a bridge across the seepage stream on the north side of the area to improve heavy equipment access for prescribed fire.

6.9 Cultural Resources

Goal: Monitor, protect, preserve, and maintain the cultural resources of the JBBWEA.

Short-term

1. Coordinate with the DHR or other private consultant to schedule and conduct or contract for a Historical Reconnaissance Survey as appropriate.

Long-term

2. Ensure any newly identified sites are reported to the DHR for inclusion in the FMSF.
3. Continue to annually monitor, protect, and preserve as necessary one identified site and any new sites identified in the reconnaissance survey, as appropriate.

4. Coordinate with the DHR to ensure that staff have received updated Archaeological Resource Management training.
5. Continue to follow the DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.

6.10 Land Conservation and Stewardship Partnerships

Goal: Enhance wildlife conservation, resource management, and operational management through development of an optimal boundary.

Long-term

1. Continue to identify and evaluate potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational management needs for JBBWEA as appropriate and necessary.
2. Continue to contact and inform adjoining private landowners about the FWC Landowners Assistance Program and coordinate with public entities to pursue conservation stewardship partnerships.
3. Continue to evaluate and identify FWC inholdings and additions priority parcels for potential conservation acquisition and pursue acquisitions as funding allows.
4. Continue to maintain a GIS shapefile and other necessary data to facilitate nominations for the FWC landowner assistance and conservation acquisition programs.
5. Continue to identify potential non-governmental land stewardship organization partnerships and grant program opportunities.
6. Determine the efficacy of conducting a landowner assistance/conservation stewardship partnership workshop(s) and pursue as necessary and appropriate.

6.11 Climate Change Adaptation

Goal: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on fish and wildlife conservation, resources, and operational management of the JBBWEA.

Long-term

1. Coordinate with FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBBWEA.
2. As appropriate, update the JBBWEA Prescribed Fire Plan and WCPR Strategy to incorporate new scientific information regarding projected climate change.
3. As science, technology, and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs, and efforts to study, document, and address potential climate change.

6.12 Cooperative Management, Special Uses, and Research Opportunities

Goal: Provide access and use of the JBBWEA to current cooperative managers and continue collaborative management efforts.

Long-term

1. Continue to cooperate with researchers, universities, and others as appropriate.
2. Continue to assess the need for research and environmental education partnership opportunities as appropriate.
3. Coordinate and cooperate with Department of Defense military branches to allow for training opportunities for military personnel and other initiatives as appropriate and compatible with the conservation of the JBBWEA.

7 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with the JBBWEA and provides solution strategies that will address these challenges. These specific challenges may not be fully addressed in the broader goals and objectives section above and are thereby provided here.

Challenge 1: Currently, the FWC aims to meet FWC law enforcement and management staff standards and needs.

Strategy: Agency staff levels will continue to be evaluated to determine if increased staffing or other alternatives can improve management needs.

Strategy: Pursue funding for increased law enforcement, management staffing, and additional private sector contract services as appropriate.

Strategy: Explore potential volunteer resources for assisting with management.

Challenge 2: Insufficient area exists within the JBBWEA for long term conservation of far-ranging species that have been documented to exist on the JBBWEA.

Strategy: Explore conservation stewardship and acquisition opportunities to secure habitat necessary for far-ranging species.

Strategy: Coordinate with the FWC's LAP to work with adjacent landowners on maintaining habitat suitable for far-ranging species.

Challenge 3: There is evidence of looting and vandalism of unrecorded, potentially archaeologically significant sites on the JBBWEA.

Strategy: Coordinate with FWC Law Enforcement and the DHR to protect and maintain site integrity.

Challenge 4: There are smoke management challenges during prescribed burns due to proximity to major roadways and residential areas.

Strategy: Use available tools and resources to minimize smoke impact and increase outreach for areas of potential impact.

Strategy: Coordinate with the Florida Department of Transportation District 7 and Hernando County staff to provide prescribed burn information to assist with information dissemination to the public through possible mobile signage along the roadways and/or County media outlets.

Challenge 5: Non-native and invasive plants from adjacent private lands are spreading to the JBBWEA.

Strategy: Coordinate with the FWC's LAP to work with adjacent landowners to control and manage non-native and invasive plants on adjacent properties.

Strategy: Coordinate with other governmental and private organizations to obtain resources to control and manage non-native and invasive species on adjacent properties.

Challenge 6: Litter, unauthorized access, dumping, poaching, unauthorized off-road vehicle (ORV) use, and vandalism continue to negatively impact the management, operations, and public use of the JBBWEA.

Strategy: Coordinate with FWC Law Enforcement and Hernando County Sheriff's Department to assist with enforcement of rules and regulations on the JBBWEA.

Challenge 7: Potential future development on adjacent lands could result in incompatible land uses increasing management challenges for the area.

Strategy: Cooperate and work with Hernando County to ensure land use and zoning designations adjacent to the JBBWEA will continue to be compatible with the management of the area.

Strategy: Pursue acquisition opportunities of adjacent lands.

8 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of the JBBWEA. This cost estimate was developed using data developed by the FWC and other cooperating entities and is based on actual costs for land management activities, equipment purchase and maintenance, and for development of fixed capital facilities. Funds needed to protect and manage the property and to fully implement the recommended program are derived primarily from the Land Acquisition Trust Fund and from State Legislative appropriations. However, private conservation organizations may be cooperators with the agency for funding of specific projects. Alternative funding sources, such as monies available

through grants and potential project-specific mitigation, may be sought to supplement existing funding as needed.

The cost estimate below, although exceeding what the FWC typically receives through the appropriations process, is estimated to be what is necessary for optimal management and is consistent with the current and planned resource management and operation of the JBBWEA. Cost estimate categories are those currently recognized by the FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2020-2021 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 12.15.

<u>JBBWEA Management Plan Cost Estimate</u>	<i>Maximum expected one-year expenditure</i>
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<u>Resource Management</u>	<u>Expenditure</u>
<i>Invasive Species Control</i>	\$41,484
<i>Prescribed Burning</i>	\$40,598
<i>Cultural Resource Management</i>	\$5,810
<i>Timber Management</i>	\$296
<i>Hydrological Management</i>	\$6,819
<i>Vegetation Monitoring/Management</i>	\$5,565
<i>Wildlife Monitoring/Management</i>	\$13,616
<u>Subtotal</u>	\$114,188
 <u>Administration</u>	
<i>General administration</i>	\$3,086
 <u>Support</u>	
<i>Land Management Planning</i>	\$23,667
<i>Management Reviews</i>	\$0
<i>Training/Staff Development</i>	\$2,487
<i>Vehicle Purchase</i>	\$0
<i>Vehicle Operation and Maintenance</i>	\$6,635
<i>Other (Technical Reports, Data Management, etc.)</i>	\$1,478
<i>Internal Program Review</i>	\$1,478
<i>Technology and Data Management</i>	\$3,531
<u>Subtotal</u>	\$131,200
 <u>Capital Improvements</u>	
<i>New Facility Construction</i>	\$0
<i>Facility Maintenance</i>	\$6,562
<u>Subtotal</u>	\$6,562
 <u>Visitor Services/Recreation</u>	
<i>Info./Education/Operations</i>	\$1,539
 <u>Law Enforcement</u>	
<i>Resource protection</i>	\$4,433
 <u>Total</u>	\$261,008*

* Based on the characteristics and requirements of this area, one FTE position would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

<u>JBBWEA Management Plan</u> <u>Cost Estimate</u>	Ten-year projection		
<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	Priority schedule:
<i>Invasive Species Control</i>	\$364,487	(1)	(1) Immediate (annual) <i>(2) Intermediate (3-4 years)</i> <i>(3) Other (5+ years)</i>
<i>Prescribed Burning</i>	\$356,698	(1)	
<i>Cultural Resource Management</i>	\$51,048	(1)	
<i>Timber Management</i>	\$2,596	(1)	
<i>Hydrological Management</i>	\$59,916	(1)	
<i>Vegetation Monitoring/Management</i>	\$48,891	(1)	
<i>Wildlife Monitoring/Management</i>	\$119,632	(1)	
<i>Subtotal</i>	\$1,003,268		
<u>Administration</u>			
<i>General administration</i>	\$27,110	(1)	
<u>Support</u>			
<i>Land Management Planning</i>	\$207,943	(1)	
<i>Management Reviews</i>	\$0	(3)	
<i>Training/Staff Development</i>	\$21,849	(1)	
<i>Vehicle Purchase</i>	\$323,488	(2)	
<i>Vehicle Operation and Maintenance</i>	\$58,298	(1)	
<i>Other (Technical Reports, Data Management, etc.)</i>	\$12,982	(1)	
<i>Internal Program Review</i>	\$12,982	(1)	
<i>Technology and Data Management</i>	\$31,020	(1)	
<i>Subtotal</i>	\$668,562		
<u>Capital Improvements</u>			
<i>New Facility Construction</i>	\$193,021	(2)	
<i>Facility Maintenance</i>	\$57,659	(1)	
<i>Subtotal</i>	\$250,680		
<u>Visitor Services/Recreation</u>			
<i>Info./Education/Operations</i>	\$13,521	(1)	
<u>Law Enforcement</u>			
<i>Resource protection</i>	\$38,945	(1)	
<u>Total</u>	\$2,002,086	*	

* Based on the characteristics and requirements of this area, one FTE position would be optimal to fully manage this area.
All land management funding is dependent upon annual legislative appropriations.

9 Analysis of Potential for Contracting Private Vendors for Restoration and Management Activities

The following management and restoration activities have been considered for outsourcing to private entities. It has been determined that items selected as “approved” below are those that the FWC either does not have in-house expertise to accomplish or which can be done at less cost by an outside provider of services. Those items selected as “conditional” items are those that could be done either by an outside provider or by the agency at virtually the same cost or with the same level of competence. Items selected as “rejected” represent those for which the FWC has in-house expertise and/or which the agency has found it can accomplish at less expense than through contracting with outside sources:

	Approved	Conditional	Rejected
• Dike and levee maintenance			✓
• Invasive species control	✓		
• Mechanical vegetation treatment			✓
• Public contact and educational facilities development			✓
• Prescribed burning			✓
• Timber harvest activities			✓
• Vegetation inventories	✓		

10 Compliance with Federal, State, and Local Governmental Requirements

The operational functions of the FWC personnel are governed by the agency’s Internal Management Policies and Procedures (IMPP) Manual. The IMPP Manual provides internal guidance regarding many subjects affecting the responsibilities of agency personnel including personnel management, safety issues, uniforms and personal appearance, training, as well as accounting, purchasing, and budgetary procedures.

When public facilities are developed on areas managed by the FWC, every effort is made to comply with Public Law 101 - 336, the Americans with Disabilities Act. As new facilities are developed, the universal access requirements of this law are followed in all cases except where

the law allows reasonable exceptions (e.g., where handicap access is structurally impractical or where providing such access would change the fundamental character of the facility being provided).

Uses planned for the JBBWEA are in compliance with the Conceptual State Lands Management Plan and its requirement for “balanced public utilization,” and are in compliance with the mission of the FWC as described in its Agency Strategic Plan (Appendix 12.8). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 597, and 870 F.S..

The FWC has developed and utilizes an Arthropod Control Plan for the JBBWEA in compliance with Chapter 388.4111 F.S. (Appendix 12.16). This plan was developed in cooperation with the local Hernando County arthropod control agency. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Hernando County, Florida (Appendix 12.17).

11 Endnotes

¹Shanahan, D.R. A living document: reincarnating the research article. *Trials* **16**, 151 (2015).

²*Climate at a glance - national climatic data center*. (n.d.). Retrieved February 9, 2022, from <https://www.ncdc.noaa.gov/cag/national/time-series>

³“Physiographic Divisions of Florida (SJRWMD).” *St Johns River Water Management District*, ARCGIS, 2017, http://services.arcgis.com/s8wtJX9suxFen6TA/arcgis/rest/services/OpenData_PhysiographicDivisions/FeatureServer.

⁴ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online. Accessed [2019].

⁵ Horton, J.D., 2017, The State Geologic Map Compilation (SGMC) geodatabase of the conterminous United States (ver. 1.1, August 2017): U.S. Geological Survey data release, <https://doi.org/10.5066/F7WH2N65>.

⁶ Sadahisa Kato & Jack Ahern (2008) ‘Learning by doing’: adaptive planning as a strategy to address uncertainty in planning, *Journal of Environmental Planning and Management*, 51:4, 543-559.

⁷ Wilhere, G. F. 2002. Adaptive management in Habitat Conservation Plans. *Conservation Biology* 16:20-29.

- ⁸ Walters, C. J. and R. Hilborn. 1978. Ecological optimization and adaptive management. *Annual Review of Ecology and Systematics* 9:157–188.
- ⁹ Architectural and Transportation Barriers Compliance Board on Final Accessibility Guidelines for Outdoor Developed Areas, Final Report (2013).
- ¹⁰ Karl, T. R., J. M. Melillo, and T. C. Peterson (Eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press. New York, NY.
- ¹¹ McCarty, J. P. 2001. Ecological consequences of recent climate change. *Conservation Biology* 15:320-331.
- ¹² Walther, G. R., E. Post, P. Convey, A. Menzel, C. Parmesan, T. J. . Beebee, J. M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein. 2002. Ecological responses to recent climate change. *Nature* 416:389–395.
- ¹³ Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology, Evolution, and Systematics* 37:637-669.
- ¹⁴ Logan, J. A., and J. A. Powell. 2009. Ecological consequences of climate change altered forest insect disturbance regimes. In *Climate Warming in Western North America: Evidence and Environmental Effects* (F. H. Wagner, Ed.). University of Utah Press, Salt Lake City, UT.
- ¹⁵ Stevenson, J. C., M. S. Kearney, and E. W. Koch. 2002. Impacts of sea level rise on tidal wetlands and shallow water habitats: A case study from Chesapeake Bay. *American Fisheries Society Symposium* 32:23-36.
- ¹⁶ IPCC. 2007b. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK.

12 Appendices

12.1 Lease Agreement

SAL2

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

319 acres

LEASE AGREEMENT

JANET BUTTERFIELD BROOKS WILDLIFE AND ENVIRONMENTAL AREA

Lease Number 4594

This lease is made and entered into this 22nd day of DECEMBER, 2008, between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR", and FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, hereinafter referred to as "LESSEE".

WITNESSETH:

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA is authorized in Section 253.03, Florida Statutes, to enter into leases for the use, benefit and possession of public lands by state agencies that may properly use and possess them for the benefit of the people of the State of Florida.

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter contained, LESSOR leases the below described premises to LESSEE subject to the following terms and conditions:

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities and obligations herein shall be exercised by the Division of State Lands, State of Florida Department of Environmental Protection.
2. DESCRIPTION OF PREMISES: The property subject to this lease is situated in the County of Hernando, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter referred to as "leased premises". Unless stated otherwise, all sovereignty lands located within the boundaries of Exhibit "A" shall be considered a part of leased premises.
3. TERM: The term of this lease shall be for a period of fifty years, commencing on DECEMBER 22, 2008, and ending on DECEMBER 21, 2058, unless sooner terminated pursuant to the provisions of this lease.

4. PURPOSE: LESSEE shall manage the leased premises only for the conservation and protection of natural and historical resources and resource based public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 259.032(11), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this lease.

5. QUIET ENJOYMENT AND RIGHT OF USE: LESSEE shall have the right of ingress and egress to, from and upon the leased premises for all purposes necessary to the full quiet enjoyment by said LESSEE of the rights conveyed herein.

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

7. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises in accordance with Section 253.034, Florida Statutes, within twelve months of the effective date of this lease. The Management Plan shall be submitted for approval to the State of Florida Department of Environmental Protection, Division of State Lands, Office of Environmental Services, Mail Station 140, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. The Management Plan shall emphasize the original management concept as approved by LESSOR at the time of acquisition, which established the primary public purpose for which the leased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by LESSEE and LESSOR. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

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

9. INSURANCE REQUIREMENTS: LESSEE shall procure and maintain fire and extended risk insurance coverage, in accordance with Chapter 284, F.S., for any buildings and improvements located on the leased premises by preparing and delivering to the Division of Risk Management, State of Florida Department of Insurance, a completed Florida Fire Insurance Trust Fund Coverage Request Form and a copy of this lease immediately upon erection of any structures as allowed by paragraph 4 of this lease. A copy of said form and immediate notification in writing of any erection or removal of structures or other improvements on the leased premises and any changes affecting the value of the improvements shall be submitted to the following: Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000.

10. LIABILITY: LESSEE shall assist in the investigation of injury or damage claims either for or against LESSOR or the State of Florida pertaining to LESSEE'S respective areas of responsibility under this lease or arising out of LESSEE'S respective management programs or activities and shall contact LESSOR regarding the legal action deemed appropriate to remedy such damage or claims.

11. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this lease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the State of Florida Department of State, Division of Historical Resources. The Management Plan prepared pursuant to Section 253.034, Florida Statutes, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the leased premises.

12. EASEMENTS: All easements including, but not limited to, utility

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easements are expressly prohibited without the prior written approval of LESSOR. Any easement not approved in writing by LESSOR shall be void and without legal effect.

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

14. POST CLOSING RESPONSIBILITIES: In an effort to define responsibilities of the LESSOR and LESSEE with regard to resolving post closing management issues, the parties agree to the following:

- a. After consultation with the LESSEE, LESSOR agrees to provide the LESSEE with the title, survey and environmental products procured by the LESSOR, prior to closing.
- b. LESSOR will initiate surveying services to locate and mark boundary lines of specific parcels when necessary for immediate agency management and will provide a boundary survey of the entire acquisition project at the conclusion of all acquisition within the project boundary. Provided, however, the LESSEE may request individual parcel boundary surveys, if necessary, prior to the conclusion of acquisition activities within the project boundaries.
- c. Unless otherwise agreed to by LESSEE, LESSOR shall at its sole cost and expense, make a diligent effort to resolve all issues pertaining to all title defects, survey matters or environmental contamination associated with the leased premises, including but not limited to trash and debris, which were either known or should have been reasonably known by LESSOR at the time LESSOR acquired the leased premises. Notwithstanding the foregoing, LESSOR will not be responsible for any of LESSEE'S attorney's fees, costs, or liability or damages incurred by the LESSEE in resolving any issue in which the LESSEE is named as a party in any litigation or other legal or administrative proceeding.

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d. With regard to all title defects, survey matters, or environmental contamination associated with the leased premises which were not known or could not have been reasonably known by LESSOR at the time LESSOR acquired the leased premises, LESSOR and LESSEE agree to cooperate in developing an appropriate strategy for jointly resolving these matters. LESSOR acknowledges and understands that LESSEE is unable to commit any substantial amount of their routine operating funds for the resolution of any title defect, survey matter, or environmental contamination associated with the lease premises. Notwithstanding the foregoing, LESSOR will not be responsible for any of LESSEE'S attorney's fees, costs, or liability or damages incurred by the LESSEE in resolving any issue in which the LESSEE is named as a party in any litigation or other legal or administrative proceeding.

15. SURRENDER OF PREMISES: Upon termination or expiration of this lease LESSEE shall surrender the leased premises to LESSOR. In the event no further use of the leased premises or any part thereof is needed, written notification shall be made to the Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, at least six months prior to the release of all or any part of the leased premises. Notification shall include a legal description, this lease number and an explanation of the release. The release shall only be valid if approved by LESSOR through execution of a release of lease instrument with the same formality as this lease. Upon release of all or any part of the leased premises or upon expiration or termination of this lease, all permanent improvements, including both physical structures and modifications to the leased premises, shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the

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leased premises, a representative of the Division of State Lands shall perform an on-site inspection and the keys to any buildings on the leased premises shall be turned over to the Division. If the leased premises and improvements located thereon do not meet all conditions set forth in paragraphs 18 and 21 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

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

17. PUBLIC LANDS ARTHROPOD CONTROL PLAN: LESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this lease all of the environmentally sensitive and biologically highly productive lands contained within the leased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 5E-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.

18. UTILITY FEES: LESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the leased premises and for having all utilities turned off when the leased premises are surrendered.

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

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

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

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

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

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

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

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

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to, mortgages or construction liens against the leased premises or against any interest of LESSOR therein.

26. CONDITIONS AND COVENANTS: All of the provisions of this lease shall be deemed covenants running with the land included in the leased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.

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

LESSOR:	Board of Trustees of the Internal Improvement Trust Fund of the State of Florida Department of Environmental Protection Bureau of Public Land Administration Division of State Lands 3800 Commonwealth Boulevard, MS 130 Tallahassee, Florida 32399-3000
LESSEE:	Florida Fish and Wildlife Conservation Commission 620 South Meridian Street, Room 321 Tallahassee, Florida 32399-1600

28. DAMAGE TO THE PREMISES: (a) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof.

(b) LESSEE shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing

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liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403, Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE'S failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE'S such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE'S obligations set forth in this paragraph shall survive the termination or expiration of this lease. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE'S activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting periods of the applicable governmental agencies.

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

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30. RIGHT OF AUDIT: LESSEE shall make available to LESSOR all financial and other records relating to this lease and LESSOR shall have the right to audit such records at any reasonable time. This right shall be continuous until this lease expires or is terminated. This lease may be terminated by LESSOR should LESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this lease, pursuant to Chapter 119, Florida Statutes.

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

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

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

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

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

36. ADMINISTRATIVE FEE: LESSEE shall pay LESSOR an annual administrative fee of \$300 pursuant to subsection 18-2.020(8), Florida Administrative Code. The initial annual administrative fee shall be payable within thirty days from the date of execution of this lease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this lease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

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37. SPECIAL CONDITIONS: The following special condition shall apply to this lease:

a. General public access of any type, including hunting, is not allowed on the Janet Butterfield Brooks Wildlife Environmental Area. The access is restricted by deed to agency staff for management purposes (which would include law enforcement) and authorized agency guided educational access.

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Lease No. 4594

R11/07

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

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

DAVE FEWELL
Witness

DAVE FEWELL
Print/Type Witness Name

ROBIN J SMITH
Witness

ROBIN J SMITH
Print/Type Witness Name

By: Gloria C. Barber (SEAL)
GLORIA C. BARBER, OPERATIONS
AND MANAGEMENT CONSULTANT
MANAGER, BUREAU OF PUBLIC
LAND ADMINISTRATION,
DIVISION OF STATE LANDS,
STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 22ND day of
DECEMBER 2008, by Gloria C. Barber, as Operations and Management
Consultant Manager, Bureau of Public Land Administration, Division of State
Lands, State of Florida Department of Environmental Protection, acting as
agent on behalf of the Board of Trustees of the Internal Improvement Trust
Fund of the State of Florida.

DAVID L FEWELL
Notary Public, State of Florida



Print/Type Notary Name

Commission Number:

Commission Expires:

Approved as to form and legality

By: [Signature]
DEP Attorney

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Lease No. 4594

R11/07

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Sabrina Menendez
Witness
Sabrina Menendez
Print/Type Witness Name
Karen Venturaglia
Witness
Karen Venturaglia
Print/Type Witness Name

By: [Signature] (SEAL)
Jack Wiley
Type/Print Name
Title: Asst. Executive Director

STATE OF FLORIDA
COUNTY OF LEON

"LESSEE"
APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
[Signature]
Commission Attorney

The foregoing instrument was acknowledged before me this 12 day of
December 2008, by Jack Wiley, as Asst. Exec. Dir., on behalf
of the Florida Fish and Wildlife Conservation Commission, who is/are
personally known to me or who has produced _____ as
identification.

[Signature]
Notary Public, State of Florida
Kathleen L. Hampton
Print/Type Notary Name

Commission Number: NOTARY PUBLIC-STATE OF FLORIDA
Commission Expires: Kathleen Louise Hampton
Commission # DD568288
Expires: JUNE 26, 2010
BONDED THRU ATLANTIC BONDING CO., INC.

This Instrument Prepared By and

Please Return To:
Emily Parry
American Government Services Corporation
3812 W. Linebaugh Avenue
Tampa, Florida 33618

2008036487
ROBIN 2575/1970

OFFICIAL RECORDS
BK: 2575 PG: 1970

LT1-2-2008036487-1

LT2-2575-1970-5

07/02/2008 12:27PM # Pages 5
Filed & Recorded in Official Records of
HERNANDO COUNTY CLERK OF COURT
KAREN NICOLAI

DEED DOC STAMP DEPT
07/02/2008 Deputy Clk

SPECIAL WARRANTY DEED

THIS INDENTURE, made this 13th day of June, A.D. 2008, between The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as The Nature Conservancy, Inc., whose post office address is 222 S. Westmore Dr., Suite 300, Altamonte Springs, Florida 32714, Grantor, and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose post office address is c/o Florida Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 115, Tallahassee, FL 32399-3000, grantee.

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument and their legal representatives, successors and assigns. "Grantor" and "grantee" are used for singular and plural, as the context requires and the use of any gender shall include all genders.)

WITNESSETH: That the said grantor, for and in consideration of the sum of \$10.00 and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said grantee, and grantee's successors and assigns forever, the following described land situate, lying and being in Hernando County, Florida, to-wit:

See Exhibit "A" attached hereto and by reference made a part hereof.

Acceptance of Transfer of Title to Donated Lands attached hereto as Exhibit "C" and by reference made a part hereof

Property Appraiser's Parcel ID Number: R022-422-18-0000-0020-0010, R01-422-18-0000-0060-0010 and R02-422-18-0000-0020-0000

This conveyance is subject to easements, restrictions, limitations, and conditions of record if any now exist, but any such interests that may have been terminated are not hereby re-imposed.

TO HAVE AND TO HOLD the same unto the said grantee in fee simple forever.

AND the said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons claiming by, through or under the said grantor, but against none other. "Provided, however, that grantor make no warranties of title with respect to the following portion of the property described on Exhibit "B".

IN WITNESS WHEREOF the grantor has executed these presents, the day and year first written.

The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as the Nature Conservancy, Inc.

BY: Robert L. Bendick, Jr.
Robert L. Bendick, Jr. as Vice President

Logd. 4/4/08
(CORPORATE SEAL)

APPROVED
FOR CLOSING
WOK
JUN 19 2008

Signed, sealed and delivered in the presence of:

John Berger
(Signature of First Witness)

John Berger
Printed name of First Witness

Patricia A. DeStefano
(Signature of Second Witness)

Patricia A. DeStefano
Printed name of Second Witness

STATE OF Florida

Exhibit "A"
Page 14 of 18 Pages
Lease No. 4594

Exhibit "A"

The NW ¼ of the NW ¼ and the NE ¼ of the NW ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The NE ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The SE ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The South 5 acres of the North 10 acres of the NW ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The South 5 acres of the North 15 acres of the NW ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The North 5 acres of the NW ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The N ½ of the NE ¼ of the SE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

Janet Butterfield Brooks Preserve
The Nature Conservancy
7.31.07

Page 1 of 2

BSM
By RB Date 7.31.07

Exhibit "A"
Page 15 of 18 Pages
Lease No. 4594

Exhibit "A"

And

The South 5 acres of the North 20 acres of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The South $\frac{1}{2}$ of the NE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The South 10 acres of the North 30 acres of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 2, Township 22 South, Range 18 East, Hernando County, Florida.

And

The South 10 acres of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 2, Township 22 South, Range 18 East in Hernando County, Florida.

And

The NW $\frac{1}{4}$ of the SW $\frac{1}{4}$ and that portion of the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ and that portion of the NE $\frac{1}{4}$ of the SW $\frac{1}{4}$ lying South and West of Highway 491, all in Section 1, Township 22 South, Range 18 East, Hernando County, Florida.

Janet Butterfield Brooks Preserve
The Nature Conservancy
7.31.07

Page 2 of 2

Exhibit "A"
Page 16 of 18 Pages
Lease No. 4594

Exhibit "B"

OFFICIAL RECORDS
BK: 2575 PG: 1973

That part of the NW ¼ of the NE ¼ of Section 2, Township 22 South, Range 18 East, Hernando County, bounded on the North by the South line of the South 10 acres of the North 30 acres of the NW ¼ of the NE ¼ of said Section 2 and bounded on the South by the North line of the South 10 acres of the NW ¼ of the NE ¼ of said Section 2.

Janet Butterfield Brooks Preserve
The Nature Conservancy, Hiatus
4.23.08

Page 1 of 1

BSM
By RB Date 4.23.08

Exhibit "A"
Page 17 of 18 Pages
Lease No. 4594

ACCEPTANCE OF TRANSFER OF TITLE TO DONATED LANDS

Board of Trustees of the Internal Improvement Trust Fund of the State of Florida hereby accepts this conveyance as a transfer of title of the real property as described in this Deed in accordance with F. S. 259.041(10)(a).

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

Linda JH Love
(SIGNATURE OF FIRST WITNESS)

Linda JH Love
(PRINTED, TYPED OR STAMPED NAME OF
FIRST WITNESS)

BY: Lynda I. Godfrey
Lynda Godfrey, Bureau Chief, Bureau of Land
Acquisition, DIVISION OF STATE LANDS, (M)
DEPARTMENT OF ENVIRONMENTAL PROTECTION
as agent for and on behalf of the Board of Trustees
of the Internal Improvement Trust Fund
of the State of Florida

Judith A. Booth
(SIGNATURE OF SECOND WITNESS)

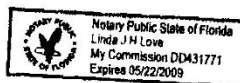
Judith A. Booth
(PRINTED, TYPED OR STAMPED NAME OF
SECOND WITNESS)

6-19-08
Date Signed

STATE OF Florida
COUNTY OF Leon

The foregoing instrument was acknowledged before me this 19 day of June, 2008, by Lynda I. Godfrey, Bureau Chief, Bureau of Land Acquisition, Division of State Lands, Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. She is personally known to me.

(NOTARY PUBLIC SEAL)



Linda JH Love
Notary Public

Linda JH Love
(Printed, Typed, or Stamped Name of Notary Public)

Commission No.: DD 431771

My Commission Expires: 05/22/2009

Exhibit "A"
Page 18 of 18 Pages
Lease No. 4594

12.2 Public Hearing Notice, Advertisements, and Press Release

12.2.1 Public Hearing Notice

NOTICE

The Florida Fish and Wildlife Conservation Commission (FWC)
Announces a

PUBLIC HEARING

for the

Janet Butterfield Brooks Wildlife and Environmental Area Management Plan

Hernando County, Florida

7:00 P.M. Wednesday, October 27th, 2021

Hernando County Administrator's Office
15470 Flight Path Dr
Brooksville, FL 34604

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA). This hearing is being held **EXCLUSIVELY** for discussion of the **DRAFT Janet Butterfield Brooks WEA Management Plan**. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development go online to:

<http://myfwc.com/about/rules-regulations/>

A Management Prospectus for the Janet Butterfield Brooks WEA is available upon request. For a copy, please contact Matthew Stana, Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9982.

12.2.2 Internal FWC Press Release

For immediate release: Oct. 13, 2021

Media contacts: Lisa Thompson, 727-348-2798 or Lisa.Thompson@MyFWC.com
Melody Kilborn, 863-227-3830 or Melody.Kilborn@MyFWC.com

Suggested Tweet: The @MyFWC holding public hearing to present draft plan for Janet Butterfield Brooks WEA on 10/27 @Hernando County Administrator's Office in #Brooksville
<https://content.govdelivery.com/accounts/FLFFWCC/bulletins/0> #Conservation



Help plan the future of the Janet Butterfield Brooks Wildlife and Environmental Area

The Florida Fish and Wildlife Conservation Commission (FWC) will present the 10-year draft management plan for the Janet Butterfield Brooks Wildlife and Environmental Area at a public hearing in Hernando County on Wednesday, Oct. 27. The public hearing will be held at 7 p.m. at the Hernando County Administrator's Office, 15470 Flight Path Drive in Brooksville, FL. The public is encouraged to attend and will have the opportunity to comment and ask questions regarding the management for the FWC-managed WEA.

The Janet Butterfield Brooks WEA encompasses approximately 319 acres in Hernando County and has some of the area's last tracts of older growth longleaf pine sandhill forests and hardwood hammocks. The vast mix of mesic hammock, upland hardwood forest and bottomland forest found here provides important wildlife habitat for species including gopher tortoises and southeastern American kestrels. Public access to the area is restricted to FWC staff for management purposes in accordance with the restrictions in the deed of donation.

"The Janet Butterfield Brooks WEA was donated to ensure the preservation of fish, wildlife, and other natural and cultural resources for future generations," said **Matthew Stana, FWC land conservation planner**. "This management plan will specify how we intend to accomplish that goal."

For more information on this [upcoming public hearing](#), go to MyFWC.com/Conservation and select "Terrestrial Programs" then "Management Plans." Hunting and fishing regulations are not included in this plan or meeting; they are addressed through a separate public process. Visit MyFWC.com/hunting or MyFWC.com/fishing and select "Regulations" to learn more about hunting and fishing regulations.

Pursuant to Chapters 253 and 259, Florida Statutes, all lands purchased with public funds must have a management plan that ensures the property will be managed in a manner that is consistent with the intended purposes of the purchase. For more information and background on management plans and their goals, visit MyFWC.com/Conservation and select "Terrestrial Programs" then "Management Plans" and "Terrestrial Habitat Management Plans."

To obtain a copy of the land management prospectus for the Janet Butterfield Brooks WEA, call Matthew Stana at 850-487-9982 or email Matthew.Stana@MyFWC.com.



SHARE



QUESTIONS? [Contact the FWC](#)

STAY CONNECTED:



SUBSCRIBER SERVICES:

[Subscriber Preferences](#): Unsubscribe, Add/delete topics, modify your password or email address. Use your email address to log in.

[Localize your news](#): Go to Subscriber Preferences, click "Questions" and select your region(s) of interest.

[Help](#): For assistance with your login or subscription service.

This email was sent to Email Address using GovDelivery Communications Cloud on behalf of: Florida Fish & Wildlife Conservation Commission · 620 S. Meridian Street · Tallahassee, FL 32399-1600 · (850) 488-4676



12.2.3 Newspaper



THE HERNANDO SUN; Published Weekly

Brooksville Hernando County FLORIDA

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF FLORIDA

COUNTY OF HERNANDO :

Before the undersigned authority personally appeared Julie B. Maglio, who on oath says that she is Editor of the Hernando Sun, a weekly newspaper published at Brooksville in Hernando County, Florida; that the attached copy of the advertisement, being a FWC Public Hearing

in the matter of
Janet Butterfield Brooks Wildlife and Environmental Area (WEA)

in said newspaper in the issue(s) of:
(10/15/2021)

Affiant further says that the said newspaper is a newspaper published at Brooksville, in said Hernando County, Florida, and that the said newspaper has heretofore been continuously published in said Hernando County, Florida, each week and has been entered as periodicals matter at the post office in Brooksville, in said Hernando County, Florida, for a period of 1 year next preceding the first publication of the attached copy of advertisement; and affiant further says that he or she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

(Signature of Affiant)

Sworn to and subscribed before me
this 15th day of October 2021.

(Signature of Notary Public)



TINA L. JAMES
Commission # GG 980957
Expires August 23, 2024
Bonded thru Budget Notary Services

(Print, Type, or Stamp Commissioned Name of Notary Public)

Personally known ☒ or

produced identification _____

Type of identification produced _____

The Florida Fish and Wildlife Conservation Commission (FWC) announces a **PUBLIC HEARING** for the Janet Butterfield Brooks Wildlife and Environmental Area (WEA) located in Hernando County, Florida.

**7:00 P.M. Wednesday,
October 27th, 2021
County Administrator's Office
15470 Flight Path Dr
Brooksville, FL 33604**

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the Janet Butterfield Brooks WEA.

This hearing is being held **EXCLUSIVELY** for discussion of the DRAFT Janet Butterfield Brooks WEA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our Proposed Rule Changes page.

A Management Prospectus for Janet Butterfield Brooks WEA and copy of the agenda is available upon request from the Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning Group, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9982 or by e-mail at Matthew.Stana@MyFWC.com

Publish: (10/15/2021)

12.2.4 Florida Administrative Register Ad

FLORIDA DEPARTMENT OF STATE
Laurel M. Lee, Secretary of State
Administrative Code
The Gray Building - 500 S. Bronough Street, Tallahassee, FL 32399-0250

Billed to:
Fish and Wildlife Conservation Commission
Florida Fish & Wildlife Conservation
Commission, Habitat & Species Conservation
620 S Meridian Street
Tallahassee, FL 32399-1600
Attn: Dylan Imlah

Account: 1072 Invoice Date: 10/19/2021 Invoice Number: 121187

	P.O. #	Publication in Florida Administrative Register	#units	\$each	Extension
1	B828F8	Vol/No: 47/196, October 8, 2021, Notice ID: 24982755	235	0.14	\$32.90

Invoice # must appear on all checks and correspondence. Please pay balance due: **\$32.90**
F.E.I.D. number: F 59-3466865 ***Net Due - 15 days - No Discount***

TO INSURE PROPER CREDIT, PLEASE RETURN THIS PORTION.

Department of State - Division of Administrative Services - Bureau of Planning, Budget and Financial
Services - (850)245-6579

R.A. Gray Bldg - 500 S. Bronough St, 4th Fl. - Tallahassee, FL 32399-0250

Account: 1072 Invoice Date: 10/19/2021 Number: 121187 Amount Due: \$32.90

State Agencies - Journal Transfer to Account Code: 45-60-2-572001-45400100-00 BF Obj 019000 BF Cat 001903

Org Code / EO : 45400120200 7X Object:019032 Category: 001903

For Accounting Use Only: Object Code: 019032 Cat: 001903 ARGL: 16300 GL: 67100

FLAIR Account Code: 77-10-1-000083-77200100-00

Vendor FEID:

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

ID 24982755

Notice of Meeting/Workshop Hearing

FISH AND WILDLIFE CONSERVATION COMMISSION

Freshwater Fish and Wildlife

The Fish and Wildlife Conservation Commission announces a public meeting to which all persons are invited.

DATE AND TIME: October 27, 2021, 7:00 p.m.

PLACE: County Administrator's Office, 15470 Flight Path Dr, Brooksville, FL 33604

GENERAL SUBJECT MATTER TO BE CONSIDERED: To receive public comment regarding considerations for FWC's ten-year Management Plan for the Janet Butterfield Brooks WEA.

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Janet Butterfield Brooks WEA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our Proposed Rule Changes page.

A copy of the agenda may be obtained by contacting: A Management Prospectus for Janet Butterfield Brooks WEA and copy of the agenda is available upon request from the Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning Group, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850)487-9982 or by e-mail at Matthew.Stana@MyFWC.com.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 14 days before the workshop/meeting by contacting: Matthew Stana, Telephone: (850)487-9982

e-mail: Matthew.Stana@MyFWC.com. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

12.3 Public Input

12.3.1 Management Advisory Group Meeting Results

Janet Butterfield Brooks Wildlife and Environmental Area (WEA) Management Advisory Group (MAG) Consensus Meeting Results

September 1, 2021 in Brooksville, Florida

The intent of convening a consensus meeting is to involve a diverse group of stakeholders in assisting the Florida Fish and Wildlife Conservation Commission (FWC) in development of a rational management concept for lands within the agency's managed area system. The FWC does this by asking spokespersons for these stakeholders to participate in a half-day meeting to provide ideas about how FWC-managed lands should be protected and managed.

The MAG consensus meeting was held on the morning of *September 1, 2021* at the University of Florida/IFAS Facility, in Brooksville, Florida in Hernando County. The ideas found below were provided by stakeholders for consideration in the 2022-2032 Management Plan (MP) with priority determined by vote. These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by the FWC, the Acquisition and Restoration Council (ARC), and the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

Numbers to the left of **bold-faced ideas** listed below represent the total number of votes and the score of each idea. Rank is first determined by the number of votes (vote cards received for each idea) and then by score. Score is used to break ties when two or more ideas have the same number of votes. A lower score indicates higher importance because each voter's most important idea (recorded on card #1) received a score of 1, and their fifth most important idea (recorded on card #5) received a score of 5. Ideas not receiving any votes are listed, and were considered during the development of the MP, but carry no judgment with regard to priority.

Statements following the bold-faced ideas represent a synopsis of the clarifying discussion of ideas as transcribed and interpreted by the FWC recorder at the meeting. As indicated above, the ideas below are presented in priority order:

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
1.	[8]	[13]	13. Maintain or improve natural communities into desired future conditions (DFCs). This entails following the resource management component of the plan. The FWC should treat invasive plants and burn areas which should be burned as frequently as they can be. The FWC should continue monitoring existing populations of invasives and any new invasives that may find their way onto the area. To aid in continued efforts for prescribed fire the FWC should, 1) install a well on the south side of the property and 2) create a connector trail between the north and south side of the area to aid access to the well for fire suppression. Burning and well installation increases safety across the board.
2.	[5]	[16]	25. Pending hydrological assessment, explore restoration opportunities. The FWC should consider restoration, if possible, especially if there is any evidence that it is needed. The placement of firebreaks or roads should not impede water flow.
3.	[5]	[19]	18. Continue to protect historical resources. There has been significant looting of artifacts in the past on the property. The FWC should continue to conduct annual cultural resource monitoring and be sure to notify law enforcement if there are any further issues.
4.	[4]	[11]	17. Continue to allow public access through guided programs. The FWC should explore cooperative opportunities for environmental education on the area. There are guided hikes at Fickett Hammock in cooperation with alternative education style programs; it could be nice to start on Fickett Hammock and end on the JBBWEA. Recently there has been one guided tour on the JBBWEA per year, and that is all that parking and staff time currently allow. However, we should promote other guided programs, particularly to reach children since it is they who will be working to conserve in the future. It is important that they learn and gain interest early on.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
5.	[4]	[14]	9. Develop a timber management plan, including a timber assessment. Existing timber management language and objectives should be clarified to make it more clear and less contradictory. There should be a salvage plan for if there is a hurricane, insects, too hot of a fire, etc. A section in the plan regarding how timber management can help to deal with natural disasters could also be included.
6.	[3]	[9]	7. Allow scientific research. Since there are a lot of other areas in Hernando County that are available to the public, perhaps this could be a more scientific property. This property could be made into a 'fortress' since it is relatively undisturbed, in contrast to other conservation areas in which invasives such as Caesar's weed are being brought in on socks, dogs, horses, tires, etc. and have become almost uncontrollable.
7.	[3]	[10]	21. Continue to inventory plant and animal species. The FWC should be sure to identify and look for rare plants since exposed limestone, which is found on the property, is an indicator for those types of rare species.
8.	[3]	[13]	5. Address management challenges. This could include fire, smoke sensitive areas, trespassing, etc. The fact this site is not open to the public could tempt people to trespass even more.
9.	[2]	[6]	10. Continue to monitor for imperiled species. Continue to monitor for imperiled species. This includes opportunistic observations while monitoring the property, anything seen during management, and continuing 5-year gopher tortoise surveys to monitor populations over time.
10.	[2]	[8]	15. Use the site for educational "field days" for private landowners. Field days are a good educational tool. Some private landowners are interested in creative conducive wildlife habitat by emulating the FWC's management on their own properties.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
Two items of equal rank:			
11.	[1]	[1]	6. Concise communication regarding the purpose of the property. Citizens' tax dollars are being used to protect a piece of property that they do not have access to, so we should at least make sure the public knows what is happening on the area.
11.	[1]	[1]	14. Practice biological security measures.
13.	[1]	[3]	22. Explore non-traditional education groups. The FWC should reach out to charter, private, and home school groups. Those curricula are more flexible than public schools and it is a growing group.
14.	[1]	[4]	2. Continue boundary delineation and proper signage.
15.	[1]	[5]	23. Define management chain. The FWC should solidify what is in place now with the management chain – it is working very well.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
-------------	-----------------------	--------------	-------------

The following items received no votes. All ideas represent valuable input, and are considered in development of the MP, but carry no rank with regard to the priority perceptions of the MAG.

- | | | | |
|-----|----|----|---|
| 16. | [] | [] | 4. Continue cooperation with Hernando County. It would be more efficient and economical to coordinate invasive management with Fickett Hammock and/or other nearby areas. |
| 17. | [] | [] | 8. Continue to cooperate with adjacent landowners on management. The FWC do this actively with other programs through NRCS (Natural Resources Conservation Service). Conducting outreach to nearby agricultural producers could be helpful because their actions on their properties do have impacts on the JBBWEA. This could help to improve natural resource management and create more contiguous gopher tortoise habitat. |
| 18. | [] | [] | 12. Management plan remain consistent with Hernando County comprehensive plan. |

**Janet Butterfield Brooks Wildlife and Environmental Area
MAG Meeting Participants**

Name

Affiliation

Active Participants

Matthew Koenig	FWC Area Biologist
Lieutenant Kevin Grover	FWC Law Enforcement
Anne Blanchard	Southwest Florida Water Management District
Commissioner John Allocco	Hernando County Commissioner
Michael Singer	Hernando County Planning Department
Mike Edwards	Florida Forest Service
Chris Becker	Florida Department of Environmental Protection
Chelsie Miller	Natural Resources Conservation Service
Vince Morris	Florida Native Plant Society

Supportive Participants

Joshua Agee	FWC Habitat and Species Conservation (HSC), Regional Biologist
Victor Echaves	FWC HSC, District Biologist
Ethan Noel	FWC HSC, Conservation Biologist
Cully Lord	FWC HSC, Assistant Regional Biologist
Clint Barga	FWC HSC, Biologist
Luis Gonzalez	FWC HSC, Landowner Assistance Program
Mark Schulz	FWC Division of Hunting and Game Management
Jake FitzRoy	FWC Florida Youth Conservation Centers Network
Officer Alberto Canamero	FWC Law Enforcement

Invited but Unable to Attend

Jason O'Donoughue	Division of Historical Resources
Dan Hipes	Florida Natural Areas Inventory
Wendy Mathews	The Nature Conservancy
Mike Mettler	Adjacent Landowner

FWC Planning Personnel

Matthew Stana	Land Conservation Planner, Facilitator
Dylan Haase	Senior Land Conservation Planner, Facilitator
Jackie Bucheck	Recorder

12.3.2 Public Hearing Report

PUBLIC HEARING REPORT

FOR

JANET BUTTERFIELD BROOKS WILDLIFE AND ENVIRONMENTAL AREA MANAGEMENT PLAN

HELD BY THE

JANET BUTTERFIELD BROOKS WILDLIFE AND ENVIRONMENTAL AREA MANAGEMENT ADVISORY GROUP

AND THE

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

OCTOBER 27, 2021 – HERNANDO COUNTY, FLORIDA

The following report documents the public input that was received at the Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA) Management Advisory Group's (MAG) public hearing for the update to the Management Plan for JBBWEA that was held at 7:00-9:00 PM, on October 27, 2021 at the Hernando County Board of County Commissioners at 15470 Flight Path Drive in Brooksville, Florida.

JBBWEA Management Advisory Group Introduction:

The meeting was introduced by Mr. Matthew Koenig, a JBBWEA Management Advisory Group participant, who represented the JBBWEA MAG. Mr. Koenig indicated that he was one of nine stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated JBBWEA MAG meeting held on September 1, 2021. Mr. Koenig stated that the elements of the Draft Management Plan was being presented tonight by FWC staff, and that

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

hardcopies of the Management Prospectus, Overview, and the JBBWEA MAG meeting report were available at the front door for the public's review. Mr. Koenig thanked everyone for attending and then introduced Mr. Matthew Stana, Land Conservation Planner, FWC, to facilitate and coordinate the presentation of an overview of JBBWEA, FWC's planning process, and the draft components of the JBBWEA Management Plan.

Presentation on an Overview of JBBWEA and the FWC Planning Process:

Mr. Stana welcomed everyone and thanked the public for their attendance. Mr. Stana then went over an orientation of the material and explained that the purpose of the public hearing was to solicit public input regarding the Draft Management Plan for JBBWEA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mr. Stana then described the materials that were available at the door for public review, including the JBBWEA Management Prospectus and the MAG Meeting Report. Mr. Stana then presented the agenda for the public hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mr. Stana then presented an overview and orientation of JBBWEA, including a description of the natural communities, data about JBBWEA visitation, revenue and economic benefits generated for the state and region by the area, wildlife species, recreational opportunities found on the area, surrounding conservation lands, surrounding Florida Forever Program Land Acquisition Projects, acquisition history, etc. He also explained FWC's planning process for the management of the public conservation land and asked if there were any questions regarding that process.

Questions, Answers and Discussion on the JBBWEA Overview and FWC's Planning Process:

Mr. Stana facilitated an informal question and answers session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mr. Stana again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the Draft Management Plan for JBBWEA, and not to discuss area hunting, fishing and use regulations since, as was noted earlier, FWC has a separate process for input on hunting and fishing regulations.

Public Question 1: An unidentified member of the audience provided the following comments and questions:

For guided walk throughs, as far as what is considered for conservation purpose, is it possible for a group to go through the area with FWC to collect seeds? To try and collect native species.

FWC Response: Mr. Koenig, FWC Area Manager, responded:

Any individual or group that is interested in collecting vegetation for scientific study or restoration purposes must first obtain a special use permit online at myfwc.com. With input from area staff, our Regional Biologist reviews all permit applications and makes a determination

based on whether the collection of materials is appropriate and consistent with the management objectives of the area. With an approved permit in hand, you would potentially be able to collect native seeds. In the past, the agency has approved special use permits at the Brooksville areas for things like pine needle collection for genetic sequencing of longleaf pines and wetland soil core sampling for long-term climate studies.

Public Question 2: An unidentified member of the audience provided the following comments and questions:

Where are you at as far as the stage of the management plan update?

FWC Response: Mr. Stana, Land Conservation Planner, responded:

Right now, we are number 3 on the slide pictured, which is the public hearing and presentation of the Draft Management Plan, which includes the goals and objectives of what we plan to do. We have not yet gone through any internal or external review. So far, we have just drafted the plan and are obtaining citizen input. After this stage of citizen input, we will provide a draft to leadership for their review.

FWC Response: Ms. Dylan Haase, Senior Conservation Planner, responded:

Provided at the door is the Overview and Management Prospectus documents. After today, the elements of those two documents will be combined to draft a full management plan. That plan will be like the Chassahowitzka plan I had sent you. So, at this stage it has not gone through all our internal and leadership reviews, as we want to obtain citizen input first to see if there are any changes or updates we need to make. So next step is to combine all the elements, go through leadership approval, and then submit to the Department of Environmental Protection and Acquisitions and Restoration Council (ARC).

Public Question 2: An unidentified member of the audience continued this line of comments and questions:

Do you publish or make available that draft for the public to comment on?

FWC Response: Ms. Dylan Haase, Senior Conservation Planner, responded:

We have a website that we keep updated that lists all the management plans that are currently in draft form. If the public does want to comment or request a copy of those plans, then they submit that request to our office. Then we can send them a copy before the plan goes to ARC for final approval. The public also has an opportunity to comment when it is presented to ARC as well.

No (further) questions or comments were received at this stage of the JBBWEA public hearing meeting.

Presentation of the JBBWEA Draft Management Plan:

At this point, Mr. Matthew Stana, the JBBWEA Lead Planner began the presentation of the JBBWEA Draft Management Plan. Mr. Stana then completed and concluded the presentation of the JBBWEA Draft Management Plan.

Questions and Comments on the JBBWEA Draft Management Plan Presentation:

Mr. Stana asked if there were any comments or questions from the public regarding the Draft Management Plan and encouraged everyone to fill out a speaker card for public testimony. He informed them that all comments, questions, and public testimony will be duly considered equally by FWC.

Public Question 1: An unidentified member of the audience provided the following comments and questions:

The property adjacent to the JBBWEA is primary owned by private landowners and some have cows on it. That property is zoned for 10-acre parcels. When you read of your challenges in the presentation, it sounds to me as if you guys are anticipating modification of those lands?

FWC Response: Ms. Dylan Haase, Senior Conservation Planner, responded:

No, not necessarily. What we're trying to say with this, is that we recognize on all our areas that there is always going to be adjacent land use that might not be fully compatible with the area. So, during the development of the management plan we communicate with Hernando County to see what kind of zoning, future or current, are going on. This way we can plan accordingly and work with those landowners on possible mitigating effects or partnerships. We put this information in because we never know what could occur in the future and we want to keep lines of communication open.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

Ok, I just wanted to make sure there are no commercial zoning plans or a warehouse going next door or anything. I just wanted to make sure, thank you

Public Question 2: An unidentified member of the audience provided the following comments and questions

The water that accumulates on Bailey Hill, from my understanding the water didn't accumulate until after the property behind the Bailey Mansion property was logged. That easement was packed down tight. Would there be any issue with FWC, if we as citizens and the property owner, made adjusts to that easement. It's on her private land— is there any negative impact, prior to doing hydrological work.

FWC Response: Mr. Matthew Koenig, Area Biologist, responded:

Are you talking about this area right here? {Matt Koenig pointing to area on map}

Public Response: The same unidentified member of the audience continued this line of comments and questions:

Yes, because there's quite a bit of material there when they made changes to that easement . . . Anything that this property owner could do, to make that water not there, I just want to make sure that doesn't cause a problem with you guys – Because I think we can solve the problem in an afternoon. So if we started doing some activities you won't come out and ask us not to do it?

FWC Response: Mr. Matthew Koenig, Area Biologist, responded:

Certainly, wouldn't get angry about that and we appreciate the communication and partnership on the activity. We cannot control what goes on private property, but communication is appreciated. If it does impact us we can definitely discuss with you guys. However, just as long you aren't doing anything on Janet Butterfield Brooks.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

I don't know where your fence-line falls.

FWC Response: Mr. Matthew Koenig, Area Biologist, responded:

The fence-line is a four-strand barbwire fence and completely encircles the area. Our boundary is usually about 6 inches beyond the fence.

Public Question 3: An unidentified member of the audience provided the following comments and questions (30:41)

Hernando county is currently updating their management plan for Fickett Preserve and I want to know how you coordinate with them. How you're updating your plan versus updating their plan, and do you ever coordinate management activities to hit some economies at scale? For example, prescribed burns, etc.

FWC Response: Mr. Matthew Koenig, Area Biologist, responded:

I've participated in the MAG meeting and I have a pretty good relationship with Mike Singer (Hernando County), we talk a lot. We have a good relationship and good communication. As for prescribed fire, they don't really have a lot of burnable habitat over there. That might be something that is not important to address right now, but you'll have to talk to Mike about that. We provide resources for prescribed burns in Hernando, but I don't think we're planning for prescribed fire on Fickett.

Public Question 4: An unidentified member of the audience provided the following comments and questions

Are you working with the mine at all to mitigate invasive species coming over to the area?

FWC Response: Ms. Dylan Haase, Senior Conservation Planner, responded:

We list that as a challenge—invasive plants sometimes come on the area from adjacent lands, and we try to communicate if we can, but it is an ongoing problem. We try to control our property and what may come on it, but cogongrass especially is hard to control on this area.

Public Question 6: An unidentified member of the audience provided the following comments and questions

This question is regarding public access? I know there is limited access to the area. However, how many groups usually come to area?

FWC Response: Ms. Matthew Stana, FWC Land Conservation Planner, responded:

I think on average it's been one or two a year.

FWC Response: Ms. Matthew Koenig, FWC Area Manager, responded:

Those are ones we provided to the public, but you could have a smaller ones that may request to come on the area, such as Audubon.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

I think it is good to have people come out to the area, because the more people that can visit and experience the area, they understand and appreciate what you do. I think if you were to encourage, even though it's limited, encourage that use. For example, I am part of Audubon and Sierra Club and I think if you were in touch with these groups, we have calendar and are always looking to schedule events and can get a group down there. This way we then become your advocates. I think it's good to have these nonprofits and environmental organizations advocating for you.

FWC Response: Ms. Matthew Koenig, FWC Area Manager, responded:

The Chinsguet Conservation Center does work with Audubon a lot on groups visits. So you can coordinate with the Chinsegut Conservation Center director on visiting Janet Butterfield Brooks as well.

FWC Response: Ms. Dylan Haase, Senior Conservation Planner, responded:

We also have an objective that we want to pursue and explore other possible education partnership opportunities.

No further questions or comments were received at this stage of the CWEA public hearing meeting.

Public Testimony on the CWEA Draft Management Plan:

One member of the public audience submitted speaker card indicating their intention to provide formal public testimony. Mr. Matthew Stana again emphasized that the public hearing was for taking input regarding the CWEA Draft Management Plan and called the first speaker to the podium.

Public Testimony 1: Mr. Tom St. Clair provided the following public testimony:

I am the conservation chair for the Hernando Audubon, and habitat and wildlife corridor chair for the Sierra Club. I really don't know this area that much, but I would have liked to have been invited to the stakeholder meetings. Just a couple of things: In the management plan, I think it is advisable to evaluate management success and the progress of management. I don't know if you plan to put that in the plan, but I think it would be helpful to include, so the public can have a better understanding of what you are doing and the progress. Once again, for public access, I would encourage you to not sit back and let people come to you, but encourage and reach out to people to come out. For example, the Audubon does a species inventory 3-4 times a year to identify some of those migrant species. We can provide a baseline inventory and have provided this to Mike Singer (Hernando County). This has helped Hernando County document some of the population restoration success they have had. Concerning climate change, this is one of the biggest impacts with the larger fluctuations of precipitation, so I'd really like to see the management plan address this more frequently and more information on how you will manage for these impacts.

Adjournment:

Mr. Matthew Stana asked if there were any other members of the public that wished to give public testimony.

Public Comment: An unidentified member of the audience provided the following comments and questions

I have noticed some palms dying around the area, have you experienced that on the area? Are you putting any focus on palm trees?

FWC Response: Ms. Matthew Koenig, FWC Area Manager, responded:

We are not specifically focusing on palm trees but focusing on complementary species for the area. We are not specifically looking to preserve palms, but instead species that will support gopher tortoises, since that was the primary purpose for acquisition.

Then Mr. Matthew Stana declared the public hearing adjourned.

12.4 Plant and Wildlife Species Tables

Bird Species Observed on the JBBWEA

Common Name	Scientific Name
Great horned owl	<i>Bubo virginianus</i>
Northern bobwhite quail	<i>Colinus virginianus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Southern bald eagle	<i>Haliaeetus leucocephalus</i>
Southeastern American kestrel	<i>Falco sparverius paulus</i>
Summer tanager	<i>Piranga rubra</i>
Wild turkey (Florida wild turkey)	<i>Meleagris gallopavo</i>

Mammal Species Observed on the JBBWEA

Common Name	Scientific Name
Cotton mouse	<i>Peromyscus gossypinus</i>
Florida mouse	<i>Podomys floridanus</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
Southern fox squirrel	<i>Sciurus niger niger</i>
White-tailed deer	<i>Odocoileus virginianus</i>

Reptile Species Observed on the JBBWEA

Common Name	Scientific Name
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern fence lizard	<i>Sceloporus undulatus</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Green anole	<i>Anolis carolinensis carolinensis</i>
Southern black racer	<i>Coluber constrictor priapus</i>

Invertebrates Observed on the JBBWEA

Common Name	Scientific Name
Green lynx spider	<i>Peucetia viridans</i>

Native Plant Species Observed on the JBBWEA

Scientific Name	Common Name
<i>Acalypha gracilens</i>	Slender threeseed mercury
<i>Acer rubrum</i>	Red maple

Scientific Name	Common Name
<i>Acer saccharum</i> ssp. <i>floridanum</i>	Florida maple
<i>Ageratina jucunda</i>	Hammock snakeroot
<i>Ambrosia artemisiifolia</i>	Common ragweed
<i>Amorpha herbacea</i> var. <i>herbacea</i>	Clusterspike false indigobush
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	Purple bluestem
<i>Andropogon gyrans</i>	Elliott's bluestem
<i>Andropogon</i> sp.	Bluestem
<i>Andropogon virginicus</i>	Broomsedge bluestem
<i>Andropogon virginicus</i> var. <i>glaucus</i>	Chalky bluestem
<i>Aristida purpurascens</i>	Arrowfeather threeawn
<i>Aristida</i> sp.	Threeawn
<i>Aristida stricta</i>	Wiregrass
<i>Aristolochia serpentaria</i>	Virginia snakeroot
<i>Arnoglossum floridanum</i>	Florida Indian-plantain
<i>Asclepias feayi</i>	Florida milkweed
<i>Asimina angustifolia</i>	Slimleaf pawpaw
<i>Asimina obovata</i>	Bigflower pawpaw
<i>Asimina pygmea</i>	Dwarf pawpaw
<i>Asimina reticulata</i>	Netted pawpaw
<i>Asplenium platyneuron</i>	Ebony spleenwort
<i>Axonopus furcatus</i>	Big carpetgrass
<i>Baptisia</i> sp.	Wild indigo
<i>Berlandiera pumila</i>	Soft greeneyes
<i>Berlandiera subacaulis</i>	Florida greeneyes
<i>Bidens alba</i>	Beggarticks
<i>Bulbostylis ciliatifolia</i>	Capillary hairsedge
<i>Callicarpa americana</i>	American beautyberry
<i>Campsis radicans</i>	Trumpet creeper
<i>Carex</i> sp.	Sedge
<i>Carphephorus corymbosus</i>	Coastalplain chaffhead
<i>Carpinus caroliniana</i>	American hornbeam
<i>Cartrema americanum</i>	Wild olive
<i>Carya glabra</i>	Pignut hickory
<i>Celtis laevigata</i>	Sugarberry
<i>Centrosema virginianum</i>	Spurred butterfly pea
<i>Cephalanthus occidentalis</i>	Common buttonbush
<i>Chamaecrista fasciculata</i>	Partridge pea
<i>Chamaecrista nictitans</i>	Sensitive pea
<i>Chasmanthium</i> sp.	Woods
<i>Chrysopsis mariana</i>	Maryland golden-aster
<i>Chrysopsis</i> sp.	Golden-aster
<i>Clematis reticulata</i>	Netleaf leather flower
<i>Clitoria mariana</i>	Atlantic pigeon-wing
<i>Cnidoscolus stimulosus</i>	Tread-softly
<i>Coleataenia anceps</i>	Beaked panicum
<i>Commelina erecta</i>	Whitemouth dayflower
<i>Conyza canadensis</i>	Canadian horseweed

Scientific Name	Common Name
<i>Cornus asperifolia</i>	Roughleaf dogwood
<i>Crataegus michauxii</i>	Michaux's hawthorn
<i>Crocanthemum carolinianum</i>	Carolina frostweed
<i>Crotalaria rotundifolia</i>	Rabbitbells
<i>Croton argyranthemus</i>	Silver croton
<i>Croton michauxii</i>	Michaux's croton
<i>Croton sp.</i>	Croton
<i>Cyperus croceus</i>	Baldwin's flatsedge
<i>Cyperus ovatus</i>	Pinebarren flatsedge
<i>Cyperus sp.</i>	Flatsedge
<i>Dalea pinnata</i>	Summer farewell
<i>Desmodium floridanum</i>	Florida tick-trefoil
<i>Dichanthelium sp.</i>	Witchgrass
<i>Diodia teres</i>	Poor joe
<i>Diospyros virginiana</i>	Common persimmon
<i>Dyschoriste oblongifolia</i>	Oblongleaf twinflower
<i>Elephantopus elatus</i>	Tall elephantsfoot
<i>Eragrostis sp.</i>	Lovegrass
<i>Eriogonum tomentosum</i>	Dogtongue wild buckwheat
<i>Eryngium aromaticum</i>	Fragrant eryngo
<i>Euonymus americanus</i>	American strawberrybush
<i>Eupatorium capillifolium</i>	Dogfennel
<i>Eupatorium rotundifolium</i>	Roundleaf thoroughwort
<i>Eustachys glauca</i>	Saltmarsh fingergrass
<i>Euthamia caroliniana</i>	Slender flattop goldenrod
<i>Galactia elliotii</i>	Elliott's milkpea
<i>Galactia mollis</i>	Soft milkpea
<i>Galactia regularis</i>	Eastern milkpea
<i>Galactia volubilis</i>	Downy milkpea
<i>Galium hispidulum</i>	Coastal bedstraw
<i>Galium pilosum</i>	Hairy bedstraw
<i>Galium sp.</i>	Bedstraw
<i>Gelsemium sempervirens</i>	Yellow jessamine
<i>Geobalanus oblongifolius</i>	Gopher apple
<i>Gordonia lasianthus</i>	Loblolly bay
<i>Gymnopogon ambiguus</i>	Bearded skeletongrass
<i>Gymnopogon sp.</i>	Skeletongrass
<i>Helianthus angustifolius</i>	Narrowleaf sunflower
<i>Helianthus radula</i>	Stiff sunflower
<i>Hieracium gronovii</i>	Queen-devil
<i>Hieracium megacephalon</i>	Coastalplain hawkweed
<i>Hieracium sp.</i>	Hawkweed
<i>Houstonia procumbens</i>	Roundleaf bluet
<i>Hypericum hypericoides</i>	St. andrew's cross
<i>Ilex ambigua</i>	Sand holly
<i>Ilex coriacea</i>	Large gallberry
<i>Ilex glabra</i>	Gallberry

Scientific Name	Common Name
<i>Juncus effusus</i> ssp. <i>solutus</i>	Soft rush
<i>Juniperus virginiana</i>	Red cedar
<i>Lechea sessiliflora</i>	Pineland pinweed
<i>Lechea</i> sp.	Pinweed
<i>Lespedeza hirta</i>	Hairy lespedeza
<i>Liatris gracilis</i>	Slender gayfeather
<i>Liatris pauciflora</i> var. <i>secunda</i>	Piedmont gayfeather
<i>Liatris</i> sp.	Blazing star
<i>Liatris spicata</i>	Dense gayfeather
<i>Liatris tenuifolia</i>	Shortleaf gayfeather
<i>Limnobium spongia</i>	Frog's-bit
<i>Liquidambar styraciflua</i>	Sweetgum
<i>Lonicera sempervirens</i>	Trumpet honeysuckle
<i>Ludwigia maritima</i>	Seaside primrosewillow
<i>Ludwigia repens</i>	Creeping primrosewillow
<i>Ludwigia</i> sp.	Primrosewillow
<i>Lygodesmia aphylla</i>	Rose-rush
<i>Lyonia ferruginea</i>	Rusty staggerbush
<i>Lyonia fruticosa</i>	Coastalplain staggerbush
<i>Lyonia lucida</i>	Fetterbush
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Magnolia virginiana</i>	Sweetbay
<i>Melinis</i> sp.	Stinkgrass
<i>Mikania cordifolia</i>	Florida keys hempvine
<i>Mimosa</i> sp.	Sensitive plant
<i>Mitchella repens</i>	Partridgeberry
<i>Monarda punctata</i>	Spotted beebalm
<i>Morella cerifera</i>	Wax myrtle
<i>Morus rubra</i>	Red mulberry
<i>Opuntia humifusa</i>	Pricklypear
<i>Ostrya virginiana</i>	Eastern hophornbeam
<i>Palafoxia feayi</i>	Feay's palafox
<i>Palafoxia integrifolia</i>	Coastalplain palafox
<i>Panicum hemitomom</i>	Maidencane
<i>Panicum virgatum</i>	Switchgrass
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Paspalum</i> sp.	Crowngrass
<i>Passiflora incarnata</i>	Purple passion-flower
<i>Persea palustris</i>	Swamp bay
<i>Phoebanthus grandiflorus</i>	Florida false sunflower
<i>Piloblephis rigida</i>	Wild pennyroyal
<i>Pinus palustris</i>	Longleaf pine
<i>Pinus taeda</i>	Loblolly pine
<i>Pityopsis graminifolia</i>	Narrowleaf silkgrass
<i>Pleopeltis michauxiana</i>	Resurrection fern
<i>Polygala cruciata</i>	Drumheads
<i>Polygala nana</i>	Candyroot

Scientific Name	Common Name
<i>Polygonella gracilis</i>	Tall jointweed
<i>Proserpinaca pectinata</i>	Combleaf mermaidweed
<i>Prunus caroliniana</i>	Carolina laurelcherry
<i>Prunus serotina</i>	Black cherry
<i>Prunus umbellata</i>	Flatwoods plum
<i>Psychotria nervosa</i>	Wild coffee
<i>Psychotria sulzneri</i>	Shortleaf wild coffee
<i>Pteridium</i> sp.	Bracken fern
<i>Pterocaulon pycnostachyum</i>	Blackroot
<i>Quercus geminata</i>	Sand live oak
<i>Quercus hemisphaerica</i>	Laurel oak
<i>Quercus incana</i>	Bluejack oak
<i>Quercus laevis</i>	Turkey oak
<i>Quercus laurifolia</i>	Swamp laurel oak
<i>Quercus margaretta</i>	Sand post oak
<i>Quercus michauxii</i>	Swamp chestnut oak
<i>Quercus nigra</i>	Water oak
<i>Quercus virginiana</i>	Live oak
<i>Rhus copallinum</i>	Winged sumac
<i>Rhynchosia michauxii</i>	Michaux's snoutbean
<i>Rhynchosia reniformis</i>	Dollarleaf
<i>Rhynchospora</i> sp.	Beaksedge
<i>Rubus cuneifolius</i>	Sand blackberry
<i>Rubus trivialis</i>	Southern dewberry
<i>Ruellia ciliosa</i>	Ciliate wild petunia
<i>Sabal minor</i>	Bluestem palmetto
<i>Sabal palmetto</i>	Cabbage palm
<i>Salvia azurea</i>	Azure blue sage
<i>Salvia lyrata</i>	Lyreleaf sage
<i>Schizachyrium stoloniferum</i>	Creeping little bluestem
<i>Schoenocaulon dubium</i>	Florida feathershank
<i>Scleria ciliata</i>	Fringed nutrush
<i>Scleria</i> sp.	Nutrush
<i>Scleria triglomerata</i>	Whip nutrush
<i>Scutellaria</i> sp.	Skullcap
<i>Serenoa repens</i>	Saw palmetto
<i>Sericocarpus tortifolius</i>	Whitetop aster
<i>Setaria parviflora</i>	Knotroot foxtail
<i>Setaria</i> sp.	Bristlegass: foxtail
<i>Sideroxylon reclinatum</i>	Florida bully
<i>Sideroxylon</i> sp.	Bully
<i>Sideroxylon tenax</i>	Tough bully
<i>Silphium asteriscus</i>	Starry rosinweed
<i>Smilax auriculata</i>	Earleaf greenbrier
<i>Smilax bona-nox</i>	Saw greenbrier
<i>Smilax glauca</i>	Cat greenbrier
<i>Smilax pumila</i>	Sarsaparilla vine

Scientific Name	Common Name
<i>Smilax smallii</i>	Lanceleaf greenbrier
<i>Solidago canadensis</i> var. <i>scabra</i>	Canada goldenrod
<i>Solidago odora</i>	Sweet goldenrod
<i>Solidago</i> sp.	Goldenrod
<i>Sorghastrum secundum</i>	Lopsided Indiangrass
<i>Sporobolus junceus</i>	Pineywoods dropseed
<i>Stillingia sylvatica</i>	Queen's delight
<i>Stylisma patens</i>	Coastalplain dawnflower
<i>Stylisma</i> sp.	Dawnflower
<i>Stylosanthes biflora</i>	Sidebeak pencil flower
<i>Symphotrichum concolor</i>	Eastern silver aster
<i>Tephrosia chrysophylla</i>	Scurf hoary-pea
<i>Tephrosia florida</i>	Florida hoary-pea
<i>Tephrosia</i> sp.	Hoary-pea
<i>Thelypteris</i> sp.	Maiden fern
<i>Tillandsia bartramii</i>	Bartram's air-plant
<i>Tillandsia setacea</i>	Southern needleleaf
<i>Tillandsia usneoides</i>	Spanish moss
<i>Toxicodendron pubescens</i>	Eastern poison oak
<i>Toxicodendron radicans</i>	Eastern poison ivy
<i>Tragia urens</i>	Wavyleaf noseburn
<i>Trichostema dichotomum</i>	Forked bluecurls
<i>Ulmus alata</i>	Winged elm
<i>Utricularia gibba</i>	Humped bladderwort
<i>Vaccinium arboreum</i>	Sparkleberry
<i>Vaccinium darrowii</i>	Darrow's blueberry
<i>Vaccinium myrsinites</i>	Shiny blueberry
<i>Vaccinium stamineum</i>	Deerberry
<i>Verbesina virginica</i>	White crownbeard
<i>Vernonia angustifolia</i>	Tall ironweed
<i>Vernonia</i> sp.	Ironweed
<i>Viburnum dentatum</i>	Southern arrowwood
<i>Viburnum obovatum</i>	Walter's viburnum
<i>Viburnum</i> sp.	Viburnum
<i>Viola palmata</i>	Early blue violet
<i>Viola sororia</i>	Common blue violet
<i>Viola</i> sp.	Violet
<i>Vitis aestivalis</i>	Summer grape
<i>Vitis rotundifolia</i>	Muscadine
<i>Woodwardia virginica</i>	Virginia chain fern
<i>Ximenia americana</i>	Hog plum
<i>Yucca filamentosa</i>	Adam's needle
<i>Zanthoxylum clava-herculis</i>	Hercules' club
<i>Zornia bracteata</i>	Viperina

12.5 Soil Series Descriptions

Map Unit Description

Hernando County, Florida

[Minor map unit components are excluded from this report]

Map unit: 6 - Arredondo fine sand, 0 to 5 percent slopes

Component: Arredondo (82%)

The Arredondo component makes up 82 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 11 - Blichton loamy fine sand, 0 to 2 percent slopes

Component: Blichton, hydric (70%)

The Blichton, hydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Blichton, non-hydric (14%)

The Blichton, non-hydric component makes up 14 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces, coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 12 - Blichton loamy fine sand, 2 to 5 percent slopes

Component: Blichton, hydric (70%)

The Blichton, hydric component makes up 70 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Blichton, non-hydric (12%)

The Blichton, non-hydric component makes up 12 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map Unit Description

Hernando County, Florida

Map unit: 14 - Candler fine sand, 0 to 5 percent slopes

Component: Candler (85%)

The Candler component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or sandy eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 19 - Electra variant fine sand, 0 to 5 percent slopes

Component: Electra variant (88%)

The Electra variant component makes up 88 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 21 - Flemington fine sandy loam, 2 to 5 percent slopes

Component: Flemington, non-hydric (78%)

The Flemington, non-hydric component makes up 78 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Flemington, hydric (10%)

The Flemington, hydric component makes up 10 percent of the map unit. Slopes are 2 to 5 percent. This component is on seeps on ridges on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 29 - Kendrick fine sand, 0 to 5 percent slopes

Component: Kendrick (80%)

The Kendrick component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits over loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 0 within 30 inches of the soil surface.

Map Unit Description

Hernando County, Florida

Map unit: 34 - Micanopy loamy fine sand, 2 to 5 percent slopes

Component: Micanopy (88%)

The Micanopy component makes up 88 percent of the map unit. Slopes are 2 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during July, August, September, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 36 - Nobleton fine sand, 0 to 5 percent slopes

Component: Nobleton (90%)

The Nobleton component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 43 - Pomello fine sand, 0 to 5 percent slopes

Component: Pomello (91%)

The Pomello component makes up 91 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges, coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 0 within 30 inches of the soil surface.

Map unit: 47 - Sparr fine sand, 0 to 5 percent slopes

Component: Sparr (85%)

The Sparr component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 49 - Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (85%)

The Tavares component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 50 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline



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Map Unit Description

Hernando County, Florida

Map unit: 49 - Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (85%)

horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 52 - Wauchula fine sand, 0 to 5 percent slopes

Component: Wauchula, non-hydric (60%)

The Wauchula, non-hydric component makes up 60 percent of the map unit. Slopes are 0 to 5 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Wauchula, hydric (20%)

The Wauchula, hydric component makes up 20 percent of the map unit. Slopes are 0 to 5 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 99 - Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

12.6 Management Plan Terms

Management Plan Goals and Objectives

Terms and Definitions

Assessment: Assessment—when a historic resource professional determines the possible effects—positive or negative—that an action or inaction may have on a historical resource (e.g., site, building, object or structures) by analyzing its current condition and documenting any modifications and changes to its original state as well as identifying any potential human or natural threats to its existence.

Capital Improvement: Capital improvement" or "capital project expenditure" means those activities relating to the acquisition, restoration, public access, and recreational uses of such lands, water areas, and related resources deemed necessary to accomplish the purposes of this chapter. Eligible activities include, but are not limited to: the initial removal of invasive plants; the construction, improvement, enlargement or extension of facilities' signs, firelanes, access roads, and trails; or any other activities that serve to restore, conserve, protect, or provide public access, recreational opportunities, or necessary services for land or water areas. Such activities shall be identified prior to the acquisition of a parcel or the approval of a project. The continued expenditures necessary for a capital improvement approved under this subsection shall not be eligible for funding provided in this chapter.

Desired future condition: Desired Future Condition is a description of the land or resource conditions that are believed necessary if management goals and objectives are fully achieved. Desired Future Condition varies by specific habitat and ecosystem. It can also vary, based upon a specific agency's management goals.

Evaluation: Review by a professional in archaeology, history or architecture as to the integrity and significance of the site, building or structure. The criteria of the National Register of Historic Places will be applied.

Facility: all developed structures and improvements provided for a specific purpose or contained within a clearly defined area.

Fire management plan: An element of the land management plan or an independent document that outlines the goals and objectives of a fire management program (prescribed and wildfire) for a predetermined period of time.

Historic: An object, site or structure that is 50 years or older.

Hydrological assessment: A documented, systematic evaluation by a qualified professional of the existing and historical quantity, quality, movement and function of water resources (e.g., computer modeling).

Imperiled species: A species or subspecies that is listed by the U.S. Fish and Wildlife Service as Endangered or Threatened; Florida Fish and Wildlife Conservation Commission (FWC) as Endangered, Threatened, or Special Concern; Florida Department of Agriculture and Consumer Services (FDACS) as Endangered or Threatened; or is tracked by Florida Natural Areas Inventory (FNAI) as globally or state Critically Imperiled or Imperiled. Imperiled Species does NOT refer to species that are on the FDACS list of commercially exploited plants that are not Endangered or Threatened.

Improve: the enhancement or expansion of facilities, roads and trails.

Maintenance: the daily or regular work of keeping facilities, roads and trails in proper condition.

Monitoring: Periodic examination of the site, building or structure to determine the current condition and threats such as erosion, structural deterioration, vegetation intrusion, poaching or vandalism. An updated Florida Master Site File form is used to complete this assessment.

Natural community/habitat/ecological improvement: Similar to restoration but on a smaller less intense scale. Typically includes small scale vegetation management activities, spot treatments of exotic plants, or minor habitat manipulations. Any habitat alteration that increases the diversity of a habitat or increases the population of a particular species.

Natural community/habitat/ecological restoration: The process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure, and physical characters. Activities may include vegetative treatments (e.g., hardwood removal, mechanical treatment, pine tree thinning, etc.), groundcover establishment, non-commercial tree plantings, erosion control, hydrological manipulation (filling ditches), and beach management.

Not in maintenance condition: Species composition and/or structure is outside the targeted range. The natural community is in need of more frequent or recurring management treatments that are beyond maintenance activities. Examples include natural communities with exotic plant or animal infestations that are at levels requiring significant treatment, natural communities that have exceeded maximum targeted fire return intervals, and natural communities in need of restoration treatments.

Poor, fair, good condition: Evaluating the condition of cultural resources is accomplished using a three-part evaluative scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists against the ideal. "Good" describes a

condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. “Fair” describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A “fair” assessment is cause for concern. “Poor” describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Population survey: Using broadly accepted methodologies to detect changes in population trends over time.

Public access: access by the general public to state lands and water, including vessel access made possible by boat ramps, docks, and associated support facilities, where compatible with conservation and recreation objectives.

Recorded: A Florida Master Site File form has been completed and filed with the Florida Department of State, Division of Historical Resources.

Recreational/visitor opportunity: measure of potential number of users based on existing resource conditions and developed facilities.

Repair (major): the restoration of facilities, road and trails to proper condition after damage or failure.

Restoration underway: restoration planning/design, executing, evaluating and reporting.

Restored/Maintenance condition: (refers to natural community) - within the range of target species composition and structure such that no significant, non-recurring alterations to structure or species composition are needed for ecological restoration. Invasive exotic plants or animals are absent or at levels requiring minimal recurring treatments, and prescribed fire rotations are within target intervals. Refers to Natural Communities. Includes NCs that meet DFC, and NCs that have received restoration action (such as thinning, clear-cut and native species planting) and only require time and recurring maintenance actions such as prescribed fire, maintenance level exotics control, or sustainable forestry practices if applicable.

Road: a paved or unpaved motor vehicle route unless identified and managed as a trail.

Significant: Listed in or determined eligible for listing in the National Register of Historic Places as an individual property, element of a multiple listing or in an historic district. Cultural resource professionals are able to make the determination, but final determination rests with the Director of the Division of Historical Resources.

Sustainable forestry: The stewardship and harvest of forest products in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems.

Systematic survey: A sampling protocol designed to assess the occurrence or population status of a species or a suite of species (e.g., presence/absence, mark and recapture, transect survey, etc.).

Trail: a linear route or path which has been specifically prepared or designed for one or more recreational functions such as hiking, biking, horseback riding or multiple use. In many cases, unimproved service roads are also designated as trails.

Treatment: A mechanical, chemical, biological or manual action that changes the structure or composition of an area in order to facilitate restoration or improvement.

Visitor carrying capacity: An estimate of the number of users a recreation resource or facility can accommodate and still provide a high-quality recreational experience and preserve the natural values of the site.

Wildlife activities: wildlife-associated recreation such as birdwatching, fishing, hunting, etc.

12.7 FNAI Element Occurrence Data Usage Letter



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

November 15, 2021

Dylan Hasse, Senior Conservation Planner
Land Conservation and Planning Subsection
Florida Fish and Wildlife Conservation Commission
Tallahassee, FL

Dear Dylan,

By virtue of this letter, we are updating and continuing our agreement that it is unnecessary for your office to request FNAI Element Occurrence data for each land management plan you prepare, under the following conditions:

- FNAI will continue to provide our Florida Element Occurrence Map Package to FWC on a quarterly basis
- The FNAI GIS data will be available to FWC staff for reference and incorporation as required in management plan review and preparation with the following restrictions.
- FWC will limit spatial reference to Element Occurrence locations in public documents to the Management Area level (i.e., EOs will not be displayed on public maps to protect sensitive resources, habitats, and data sources)
- For Management Areas less than 160 acres in size, FWC will not list occurrences of resources (i.e., species and natural communities) coded as Data Sensitive. If desired, these sensitive resources can be included in a table as a count of occurrences and resource (e.g., three additional occurrences of two species/resources are coded as sensitive)
- When possible, FWC should use the FNAI provided Element Occurrence polygons, and consider the Representational Accuracy and Locational Uncertainty of each record, when determining which species occur on a Management Area

The FNAI Data Manager currently provides this update to FWC staff on a quarterly basis. Current FWC contacts are Rene Baumstark, Christi Santi, Steven Nicholl, Kristal Walsh, Kristen Sella, and yourself. We are pleased to continue this beneficial collaboration with the Florida Fish and Wildlife Conservation Commission.



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Sincerely,

Frank Price
Assistant Director
Florida Natural Areas Inventory

Tracking Florida's Biodiversity

The Florida Fish and Wildlife Commission

Strategic Plan

2020-2024



May 6, 2020

This plan was written by the FWC 2020 Strategic Plan Development Team for the dedicated staff of the FWC, specifically designed with leaders and supervisors in mind with the intention of fostering and reinforcing our agency culture, core operations, and strategic approach to our conservation mission.

From the Executive Director

Balancing the needs of Florida's fish and wildlife resources with a diverse, growing population of people can be complicated and challenging. It is our honor to be the agency that is entrusted to take care of these resources on behalf of all Florida residents and visitors. The FWC team strives every day to uphold this public trust. An important element of effective management and administration is focusing on strategic priorities that are vital in accomplishing our overall mission and adjusting resources accordingly. This reallocation must be done while continuing to attend to day to day functions. It is critical to accurately identify these developing issues and set forth a strategy to address them. This formula is the basis for a strategic plan. As with any plan, it works best if it is a collaborative effort, with everyone having the opportunity to provide input in the planning process and identify emerging issues that require strategic solutions. We have put together diverse teams to develop the FWC's strategic plan, to encompass the major issues affecting our agency as a whole.

I also firmly believe that strategic plans are less about a printed document, and more about the process and collaboration necessary to achieve such a plan. The benefits of this process are seen and continued far beyond printing the final draft.

The success of this effort – of our mission – rests upon the shoulders of each and every one of us. Whether you work in the field or in an office, whether you're a scientist, technician, accountant, law enforcement officer, administrative assistant, or programmer, your unique skills and expertise are necessary to continue the good work of conservation that we do every day as well as the strategic work we will be taking up over these next five years. As you read through this plan, I challenge you to look for ways that you can help make a difference. I also ask that you challenge your co-workers to leverage their skills and talents for the good of our mission as well. The future of Florida's fish and wildlife conservation depends on our collective and diverse perspectives, backgrounds, contributions, creativity, and energy.

Respectfully yours,
Eric Sutton

Vision & Values

The mission of the FWC is to manage fish and wildlife resources for their long term well-being and the benefit of people. Every organization has an identity that is forged not only by what it does, but by how it conducts itself. The values embedded in our mission and expressed in the vision of FWC leadership are to make quality decisions by being dynamic, science-based, efficient, ethical, collaborative, competent, and committed to the vitality of the state and its environment.

We work diligently to conserve fish and wildlife in a manner that honors the public trust that has been vested in us through Florida's constitution. This is based in long-standing law and traditions commonly referred to as the "Public Trust Doctrine." This doctrine is steeped in the principle that fish and wildlife should be managed for the public, and reflects the belief that certain resources are an intergenerational inheritance, held in trust by government for the benefit of all current and future residents and visitors.

Consistent with this tradition, we strive to reinforce an inclusive culture that provides for public access, public input, technical assistance groups, stakeholder and public outreach, open communication, work teams, and shared decision making. The FWC encourages scientific inquiry and diversity of thought, and actively promotes these values with our public engagement efforts. The core concepts of these values are derived from a set of nationally accepted Wildlife Governance Principles that have been developed over time and focus efforts on conservation.

Additionally, we strive to make proactive resource decisions based on the best available science, balanced with social, economic and political interests, to create durable solutions with enforcement and managerial practicality. We empower staff to act locally on behalf of the agency to ensure decision making is as close to the issues as possible. We must cultivate a diverse and inclusive culture that care and includes values of integrity, professionalism, dedication, and adaptability, and create environment that is inclusive and supports diverse opinions and voices in decision making at all levels.

We envision...

a Florida where fish and wildlife are abundant and thriving in healthy and connected natural landscapes with vital working lands and waterways; where natural resources are valued and safely enjoyed by all; and wherein natural systems support vibrant human communities and a strong economy.

Wildlife Governance Principles

Wildlife governance will:

- Be adaptable and responsive to citizens' current needs and interests, while also
- being forward-looking to conserve options of future generations.
- Seek and incorporate multiple and diverse perspectives.
- Apply social and ecological science, citizens' knowledge, and trust administrators' judgment.
- Produce multiple, sustainable benefits for all beneficiaries.
- Ensure that trust administrators are responsible for maintaining trust resources and allocating benefits from the trust.
- Be publicly accessible and transparent.
- Ensure that trust administrators are publicly accountable.
- Include means for citizens to become informed and engaged in decision making.
- Include opportunities for trust administrators to meet their obligations in partnerships with non-governmental entities.
- Facilitate collaboration and coordination across ecological, jurisdictional, and ownership boundaries.

Our Core Values

Resource Stewardship We are passionate about Florida's natural resources

and use our expertise to manage and conserve fish and wildlife

Service Excellence We are solution-oriented and committed to achieving wildlife and fisheries conservation results, and efficiently meeting the needs of the public and stakeholders

Teamwork and Collaboration We communicate openly and work together effectively to achieve our common goals We appreciate the value of diverse backgrounds, expertise, and ideas, and incorporate multiple perspectives into decision making

Professional Integrity We operate honestly and ethically, and apply our processes, rules, and regulations in a consistent manner that engenders a climate of trust and fairness

Scientific and Technical Excellence We use our science-based expert knowledge, technology, and other available resources to achieve high-quality work

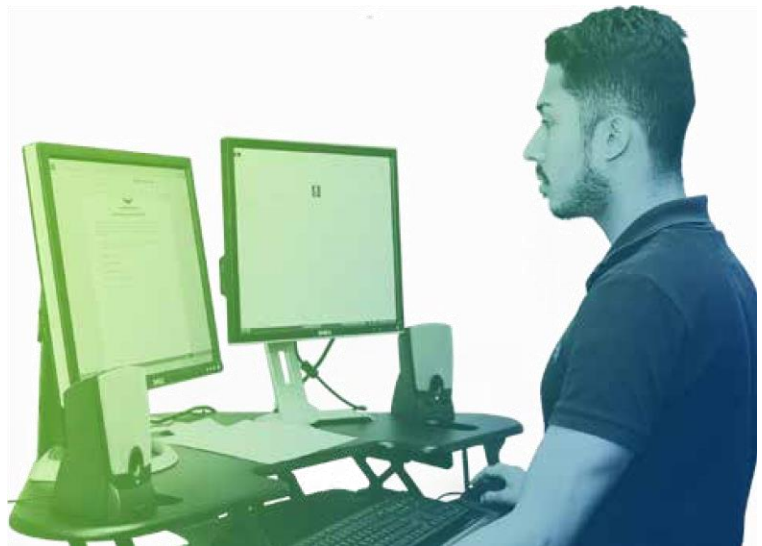
Accountability We set challenging goals for our achievement and hold ourselves accountable for the results

Business Practices

In addition to our core values, we also strive to follow a core business model that addresses how best to deliver our vision, strategy, and mission through key practices. These include:

- ◆ Thinking proactively and strategically to anticipate challenges and opportunities while taking actions that contribute to the achievement of long-term interests.
- ◆ Coordinating science, resource management, enforcement, and research.
- ◆ Providing a safe and healthy environment where the public can enjoy Florida's resources and waterways.
- ◆ Providing an excellent experience for our customers.
- ◆ Creating and maximizing the use of integrated work and issue teams.
- ◆ Continually striving to improve processes and efficiency for the benefit of residents and visitors.
- ◆ Leveraging technology.
- ◆ Integrating leadership development.
- ◆ Optimizing fiscal management.
- ◆ Adapting to new and emerging needs for communication.

These core values and business practices are further defined in, and serve as, the foundation of our internal communications programs, hiring practices, and annual employee evaluation process, embedding these principles into the fabric of our organization and making them meaningful to employees in their daily activities.



Overview of Strategic Planning

We have been developing strategic and operational plans since the FWC's inception in 1999. Our first planning effort focused on developing the structure and culture of a newly-formed agency. Subsequent plans similarly focused on norms and values, including development of a collaborative and team based culture. The strategic planning effort that resulted in the "FWC Agency Strategic Plan 2014-2019" was the first time we incorporated a large-scale, highly collaborative process to determine how to focus the strength of the agency on the most essential conservation challenges while ensuring safe and enjoyable public access to Florida's fish and wildlife resources. The 2014-2019 strategic plan identified agency Themes, Goals, and Strategies to define the conservation work required to achieve our mission. Hundreds of staff from across the agency at multiple levels worked in teams to create 109 measurable objectives across each of the five Themes, which were then prioritized by each Regional Leadership Team before being presented to our Commissioners. Executive leadership used that guidance, along with elements from other planning efforts, to develop seven Strategic Initiatives. These initiatives emphasized areas where we wanted to focus attention, discipline, and resources to make significant conservation gains over the subsequent five to 10 years. Strategic work is complex and takes considerable planning and developmental investment to accomplish. Cross-divisional teams worked together to further define the Sis, develop implementation plans,

2014-2019 Strategic Initiatives

Boating as a Gateway to Conservation and the Outdoors: Strengthen and promote the conservation connections of boating while protecting people and natural resources, and improving boating related opportunities.

Conflict Wildlife: Maintain the support and appreciation of fish and wildlife through sustainable coexistence by reducing human wildlife conflict.

Conservation through Innovation – Marine Fisheries Management: Enhance marine fisheries through the expansion of progressive and collaborative management techniques.

Conservation through Innovation – Private Lands: Partner with private landowners as a key to enhanced conservation.

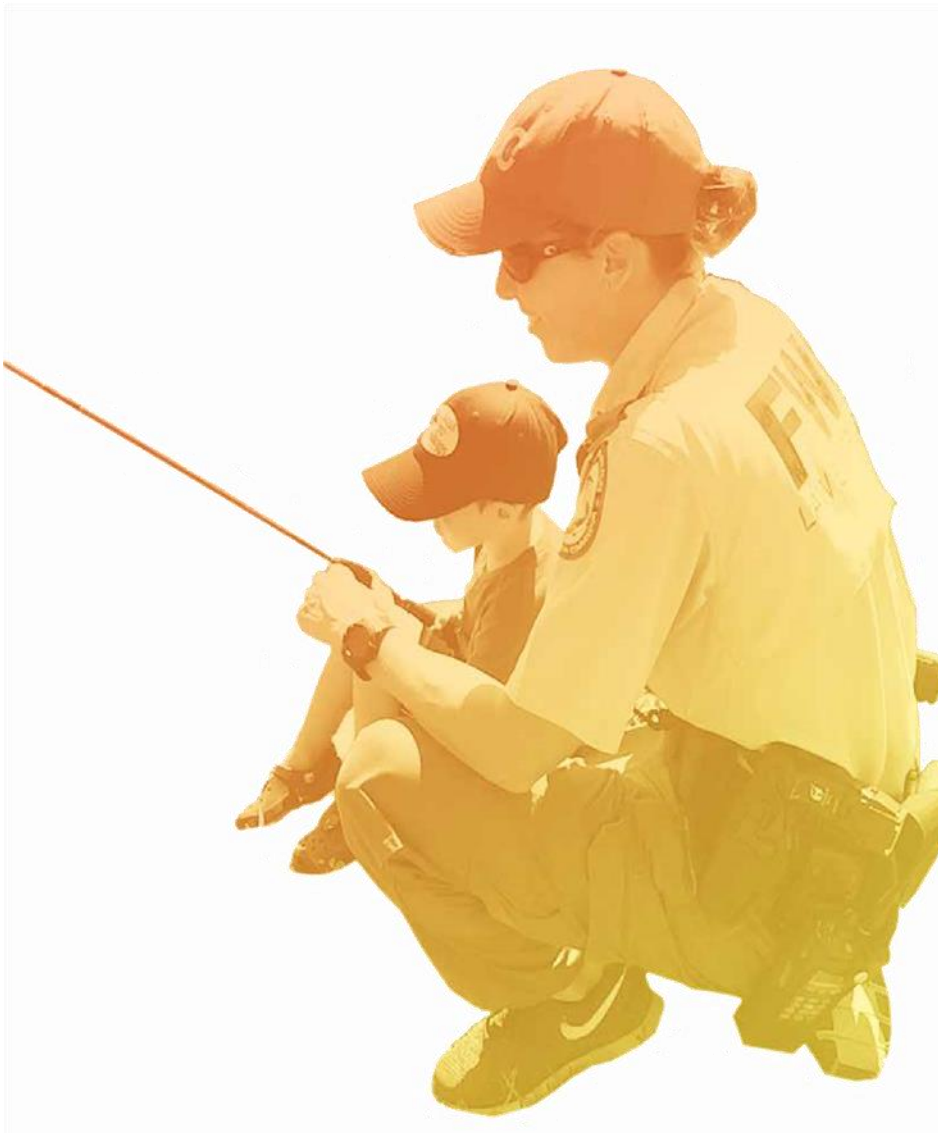
Expanding Participation in Conservation: Expand partnerships and FWC programs to encourage diverse youth and families to be more involved in the future of conservation.

Imperiled Species Management Plan: Improve the status of imperiled species to effectively reduce the risk of extinction.

Running the Business: Establish an internal infrastructure that identifies the areas of business operations and practices that represent high risk, prioritize them, and modify them to address risks.

and operationalize key portions of the initiatives. The work that was accomplished on these seven Sis created a foundation for furthering more effective strategic thinking, planning, and implementation of meaningful and long-lasting conservation efforts for Florida's fish and wildlife resources. The 2014-2019 Sis are now becoming part of the broader conservation work that we do and will continue to influence operational planning moving forward

The current strategic plan builds upon the knowledge gained and lessons learned from all our prior strategic planning efforts. The purpose of our agency strategic planning is to leverage our values and behaviors as an agency with our strategic planning is to leverage our values and behaviors as an agency with our operational workforce to produce significant conservation outcomes that align with an ever-changing world to better position ourselves in the future



Strategic Landscape

We must be strategic in identifying our emerging issues and opportunities to put our agency in the best position to achieve our mission. We must adapt to take advantage of changing technology, seize opportunities to improve our fiscal and operational resources, increase efficiencies, and align priorities across the agency. In order to adapt to a changing environmental, economic, and socio-political landscape, we must first understand and define the environment in which we work. This plan is focused on aligning our agency resources to address our strategic opportunities. The issues, challenges, and risks we face will be addressed in division operational plans and priorities.

Challenges we must address:

- ◆ Static revenue streams.
- ◆ Increasing program costs and infrastructure improvement needs.
- ◆ Loss of institutional knowledge with an unprecedented rate of upcoming retirements.
- ◆ Recruiting and retaining qualified employees.
- ◆ Leveraging legislative support for agency operations.
- ◆ Maintaining an adequate level of research, monitoring programs, and population assessments for fish and wildlife resource management.
- ◆ Balancing state and federal regulatory authorities and reducing unneeded regulatory burdens while ensuring sustainable species populations and protecting habitat.
- ◆ Securing habitat for fish and wildlife in the face of increasing development pressure.
- ◆ Managing aquatic systems and resources without control over water quality, quantity, timing, and distribution

Issues We Face

- ◆ Maintaining the significance of natural resources as pillars of the community and economy.
- ◆ Habitat loss and degradation.
- ◆ Climate change impacts.
- ◆ Water quality and water quantity issues.
- ◆ Changes in public views of wildlife and conservation.
- ◆ Impacts from exotic and invasive species on natural systems.
- ◆ Natural disasters and disease outbreaks.

- ◆ Gaining public support for conservation and management
- ◆ Shifts in demographics, changing attitudes toward conservation, and declining percentages of hunters and anglers, which all impact our relevancy to the public

Meeting the Challenges

We have a broad scope of core work that keeps us focused on our mission. This core work is the foundation of our agency and provides the basis for building a culture of strategic planning and doing. To address the identified challenges through strategic and operational planning, we must invest in the people, programs, and technology that best advance our highest priorities, which requires that we sunset low-priority activities, programs, or service. We must foster an agency culture and capacity to accept, understand, engage, and serve people with different interests and uses of fish, wildlife, and habitats. We must demonstrate fairness, honesty, and compassion; practice dedication and adaptability; and include diverse opinions throughout our decision-making processes.



As demographics change across the state, it becomes increasingly important to develop practices and processes that are responsive to the changing nature-based values of the public. We must focus on providing a safe environment for people to enjoy Florida's natural resources and the outdoors; adapt to the impacts of social media on communication; increase focus, capacity, and use of social sciences into agency conservation and management decisions and public engagement strategies; and foster cultural acceptance of hunting and fishing.

As we maintain a high level of core work and increase strategic planning and doing as part of our foundation, we will have a greater workload than the available resources can address. This will require a priority-based approach, meaning some work will not be completed. We will need to increase efficient use of our existing resources through realignments and decrease work on lower priority activities. We will need to work with our legislative team to secure the resources necessary for agency operations and priority issues, and leverage stakeholder relationships and partnerships to increase capacity for conservation work. We will integrate research, management, and law enforcement to focus on emerging threats, landscape conservation, and a holistic approach to watershed management. This will be accomplished through partnerships, leveraging funding sources, implementing existing plans, and fostering locally-led conservation. Achieving our conservation goals will require us to think strategically across the agency and prioritize our operations to meet the challenges that lie ahead.



Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

Our Organization

The core work of the FWC is broad and forms the basis from which strategic effort springs. Maintaining our core competencies and work is critical to our success and this section contains an overview of the core work areas within the FWC. This is by no means an all-encompassing description of the multifaceted work conducted throughout the agency. Additional information on each of the divisions, offices, and the institute can be found within the “Programs of the FWC” annual report as well as within each division’s operational plans. This agency strategic plan focuses on a small portion of our overall work with the intent of identifying areas of strategic focus, using our existing work as the foundation.

Moreover, it is important to note that our agency’s structure is intentionally organized into inter-dependent parts that must work together to achieve our mission. Divisions serve as the main operational elements, while offices provide critical support functions across the entire agency. Regions then serve to ensure geographic continuity of policy and programs across the state. This structure necessitates strong collaboration and teaming amongst all parts of the FWC. We then carry this heavy focus on working together outside of the agency and actively engage partners, stakeholders, and the public in our decision making and implementation.

FWC

Florida Fish and Wildlife Conservation Commission

Mission: Managing fish and wildlife resources for their long-term well-being and the benefit of people.

The FWC consists of more than 3,000 employees, including 848 sworn law enforcement officers. All personnel work together to protect and manage more than 575 species of wildlife, 200 species of freshwater fish, and 500 species of saltwater fish. The FWC works to balance the needs of these fish and wildlife species and the habitats that support them with the needs of Florida’s growing population of more than 21 million residents and record numbers of visitors coming to the state – well over 100 million annually.



The Commissioners

The FWC's seven Commissioners are appointed by the Governor and confirmed by the Florida Senate to five-year terms. Their constitutional duty is to exercise the "...regulatory and executive powers of the state with respect to wild animal life and fresh water aquatic life and shall also exercise regulatory and executive powers of the state with respect to marine life, except that all license fees and penalties for violating regulations shall be as provided by law."

Office of the Executive Director

OED

The Office of the Executive Director provides coordination, oversight, and support for FWC operations. It provides policy guidance, fosters accountability, and promotes continual improvement among the agency's divisions and offices. To address important conservation issues, OED coordinates and supports strong engagement of Commissioners and facilitates effective interaction with agency customers; stakeholders; federal, state, and local elected officials; federal and state agencies; and FWC staff. Further responsibilities include maintaining facilities and infrastructure and leading efforts to strategically focus agency staff and resources on conservation priorities. OED staff work closely with the agency's Senior Leadership Team to ensure effective integration of agency activities and programs across all divisions and offices.

There are multiple functions within OED, with some primary functions including media relations and informing residents and visitors about fish and wildlife resources; quickly and efficiently issuing licenses and permits for recreational fishing and hunting and for commercial saltwater and freshwater fishing; providing oversight for the agency's administrative functions such as disbursements, financial management, procurement, leasing, and property; managing an automated information technology environment that is reliable, secure, cost-effective, and responsive; and working closely with division, regional, and office directors to identify and coordinate programs with boundary-spanning implications that will benefit the FWC.



FWRI

Fish and Wildlife Research Institute

The Fish and Wildlife Research Institute provides timely information and guidance to protect, conserve, and manage Florida's fish and wildlife resources through effective research and technical knowledge.

The work done by the Fish and Wildlife Research Institute reaches far beyond the confines of the FWC. Research conducted on habitats, freshwater and marine fisheries, harvested and imperiled species, and other important plant and wildlife communities in Florida is used by federal, state, and local governments; universities; recreational and commercial fishing interests; recreational hunting and boating interests; nongovernmental organizations; and the public. FWRI integrates its research activities with management efforts of other FWC divisions.

Primary work areas within FWRI include conducting monitoring, assessments, mapping, and research to support development of management practices to protect and improve the quality of habitat and diversity of wildlife on state managed lands; maintaining an extensive collection of fish and invertebrate specimens and providing data management services and scientific library services; integrating research on predicted or emerging threats to fish and wildlife conservation, such as climate change; and acquiring and distributing biological and ecological information critical for the science based management, conservation, restoration, and wise use of Florida's fish and wildlife resources.



FFM

Freshwater Fisheries Management

The Division of Freshwater Fisheries Management manages, enhances, and conserves Florida's freshwater aquatic life for public benefit.

The Division of Freshwater Fisheries Management is responsible for directing the management and identifying the research needs of freshwater fisheries within public lakes, rivers, streams, and canals, with efforts focused on improving the fish populations and their habitats to benefit anglers and other stakeholders. This is accomplished through strategies revolving around improving aquatic habitat; increasing access; improving freshwater sport and commercial fisheries; stocking sportfish; regulations; developing management plans; increasing aquatic

stewardship; and building partnerships with state, county, and city governments, industry leaders, and freshwater stakeholders . FFM has developed a private-public partnership through the TrophyCatch conservation and marketing program, which uses citizen science to provide valuable information that contributes to the management of Florida’s trophy bass fisheries. Special projects, such as the high school fishing program and kids' fishing clinics, encourage responsible fishing practices and help bolster future generations’ understanding of and personal investment in the conservation of fish and wildlife resources.

Primary work areas include evaluating freshwater resources through surveys and inventories of fish populations and angler use; maintaining Fish Management Areas that provide access and promote fishing; developing aquatic habitat enhancement/restoration projects; producing fingerling and subadult fish for stocking in public waters to enhance fisheries, provide new opportunities, supplement urban pond populations, and for youth events; and work with communities surrounding major freshwater resources so they appreciate the intrinsic value and economic importance of the resource and the fishery .



Habitat and Species Conservation

HSC

The Division of Habitat and Species Conservation ensures healthy populations of all native wildlife and their habitats on a statewide basis.

The Division of Habitat and Species Conservation integrates scientific data with applied habitat and species management to maintain stable or increasing populations of fish and wildlife. Conservation integration efforts focus on the ecosystem or landscape scale to provide the greatest benefits to the widest possible array of fish and wildlife species. Accomplishing this mission requires extensive collaboration and partnering with local, state, and federal agencies to maintain diverse and healthy fish and wildlife populations for the benefit of all Floridians and visitors, which provides direct ecological, economic, aesthetic, scientific, and recreational benefits.

Primary work areas include managing, maintaining, enhancing, and restoring native natural habitats on 1.4 million acres, assisting cooperators with wildlife management on another 4.5 million acres, and working with partners to connect and expand public conservation lands; providing technical assistance to private landowners to implement wildlife conservation strategies; restoring, enhancing, and managing



publicly-owned aquatic resources to improve the ecological health of freshwater, estuarine, and marine habitats; directing, coordinating, and funding control of invasive upland plants on public conservation lands and invasive aquatic plants in public waterways; developing and implementing high-priority conservation activities to improve conditions for native and imperiled wildlife; addressing human wildlife interactions and managing the impact of native and nonnative fish and wildlife species; reviewing growth management and regulated land and water use project proposals that have potential to impact Florida's fish, wildlife, and habitat resources; and promoting, facilitating, and expanding nature-based tourism, recreational opportunities, and public participation in conservation .

HGM

Hunting and Game Management

The Division of Hunting and Game Management manages and conserves game wildlife for the future, while fostering safe and responsible hunting.

The Division of Hunting and Game Management uses scientifically proven game-management strategies and professional expertise to conserve game wildlife and perpetuate sustainable hunting opportunities on public and private lands statewide. The Division also manages public shooting sports facilities throughout the state and offers hunter safety programs to foster safe, responsible hunting.



Primary work areas include managing Florida's wild game populations using science, leadership, and key partnerships; providing opportunities for responsible and sustainable hunting on public and private lands; working with stakeholders and partners to coordinate support for hunting-related activities; providing hunter safety courses and special events to ensure Florida hunters are well prepared to be safe, responsible,

and conservation minded; and constructing and managing public shooting ranges located throughout the state.

Law Enforcement

LE

The Division of Law Enforcement protects Florida's natural resources and people through proactive and responsive law enforcement services.

The FWC Division of Law Enforcement, comprised of 1,043 members including 848 sworn law enforcement officers, operates in six regions throughout the state. FWC officers are responsible for uniformed patrol and investigative law enforcement services on more than 8,400 miles of coastline, more than 13,000 square miles of offshore waters, and more than 34 million acres of land encompassing a variety of habitats including private lands, wildlife management areas, state parks, and forests.

Primary duties include protecting Florida's fish and wildlife and their habitats, and providing law enforcement services that protect public safety throughout the state of Florida. The division also provides support for state Emergency Operations Center activities and readiness for natural disasters and mutual aid requests. Personnel also engage in targeting illegal black markets and trafficking in fish and wildlife, conduct federal fisheries enforcement patrols, help to regulate the Florida seafood industry, and enforce rules related to captive wildlife.



Some internal programs undertaken by the division include professional recruitment efforts of new officers; providing world-class training and recruit instruction; conducting progressive advanced training; implementing the division career development programs; and providing intelligence information to officers in the field. The DLE enhances boating safety and waterway experiences through maintenance and repair of approximately 244 boat ramps, construction of new boat ramps, and placement and maintenance of waterway markers.

The Division of Marine Fisheries Management manages Florida's marine fisheries for their long-term sustainability, their economic benefits, and for the enjoyment of the public.

The Division of Marine Fisheries Management works with stakeholders, federal agencies, other states, and regional councils to manage and provide outreach on more than 500 marine fish and invertebrates. The division also provides expertise, monitoring, and grant funding for the deployment of artificial reefs; recovers lost or abandoned lobster and crab traps; conducts wholesale-dealer audits; provides agency comments on proposed development projects that may affect marine resources; and issues special activity licenses for harvest of species for research and educational purposes. This division additionally provides outreach and education to introduce people to the sport of fishing, instill ethical angling values, and ensure comprehension of marine fisheries regulations

Primary work areas include compiling fishery data, coordinating with other government agencies and research institutions, and soliciting information from the public regarding fishery management strategies for state saltwater fisheries regulations; serving as liaison between the FWC

Commissioners, interstate fisheries commissions, and federal fishery management councils that manage marine fish species such as snapper and grouper in federal and interstate waters; promoting responsible recreational and commercial

fishing activities; and administering the statewide artificial reef programs.



Approach to the Future

Strategic Framework

Maintaining the FWC’s core work is foundational to achieving our mission and continuing our success of achieving conservation. Enforcement and education, public engagement, species and habitat management, comprehensive research, freshwater and marine fisheries enhancement, sustaining game wildlife as a public resource, and operating within responsible business practices are all components of the exceptional work we do every day. These central functions comprise the majority of our time and effort, and continuing to excel in this work is key to successfully conserving Florida’s fish and wildlife and their habitats into the future.

Currently, considerable effort is spent responding to urgent challenges. Much of this work is reactive in nature, rapidly consumes resources, and ultimately pulls focus from identified priorities. A refined approach to the future – one that results in a more agile and focused organization – is necessary to minimize time spent reacting and increase time spent making progress toward our strategic priorities. By increasing the portion of work we do that is strategic, focused, and proactive, we can better adapt to our changing environment, integrate strategic solutions into our operations to address specific issues, and position ourselves to successfully conserve fish and wildlife into the future (Figure 1) .

The strategic approach presented here is a framework for infusing strategy into our operations and ultimately positioning the FWC to proactively address known challenges, capitalize on opportunities, and continue to successfully fulfill our mission. Investing time in strategic priorities is necessary to sustain the model for fish and wildlife conservation that the FWC has built. The conservation gains realized through focused planning and dedicated action are both worthwhile and essential. When strategic initiatives become fully integrated into the core components of the work we do, we achieve long-term, sustainable success.

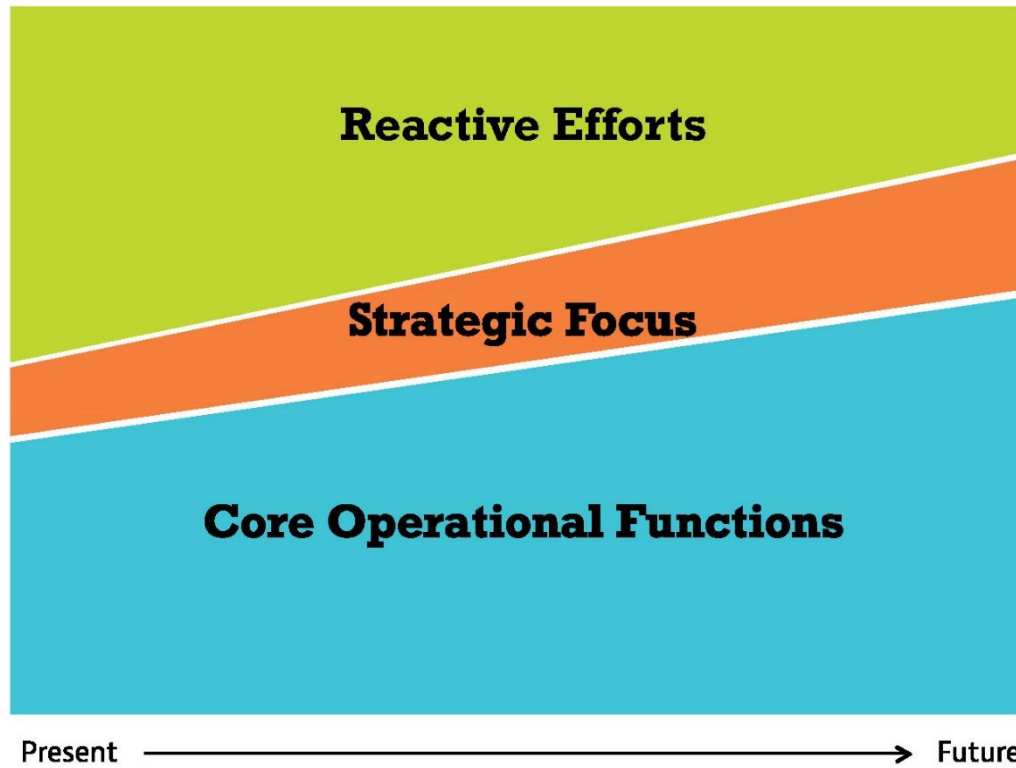


Figure 1. Currently, a significant portion of our effort is spent reacting to urgent issues. With a shift to a more proactive, forward-focused approach, through time we can reduce the overall amount of reactive efforts by using approaches that address future challenges.



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Establishing Dynamic Strategic Initiatives

Identifying strategic priorities at the agency, division, and section/ program level is an important component of a future-focused approach. Strategic initiatives are intended to leverage areas of strategic importance and strengthen conservation efforts. SIs are distinguished as proactive, timely, and important topics requiring increased focus and a shift in resources. SIs are not a response to urgent, reactive challenges, nor are they a shift in course due to opportunities to address topics of lower priority. They are those critically important conservation efforts that focus on future opportunity or alignment, require dedicated attention, challenge us to work across organizational lines, and for which a shift in resources or change in operational structure may be required.

Initiatives will be selected through an ongoing process that includes environmental scanning and staff input. Strategic planning will include feedback and ongoing discussion with each division to clarify emerging issues and priorities. A cross-divisional strategic planning team will compile input, identify common themes across the agency, and evaluate

Strategic initiatives:

- ◆ Realize significant benefits for conservation that otherwise would not occur.
- ◆ Are forward-focused instead of reactive.
- ◆ Need directed increase in agency focus.
- ◆ Span section or division boundaries.
- ◆ Require resource reallocation.
- ◆ May necessitate realignment or organizational transformation.

potential initiatives. This team will produce recommendations on strategic areas of focus for agency and division-level initiatives to be discussed with each division leadership team and by the FWC's Executive Leadership Team. Collectively, the ELT will determine which issues become agency-level initiatives. Then, with support from the agency's strategic planning team, initiative sponsors will coordinate cross-divisional work to further describe the initiative and develop clear objectives and timelines.

To ensure available resources are fully focused on priorities, no more than three agency SIs will be active at any given time. Limiting the number of topics we are addressing through a strategic shift in resources is intended to yield more progress in each initiative more quickly than when resources are divided among numerous initiatives. Initiatives will develop clearly defined objectives from the onset and will be evaluated annually. Many topics identified through consideration of influences, challenges, and opportunities may be urgent in nature and require cross-divisional coordination at an operational level. While only a subset of these topics will be active as an SI at any given time, we will continue to design our core work to sustainably address urgent needs by working across organizational boundaries. As this intentionally necessitates an adaptive approach, we will reassess this process after another five-year period to improve our development of strategic initiatives moving forward.

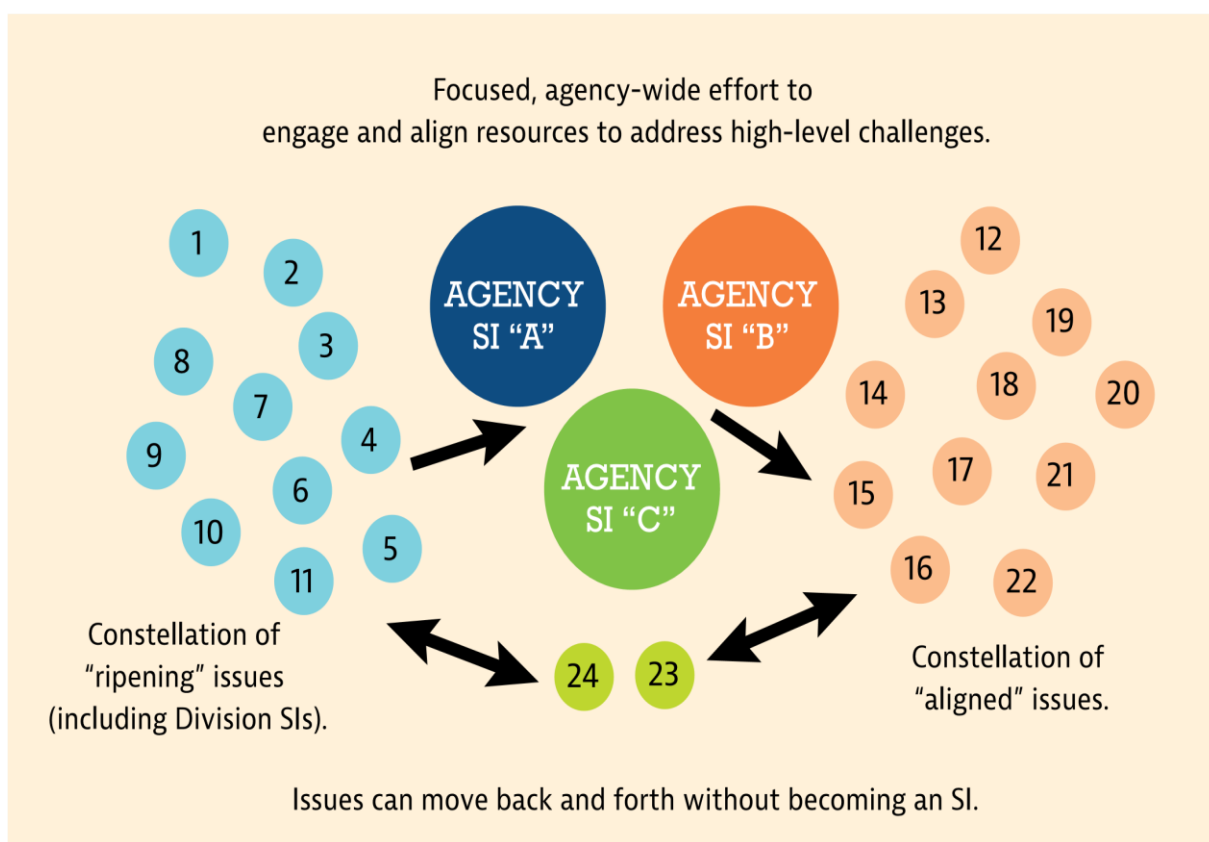


Figure 2. Dynamic Strategic Initiatives for 2020-2024

There will be no more than three agency strategic initiatives at any one time with no more than three strategic initiatives per division. Initiatives can change when special emphasis is no longer needed and they will be tracked as part of the strategic plan framework.

Integrative Work Planning

To help weave strategic thinking into the fabric of the FWC, we will identify initiatives at multiple levels of the agency (e.g., division, section, and program initiatives) to both support agency initiatives and integrate the strategic framework into the structure of our core work. While key issues will be addressed through agency initiatives, division initiatives are also critical to addressing important topics. Sections and programs may also identify initiatives by shifting focus to a refined set of topics. Divisions, sections, and programs are encouraged to apply a framework similar to the one presented here to identify priorities requiring a strategic approach and develop timely initiatives to address them. Like agency-level initiatives, these will have a refined focus, so no more than three initiatives will be active for a division at any given time. Divisions with a significant role in an agency initiative will assume the agency initiative as one of up to three initiatives on which to focus as a division. This framework is founded on each division, section, and program initiating proactive strategies in addition to maintaining operational priorities. To achieve this, divisions may need to identify operational activities that no longer warrant agency focus and evaluate where capacity can be created to refocus on proactive topics. With strategic efforts active at the agency, division, and potentially section and program levels, we will strive to align vertically to leverage resources and coordinate efforts (Figure 3).

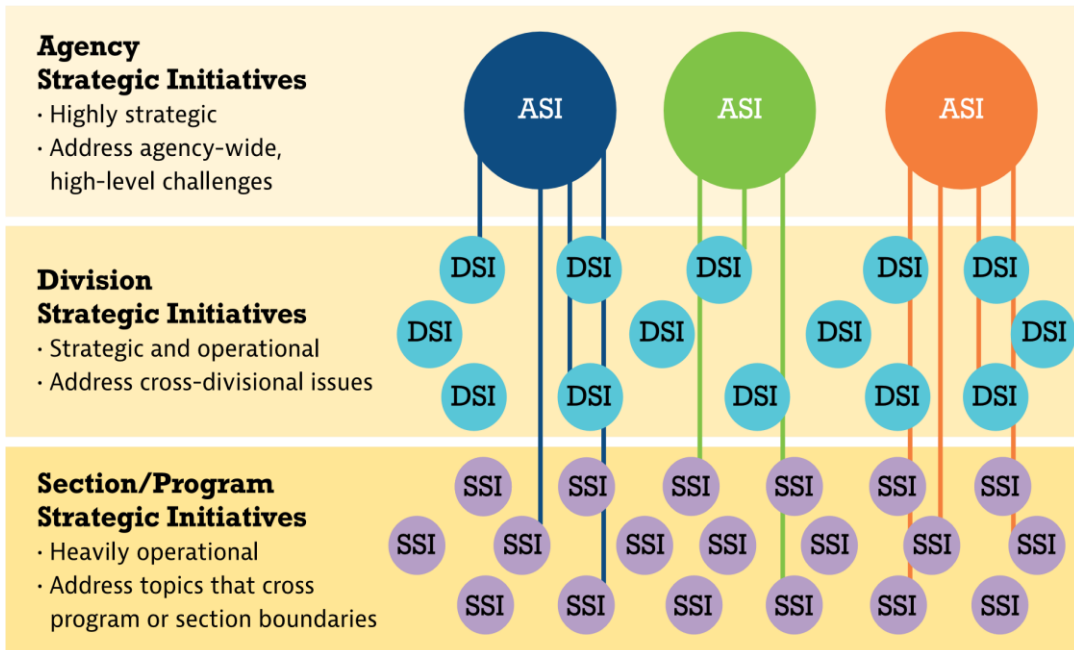


Figure 3. Strategic initiatives at the agency, division, and section or program levels. Vertical alignment of effort and coordination supports progress toward initiatives at multiple levels within the agency.

Future-focused Conservation

FWC's 2020-2024 strategic plan is built upon the idea that we must be intentional in our work to conserve Florida's fish and wildlife resources so they are available for current and future generations. Our success in this arena directly depends on our individual and collective action, and accountability for achieving our mission. Guided by this strategic approach, shaped by our values and fueled by our passion, we will work together to build the Florida we envision: a Florida where fish and wildlife are abundant and thriving in healthy and connected natural landscapes with vital working lands and waterways; where natural resources are valued and safely enjoyed by all; and wherein natural systems support vibrant human communities and a strong economy.



Strategic Initiatives: 2020

Agency Initiatives

From October 2019 through March 2020, the agency strategic planning team worked with division leadership teams to determine the next round of SIs (this process is outlined in [Appendix 1](#)). The ELT collectively affirmed the initial three agency SIs and discussed initiative alignment under the new strategic approach. Moving forward, initiative sponsors will coordinate cross-divisional work to establish clear milestones and time frames for achieving objectives under the following areas of strategic focus:

Invest Inward

A strong foundation to maintain our core functions is critical to sustaining the important work we do and achieving our mission. **Investing Inward** means focusing on key challenges within our agency that, when addressed, position us to better accomplish sustainable conservation into the future. These challenges include: 1) staff retention, recruitment, capacity, and distribution; 2) infrastructure improvements, facilities, technology, and equipment; and 3) cultivating a culture that cares through investing in morale, professional development, diversity, and inclusion.

Landscape Conservation

The **Landscape Conservation** initiative will define a unified conservation vision to be implemented at the local level and fit within a broadly agreed-upon conservation target. This conservation vision should be one that can be shared with and implemented by internal and external, public and private partners to achieve broad-scaled, long-lasting conservation outcomes. Conservation delivery at the local level will require that we develop a network of local, state, federal, and private partners to provide technical and financial resources (data, information, assistance, funding opportunities) and a stable communication network.

Relevancy, Engagement, and Support

Recognizing the need to adapt to Florida's changing demographics and values by improving agency engagement and service to broader constituencies, **Relevancy, Engagement, and Support** focuses on the need to enhance conservation through broader engagement, identify available capacity for and challenges to reaching and servicing more constituents, and establish logical steps to helping the public understand the impact that fish and wildlife conservation has on their quality of life and mental and physical well-being. This includes increasing both social and financial support for conservation.

Division Initiatives

The input provided by division leadership to determine agency strategic initiatives was also used to determine division initiatives. As outlined in the strategic framework section, divisions with a significant role in an agency strategic initiative will assume the agency initiative as one of their three division initiatives. The initiatives in Figure 4 were identified as the most timely to address at the agency and division levels. Division initiatives were also affirmed by the ELT. Each initiative will be further described by divisions as part of their workplans.

Many division initiatives align with the broader agency initiatives but will address discrete challenges relevant to the core work of those divisions. This alignment increases the focus and shift of resources towards these topics through both strategic and operational approaches and unifies work across the agency. Some divisions also have initiatives that do not directly align with agency initiatives but do represent important, timely topics that divisions, programs, and sections will strategically address. The constellation of initiatives at the agency and division levels illustrates the alignment of strategic work proposed in Figure 3.

Strategic Alignment

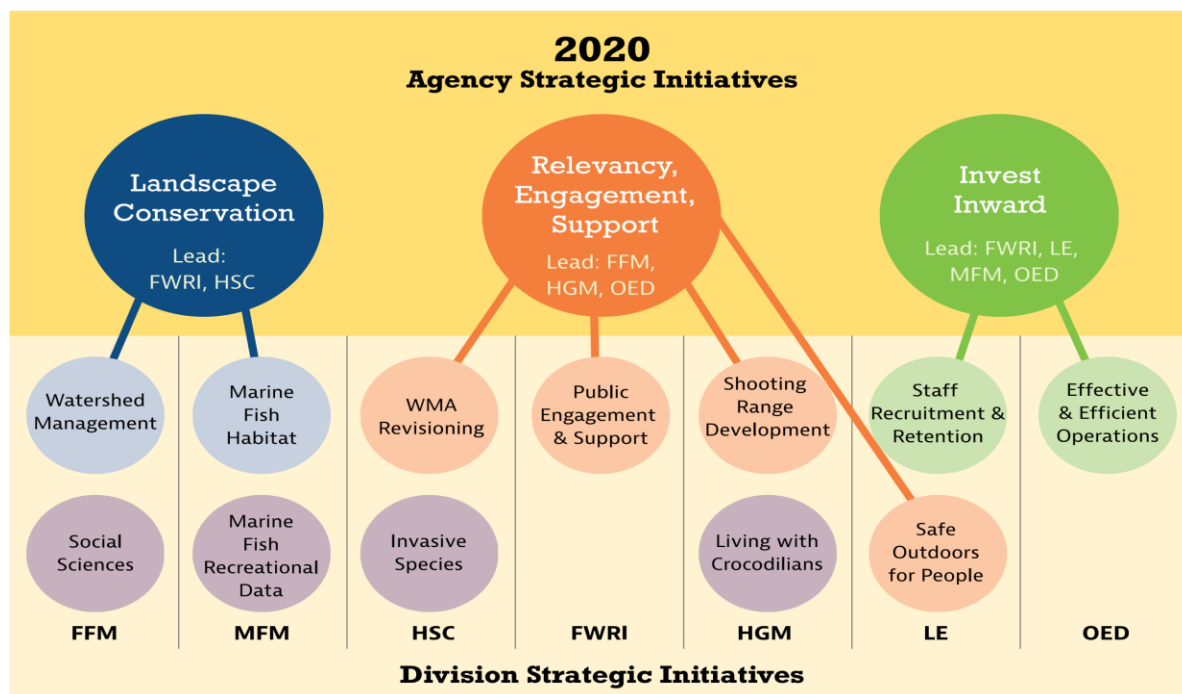


Figure 4. Vertical alignment between the agency and division initiatives shows multiple tiers of support for the broad initiative topics.

APPENDIX 1

2020 Strategic Initiative Selection Process

Division leadership teams provided input on timely initiatives to the agency strategic planning team throughout the selection process. A number of challenges and opportunities were identified through a questionnaire and follow-up discussions. Common themes emerged among the initiatives proposed by each division, and alignment was strong in several themes. These themes may affect each division in unique ways, but they represent agency-wide challenges that require a directed focus to fully address.

Table 1 on the following page is a process illustration of preliminary initiatives from the first round of data analysis. Development of agency and division initiatives went through several iterations of division-level review through the ELT as concepts evolved and solidified, eventually becoming the 2020 Strategic Initiatives outlined in Figure 4.



Table 1. Common themes were identified from the initiatives, influences, and challenges put forward by each division. This crosswalk represents proposed initiatives and alignment among agency-wide challenges. This information guided the initiative selection process for 2020.

Proposed Initiatives

	Agency Initiatives	Division Initiatives
FFM	- Wildlife conflict - Watershed management - Social sciences	- Lake management plans - Chipola and shoal bass - Largemouth bass
FWRI	- Relevancy - Landscape conservation - Diversify and modernize revenue - K-12 and new resident education	- Staff recruitment and retention - Integrative research on events - Integrative research on events - Integrate research and management
HGM	- Landscape conservation - Expand participation in conservation - Wildlife conflict	- Implement R3 plan - Shooting range construction - Living with crocodilians campaign
HSC	- Infrastructure improvement - Landscape conservation - Relevancy - Invasive species	- WMA re-visioning (relevancy) - HSC's role in landscape conservation
LE	- Invest inward - Public service - Science and conservation	- Reinforce culture that cares - Recruit and retain quality staff - Safe environment for people
MFM	- Invasives - Wildlife trafficking - Corals - Invest inward	- Maximize productivity, capacity - Marine fish habitat - Marine fish recreation - data collection
OED	- Internal focus/invest inward - Human dimensions and social science - Connectivity with other D/Os - Effective, efficient operation	OED organizational management

Common Themes

Invest Inward

- ◆ Staff: recruitment, retention, pay, capacity, distribution
- ◆ Infrastructure: facilities, technology
- ◆ Funding: stable sources
- ◆ Culture that cares: training, morale, professional development, diversity

Landscape Conservation

- ◆ Watershed management
- ◆ Integrate science with management
- ◆ WMA re-visioning
- ◆ Landscape conservation prioritization
- ◆ Marine and freshwater habitat

Relevancy, Engagement, and Support

- ◆ For fish and wildlife conservation
- ◆ For FWC as an agency
- ◆ Safe environment for people
- ◆ EPIC, R3, K-12 education
- ◆ Public service (good work)

Social Science and Human Dimensions

- ◆ Apply to management decisions
- ◆ Increase capacity to gather social science
- ◆ Increase value in FWC
- ◆ Use to influence behaviors
- ◆ Maintain focus on relevancy

Wildlife Conflict and Invasives

- ◆ Native species conflict
- ◆ Nonnative wildlife
- ◆ Invasive plants
- ◆ Aquaculture
- ◆ Trafficking and trade
- ◆ Living with crocodilians

Operational: Proactive Research and Development/Other

- ◆ Climate change
- ◆ Marine fish recreational data
- ◆ Largemouth bass
- ◆ Corals ◆ Shooting Range Construction

12.9 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

Issued by:
Terrestrial Habitat Conservation and Restoration Section
9/1/2010

Enclosed is the HSC/THCR Apiary Policy for all Florida Fish and Wildlife Conservation Commission's Wildlife Management Areas and Wildlife and Environmental Areas.

DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

**SUBJECT: APIARY SITES ON FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
WILDLIFE MANAGEMENT AREAS AND WILDLIFE AND ENVIRONMENTAL AREAS**

STATEMENT OF PURPOSE: It is the intent of this policy to determine which Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas or Wildlife and Environmental Areas (WMA/WEA) may have apiary sites, and provides direction on site location, management and administration of said apiaries.

Definitions

Apiary – A place where bees and beehives are kept, especially a place where bees are raised for their honey.

Apiary Site – An area set aside on a WMA/WEA for the purpose of allowing a beekeeper to locate beehives in exchange for a fee as established by contract between the beekeeper and FWC.

Apiary Wait List – An apiary wait list will be maintained by the Terrestrial Habitat Conservation and Restoration (THCR) Section Leader's Office based on applications received from interested beekeepers. Only qualified apiarists will be added to the list. To become qualified the new apiarist must submit an application form and meet the criteria below under the section titled "Apiary Wait List and Apiary Application."

Beekeeper/Apiarist – A person who keeps honey bees for the purposes of securing commodities such as honey, beeswax, pollen; pollinating fruits and vegetables; raising queens and bees for sale to other farmers and/or for purposes satisfying natural scientific curiosity.

Best Management Practices – The Florida Department of Agriculture & Consumer Services (FDACS; Division of Plant Industry (DPI), Apiary Inspection Section, P.O. Box 147100, Gainesville, FL 332614-1416) provides Best Management Practices (BMP) for maintaining European Honey Bee colonies and FWC expects apiarists to follow the BMP.

Hive/Colony – Means any Langstroth-type structure with movable frames intended for the housing of a bee colony. A hive typically consists of a high body hive box with cover, honey frames, brood chambers and a bottom board and may have smaller super hive boxes stacked

on top for the excess honey storage. A hive/colony includes one queen, bees, combs, honey, pollen and brood and may have additional supers stacked on top of a high body hive box.

Establishment of Apiary Sites on WMA/WEA

During the development of an individual WMA/WEA Management Plan, apiaries will be considered under the multiple-use concept as a possible use to be allowed on the area. “Approved” uses are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the agency strategic plan and priorities documents. Items to consider when making this determination can also include:

- Were apiaries present on the area prior to acquisition?
- Are there suitable available sites on the WMA/WEA?
- Will the apiary assist in pollination of an onsite FWC or offsite (adjacent landowner) citrus grove or other agricultural operation?

For those WMA/WEAs that have not considered apiaries in their Management Plan, upon approval of this policy Regional Staff will work with the Conservation Acquisition and Planning (CAP) staff and THCR Section leadership to determine if apiaries are an approved use on the area. If apiaries are considered an approved use then a request will be made to the Division of State Lands to allow this use as part of an amended Management Plan. This request will be made through the THCR’s Section Leader’s office and coordinated by the CAP.

Determination of apiary site locations on WMA/WEAs should be done using the following guidelines:

- Apiary sites should be situated so as to be at least one-half mile from WMA/WEA property boundary lines, and at least one mile from any other known apiary site. Exceptions to this requirement must be reviewed by the Area Biologist and presented to the THCR Section Leader for approval.
- Site should be relatively level, fairly dry, and not be prone to flooding when bees would normally be present.
- Site should be accessible by roads which allow reasonable transfer of hives to the site by vehicle.

- If a site is to be located near human activity, such as, an agricultural field, food plot, wildlife opening, campsites, etc., or if the site may be manipulated by machinery at a time when bees would be present, then the apiary site should be located at a minimum of 150 to 200 yards from the edge of that activity. This will ensure minimal disturbance to the bees and minimize incidents with anyone working in the area.
- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by visitors then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (numerous large trees, dense shrubs) or ground disturbance (including fill).

WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygon(s), including a name or number with coordinates for each apiary site, to the THCR Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue staff should notify the THCR Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firelines around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

Apiary Wait List and Apiary Application

An electronic waiting list for apiary sites will be maintained by the THCR's Contract Manager for each WMA/WEA. To be placed on the waiting list an interested beekeeper must submit an

apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the THCR Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during this drawing will be awarded the contract.

Apiary agreements are non-transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the THCR Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be \$40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of \$40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is \$80.
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is \$160.

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pineland communities and no more than 100 hives per site in areas with bountiful resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the Beekeeper shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see <http://www.leg.state.fl.us/Statutes/>), Rule Chapter 5B-54, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund – Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 23, 1986

S:\HSC\THCR\APIARY.BACKUP.POLICY\dlissupport@dos.state.fl.us 20100903 111446.pdf

Senate Resolution 580, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

APPROVED:

Division Director or Designee

DATE: _____

APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as “the COMMISSION,” and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as “the USER.”

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.
2. The COMMISSION Agrees:
 - a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

- b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.
- c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).

3. The USER Agrees:

- a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.
- b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.
- c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.
- d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.
- e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.
- f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.

- g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.
- h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.
- i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.
- j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than \$300,000 for bodily injury and \$100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.
- k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.
- l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)
- m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after

this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.

4. The parties mutually agree:

- a. This Agreement is not transferable.
- b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.
- c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.
- d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.
- e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.
- f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.
- g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.

- h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.
- i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities are found to be incompatible with the COMMISSION'S management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

USER SIGNATURE

Date: _____

Witness

Witness

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Mike Brooks, Section Leader
Terrestrial Habitat Conservation and
Restoration

Date: _____

Approved as to form and legality

Commission Attorney

Date: _____

AGREEMENT

ATTACHMENT 1

Use of Electric Fencing to Exclude Bears And Prevent Property Damage

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of

a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit

and the animal feels the “shock”. The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.

The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or “hot” wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately \$200 for a 40' x 40' area (160 linear feet of fence).

Materials:

- 1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
- 1 - 50 foot roll 12 gauge insulated wire
- 20 - 5 foot 5/8 inch dia fiberglass fence posts
- 5 - plastic gate handles
- 1 - 110 volt fence charger
- 1 - 10 foot ground pipe
- 4 - plastic electric fence signs

Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a

15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

Tips to improve the effectiveness of your electric fence to deter black bears:

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a specific structure (like a shed or rabbit hutch), the fence

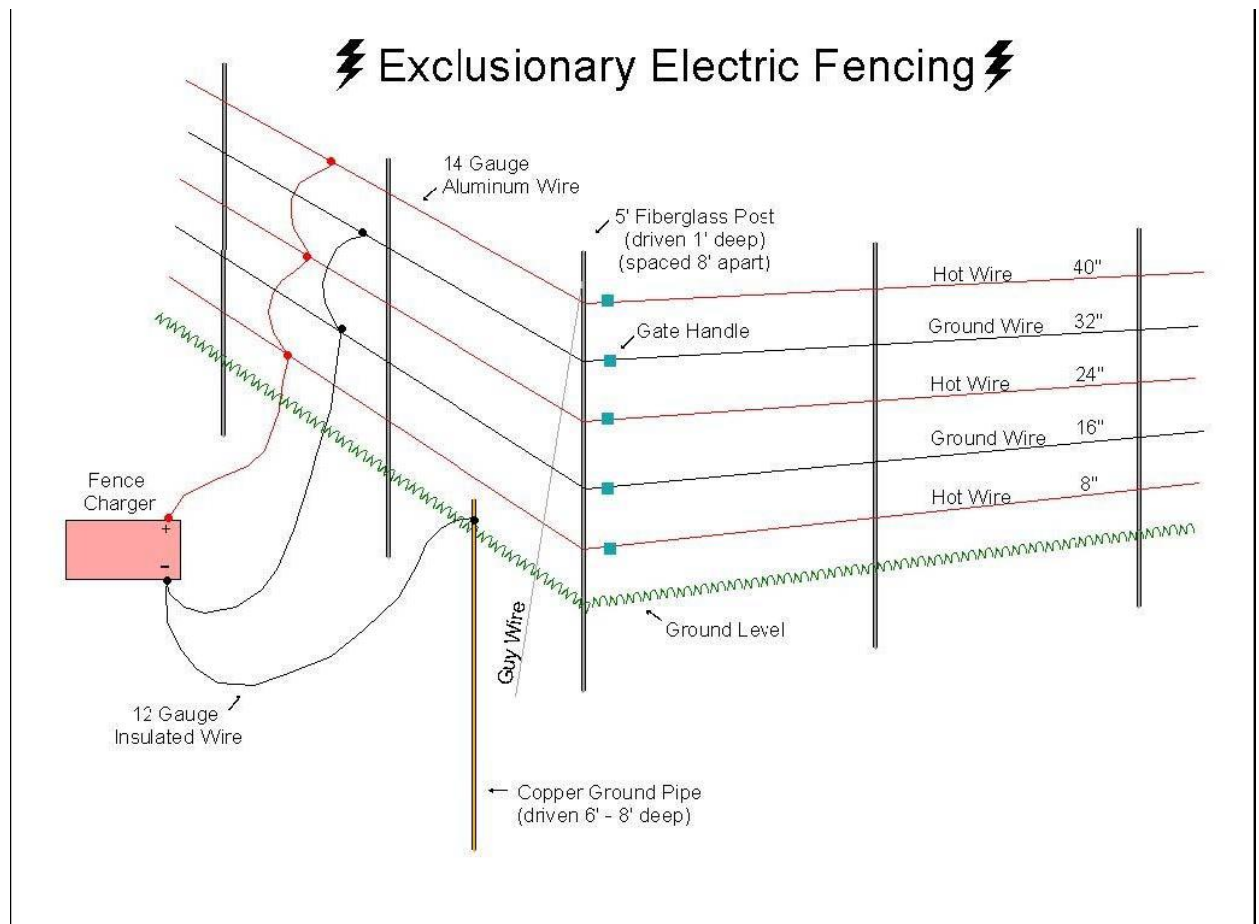
should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.

10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.

11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences*. Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

APIARY SITE APPLICATION FORM

Florida Fish and Wildlife Conservation Commission

RETURN TO: The Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please print or type all information. Attach additional sheets if necessary.

Name _____ Telephone Number _____

Mailing Address _____

City or Town _____ County _____ Zip Code _____

Physical Address (If Different from Mailing Address) _____

Company Name: _____

Email Address _____

Requested Wildlife Management or Wildlife and Environmental Area(s)(see attached list of WMA/WEAs with apiary sites):

WMA/WEA _____ County _____ # of Sites _____

WMA/WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

Planned Number of Hives Per Site: _____ Permanent: ____ Seasonal: ____

Member of Beekeepers Association: Yes ____ No ____

Number of Years a Member _____

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

Name of Beekeepers Association: _____

Are you registered with Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI): _____ Yes _____ No _____ N/A If yes, please provide proof.

Are you current with any and all special inspection fees: _____ Yes _____ No _____ N/A. If yes, please provide proof.

Do you follow all recommended Best Management Practices from FDACS/DPI?: _____ Yes _____ No

If no, then please explain on a separate piece of paper.

Please provide below a chronological history of your beekeeping experience. If you need more space, please provide additional sheets:

References: If a new apiary contractor, please provide on a separate piece of paper at least 3 references who can verify your apiary experience. Provide each reference's name, address, phone number and email address (if applicable). Please attach reference sheet to this document and submit.

MISSION STATEMENT

**Management
Of
Florida Fish and Wildlife Conservation Commission's
Wildlife Management Areas
And
Wildlife and Environmental Areas**

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animal's characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR

MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.
2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random survey of colonies using the FABIS (Fast African Bee Identification System) and/or the computer-assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees (AHB) (USDA-ID) or other approved methods by FDACS on a yearly basis or as requested.
3. Honey bee colony divisions or splits should be queened with production queens or queen cells from EHB breeder queens following Florida's Best Management Practices.
4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from EHB queen producers.
5. Florida Beekeepers should practice good swarm-prevention techniques to prevent an abundance of virgin queens and their ready mating with available AHB drones that carry the defensive trait.
6. Maintain all EHB colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of AHB.
7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be attractive to AHB swarms.
8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.
9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.
10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with AHB drones.

11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.

12. Treat all honey bees with respect.

RANDOM
SELECTION PROCESS
FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for this selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist:

1. The THCR Contract Manager will maintain an “Apiary Wait List Folder” on the THCR SharePoint for each WMA/WEA with apiary sites.
2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.
3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an “Apiary Wait List”.
4. If a list exists then the qualified applicant will be added to the list.
5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest.
6. The letter will request a response within 10 working days to make them eligible for the random drawing.
7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed from the waiting list*.

8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist.
9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds then the random drawing process will be used to determine who will be awarded the site.
10. Steps to be performed by the THCR Contract Manager to execute the random selection for an available apiary site are listed below:
 - a. The names of each interested apiarist will be noted on a 1" X 2" piece of paper and folded in half.
 - b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stirred up prior to the selection.
 - c. A non-biased person will be selected to reach into the bowl (which will be held above the selection person's eyesight) and randomly select one of the canisters.
 - d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.
 - e. The apiarist whose name is selected will be awarded the available site.
 - f. A new Agreement will be developed by the THCR Contract Manager.

*A new apiary application must be submitted once requestor's name is removed from a waiting list.

12.10 Prescribed Burn Plan

Janet Butterfield Brooks Wildlife and Environmental Area

Prescribed Burning Plan

INTRODUCTION

Fires, naturally occurring or man-induced, are an integral part of the ecology of the southern pine (*Pinus* spp.) region (Miller 1963) and have maintained fire-dependent plant communities in the southeast for millennia. Exclusion of fire reduces nutrient cycling and changes the vegetative community from an open canopy system to a closed one. The growth of dense brush shades out plants that require sunlight, including listed species, and has an adverse effect on wildlife that are adapted to and require frequent fire, such as the gopher tortoise. Fire exclusion allows plant community successional stages to progress to a climax hardwood community. These fire excluded areas become covered by dense brush, lose much of their value for wildlife and result in heavy fuel accumulations which increases wildfire hazard.

Prescribed burning is used extensively in forestry and wildlife management for fuel reduction, brush control, disease and insect control, site preparation, and wildlife habitat improvement and maintenance. It is a recommended tool for management of such game animals as white-tailed deer (*Odocoileus virginianus*), northern bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*), and wild turkey (*Meleagris gallopavo*) (U.S. Forest Service 1969, Stoddard 1971). The value of prescribed fire to these and other animals, such as raptors and some songbirds, is well documented (Givens 1962, Miller 1963, Stoddard 1963). Prescribed fire benefits wildlife by reducing underbrush density and improving access, promoting the growth of succulent vegetation, and lowering browse to the feeding height of deer. Additionally, it benefits aesthetic values and enhances growth and fruiting of important wildlife food plants, such as dewberries (*Rubus* spp.) and blueberries (*Vaccinium* spp.) (Halls 1977).

BURN OBJECTIVES

The Florida Fish and Wildlife Conservation Commission (FWC) will use prescribed fire on Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA) as a habitat management tool exclusively, or in conjunction with, other management techniques to accomplish a variety of objectives. The primary objective for using prescribed fire on JBBWEA is to restore and/or maintain fire-dependent native habitat communities. This will result in preserving and maintaining native plant communities while simultaneously improving wildlife habitat. Secondary objectives for the use of prescribed fire include the maintenance of early successional habitats, timber management, and hazardous fuel reduction. Early successional habitats are important for many species of wildlife found on JBBWEA.

The derived benefits from prescribed burning on JBBWEA include not only long-term preservation of native plant communities and improved wildlife habitat, but numerous others as well:

1. Reduction of fuel loads, which will help to prevent or mitigate effects of wildfires.
2. Enhancement of the area's aesthetics by reducing vegetation height and triggering flowering response of native plants.
3. Control of exotic plant species.
4. Increased success of longleaf pine (*Pinus palustris*) regeneration.

DESCRIPTION OF AREA

JBBWEA consists of approximately 319 acres located in Hernando County. It is seven miles northwest of Brooksville and 55 miles north of Tampa. JBBWEA is bordered to the north by Fickett Hammock Preserve, a

property managed by the Hernando County Environmentally Sensitive Lands Program. The area east of JBBWEA is owned by an industrial concrete company that has a mining operation on site. The southern boundary borders rural areas consisting of small, privately-owned parcels, pasture, intact sandhill, and pine plantations. There is also a small subdivision to the west. JBBWEA is part of the Annutteliga Hammock, a unique region located within the Brooksville Ridge that features a vast mix of mesic hammock, upland hardwood forest, and bottomland forest that contains rare plant assemblages. The clay laden soils, karst topography with limestone at or near the soil surface, natural fire exclusion, and southern and northern limits of many plant species all combine in this part of west-central Florida to form the Annutteliga Hammock.

The property is comprised of ten natural community types as mapped by the Florida Natural Areas Inventory (FNAI) (Figure 1). There are two major fire-maintained communities on JBBWEA: sandhill and mesic flatwoods. Table 1 contains a list of community types within JBBWEA and their associated acreages. Brief descriptions of the FNAI identified natural communities, including the recommended frequency of fire for fire-maintained communities (FNAI 2010), are found in Appendix A.

PRESCRIBED BURNING PROGRAM

A. FIREBREAKS

Firebreaks are 8-12 ft in width and are mowed at regularly intervals throughout the year to reduce vegetation height. Prior to the application of prescribed fire, firebreaks are disked down to mineral soil. Adjacent vegetation may be mowed or shredded ahead of time to reduce fire intensity along existing firebreaks. Trees or snags along firebreaks may also be removed to improve conditions for prescribed fire.

Area staff will hire contractors to clear approximately 0.5 miles of new firebreaks along the western property boundary (Figure 3). The goal of this project is to reduce travel time between burnable areas by connecting the north and south sides of JBBWEA with an internal firebreak.

Area staff will also work with the Public Access Services Office (PASO) to explore the feasibility of constructing a bridge across the seepage stream that runs up and across an existing firebreak through the northern property boundary (Figure 3). The goal of this project would be to improve heavy equipment access for prescribed fire.

The additional installation of new firebreaks or the widening/improving of existing firebreaks will be evaluated by area and regional staff and will be constructed/improved as deemed necessary to facilitate prescribed burning activities.

B. SIZE AND ARRANGEMENT OF BURN UNITS

Seven burn units totaling 170 acres have been delineated at JBBWEA (Figure 2), averaging 28 acres in size. 156 acres are currently classified as fire-maintained communities. Burns should be conducted at 2-3 year intervals, or in some cases, on shorter rotations if objectives are not accomplished. The current conditions and desired future conditions of the communities in a particular burn unit will be one of the main factors in determining burn rotation. Burn units will be burned in a mosaic pattern when possible, so that some species with small home ranges such as bobwhite quail will have nearby escape cover. If burn days are limited due to weather constraints, several burn units may be burned on the same day.

C. BURN PRESCRIPTION

The standardized FWC prescription form (Appendix B) will be used to prepare the prescription for each burn. Prescription content will be specific for each burn and will include, among other things, the burn unit(s) location and description, firing methods, contingencies, desired and forecasted weather parameters, personnel and equipment, safety measures, smoke management, and measurable objectives of the burn.

D. TYPE OF BURN

Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

Most burns will begin with a backing fire along the downwind side of the unit. The rest of the unit will be burned with spot, flank, or headfires, depending on fuel loads and desired fire intensity. Burns will be ignited primarily using hand lighting, but an ignition ATV will be utilized where feasible as units become more open as a result of increased fire frequency. Drone use for aerial ignition may be used in the future if and when that technology becomes proven and readily available.

E. SEASON AND TIME OF DAY

Prescribed burns will be conducted in the growing season (April to September) whenever possible to mimic the effects of natural, lightning-caused fires. Burns may also be conducted in the dormant season (October to March) if growing season weather conditions are unsuitable for prescribed fire or if there are resource limitations that prevent fire from occurring. Additionally, exceptions will be made with respect to the desired vegetation response. For example, a management unit that is normally burned in the growing season to promote herbaceous vegetation may instead be burned in the dormant season to promote longleaf pine regeneration. Burning will be conducted during daylight hours and will begin as early as possible. Starting a burn in the early to mid-morning will allow staff to safely establish a downwind black line with minimal control issues due to higher relative humidity, residual moisture on vegetation, and lower wind speeds.

F. OPTIMAL WEATHER CONDITIONS

Winds out of the east or south are most favorable for burning at JBBWEA. East and southerly winds will push fire and smoke away from Citrus Way and away from the largest number of surrounding private homes. Burns will begin as early as possible in the day to utilize higher relative humidity and mitigate for wind shifts and potential afternoon thunderstorms, especially during the spring and summer. Burn units that are close to residences and roads will also require a good dispersion during the day and the following night. Wind directions that blow smoke toward Citrus Way or residential properties may be utilized if the dispersion index is sufficiently high (50-70) as this would allow smoke to lift before impacting these smoke-sensitive areas.

Other parameters will be considered, and all carry an acceptable range of values. Days since last rain (0-30 days), minimum relative humidity (30%), surface wind speed (5-20 mph), and KBDI (<600) will be prescribed based on burn objectives for the unit(s) and containment concerns. LVORI ranges of 1-10 will be deemed acceptable depending on other factors such as the unit's distance from the roadway and the chance of forecasted fog. We will not burn on days that are deemed too volatile or days in which we do not anticipate being able to meet our objectives.

G. SMOKE MANAGEMENT

Direction, volume, and dissipation of smoke from prescribed burning on JBBWEA are of primary concern due to the proximity of smoke-sensitive areas. The primary areas of concern that may be affected by smoke, or particulates carried by smoke, under optimum burning conditions are Citrus Way (CR491) to the east, Bailey Hill Rd to the south, and the Suncoast Parkway to the west. There are also small rural communities to the south and west that could potentially be impacted by smoke. Homes that may be affected are anywhere from 0.1 miles to 0.5 miles from the property boundary.

To minimize smoke problems, burning should be conducted when the atmosphere is slightly unstable, with the mixing height at a minimum of 1,700 feet and transport wind speed at a minimum of 9 mph. Additionally, the use of backing fires, as prescribed, will produce less smoke and consume fuel more completely than head firing (Mobley et al. 1973, Southern Forest Fire Laboratory 1976, Crow and Shilling 1983). The use of backing fires can be difficult in larger burn units as time often does not allow for completion of the burn in one day. Also, fires that burn for long periods of time, such as backing fires, undergo increased chance of wind shifts that can lead to erratic fire behavior. Additional fire lines are needed to use the backfire technique exclusively in larger units. Therefore, this method will only be used as burn unit and weather conditions allow. For most burns, we will use a backing fire to establish a black

baseline against the downwind firebreak and other firing techniques, including interior spotting/interior grid ignition and/or flanking and head fires to burn out the remainder of the unit more quickly.

Smoke management is difficult during night burns because smoke often stays close to the ground and smoke drift is difficult to predict. Smoke tends to seek lower areas (along streams and creeks) and may drift across surrounding highways. Night burning is unlikely to be used at JBBWEA for the above reasons. However, night burns can be highly effective for burning units with high fuel loads and facilitating intensity control. If allowed and conditions are favorable for a safe night burn, the burn will be approached with caution and in close association with the FFS to avoid threats to public safety.

Mop-up standards will be applied to boundary and interior units. All units will have burning and smoking snags (higher than four feet) within a certain distance of the control line monitored as determined by the burn manager; snags will be extinguished or felled as needed. All smoking debris and 1000-hour fuels within the control line buffer will also be monitored and extinguished as deemed appropriate by the burn manager.

Units that receive fire will be monitored daily after the initial burn until no smoke or glowing combustion is observed, and the fire can be declared out.

H. PERSONNEL

Burning can be conducted safely and effectively with a minimum of 3 crew members depending on burn unit size, weather forecasts, and on the ground conditions. A typical crew consists of one to two ignition personnel, one to two suppression crews, and a burn boss. FFS will be requested to stand by with a dozer-plow unit on complex burns. Commission personnel who are FFS-certified prescribed burn managers and meet all other FWC requirements will boss the burns. Personnel from other agencies (e.g., SWFWMD, FFS, and DEP) or qualified Regular Service Volunteers will be used as additional crew members if they are available and needed. Any person participating on a FWC prescribed burn will meet the minimum training and experience requirements as described in the FWC's Division of Habitat and Species Conservation (HSC) Prescribed Burning and Wildfire Suppression Standards (Appendix C).

I. EQUIPMENT

All members of the fire crew will wear, at a minimum, the personal protective equipment required by FWC's HSC Prescribed Burning and Wildfire Suppression Standards (Appendix C). Type V and VI engines, tractor-plows, farm tractors, ATVs, UTVs, hand tools, and other equipment may be used as conditions require. ATV drip torches, handheld drip torches, flares, and/or a pyroshot dragon egg launcher will be used for ignition depending on burn unit conditions and fire intensity needs. Engines will be equipped with hand tools, chainsaws, drafting equipment, and foam. Smoke caution signs for nearby roads will be deployed as necessary.

J. PERMITS AND NOTIFICATIONS

A permit will be obtained from FFS on the afternoon before or the morning of the burn in accordance with FS 590.125. Notification will be given to:

1. Hernando County Fire and Rescue (phone call)
2. Landowners and agencies of surrounding areas that request notification (phone call)
3. FWC Law Enforcement (e-mail)
4. Florida Highway Patrol dispatch (phone call)
5. Southwest Regional Staff (email)
6. FWC's Statewide Call Center (email)

K. EVALUATION OF BURN

Burns will be evaluated informally during and shortly after each burn by comparing burn objectives with burn effects. During the burn, rate of spread, flame height, fire intensity, and general fire behavior will be evaluated. Post-burn evaluations will include fuel consumption amounts, pine tree crown scorch, pine tree

mortality, and hardwood topkill. Objective Based Vegetation Management (OBVM) data will be collected on a 5-year cycle and used to determine if the fire frequency and intensity is maintaining the desired vegetative composition and structure or moving the composition and structure toward desired future conditions for the major fire-maintained communities.

L. SPECIAL CONSIDERATIONS

Special attention will be given to ensure our burns do not adversely affect adjacent landowners and nearby roads. We will minimize smoke impacts on nearby roads and residents by utilizing a smoke screening map, the FFS smoke screening tool, and responding to changing weather conditions during the burn. Smoke signs will be placed on roadways near the burn if there is a chance smoke will affect those roadways either during the burn or during the night(s) following the burn. Burn bosses will coordinate with law enforcement agencies (Florida Highway Patrol (FHP), local Sheriff's Department, and/or FWC Law Enforcement) to help monitor smoke and visibility on roadways following burns when needed.

Units along the WEA boundary will be evaluated several months in advance of a burn to assess where and to what extent mechanical treatments are needed prior to the burn to reduce the risk of a spot-over outside the WEA boundary.

Area staff will hire contractors to construct a well for prescribed fire on the south side of JBBWEA. The well will drastically reduce the amount of time required to refill suppression equipment and thus significantly reduce the risk of potential escapes.

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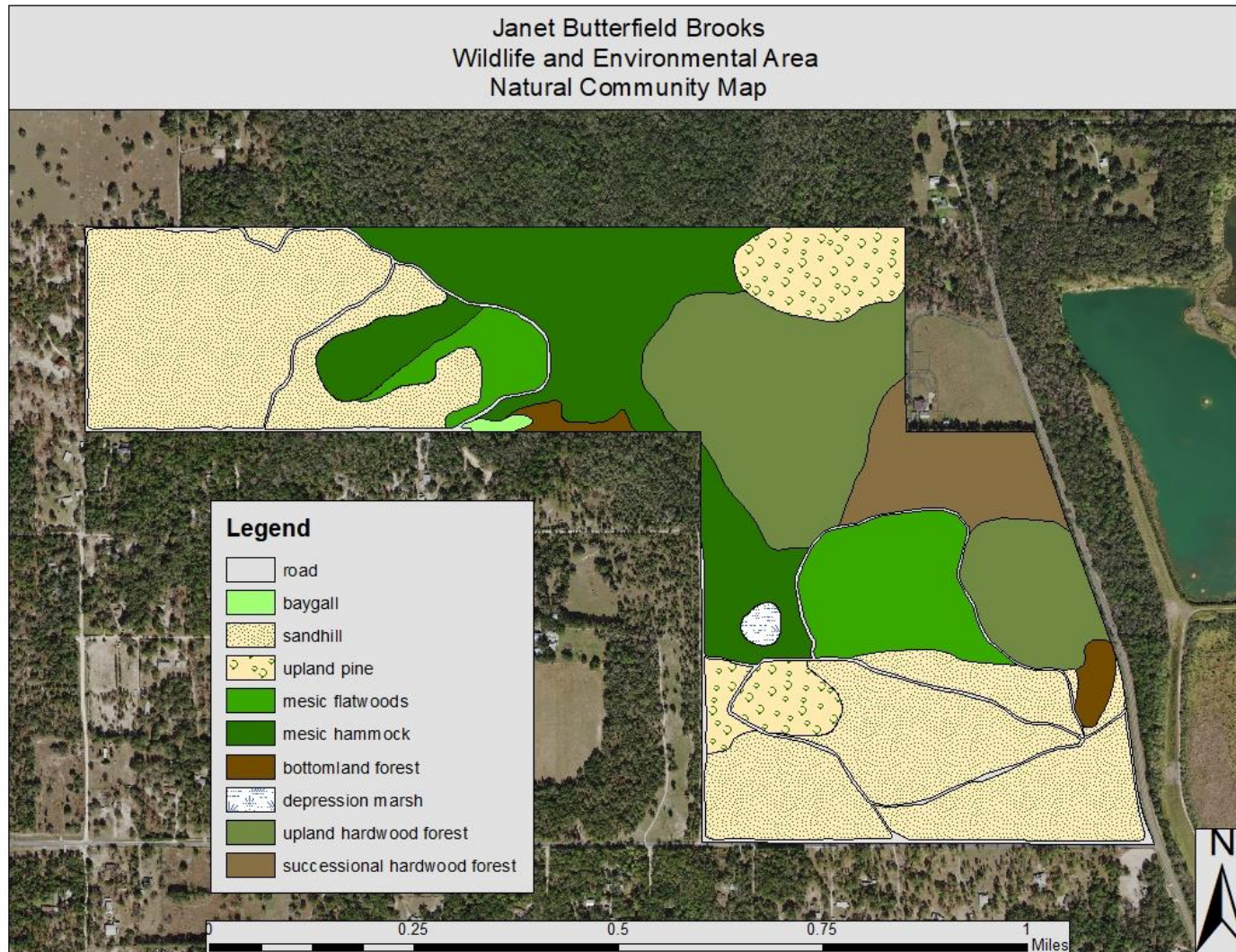


Figure 1. Janet Butterfield Brooks WEA Natural Communities

Table 1. Janet Butterfield Brooks WEA Community Types and Acreages

#	Natural Community Type	Fire Maintained Community? (Interval)	Acre
1	Road	No	10.82
2	Baygall	No	0.76
3	Sandhill	Yes (1-3 years)	118.05
4	Upland Pine	Yes (2-3 years)	21.57*
5	Mesic Flatwoods	Yes (2-3 years)	29.24
6	Mesic Hammock	No	57.51
7	Bottomland Forest	No	4.34
8	Depression Marsh	No*	1.30*
9	Upland Hardwood Forest	No	57.81
10	Successional Hardwood Forest	No	17.03

* 12.79 acres of the Upland Pine and 1.30 acres of the Depression Marsh are currently classified as non fire-maintained given the current inability to safely burn those areas.

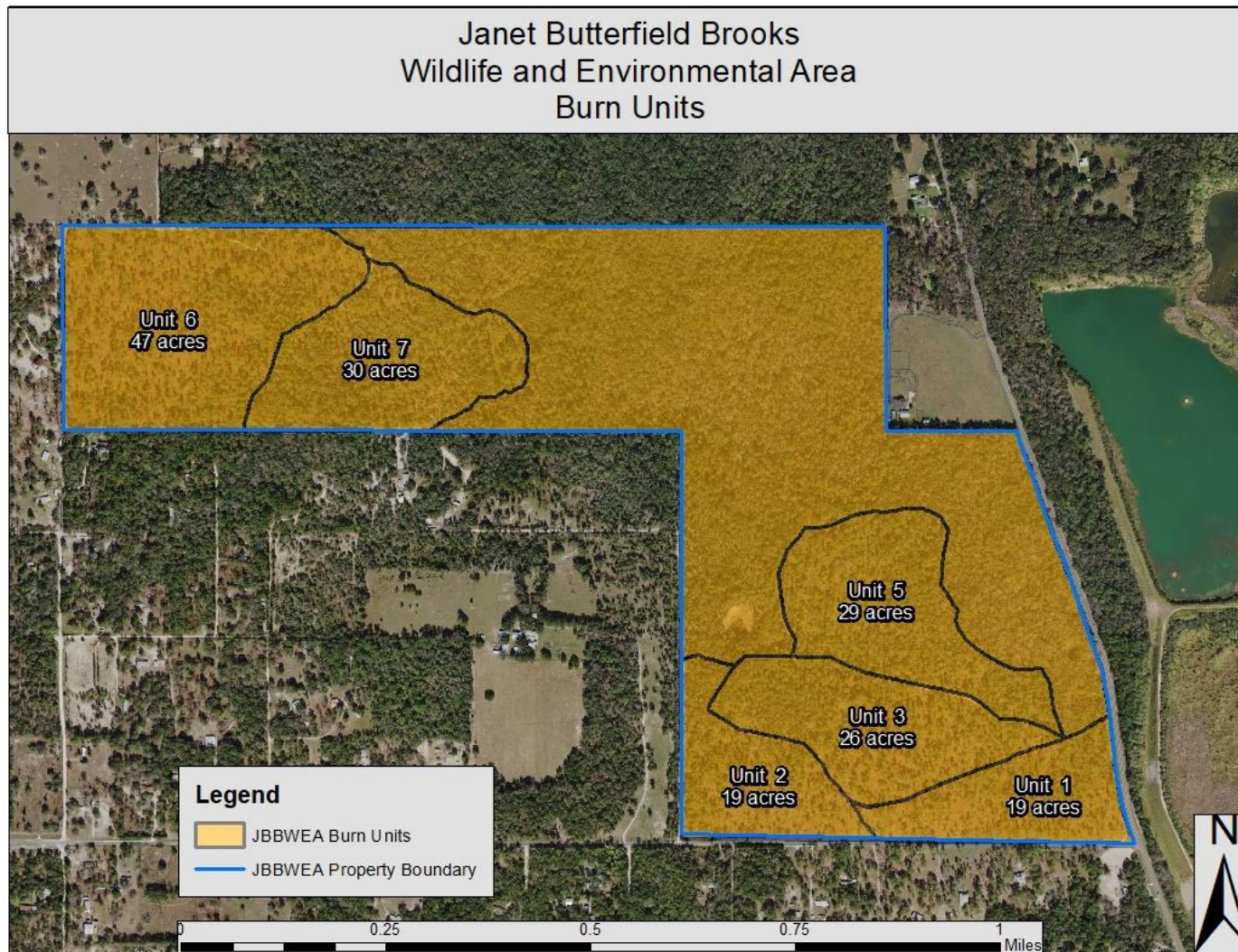


Figure 2. Janet Butterfield Brooks WEA Burn Units

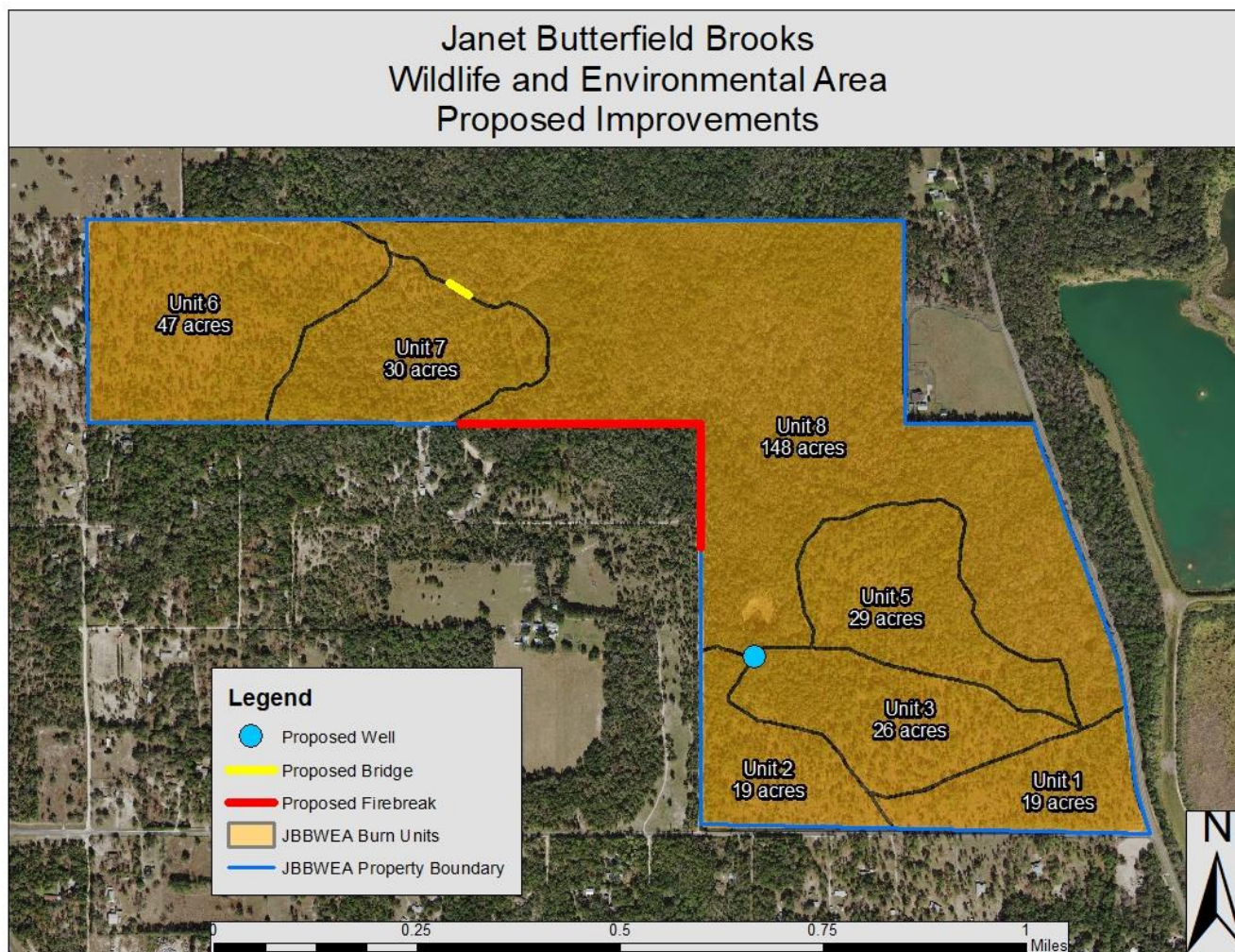


Figure 3. Janet Butterfield Brooks WEA Proposed Improvements

APPENDIX A

FIRE-MAINTAINED NATURAL COMMUNITY SHORT DESCRIPTIONS

- **Depression Marsh (2-4 years)** – isolated wetlands embedded in a pyrogenic community. They are typically shallow, may dry out during drought, and because of their landscape position, they burn frequently with the surrounding community. The substrate is usually acid sand with deepening peat toward the center. Because water depth in depression marshes usually increases toward the center, vegetation often forms distinctive zones corresponding to depth. There is one depression marsh on the western boundary of JBBWEA.
- **Mesic Flatwoods (2-3 years)** – open, pine canopy forests with a diverse understory of short shrubs and herbs occurring on low, flat terrain. Fire is an important factor in maintaining high plant diversity and naturally occurs during the late spring/early summer lightning season. There are two areas of mesic flatwoods that act as a transition between the sandhill and the mesic hammock/upland hardwood forest.
- **Sandhill (1-3 years)** – open, xeric communities dominated by widely spaced longleaf pines with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Fire is an important factor in maintaining high plant diversity and vegetation structure and naturally occurs during the late spring/early summer lightning season. Roughly 39% of the property is sandhill, and it is the predominate community type at JBBWEA.
- **Upland Pine (2-3 years)** – widely spaced pine forest with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. Soils are generally higher in loam or clay than soils of similar sandhills.

ALTERED AND NON-FIRE-MAINTAINED NATURAL COMMUNITY SHORT DESCRIPTIONS

- **Baygall** – evergreen, forested wetland of bay species with an open dense tree canopy often situated at the base of a slope or in a depression. This is a small community at JBBWEA as it occupies less than one acre on the north side of the property. The canopy includes loblolly bay and sweetbay. Large gallberry is the primary shrub.
- **Bottomland Forest** – low-lying, closed-canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and groundcover of ferns, forbs and grasses. JBBWEA supports two examples of this community with a combined acreage of just under five acres. This community occurs as a transition zone between hydric communities and surrounding forested uplands.
- **Mesic Hammock** – closed-canopy forest of temperate and tropical hardwood species often occurring in a mosaic of wetlands where they are sheltered from fire. A dense section of mesic hammock runs through the center of JBBWEA and splits the sandhill into two distinct islands. Fire will not be prevented from entering mesic hammocks but allowed to burn up to the edges to minimize fire shadows and shrubby/woody encroachment.
- **Successional Hardwood Forest** – upland pine forest that is succeeding to upland hardwood forest due to fire suppression. This community has a well-developed, closed-canopy dominated by deciduous hardwood trees and widely spaced pines. There is a midstory composed of shade-tolerant shrubs with sparse groundcover.
- **Upland Hardwood Forest** – well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. This community typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover. Within the complex mosaic of the greater Annatteliga

Hammock region, many of the upland hardwood forest species begin transitioning to vegetation more representative of mesic hammock which often makes it hard to discern the distinction between these two habitat types.

APPENDIX B

Prescribed Burning Prescription Florida Fish and Wildlife Conservation Commission					
WMA/WEA: Click here to enter managed area			Management Lease/Agreement Number: Enter number		
Burn Manager: Burn manager name			Customer Number: Number		
Burn Manager Certification Number: Number			County of Burn: County		
FFS Certified Burn Authorization Number:			Date of Burn: Date of burn		
Authorization Date and Time Period:					
Burn Unit Names/Numbers	Acres	Section(s)	Township	Range	Last Burn Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Total	Total Acres				
Latitude/Longitude or Road Intersection to Assist with Emergency Locate: Enter Lat/Long and/or intersection					
Nearest Helicopter Landing Zone and Coordinates: Click here to enter. LZ should be in open grassy or asphalt/concrete area; not sandy.					
Unit Description and Habitat Composition - Attach Maps of Area to be Burned					
Overstory Description and Basal Area if Applicable: Click here to enter description					
Understory Description: Click here to enter description					
Fuel Loading – May Vary for Different Areas of the Burn Unit (Very Heavy, Heavy, Moderate, Light, Very Light): Click here to enter fuel loading					
Known Duff or Muck Locations: Click here to enter duff or muck locations					
Hazards, Infrastructure and Wildlife Features to Protect: Click here to enter along with locations					

Description and Condition of Fire Breaks: Click here to enter description and make sure firebreaks (internal and external) are shown on map	
Other Important Stand Parameters if Applicable: Click here to enter parameters	
Restoration Burn ☐ Maintenance Burn ☐	
Burn History and Vegetative Description of Surrounding Units (and/or attach map): Click here to enter surrounding unit information	
Emergency Contacts (can be attachment)	
FFS Dispatch: Click here to enter number	
FFS Forest Area Supervisor(s): Click here to enter contact info	
Local Fire Departments: Click here to enter number	
Local Hospitals or Emergency Care Centers: Click here to enter number	
FHP: Click here to enter number	DOT: Click here to enter number
FWC Dispatch: Click here to enter number	
Other: Click here to enter	
Notifications (e-mail group, adjacent landowners, schools, airports, media, etc): Click here to enter notifications or include attachment with notifications	
Minimum Number of Personnel to be Used on the Burn: Enter minimum number of personnel	
Personnel Names and Crew Assignments: Click here to enter personnel/assignments	
Equipment and Suppression Tools to be Used on Burn: Click here to enter equipment/tools	

Purpose of Burn: Click here to enter purpose
Measurable Burn Objectives: Click here to enter objectives
Season and Time of Day to Meet Objectives: Click here to enter season/time of day for fire to meet your objectives
Firing Plan and Ignition Method/Pattern: Click here to enter plan/pattern
Intensity Desired to Meet Purpose and Objective: Click here to enter intensity
Contingencies (includes safety zones, escape routes, secondary control lines, escape response procedures): Click here to enter contingencies
Mop-up and Monitoring Standards: Click here to enter standards
Declaring the Fire Out Standards: Click here to enter standards

Smoke Management
Smoke Sensitive Areas Identified Using “A Guide for Prescribed Fire in Southern Forests” Smoke Screening Tool? ☐ Yes ☐ No
Any Critical Smoke Sensitive Areas Identified? ☐ Yes ☐ No If “Yes”, Do Not Burn Under Current Prescription, or Provide Additional Smoke Monitoring and Mitigation Procedures in the Smoke Management Plan. Work with Florida Forest Service on Approval to Burn When Identifying Critical Smoke Sensitive Areas That May Be Impacted.
Downwind/Downdrainage Smoke Sensitive Areas and Distance from Burn: Click here to enter areas
Other Smoke Sensitive Areas and Distance from Burn: Click here to enter areas
Smoke Management Plan (attach smoke management screening maps): Click here to enter smoke management plan
Is There Potential for Smoke to Impact a Public Roadway? ☐ Yes ☐ No If yes, you need to erect smoke warning signs. Contact FHP if smoke will impact a federal or state roadway (not including WMA roads). Contact local LE agencies as needed to inform them of potential smoke impacts.
Plan for Monitoring Smoke During and After the Burn to Assess Visibility Issues if Applicable: Click here to enter smoke monitoring plan

WEATHER PARAMETERS	Desired Parameters	Forecast Conditions – Attach Fire Weather Forecast and Spot Weather Forecast. Use Separate Form for Actual Weather Readings
Surface (20') Wind Direction	Desired wind directions	Located on Forecast.
Surface (20') Wind Speed	Desired wind speeds	Located on Forecast
Transport Wind Direction	Desired wind directions	Located on Forecast
Transport Wind Speed	Desired wind speeds	Located on Forecast
Minimum Mixing Height	Minimum mixing height	Located on Forecast
Dispersion Index (DAY)	Desired dispersion range	Located on Forecast
Dispersion Index (NIGHT)	Desired minimum dispersion	Located on Forecast
Maximum Temperature	Desired max temperature	Located on Forecast
Minimum Relative Humidity	Desired minimum humidity	Located on Forecast
Minimum Fine Fuel Moisture	Desired minimum fuel moisture	Estimated Fine Fuel Moisture.
KBDI	Desired max KBDI	KBDI
LVORI	Desired max night LVORI	Located on Forecast
Fire Danger Index	Do Not Populate	FDI
Days since ½" Rain	Desired days since ½" rain	Actual
Additional Field	Additional Field Parameter	
Additional Field	Additional Field Parameter	
FIRE BEHAVIOR		
Rate of Spread	Desired rate of spread	Pertinent Observations on Evaluation
Starting Time	Desired starting time	Actual Starting Time Below
Flame Length	Desired flame length	Pertinent Observations on Evaluation

PRE-BURN CHECKLIST – Check off as completed prior to burn.
BURN MANAGER: Check each item to indicate compliance. ☐ All prescription requisites met. ☐ Authorization obtained. ☐ All equipment required on scene and fully operational. ☐ Each crew member has required personal gear and clothing. ☐ Appropriate steps have been taken to ensure crew and public safety including signs for visitors and motorists

CREW BRIEFING – Check off as discussed prior to burn.
☐ Objectives of burn. ☐ Exact area of burn including unit size and boundaries (ensure crew members have maps). ☐ Hazards discussed (volatile fuels, spotting potential, weak points in perimeter lines, terrain features, fences, ditches, etc.). ☐ Predicted weather and anticipated fire behavior/smoke dispersal discussed. ☐ Crew assignments made. ☐ Weather monitoring assignment made. ☐ Ignition technique and pattern. Holding method(s). ☐ Location of extra equipment, fuel, water, vehicle keys. ☐ Authority and communications; conduct radio check. ☐ Contingencies covered including escape routes or procedures. ☐ Sources of nearest assistance. Nearest phone and emergency numbers. ☐ Special instructions regarding smoke management, contact with the public and others. ☐ Safety briefing. Any EMTs on burn crew? ☐ Mop-up standards discussed. ☐ Arrange next day inspection and mop-up assignments. ☐ Questions? ☐ Crewmembers given opportunity to decline participation (is there anything that is going to prevent full physical performance?). ☐ Conduct test burn.

Prescription Prepared by: Name		Date/Time Prescription Prepared/Updated:	
Burn Manager Signature/Date/Time:			
Start Time:		Completed Time:	
Time Crew Released:		Time Burn Manager Left Burn Unit:	
Date Fire Declared Out:	Evaluated Objectives, Recorded Pertinent Burn Notes, and Entered into LMIS ☐		

Evaluation Notes

Additional Pages

Page 8 of 8

APPENDIX C

**Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Policies and Procedures**

Subject: Prescribed Burning and Wildland Fire Suppression Standards

Policy:

The following policy shall apply to all Division of Habitat and Species Conservation (DHSC) employees, volunteers and contractors engaged in prescribed burning or wildland fire suppression activities. The policy also applies to all other Florida Fish and Wildlife Conservation Commission (FWC) employees and volunteers engaged in prescribed burning or wildland fire suppression activities conducted through the DHSC. Prescribed burning or wildland fire suppression efforts that DHSC funds through grants, cost-share agreements, or other methods not conducted on DHSC-managed lands are outside the scope of this policy; however, DHSC staff physically participating in these burns are required to comply with the policy. This policy will be reviewed and any appropriate edits made at least once every 3 years.

Background and General Guidelines:

Wildland fire has been a major force shaping Florida landscapes for thousands of years. Florida's plant communities are the result of surface water conditions and frequent lightning ignitions across its vast landscape. Many plant communities experienced fire every few years and wildlife species adapted to these fire-maintained habitats. Floridians have consistently used fire as a land management tool and the Florida legislature recognizes the importance of prescribed burning per Chapter 590.125 F.S.

Likewise, DHSC recognizes the importance of prescribed fire for Florida's diverse wildlife and the habitats that sustain them. As Florida continues to lose natural wildlife habitat, prescribed fire is more important than ever in maintaining and enhancing our remaining natural areas. As FWC is the lead managing agency on more than 1.4 million acres of the Wildlife Management Area (WMA) system, DHSC regularly conducts burns on these lands, and others, for wildlife management, hazardous fuel reduction, and ecological purposes. DHSC also provides financial support and technical assistance for conducting prescribed burns outside of the WMA system.

In addition to conducting prescribed burning, DHSC employees are periodically asked to assist the Florida Forest Service (FFS) with wildland fire suppression efforts, particularly during declared wildfire emergencies. Working on prescribed fires or wildfires is an inherently dangerous and risky activity that can result in significant property damage, personal injury, or loss of life. Therefore, it is necessary to establish standards for training and certification to ensure DHSC employees, volunteers and contractors have the appropriate skills and knowledge to perform these activities safely and effectively. Employees are encouraged to obtain higher levels of training and certification as warranted and approved through supervisory channels.

The majority of DHSC wildland fire activities occur within the Wildlife and Habitat Management Section (WHM). However, other Sections within DHSC have employees that participate in wildland fire activities. To ensure efforts are not duplicated, this policy designates specific WHM staff positions as the point of contact or lead on coordination for prescribed fire and wildland fire suppression activities conducted through DHSC.

Employees are responsible for acquiring (with agency funds and supervisor approval) and maintaining all required personal protection equipment. Immediate supervisors are responsible for ensuring that direct reports have all the required training to participate in wildland fire activities. WHM Regional Wildlife Biologists will be responsible for coordinating applicable wildland fire training and incident reviews through the WHM Section Leader or their designee.

All prescribed burns shall be conducted in compliance with all laws regulating the use of prescribed fire; specifically Chapter 590.125(3), Florida Statutes and Chapter 51-2, Florida Administrative Code. When a DHSC employee, volunteer or private contractor is the burn manager, burn prescriptions shall be prepared using the FWC Prescribed Burning Prescription form and contain all the required elements per Chapter 51-2.006 Florida Administrative Code, as well as all other applicable information requested on the prescription form. Prescriptions shall be prepared with employee and public safety as the highest priority. All prescribed burns shall be conducted as a certified prescribed burn within prescription, and managed by a Certified Prescribed Burn Manager.

All prescribed fires conducted on FWC lead WMAs shall be documented within the WHM Land Management Information System according to the procedures and schedules determined by the WHM Section Leader.

Chapter 1 Prescribed Burning

Prescribed Burn Participation: This section establishes the training, certification, and experience standards required for members of a prescribed burn team. These standards apply to all DHSC burn crew members, regardless of the location of the burn, and for all non-DHSC crew members on burns managed by DHSC staff.

- A. Crew Member Trainee: Those who do not meet the requirements for Crew Member shall be classified as a Crew Member Trainee. A Crew Member Trainee may participate in prescribed burning activities provided that they are under the direct supervision of a Crew Member. A Crew Member may supervise no more than one Crew Member Trainee. No more than 40% of the burn crew shall be Crew Member Trainees*.

** For prescribed burns conducted during a DHSC-coordinated training course, Crew Members may supervise more than one Crew Member Trainee, and more than 40% of the burn crew may be Crew Member Trainees.*

B. Crew Member: Crew members may participate independently in prescribed burning activities. They shall have successfully completed the following National Wildfire Coordinating Group (NWCG) courses:

- 1) Introduction to the Incident Command System (I-100 or ICS-100);
- 2) Basic Wildland Firefighter Training (S-130);
- 3) Introduction to Wildland Fire Behavior (S-190);
- 4) All participants on a prescribed burn crew shall have successfully completed fire shelter or fire shelter refresher training within the past 12 months;
- 5) At least once every 36 months, all DHSC employees on a prescribed burn crew shall take an agency-approved wildland fire refresher training course.

C. Prescribed Burn Manager Mentee: Prescribed burn manager mentees may serve as burn manager to fulfill the responsibilities of acquiring DHSC and Florida Certified Prescribed Burn Manager status. Mentee must be under the direct supervision of a DHSC Certified Prescribed Burn Manager on prescribed burns that will be used to qualify them for DHSC certified prescribed burn manager status. They shall have successfully completed the following level of training and have the specified level of experience:

- 1) The FFS Florida Certified Prescribed Burn Manager Training Course;
- 2) I-100 or ICS-100, S-130 and S-190;
- 3) Participated on at least five prescribed burns;
- 4) Enrolled in or completed the DHSC Prescribed Burn Manager Mentoring Program, when adopted.

D. Certified Prescribed Burn Manager: A DHSC Certified Prescribed Burn Manager may request prescribed burn authorizations and serve as burn manager. They shall have successfully completed the following level of training, and have the specified certification and level of experience:

- 1) I-100 or ICS-100, S-130 and S-190;
- 2) FFS Prescribed Burn Manager Certification*(per section 590.125, Florida Statutes and 5I-2, Florida Administrative Code);
- 3) Participated on at least ten prescribed burns;
- 4) DHSC employees and volunteers must successfully complete the DHSC Certified Prescribed Burn Manager Mentoring Program to become a burn manager. Burn managers certified prior to the implementation of the mentoring program may be required to complete all or part of the mentoring program at the discretion of the WHM Regional Biologist.

***Note: Any employee aspiring to become a Certified Prescribed Burn Manager must obtain certification within three years of completing the Florida Certified Prescribed Burn Manager Training Course. Otherwise they must re-take the full course to become**

certified. If the certification lapses, the employee may re-certify by successfully completing the Distance Learning course if they served as burn manager on five or more burns. Otherwise they must re-take the full course to regain certification.

- E. Prescribed Burn Engine (Pumper Unit/Brush Truck) Operator: To independently operate a water-delivery engine in support of prescribed burns, crew members shall have successfully completed the following level of NWCG training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) Demonstrated proficiency in operation of water-delivery engines to supervisor; *or* successful completion of Southern Area Engine Academy (S-211 and SA-214) or Engine Operator (PMS 419);
 - 3) Participated on at least five prescribed burns.
- F. Prescribed Burn Bulldozer Plow Unit Operator: To independently operate a dozer plow unit during prescribed burns, crew members shall have successfully completed the following level of training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) The wildland fire portion of FFS Basic Fire Control Training (or equivalent training);
 - 3) Participated on at least five prescribed burns;
 - 4) Experience and demonstrated proficiency to supervisor operating a dozer plow unit.
- G. Prescribed Burn Aerial Plastic Sphere Dispenser (PSD) Operator: To independently operate a PSD from an aircraft during a prescribed burn, crew members shall have successfully completed the following level of training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) Completed an aerial PSD training workshop;
 - 3) Participated on at least five prescribed burns.

Chapter 2 Wildland Fire Suppression

Wildland Fire Suppression Participation: The leadership of FFS, or other entity, may request assistance from FWC during a wildland fire suppression incident. This request will usually be for a wildland fire strike team to conduct mop-up operations. A wildland fire strike team consists of one wildland fire strike team leader, and two wildland fire strike team members per Type V or VI engine. Occasionally there will be a request for a bulldozer operator to facilitate mop-up operations. Standards for strike team members and leaders are outlined below. In addition, requests may be made for personnel to fill positions on a suppression incident that are not covered by the following standards. The decision to assist, and the level of assistance provided,

on fire suppression incidents will be made by the DHSC Division Director or their designee. Coordination of all requests will be handled by the WHM Section Leader or their designee.

A. Wildland Fire Strike Team Member: To participate on wildland fire strike teams in support of suppression efforts, strike team members shall have successfully completed the following level of training and have the specified level of experience:

- 1) I-100 or ICS-100, S-130 and S-190;
- 2) Southern Area Engine Academy or PMS 419*;
- 3) Participated on at least ten prescribed burns and/or wildland fire suppression incidents.
- 4) All participants on a wildland fire suppression incident shall have successfully completed fire shelter or fire shelter refresher training within the past 12 months.
- 5) At least once every 36 months, all DHSC employees on a wildland fire suppression incident shall take an agency-approved wildland fire refresher training course.

*Employees who have not yet completed Southern Area Engine Academy or PMS 419 can be approved by the WHM Section Leader or their designee to serve on a wildland fire strike team. Exceptions can be granted when available strike team personnel are not sufficient to meet the requested need. Training and experience levels should be considered when approving exceptions.

B. Wildland Fire Strike Team Leader: To serve as team leader for wildland fire strike teams in support of suppression efforts, strike team members shall have completed the following level of training and have the specified level of experience **in addition to that required to participate as a wildland fire strike team member**:

- 1) Basic Incident Command System (I-200 or ICS-200);
- 2) Experience as a Certified Prescribed Burn Manager on at least ten prescribed burns and experience as a Wildland Fire Strike Team Member on at least one incident.

C. Wildland Fire Bulldozer Plow Unit Operator: To independently operate dozer fire-plow units in support of suppression efforts, strike team members shall have completed the following level of training and have the specified level of experience:

- 1) I-100 or ICS-100, S-130 and S-190;
- 2) The wildland fire portion of Basic Fire Control Training (or equivalent);
- 3) Participated on at least ten prescribed burns or wildland fire suppression incidents;
- 4) Experience and demonstrated proficiency to supervisor operating a dozer plow unit.

Chapter 3 Safety

3.1 Personal Protective Equipment (PPE): Required Personal Protective Equipment for all wildland fire activities includes*:

- A. Flame Resistant Shirt and Pants, or Jumpsuit
- B. Wildland Fire Hard Hat
- C. Leather Gloves
- D. Leather Boots – ≥8" Lace-up
- E. Eye Protection
- F. Hand-held Radio
- G. Fire Shelter

*Safety considerations and/or vegetation types may dictate that crew members wear additional equipment or in some cases deviate from the above required equipment. The burn manager/strike team leader shall determine what PPE will be worn by their crew to maximize safety, and shall document any deviations from the above list on their burn prescription or wildfire crew briefing report.

3.2 Physical Standards: Prescribed burning and fire suppression are physically demanding activities. Each prescribed burn crew/strike team member shall maintain a fitness level that will allow full participation in these activities. It is the burn crew/strike team member's responsibility to make the burn manager/strike team leader aware of any limitations that may restrict or prevent full participation.

DHSC employees shall maintain a fitness level that adheres to the standards of the DHSC Prescribed Burner Physical Fitness Program once adopted.

3.3 Mobile Equipment: The following is a list of required items for mobile equipment used during wildland fire activities. Mobile equipment includes all-terrain vehicles, utility vehicles, airboats, swamp buggies, trucks, tractors, and bulldozers.

- A. An ABC fire extinguisher that has been inspected, serviced, and maintained in accordance with the manufacturer's maintenance procedures shall be in or on all mobile equipment. Below are minimum extinguisher sizes (net extinguishing agent weights):
 - 1) All-terrain and utility vehicles – 2.5 pound
 - 2) Trucks and tractors – 5 pound
 - 3) Bulldozers and Swamp Buggies – 10 pound (could be two 5 pound extinguishers)
 - 4) Vessels – 5 pound (could be two 2.5 pound extinguishers)
- B. All-terrain vehicles, utility vehicles, swamp buggies, and trucks used in the interior of a burn unit shall have an operational winch.
- C. All mobile equipment used in the interior of a burn unit shall have an operational water delivery system with at least five gallons of water.

3.4 Public Safety: All wildland fire operations shall be conducted in a manner that protects the public and minimizes the potential adverse impacts of both smoke and fire. Prescriptions shall be prepared with public safety as the highest priority.

Chapter 4 Incident Reviews

This chapter outlines the procedure for reviewing a prescribed fire whose results include negative consequences on DHSC managed lands or from a burn managed by a DHSC burn manager. The purpose of a fire-related incident review is to gather facts regarding the incident and, if possible, recommend actions that may help minimize the chance of reoccurrence.

4.1 Fire-related Incident: A fire or smoke related incident that includes any of the following:

- A. FFS Notice of Violation;
- B. Conducting a burn outside of the prescription;
- C. Fire leaves the prescribed burn unit and resources in addition to the burn crew are utilized;
- D. Fire leaves the WMA system;
- E. Prescribed burn activities cause property damage or personal injury;
- F. Post-burn combustion poses a threat to public safety, property, or natural resources.

4.2 Reporting of Fire-related Incidents: The burn manager shall notify the appropriate WHM Regional Biologist about the incident as soon as possible, but no later than 8:30 am the day after the fire-related incident occurred. For extended post-burn combustion, the burn manager shall notify the regional biologist if it becomes apparent that the combustion and/or associated smoke may pose a threat to public safety, property, or natural resources. The Regional Biologist shall notify the WHM Section Leader or their designee of the incident as soon as possible. The notification should include the following:

- A. Date, time, and location of incident;
- B. Brief description of the incident and current status;
- C. Other agencies or entities assisting;
- D. Resources needed.

4.3 Fire-related Incident Review: The WHM Section Leader shall determine the need for and the scope of fire-related incident reviews. The WHM Section Leader or their designee will coordinate the incident review. Within 60 days of completing a fire-related incident review, the reviewer(s) shall submit a report to the DHSC Division Director for approval.

Approved: 
Division Director

11-14-19
Date

**12.11 Wildlife Conservation and Prioritization and Recovery Program
Strategy (WCPR)**

**Chinsegut, Janet Butterfield Brooks,
and Perry Oldenburg
(Brooksville Areas)
Wildlife and Environmental Areas
Wildlife Management Strategy**

March 2022

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Wildlife and Habitat Management Section

A product of the Wildlife Conservation
Prioritization and Recovery Program



Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

Executive Summary

The Florida Fish and Wildlife Conservation Commission's (FWC) Wildlife and Habitat Management Section (WHM) takes a proactive, science-informed approach to wildlife management on lands in the Wildlife Management Area (WMA/WEA) system. This approach uses information from statewide models, in conjunction with input from species experts and local staff, to create a Wildlife Management Strategy for the area. The FWC intends for this Strategy to provide WMA staff with information on management and monitoring actions that should be taken to promote the presence and facilitate the persistence of wildlife species on the area.

This document presents the results of a science-informed process for evaluating the needs of locally important species on 3 Wildlife and Environmental Areas (WEAs): Chinsegut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA), and Perry Oldenburg WEA (POWEA). These WEAs will be collectively referred to as the Brooksville Areas. The foundation for FWC's management is an understanding of Florida's natural communities, and the ecological processes that affect the richness and abundance of the plant and animal species which inhabit them. By restoring and maintaining natural communities, management will benefit the greatest suite of native species reliant upon those natural communities. Monitoring select species can indicate whether natural community management is having the desired effect on wildlife. To maximize the potential wildlife conservation benefit, staff considers the role of the Brooksville Areas in regional and statewide conservation initiatives throughout the process.

[Section 1](#) introduces the reader to the Strategy.

[Section 2](#) describes historic and ongoing habitat management and monitoring actions on the property.

[Section 3](#) provides an assessment of the area's role in the conservation of locally important species.

This section includes management and monitoring actions identified during the Wildlife Conservation, Prioritization and Recovery Program (WCPR) workshop.

[Section 4](#) identifies coordination and "beyond the boundaries" opportunities that will assist in conserving these species.

Maintaining resources at current levels would be required to provide for most of the land management recommended in this document. Some of the monitoring recommendations may require additional resources, while FWC can accomplish others with continuation of existing resources.

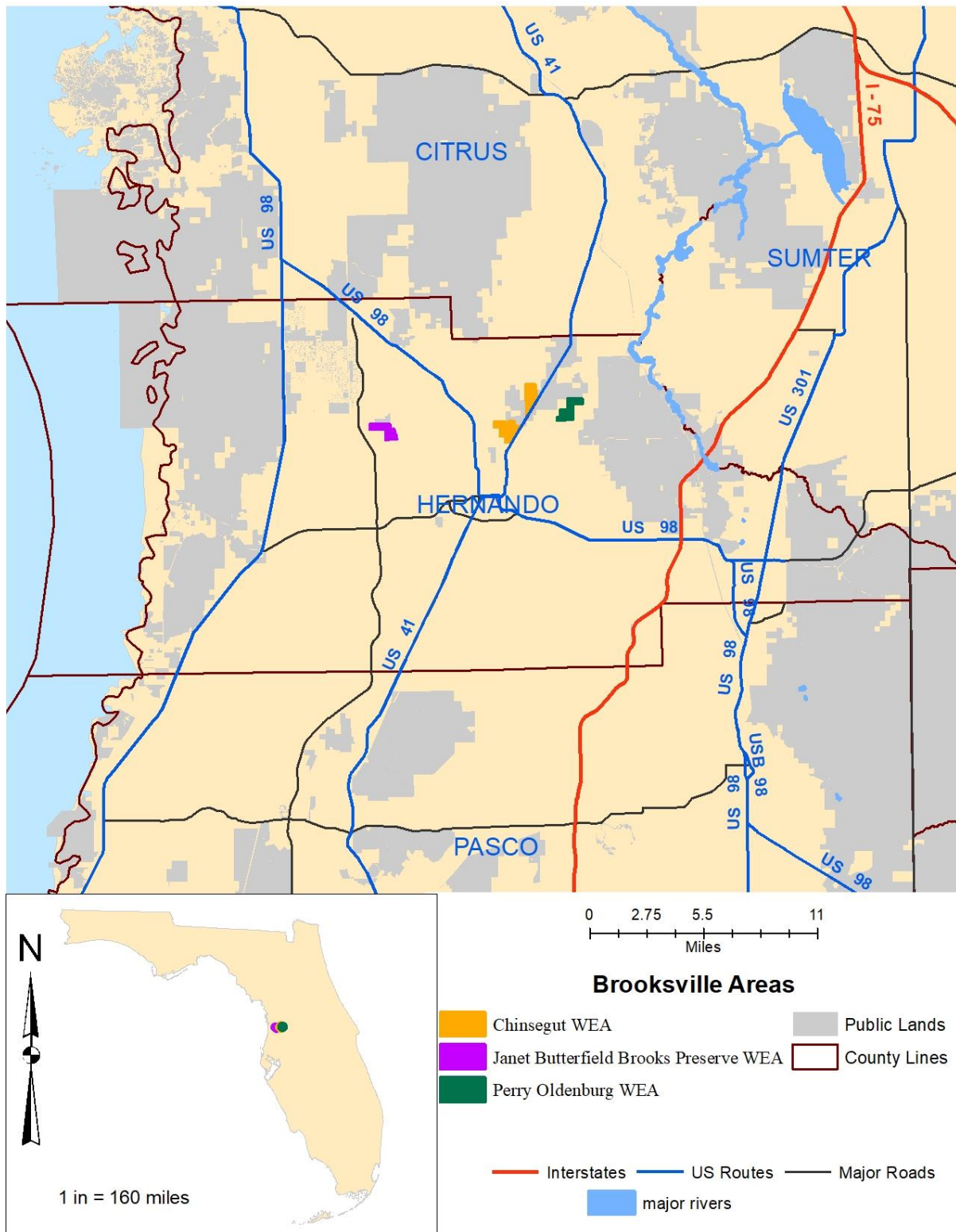
Acknowledgements

The WCPR Strategy development process is intended to be a collaborative effort between multiple Divisions and Sections within the agency, and coordination with experts beyond the FWC. Without the support of these experts, we would not have successfully prioritized our management, monitoring, and coordination efforts for areas like the Brooksville Areas. As such, we would like to highlight the agency, local, and statewide experts that helped shape the discussion, including Luis Gonzalez, Bradley O'Hanlon, Craig Faulhaber, Andrew Cox, Terry Doonan, Katherine Richardson, Kyle Brown, Becky Schneider, and many others. Thank you for taking the time and effort to consider our management lands within context of the conservation needs for the region, as well as the State of Florida.

Acronym List

AHRES	Aquatic Habitat Restoration and Enhancement
BA	Basal Area
CWEA	Chinsegut WEA
DFCs	Desired Future Conditions
FAMU	Florida A&M University
FFS	Florida Forest Service
FNAI	Florida Natural Areas Inventory
FRI	Fire Return Interval
F.S.	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
ISMP	Imperiled Species Management Plan
JBBWEA	Janet Butterfield Brooks WEA
OBVM	Objective-Based Vegetation Management
OCPS	Office of Conservation Planning Services
POWEA	Perry Oldenburg WEA
SaMP	Survey and Monitoring Protocol (database)
SAP	Species Action Plan
SMA	Strategic Management Area
WCPR	Wildlife Conservation Prioritization and Recovery (program)
WEA	Wildlife and Environmental Area
WHM	Wildlife and Habitat Management (section)
WMA	Wildlife Management Area
WSF	Withlacoochee State Forest

Locator Map



Florida Fish and Wildlife Conservation Commission | Janet Butterfield Brooks WEA
Management Plan

Section 1: Introduction

The Florida Fish and Wildlife Conservation Commission (FWC) manages the lands in the Wildlife Management Area (WMA) system using a science-informed, proactive approach, which includes an understanding of natural communities of plants and animals. As applied by FWC, natural community management starts by classifying lands into distinct natural communities that are then managed in a way to maintain or enhance the communities' unique structure and function. Land management that has a positive influence on natural community conditions benefits the wildlife living in those habitats.

While natural community management provides benefits to a host of species reliant upon these natural communities, imperiled species sometimes require specific attention. Additionally, subsection 253.034(5) of the Florida Statutes (F.S.) requires all land management plans to include an analysis of the property to determine if significant natural resources, including listed species, occur on the property. If significant natural resources occur, the plan shall contain management strategies to protect the resources. The Florida Forever Act (s. 259.105, F.S.) adds that all State lands that have imperiled species habitat shall include restoration, enhancement, management, and repopulation of such habitats as a consideration in the management plan.

FWC's Wildlife Conservation, Prioritization, and Restoration (WCPR) program created this Wildlife Management Strategy for the Brooksville Areas to document the areas' role in wildlife conservation, to ensure the management needs for wildlife on the WMA system are met, and to identify the appropriate species monitoring for the areas. This Strategy provides staff with information on management and monitoring actions that should be taken provided the necessary resources are available. By implementing the actions in this Strategy, FWC believes that management will promote the persistence of locally important species, aid in the recovery of imperiled species, and ensure staff are managing all wildlife species on the areas for their long-term well-being and for the benefit of people.

Section 2: Historic, Current, and Planned Management

The Brooksville Areas consist of Chinsegut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA), and Perry Oldenburg WEA (POWEA); all located in Hernando County. FWC manages 1,552 acres combined on these WEAs. FWC acquired the 853-acre Chinsegut WEA via deed transfer beginning in 1973, with the latest acquisition in 2009. The Nature Conservancy donated the 319-acre JBBWEA to FWC in 2008 with deed restrictions requiring that it be managed solely as an environmental preserve, with no consumptive use or general access allowed. The FWC acquired the 380-acre Perry Oldenburg WEA through the Mitigation Park program with acquisitions from 1990 to 1995. All the WEAs established through the Mitigation Park program are primarily managed to protect and enhance habitat important to listed or imperiled wildlife, especially the gopher tortoise (*Gopherus polyphemus*). FWC acquired POWEA because of its gopher tortoise population and the presence of its high-quality longleaf pine-wiregrass community. Because POWEA was acquired for gopher tortoise mitigation, the

primary mission is to manage the habitat in a fashion that provides optimal habitat for gopher tortoises and commensal species. Prior to 2016, staff from the nearby Chassahowitzka WMA was responsible for land management and administrative activities on these WEAs. The FWC assigned two biologists and one technician to the Brooksville Areas in 2016.

The 157,479-acre Withlacoochee State Forest (WSF), in Citrus, Sumter, Hernando, and Pasco counties, is part of the regional conservation landscape for these WEAs. The Florida Forest Service (FFS) is the lead managing agency on WSF and FWC acts as a cooperator on most of these acres (Richloam, Citrus, Homosassa, and Croom WMAs). Private lands adjacent to these WEAs are a mix of rural, industrial, residential, and agricultural. CWEA is adjacent to several Florida A&M University (FAMU) properties. JBBWEA is surrounded by rural and residential properties, including a large pasture, and shares part of its northern border with Fickett Hammock Preserve, a county park managed by Hernando County. Additionally, JBBWEA is adjacent to a phosphate mine that is a major source of cogongrass (*Imperata cylindrica*). POWEA is surrounded by a mix of conservation areas, private land, and rural agricultural areas.

Prior to acquisition by the state, land use across the Brooksville Areas varied. While none of the areas experienced large scale conversion, all had differing degrees of fire suppression resulting in increased hardwoods and shrubs, and this had a negative influence on groundcover. CWEA is primarily comprised of upland pine and sandhill communities, and the Big Pine Tract contains one of the few remaining intact old-growth longleaf pine forests in Florida. Before 2005, CWEA received limited habitat management or improvement. JBBWEA is mostly sandhill and upland pine with mesic flatwoods and non-fire-maintained mesic hammock. Previous landowners managed the land as an environmental preserve and used prescribed fire to maintain the natural condition of the near old-growth longleaf pine ecosystem. POWEA is comprised of longleaf pine-wiregrass sandhills with small areas of mesic flatwoods and mesic hammocks. Prior to acquisition, land uses on POWEA consisted of moderate cattle grazing and timber harvests. More information about the Brooksville Areas and FWC's management of the areas is available in the management plans for [CWEA](#), [JBBWEA](#), and [POWEA](#).

2.1: Habitat Management

CWEA is divided into two noncontiguous tracts: the Conservation Center Tract and Big Pine Tract. Actively managed natural communities on CWEA include mesic flatwoods (8 acres), sandhill (101 acres), upland pine (302 acres), and restoration upland pine (109 acres; Appendix 1). A 'restoration' natural community is a formerly altered landcover type where active restoration is ongoing. Other upland communities actively managed on the area include improved pasture (32 acres) and semi-improved pasture (2 acres). Actively managed natural communities on JBBWEA include mesic flatwoods (31 acres), sandhill (118 acres), and upland pine (41 acres). Actively managed natural communities on POWEA include mesic flatwoods (2 acres) and sandhill (297 acres). Staff also manage 12 acres of semi-improved pasture.

The Objective-Based Vegetation Management (OBVM) program monitors natural community condition to track progress towards meeting Desired Future Conditions (DFCs). OBVM monitors the vegetation attributes of sandhill across the Brooksville Areas as well as upland pine at CWEA. FWC staff manage these communities with prescribed fire, mechanical treatments, chemical treatments, plantings, and selective silvicultural thinning to achieve DFCs. The OBVM reports for [CWEA](#), [JBBWEA](#), and [POWEA](#) concluded that natural community attributes were moving toward DFCs.

Prescribed fire is the primary tool used to manage and restore natural communities on the Brooksville Areas. Prescribed burns reduce fuel loading, enhance habitat for wildlife, control invasive hardwoods, and promote fire-dependent species. Since the 2013 Strategy, staff have burned 2,318 acres at CWEA, 555 acres at JBBWEA, and 1,244 acres at POWEA. Approximately 82% of the burned acreage was accomplished after the Brooksville Areas received dedicated staff in 2016. Staff conducted the majority of prescribed burns during the growing season to promote herbaceous groundcover. On CWEA, most of the burnable acreage at the Conservation Center Tract are comprised of sandhill, upland pine, and mesic flatwoods. The Big Pine Tract burn units contain upland pine, mesic flatwoods, and a mix of other natural communities. JBBWEA contains sandhill, upland pine, and mesic flatwoods. Most of the burnable acreage at POWEA are sandhill, with some mesic flatwoods and semi-improved pastures. The ideal fire regime for these natural communities includes a ≤ 3 -year fire return interval (FRI) with an emphasis on growing season burns. OBVM recommends that staff strive for a 2-year FRI for sandhill when possible.

Timber assessments have been completed for all the Brooksville Areas. The [CWEA timber assessment](#) was completed in 2017 and provides recommendations for planting, shredding, burning, and thinning to result in naturally regenerating pine communities. The 2018 [JBBWEA timber assessment](#) recommends a combination of thinning and chipping to establish and maintain uneven-aged upland pine communities. The 2019 [POWEA timber assessment](#) notes that harvest options are limited, and that management should focus on artificial plantings when possible. Staff had previously contracted timber harvests on 220 acres at POWEA in 2016.

Staff use mechanical treatments such as chainsawing, chopping, and mulching to reduce the coverage and height of woody species and saw palmetto (*Serenoa repens*). Staff follow up mechanical treatments with prescribed fire to promote herbaceous groundcover. Since the 2013 Strategy, staff conducted mechanical treatments across 1,076 acres at CWEA, 242 acres on JBBWEA, and 393 acres of POWEA.

Staff use herbicides and mechanical means to control excessive hardwoods and invasive non-native species. Many invasive plants are known to occur on the Brooksville Areas, and staff primarily focus their efforts on species that there is a reasonable chance of significantly reducing or are especially detrimental to native habitat. Staff treat several invasive plant species including cogongrass, natal grass (*Melinis repens*), climbing fern (*Lydogium japonicum* and *L.*

microphyllum), camphor tree (*Cinnamoman camphora*), chinaberry (*Melia azedarach*), tropical soda apple (*Solanum viarum*), Spanish lantana (*Lantana camara*), showy rattlebox (*Crotalaria spectabilis*), sword fern (*Nephrolepis cordifolia*), praxelis (*Praxelis clematidea*), ravenna grass (*Triplidium ravennae*), guinea grass (*Panicum maximum*), and rosary pea (*Abrus precatorius*). Total eradication of invasive plant species is not realistic due to the proximity to private homes, mines, roadways, and agricultural lands. Staff have treated approximately 3,940 acres for invasive plants at CWEA, 1,106 acres at JBBWEA, and 1,282 acres at POWEA including retreatments. Chemical treatments often require multiple applications for success, and the large reservoirs of invasive plants that border each property are constant sources of reinfestation.

Natural community attributes across the Brooksville Areas are moving toward DFCs on all three areas. Staff have used a combination of prescribed fire, timber management, mechanical treatments, and herbicide to increase herbaceous groundcover and reduce average sub-canopy stem density, shrub height, and shrub cover. Over the next 10 years, maintenance and enhancement of current upland communities will be the focus of habitat management on the Brooksville Areas. The actions outlined below will improve habitat for several listed and other locally important species that use upland communities, including gopher tortoise, eastern indigo snake (*Drymarchon couperi*; federally-Threatened), Florida sandhill crane (*Antigone canadensis pratensis*; State-designated Threatened), and southeastern American kestrel (*Falco sparverius paulus*; state-Threatened). All of these species are dependent on fire-maintained communities and therefore planned management should meet the needs of these species.

Prescribed Fire

- Staff will burn all 3 areas on a ≤ 3 -year average FRI, striving for a 2-year average FRI that prioritizes growing season burns.
- Staff will employ a burning program with different burning frequency, intensity, and seasonality (dormant vs. growing seasons) designed to provide a diversity of habitat structure.
- CWEA: Staff plan to apply prescribed fire to a minimum of 250 acres of fire-adapted communities per year.
- JBBWEA: Staff plan to apply prescribed fire to a minimum of 80 acres of fire-adapted communities per year.
- POWEA: Staff plan to conduct prescribed burning on a minimum of 150 acres of fire-adapted communities per year.

Timber Management

- Staff will manage for mature, open pine forests to promote site-appropriate species and structure.
- Staff will continue to follow the recommendations from the Timber Assessment guidelines.

Mechanical Treatments

- Staff will utilize appropriate mechanical treatments to reduce height and coverage of woody species and saw palmetto to favor herbaceous species. These treatments will be followed with prescribed fire.
- Staff will use mechanical treatments to reduce undesirable hardwood midstory as needed.
- Staff will continue to mow along firebreaks and roads to promote prescribed fire.

Chemical Treatments

- Staff will continue to use herbicide treatment to control invasive non-native vegetation as needed (cogongrass, natal grass, climbing fern, etc.).
- As needed, staff will use herbicide treatments to control encroaching hardwoods, and these treatments will be followed with prescribed fire.

Ephemeral Wetlands

- Staff will strive to burn units that contain ephemeral wetlands during the growing season and to use ignition strategies that encourage fire to burn through the basins.
- As needed for ephemeral wetlands that hold water throughout most of the year, staff may burn the surrounding block and come back to the wetlands when they are dry to re-treat them with prescribed fire to control excessive vegetation growth.
- Staff will remove pines or hardwood species that encroach into wetlands as needed.

2.2: Strategic Management Area

The [2013 WCPR Strategy](#) established the CWEA Basin Marsh Restoration Strategic Management Area (SMA) to investigate the potential for restoration for of May's Prairie and Burn's Prairie (Figure 1). The goal of the CWEA Basin Marsh SMA was to enhance habitat conditions for listed and locally important species that use the basin marsh natural community. The restoration of these marshes is beneficial to listed and locally important species such as wading birds, Florida sandhill cranes, gopher frogs (*Lithobates capito*), and the Brooksville bellflower (*Campanula robinsiae*; federally-Endangered).

This SMA contains 43 acres of basin marsh natural community in MU 13 on the Conservation Center Tract (referred to as May's Prairie) and 14 acres of basin marsh natural community in MU B23 on the Big Pine Tract (referred to as Burn's Prairie). May's Prairie is grassy with little to no hardwoods in the marsh, but at the time of the last Strategy had been dry for several years and had a deep muck layer. Burn's Prairie is dominated by hardwoods and contains a deep muck layer.

Staff met with the Aquatic Habitat Restoration and Enhancement subsection (AHRES) in 2013 to evaluate the condition of the two basin marshes. AHRES deemed both May's Prairie and Burn's Prairie as functional wetlands; however, staff note that Burn's Prairie suffers from poor water quality and hardwood encroachment. Both basin marshes benefit from the application of

prescribed fire. Frequent fire on May's Prairie has improved the wetland; however, Burn's Prairie has lacked sufficient fire due to its location crossing the property boundary and inadequate control lines. Workshop participants determined that habitat conditions at May's Prairie have improved and will be maintained with natural community management, and therefore does not need to be included in an SMA.

Burn's Prairie still needs restoration efforts, such as hardwood removal, timber thinning, and firebreak improvements to promote fire, and to reduce the deep muck layer, and would benefit from remaining an SMA. Workshop participants identified four specific management actions to promote fire on Burn's Prairie:

- Use a combination of mechanical and chemical treatments to reduce encroaching hardwoods from the edge of Burn's Prairie.
- Timber thinning in Stands 6 and 7 east of the marsh to reduce fuel loading (Figure 1). The [2017 CWEA Timber Assessment](#) calls for this action.
- Work with experts to establish an effective wetline along the north boundary of the marsh by clearing vegetation or work with FAMU to allow for adequate application of fire regardless of the boundary.
- Allow prescribed fire to burn across the wetland during the dry season to reduce the muck layer.

Big Pine Tract: Burn's Prairie Strategic Management Area: Prairie Restoration Area

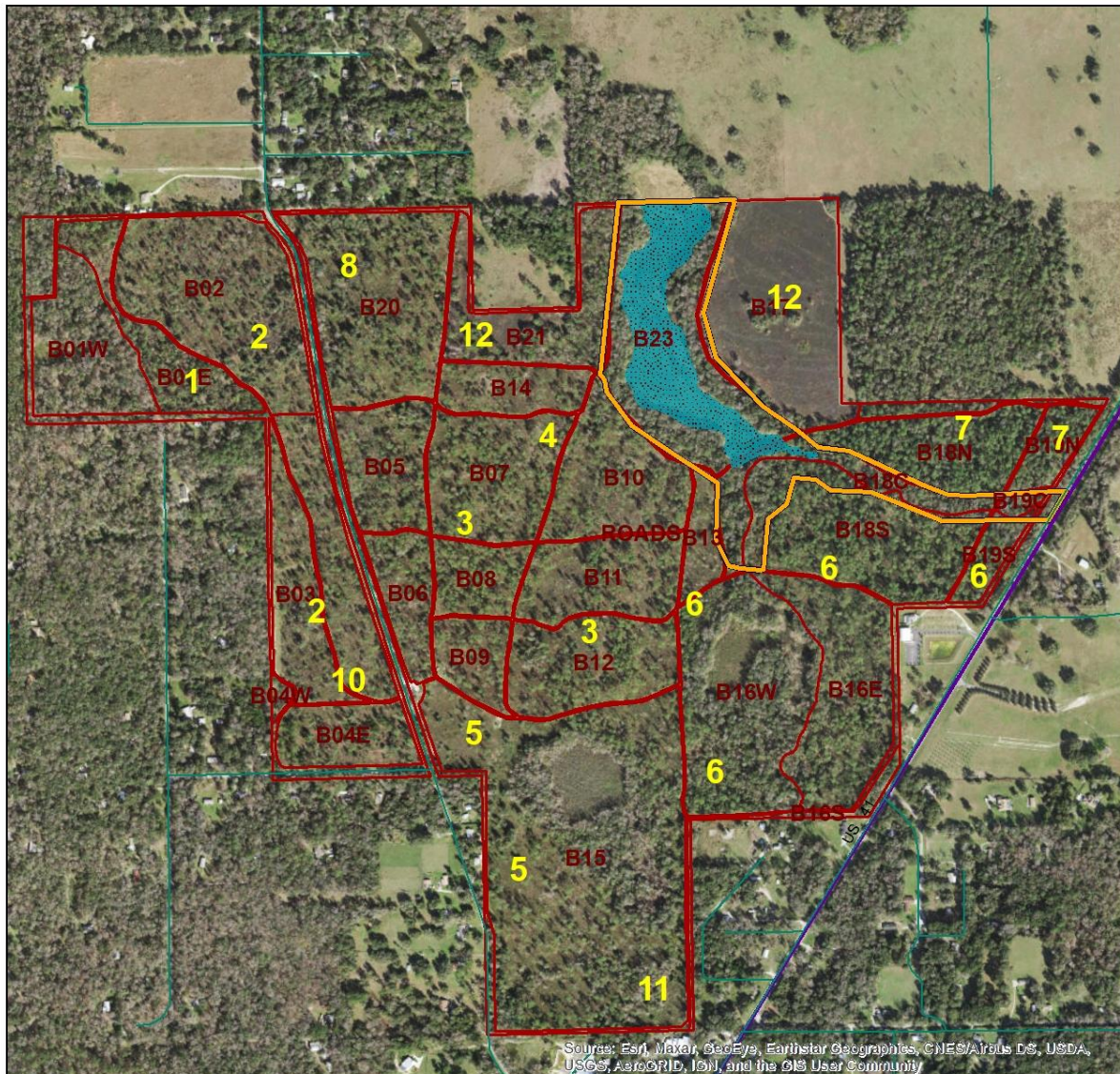
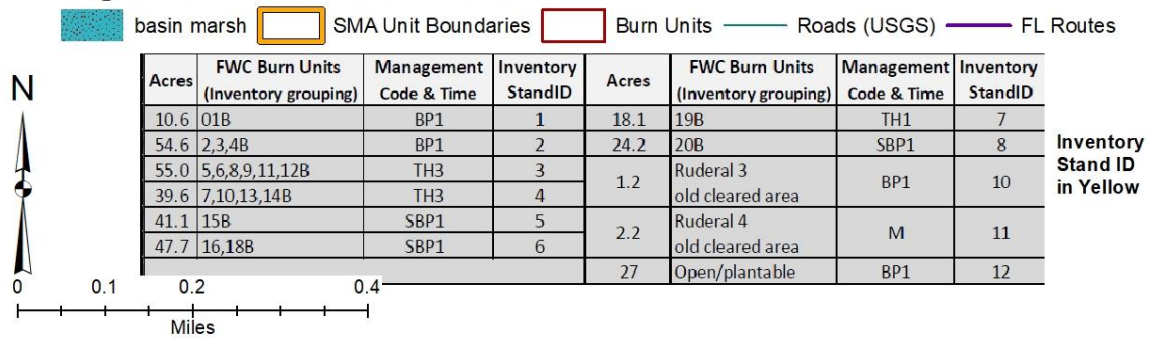


Figure 1. Strategic Management Area for basin marsh restoration at Burn's Prairie.

2.3: Monitoring

Monitoring recommendations in the 2013 Strategy included: monitoring gopher tortoise populations on POWEA and JBBWEA, monitoring nest boxes for southeastern American kestrels, conducting Florida mouse surveys, and opportunistically monitoring other species of interest. Staff completed the Florida mouse occupancy surveys in 2015 and detected 1 Florida mouse at CWEA, 5 at JBBWEA, and 11 at POWEA. The surveys were discontinued after the Florida mouse was delisted. Staff accomplished the monitoring recommendations for gopher tortoises and southeastern American kestrels during the 10-year life of the Strategy and the results are discussed in [Section 3](#).

In addition to monitoring actions outlined in Section 3, staff conduct an Avian Point Count (APC) survey at CWEA each spring and volunteers maintain 5 bat houses near the conservation center. Staff have conducted the APCs at CWEA annually since 2013 to monitor bird populations. From 2013 to 2021, staff have detected an average of 42 species and 450 individuals per year. The bat houses are in need of replacement but have historically been used by Brazilian free-tailed bats (*Tadarida brasiliensis*).

The 2013 Strategy included several species to document if detected. Gopher frogs and Florida sandhill cranes have been detected at CWEA and POWEA. Southern fox squirrels (*Sciurus niger niger*) have been documented at JBBWEA and POWEA. Additionally, staff detected one southeastern myotis (*Myotis austroriparius*) and one eastern indigo snake at CWEA. Florida pine snakes (*Pituophis melanoleucus*; State-designated Threatened) were not detected on any of the areas, despite the presence of high-quality sandhill. The federally-listed red-cockaded woodpecker (*Picoides borealis*) has not been detected on the Brooksville WEAs, however they are known to occur on nearby WSF.

Species-Specific Monitoring

The [Area-Specific Species Assessments](#) contain more details about these monitoring actions. Species we will continue to monitor specifically are:

- Gopher tortoise
- Bachman's sparrow
- Brown-headed nuthatch
- Southeastern American kestrel

Species Inventories

Conducting periodic species inventories on lands within the WMA system accomplishes several purposes: species inventories enable staff to provide an up-to-date species list for the area, enhance species lists for cryptic, fossorial, or nocturnal species, and may alert staff to potential species declines that warrant further investigation. Additionally, conducting a species inventory may be a more efficient way to document species occurrence than other methods, such as opportunistic monitoring.

During the 10-year lifetime of this Strategy, staff will conduct taxa inventory surveys as resources allow. Surveys on the Brooksville Areas will include avian point-counts, drift fence surveys for reptiles and amphibians, small mammal trapping, camera traps surveys for mesomammals, and acoustic bat surveys. For species identified as unlikely to be captured by current methods and other special cases, modifications or enhancements to existing survey methodologies will be considered.

Document Occurrence

Staff document opportunistic observations of species as they are encountered. While staff only need to enter opportunistic observations for common species on an occasional basis, there are other species for which staff should document every encounter. Collecting this information will help further our understanding of species' ranges statewide as well as the area's role in the conservation of these species. Staff record observations of these species when encountered using WHM's Opportunistic Observations for Wildlife protocol and enter the data into the Survey and Monitoring Protocol (SaMP) database so they will be available to other FWC sections and divisions, as well as cooperating agencies and organizations. It is not necessary for staff to fill out the opportunistic monitoring form if data on these species are collected as part of another monitoring effort (e.g., herp arrays).

Species identified for opportunistic monitoring are:

- Gopher frog (*Lithobates capito*)
- Eastern diamondback rattlesnake (*Crotalus adamanteus*)
- Eastern indigo snake (*Drymarchon couperi*)
- Eastern kingsnake (*Lampropeltis getula*)
- Florida kingsnake (*Lampropeltis floridana*)
- Florida pine snake (*Pituophis melanoleucus*)
- Short-tailed kingsnake (*Lampropeltis extenuata*)
- Southern hognose snake (*Heterodon simus*)
- Florida sandhill crane (*Antigone canadensis pratensis*; nests or dependent young)
- Limpkin (*Aramus guarauna*; nests or dependent young)
- Northern bobwhite (*Colinus virginianus*; nests or dependent young)
- Red-cockaded woodpecker (*Picoides borealis*)
- Southern bald eagle (*Haliaeetus leucocephalus*; nests only)
- Swallow-tailed kite (*Elanoides forficatus*; nests or nesting behavior only)
- Imperiled wading birds (nesting colonies)
- Florida black bear (*Ursus americanus floridanus*)
- Florida mouse (*Peromyscus floridanus*)
- Southern fox squirrel (*Sciurus niger niger*; novel locations, nests or young)

Section 3: Species Assessments

Creating these assessments for locally important species on the Brooksville Areas involved several steps. First, WCPR staff created a list of locally important species for the areas ([Appendix 4](#)), starting with the listed and recently delisted species in the [Imperiled Species Management Plan](#) (ISMP) that are known to occur or could potentially occur on the areas. Staff then considered adding additional species to this list, including: species that were identified in the area's purpose for acquisition; species for which staff conduct significant monitoring or management for conservation, recreation, or public viewing purposes; candidates for federal listing; species recognized as habitat management indicators, keystone species, or umbrella species; and species for which occurrence data are lacking. Staff used references, in addition to the ISMP, which included: statewide potential habitat models created by FWC's Fish and Wildlife Research Institute (FWRI) using Cooperative Land Cover V.3.2; agency documents such as the previous WCPR Strategy and each area's [Management Plan](#); and input from local staff and species experts.

After creating the species list, WCPR staff drafted assessments outlining proposed management actions for each species (except those for which documenting occurrence was the only needed action identified by experts). Then staff conducted a workshop on May 19-20th, 2021, at which area managers, species experts, and section leaders reviewed the draft species assessments and discussed the Brooksville Areas' potential role in the conservation of locally important species. To determine management actions needed for each species, workshop participants considered: the species' status on the area; the current condition of the area's natural communities; the amount and spatial arrangement of the species' potential habitat on the area and adjacent lands; the species' response to management; and any local overriding factors (e.g., status of species in the region, local declines or extirpations). Additionally, staff considered management actions identified in FWC's [Species Action Plans](#) (SAPs), Regional Assessments, and the area's [Management Plan](#). Using the information from the workshop, staff drafted the Strategy and sent it to species experts for review. Following the review, the Strategy was finalized and implemented.

This section summarizes the assessment for each species discussed in the workshop and the actions agreed on by workshop participants. Each assessment outlines the species' status on the area and the current condition of its habitat, planned habitat management actions, planned monitoring actions, and the area's role in conservation of the species. In addition, some assessments may identify species management recommendations, which refer to actions such as translocation, restocking, or installing artificial cavities.

3.1: Gopher Tortoise

Current Condition: The gopher tortoise is a state-Threatened species and a candidate for federal listing, making it a high statewide priority. The gopher tortoise is a keystone species because several other species use their burrows, including the recently de-listed gopher frog and

Florida mouse. Gopher tortoises are common on CWEA (Conservation Center Tract) and POWEA, and occasionally observed on JBBWEA.

On CWEA, past fire-suppression decreased the herbaceous cover on which the gopher tortoise depends. However, planned management is moving the vegetation attributes toward the DFCs and there is potential for this species to respond. Aside from a herpetofauna survey completed in 1998, no formal gopher tortoise surveys have been conducted at CWEA; however, staff continue to opportunistically document the species.

The sandhills on JBBWEA are currently suitable for gopher tortoises, though they are on opposite ends of the tract, separated by a matrix of mesic hammock, bottomland forest, and streams that may serve as a barrier to tortoise movement. Area staff recently reintroduced prescribed fire into the mesic flatwoods, opening some additional acreage that gopher tortoises can use. The [2021 OBVM report](#) indicates that habitat conditions are moving towards DFCs. Area staff conducted burrow surveys in 2018 and identified 103 potentially occupied burrows. Gopher tortoises occur in the surrounding landscape, as pastures and other ruderal areas are common.

POWEA is a gopher tortoise mitigation park, making the species a high priority on this area. Sandhill constitutes most of the WEA and is important to the conservation of the gopher tortoise. Prior to acquisition by the state, the sandhills were fire-suppressed. Staff have significantly improved the condition of the sandhills at POWEA by controlling the hardwood midstory and increasing prescribed fire on the area. In 2015, the Jones Center conducted a [Line Transect Distance Sampling](#) (LTDS) survey and estimated a total population size of 213 gopher tortoises. Florida Natural Areas Inventory (FNAI) conducted an LTDS survey in 2020 and estimated a population of 424 gopher tortoises, a 99.1% increase from the 2015 LTDS survey. Furthermore, the 2020 survey documented burrows from the various size classes, indicating recruitment of younger tortoises to the population. POWEA meets the criteria for a viable population based on the results of the 2020 survey.

Habitat Management: The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. It prefers xeric upland communities maintained with fire that helps perpetuate the groundcover on which it feeds. FWC's [Gopher Tortoise Management Plan](#) outlines actions to improve the status of the species. The plan recommends managing potential tortoise habitat to achieve the conditions identified for FNAI reference sites, primarily with prescribed fire. Frequent prescribed fire and ground cover enhancement efforts will improve the quality and quantity of habitat for gopher tortoises. Species experts recommend a 2–3-year fire regime for gopher tortoise habitat, and this is in line with planned management for the area. Additionally, the plan recommends actions to prevent direct mortality and collapsing burrows during management activities, such as timing treatments outside of the hatching period (August – November) and flagging burrows in advance of mechanical treatments that use heavy equipment.

Monitoring: POWEA was identified as a priority area for conducting long-term monitoring of gopher tortoise populations. FWC has adopted the use of the LTDS monitoring protocol for gopher tortoise population monitoring. The LTDS method estimates gopher tortoise population size and density, which allows managers the ability to track changes in the population through multiple repetitions. JBBWEA was not selected as an LTDS monitoring site; however, staff will repeat the gopher tortoise burrow survey in 2023 on JBBWEA to determine the effect of land management activities on the gopher tortoise population. Monitoring on CWEA is not recommended at this time; however, as habitat conditions improve, staff will revisit the need for monitoring.

Areas' Role: The role of these areas is to continue to provide habitat for gopher tortoises to support the recovery of the species. By continuing efforts to maintain the appropriate structure and function of habitat to better suit the gopher tortoise, the Brooksville Areas will fulfill their role in the recovery of this species.

3.2: Bachman's Sparrow

Current Condition: Ecologists consider the Bachman's sparrow as an 'indicator species' whose continued presence indicates well-managed pine communities. The Bachman's sparrow is a habitat specialist closely associated with natural communities containing diverse herbaceous groundcover maintained by frequent fire. The species requires openings between grasses, and past fire suppression decreased the suitability of habitat for this species on the Brooksville Areas. However, FWC's efforts to restore natural community structure and reintroduce fire have improved habitat by opening the canopy and stimulating the growth of grasses and forbs. OBVM reports for all three areas indicate that current and planned management is moving the habitat towards suitable habitat conditions for sparrows.

An annual bird survey similar to Breeding Bird Surveys has been conducted at CWEA since 1999, but Bachman's sparrows have not been documented. However, Bachman's sparrows have been reported through [eBird](#) on CWEA. POWEA could maintain a population of Bachman's sparrows due to its proximity to other occupied habitats on Citrus and Croom. Although CWEA is also within range of these populations, the area's size and habitat composition would likely result in the species occupying the habitat in lower numbers. JBBWEA does not have a significant role for this species. While the area contains a small amount of potential Bachman's sparrow habitat, it is noncontiguous. Additionally, the surrounding landscape does not contain natural communities maintained with frequent fire, as required by this species.

Habitat Management: Frequent (≤ 3 -year rotation) use of prescribed fire improves habitat quality for Bachman's sparrows and is the primary land management tool recommended to restore and maintain habitat for the species on these areas. The occurrence of fire is critical to sustaining this species, because use of an area by Bachman's sparrows declines beginning about 18 months post-fire, and the species may abandon habitat if fire returns are > 3 years. Staff will

follow mechanical treatments with prescribed fire to promote herbaceous groundcover. Since males use small shrubs as singing perches, it is important to retain some small patches of shrubs during management treatments.

Monitoring: Since the Bachman's sparrow can serve as a habitat indicator, continued monitoring can help gauge the effectiveness of restoration efforts. We expect trends in distribution and relative abundance to increase over time as habitat improves. Staff will informally document this species using callbacks during the breeding season and report observations using the protocol for documenting incidental observations. This informal monitoring effort entails conducting point counts on the area at least once during the breeding season. When planning the monitoring, staff should ensure that monitoring station points are distributed in every management unit that contains potential habitat for Bachman's sparrows. Should staff document the species at 20% occupancy during exploratory surveys, staff will implement the standardized [callback monitoring protocol](#). Staff will survey for two years at a time and take off two years between survey intervals. On the other areas, incidental observations are the appropriate form of monitoring; if Bachman's sparrows are found with more regularity on any tract, the need for monitoring might be re-visited for that tract.

Areas' Role: The role for CWEA and POWEA is to promote suitable habitat for the Bachman's sparrow that will allow individuals using these areas to function as part of a regional population. Staff will fulfill this role by continuing to restore pine communities through prescribed fire, timber harvests to thin pines as needed, and mechanical and chemical treatments to reduce hardwood midstory.

3.3: Brown-Headed Nuthatch

Current Condition: Like Bachman's sparrows, brown-headed nuthatches are an 'indicator species' whose presence indicates well-managed pine communities. The brown-headed nuthatch prefers open stands of mature pine interspersed with snags in which the species excavates nesting cavities. Nuthatches prefer older pine forests (>35 years for longleaf and slash pine) and stands with basal area (BA) between 35–50 ft²/acre, although nuthatches can use stands with younger trees and higher BAs. Brown-headed nuthatches are weak excavators and occasionally use cavities excavated by other species. This species prefers old decaying oaks with a DBH of <10 inches for cavity excavation but are known to nest in snags from other species, including pine. Snag protection during management activities can maintain suitable cavity trees for nuthatches to excavate. Past fire suppression decreased the suitability of habitat for this species on the Brooksville Areas. However, FWC's efforts to restore community structure and reintroduce fire have improved habitat by opening the canopy and reducing excess hardwood midstory.

The status of brown-headed nuthatches is unknown on tracts in the Brooksville Areas. Avian point counts have been conducted at CWEA since 1999; however, brown-headed nuthatches have only been documented on CWEA via eBird. Breeding bird surveys on areas adjacent to CWEA and POWEA have detected brown-headed nuthatches and they are known to

occur in the WSF. CWEA and POWEA may contribute to the regional population because of their proximity to the State Forest. JBBWEA is surrounded by landcovers that are unsuitable to this species and is likely too isolated to contribute to the WSF population. As such, JBBWEA does not have a significant role in the conservation of the brown-headed nuthatch.

Habitat Management: Brown-headed nuthatches prefer snag-rich communities maintained by prescribed fire on a ≤ 3 -year rotation. Staff will continue efforts to restore pine communities through prescribed fire on a ≤ 3 2-3-year rotation, timber harvests to thin pines as needed, and mechanical and chemical actions to reduce excess hardwood midstory, while retaining site-appropriate hardwoods to provide for future snags. Ongoing efforts to restore and maintain natural community structure and function will improve habitat suitability for the brown-headed nuthatch.

Monitoring: Since the brown-headed nuthatch can serve as a habitat indicator, monitoring can help gauge the effectiveness of restoration efforts. We expect trends in distribution and relative abundance to increase over time as habitat improves. On CWEA, staff will informally document this species using callbacks during the breeding season and report observations using the protocol for documenting incidental observations. This informal monitoring effort entails conducting point counts on CWEA at least once during the breeding season. When planning the monitoring, staff should ensure that monitoring station points are distributed in every management unit that contains potential habitat for brown-headed nuthatches. Should staff document the species at 20% occupancy during exploratory surveys, staff will implement the standardized callback monitoring protocol for two years at a time and take off two years between survey intervals. On JBBWEA and POWEA, incidental observations are the appropriate form of monitoring; if brown-headed nuthatches are found with more regularity on any tract, the need for monitoring might be re-visited for that tract.

Areas' Role: The role for CWEA and POWEA is to promote suitable habitat for brown-headed nuthatches to contribute to the conservation of the regional population. Staff will fulfill the role by continuing to restore the pine communities favored by this species.

3.4: Southeastern American Kestrel

Current Condition: The southeastern American kestrel is State-listed Threatened and FWC approved a [Kestrel SAP](#) in 2013. The Brooksville Areas fall within Kestrel Management Unit 4 (Brooksville Ridge) as described in the SAP. The FWC's [Biological Status Review](#) of the southeastern American kestrel includes the Brooksville Areas as part of the Brooksville Ridge kestrel sub-population. Southeastern American kestrels prefer open habitat for foraging and snags for nesting or perching. Ideal habitats include old fields and sandhill with open tree canopies (ideally $\leq 25\%$) and scattered clumps of shrubs or brush piles that shelter small mammals, lizards, snakes, and other prey. Preferred ground cover is dominated by grasses < 1 foot in height with patches of bare ground and shrubs interspersed.

On CWEA, past fire-suppression resulted in an excessive hardwood midstory; however, conditions have improved in recent years. Area staff have used a combination of mechanical treatments and prescribed fire to reduce the midstory and open the canopy. While there are plenty of snags for natural cavities at CWEA, much of the property is upland pine and kestrels may prefer to forage in the more open habitat found on the adjacent FAMU pastures or the nearby POWEA. CWEA has 2 kestrel nest boxes that have been monitored since 2013 with no record of use by breeding kestrels; however, adults have been observed on the area.

The sandhills on JBBWEA contain an abundance of snags and are currently suitable for kestrels; however, the sandhill patches are on opposite sides of the area and separated by natural communities that are not suitable for kestrels. Due to the non-contiguous nature of the sandhills at JBBWEA, kestrels rely on adjacent private lands to supplement their habitat needs. Future development on these adjacent properties could threaten the long-term success of this species at JBBWEA. JBBWEA has 1 kestrel nest box that kestrels have used for nesting.

Snag-rich sandhill constitutes most of POWEA and is important to the conservation of the southeastern American kestrel. Prior to acquisition by the state, the sandhills were largely fire-suppressed. Staff have significantly improved the condition of the sandhills at POWEA by controlling the hardwood midstory and increasing prescribed fire. The kestrels primarily utilize the open powerline corridor that bisects the property but have also been observed throughout the property and on neighboring pastures. POWEA has 3 kestrel nest boxes that kestrels have used intermittently since 2011.

Habitat Management: Staff will continue to restore natural community structure and function in the Brooksville Areas, which will provide suitable habitat for kestrels. Management actions that maintain or enhance habitat for this species include managing for mature, open stands of longleaf pine maintained with prescribed fire and mechanical actions that aid in restoring natural community structure. Staff annually assess habitat around nest boxes to ensure the boxes are functional for use by kestrels.

Species Management: As a secondary cavity nester, southeastern American kestrels use previously excavated cavities in large snags. The SAP for this species recommends installation of nest boxes within preferred natural communities, such as sandhill. Currently, FWC maintains and monitors two southeastern American kestrel boxes at CWEA, one at JBBWEA, and three at POWEA. As habitat management and enhancement occurs, it may be appropriate to install additional nest boxes once suitable habitat conditions are established. FWC maintains the boxes annually in coordination with the Southwest Region Volunteer Coordinator, and periodically assesses micro- and macro-habitat conditions to ensure the boxes continue to provide functional breeding habitat.

Monitoring: Southeastern American kestrels are monitored using the WCPR [Southeastern American Kestrel Nest Box Protocol](#). FWC's Southwest Region Volunteer Coordinator manages volunteers who conduct the maintenance and monitoring of the nest boxes

and assist with nest box construction. Local and regional FWC staff assist as needed and enter data into SaMP. In addition to nest box monitoring, staff document opportunistic observations of southeastern American kestrels during the breeding season (April to July). Staff will consult with subject matter experts on the necessity of installing boxes should documentations increase.

Areas' Role: The Brooksville Ridge is a priority area for southeastern American kestrels, and there may be opportunities to influence neighboring land managers and private landowners. The role of the areas is to promote suitable habitat for southeastern American kestrels that will allow individuals using the Brooksville Areas to continue to function as part of a regional population.

Section 4: Coordination and Beyond the Boundaries Considerations

As discussed in the above assessments, several locally important species could potentially disperse between the Brooksville Areas and neighboring conservation lands. While the current condition and management of the Brooksville Areas and neighboring lands provides an opportunity to further the conservation of many locally important species, significant changes in management or land use beyond the boundaries may have a significant impact on some species. Species that require large home ranges or depend on dispersal for maintaining a population are particularly affected by adjacent land management. FWC should attempt to increase coordination with FAMU on the management of their adjacent parcels. The FAMU pastures benefit species like the southeastern American kestrel and have potential for nest boxes. Additionally, Invasive Plant Management could help FAMU prioritize treating invasives adjacent to the WEAs. For these reasons, local and regional WHM staff will continue collaborating with the Office of Conservation Planning Services (OCPS) environmental commenting to ensure conditions across the boundary will contribute to wildlife populations occurring on the Brooksville Areas.

The FFS manages the nearby Withlacoochee State Forest, which includes the Citrus WMA and Croom WMA. The FFS has land management plans that guide management activities on their lands. These principles are complementary to the FWC's natural community management philosophy and are compatible with management of the species discussed in this strategy. These public lands will contribute to the conservation of these species unless there are significant changes to the current management philosophies.

Many of the species that inhabit xeric uplands are dependent on the availability of suitable habitat on adjacent private lands. As such, the actions of adjacent landowners contribute to the persistence of some wildlife species in the surrounding region. Area staff should make reasonable effort to cooperate on the conservation of locally important species with adjacent private landowners, if applicable. The OCPS can assist landowners interested in cooperation with Brooksville staff.

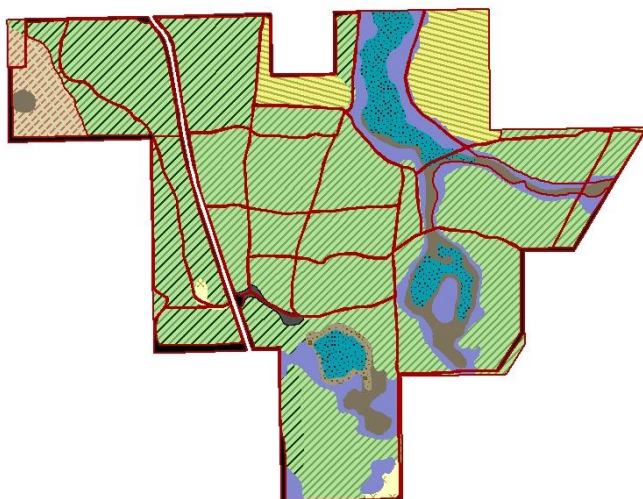
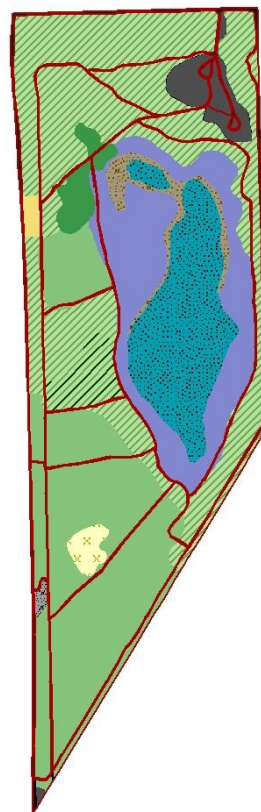
Brooksville staff currently coordinate with staff from other FWC sections including FWRI, Wildlife Diversity Conservation, and Invasive Plant Management to conduct surveys, obtain species management technical assistance, and manage invasive exotic plant infestations as

needed. Other partners include FFS and FNAI. These partners provide invaluable assistance with surveys, timber sales, prescribed burning, and other technical assistance.

Appendix 1. Chinsegut WEA 2018 natural community maps with GIS-based acreages.

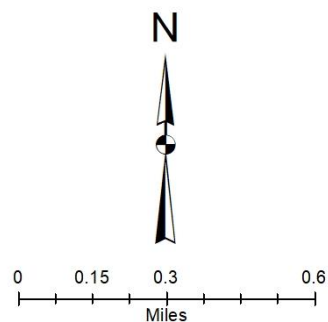
Current Natural Community	~ Acres
basin marsh	69.4
basin swamp	10.9
borrow area	1.0
bottomland forest	18.3
clearing/regeneration	6.4
developed	12.0
mesic flatwoods	7.5
mesic hammock	90.5
pasture - improved	32.2
pasture - semi-improved	1.8
restoration upland pine	109.2
road	44.6
sandhill	101.2
upland hardwood forest	13.2
upland pine	302.3
~ Total Acres	820.5

Current Natural Communities



Chinsegut WEA

Management Units



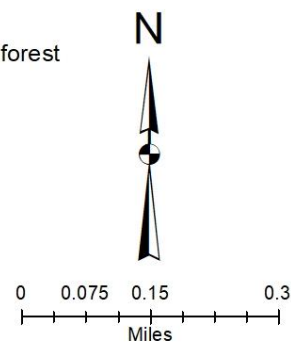
Appendix 2. Janet Butterfield Brooks WEA 2018 natural community maps with GIS-based acreages.



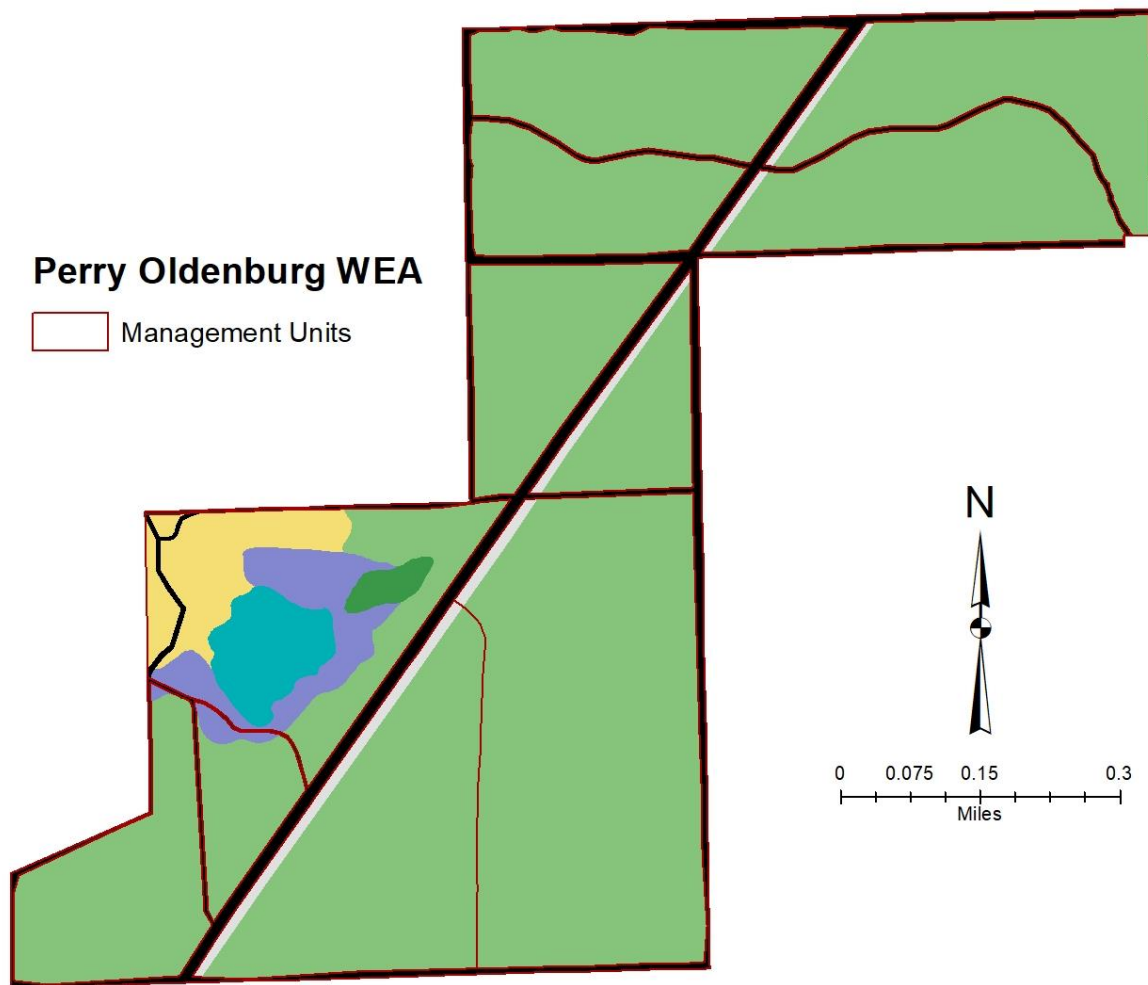
Current Natural Community	~ Acres
baygall	0.8
bottomland forest	5.5
depression marsh	1.3
mesic flatwoods	30.6
mesic hammock	53.4
road	9.3
sandhill	118.3
upland hardwood forest	58.1
upland pine	41.2
~ Total Acres	318.4

Current Natural Communities

- baygall
- bottomland forest
- depression marsh
- mesic flatwoods
- mesic hammock
- road
- sandhill
- upland hardwood forest
- upland pine



Appendix 3. Perry Oldenburg WEA 2018 natural community maps with GIS-based acreages.



Current Natural Community	~ Acres
depression marsh	8.3
mesic flatwoods	2.0
mesic hammock	11.1
pasture - semi-improved	12.0
road	32.0
sandhill	296.9
utility corridor	6.9
~ Total Acres	369.3

Current Natural Communities

- depression marsh
- mesic flatwoods
- mesic hammock
- pasture - semi-improved
- road
- sandhill
- utility corridor

Appendix 4. Brooksville Areas Locally Important Species.

Species	Location in Document
Bachman's sparrow (<i>Peucaea aestivalis</i>)	Species Assessments
Brown-headed nuthatch (<i>Sitta pusilla</i>)	Species Assessments
Eastern diamondback snake (<i>Crotalus adamanteus</i>)	Document Occurrence
Eastern indigo snake (<i>Drymarchon couperi</i>)	Habitat Management, Monitoring
Eastern kingsnake (<i>Lampropeltis getula</i>)	Document Occurrence
Florida black bear (<i>Ursus americanus floridanus</i>)	Document Occurrence
Florida kingsnake (<i>Lampropeltis floridana</i>)	Document Occurrence
Florida pine snake (<i>Pituophis melanoleucus</i>)	Monitoring, Document Occurrence
Florida sandhill crane (<i>Antigone canadensis pratensis</i>)	Strategic Management Area, Document Occurrence
Gopher frog (<i>Lithobates capito</i>)	Strategic Management Area, Monitoring
Gopher tortoise (<i>Gopherus polyphemus</i>)	Habitat Management, Species Assessments
Limpkin (<i>Aramus guarauna</i>)	Document Occurrence
Northern bobwhite (<i>Colinus virginianus</i>)	Document Occurrence
Red-cockaded woodpecker (<i>Picoides borealis</i>)	Monitoring, Document Occurrence
Southeastern American kestrel (<i>Falco sparverius paulus</i>)	Species Assessments
Southern fox squirrel (<i>Sciurus niger niger</i>)	Monitoring
Southern bald eagle (<i>Haliaeetus leucocephalus</i>)	Document Occurrence
Southern hognose snake (<i>Heterodon simus</i>)	Document Occurrence
Swallow-tailed kite (<i>Elanoides forficatus</i>)	Document Occurrence
Wading birds (multiple species)	Strategic Management Area, Document Occurrence

12.12 Timber Assessment

TIMBER ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

FOR

The Janet Butterfield Brooks Wildlife and Environmental Area

Sections 1 & 2, Township 22 South, Range 18 East Hernando County,

Florida

Prepared By:

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April 2018

Introduction/Project Objectives

This document is prepared for use by the Florida Fish and Wildlife Conservation Commission (FWC) as a timber assessment for the Janet Butterfield Brooks Wildlife and Environmental Area (JBBWEA). This assessment is not intended as a full-blown comprehensive management plan as such a plan was developed in 2014 as required by Florida statutes. This plan provides brief stand descriptions and a timber assessment for approximately 200 acres within JBBWEA. The purpose of this plan is to identify and assess the forest resources on the JBBWEA property and to outline a land management strategy for the future, which will result in meeting the landowner's objectives and goals while maintaining the property's ecological integrity. The term "forest", as used in the plan, is intended to incorporate all forest resources; flora and fauna, living and inert.

As stated by the FWC in the bid document for this project, the objective for this property is as follows: "maintain uneven-aged, naturally regenerating upland pine communities with a basal area of 20 to 60 square feet with an overstory dominated by longleaf pine, *Pinus palustris*, and an old-growth age distribution."

Many of the goals and recommendations expressed in this plan are long-term. Rigid management plans for long periods tend to be unrealistic due to the dynamic nature of the forest, forest products market and changing objectives of landowners. This plan should be continually evaluated for its applicability to the goals of the landowner and its success in promoting the forest's resources and overall health. When it is found to be lacking or in need of revision, it should be modified to reflect the necessary changes. In addition, a complete evaluation is recommended every five years including the formulation of a new plan. In the interim, the advice of a professional forester should be employed in a continuing effort toward implementing a successful forest management program.

General Description of Property

The subject property totals 318.4 acres and is located six miles northwest of Brooksville in the Weeki Wachee area of Hernando County. The property fronts CR 491 (Citrus Way) to the east and Bailey Hill Road to the south. Access to the property is via gates off Citrus Way, Bailey Hill Road, a private road along the southwest boundary, and from the north via Burczak Road. A network of internal roads and firebreaks provide vehicular access to almost the entire property. The property is located in Sections 1 and 2, Township 22South, Range 18 East.

The property is located in a rural area of Hernando County. A large sand mining operation is located to the east, Fickett Hammock Preserve, owned by Hernando County to the north, and rural pastures and wooded acreage to the south and west.

The property consists of the following vegetative cover types – sandhill, upland pine forest, mesic flatwoods, upland hardwood forests, mesic hammock, depression marsh, bottomland

forest, and baygall. This timber assessment addresses only the first three stand types which total approximately 187 acres. The sandhill, upland pine forest, and mesic flatwoods will be described in greater detail later in this assessment. Refer to the Stand Map included with this report.

The JBBWEA property was donated to The Nature Conservancy by Ms. Janet Butterfield Brooks as a deed restricted property allowing no consumptive use or access to the public except for limited education and research activities. The Nature Conservancy then donated the property to the FWC in 2008, retaining these deed restrictions. The property was established as a gopher tortoise habitat mitigation site.

The property is located along the boundary of two physiographic regions of Florida known as the Southern Brooksville Ridge and the Weeki Wachee Hills regions. These regions extend from northern Citrus County south to eastern Pasco and western Hernando Counties. This area is characterized by elevations ranging from 20-80 feet in the Weeki Wachee Hills region to 200 to 300 feet in the Southern Brooksville Ridge. Vegetation is primarily hammocks, turkey oak, and longleaf pine communities. Drainage is internal to the Floridian Aquifer. Soils are characterized by orange to reddish-orange clayey soils in the Candler, Apopka, and Tavares series.¹

Topography of this property ranges from 110 in the southeast corner to 200 feet in several locations, typical of this region of Florida. Refer to the topographic map included with this report.

Benefits of Forest Management

Well managed forest ecosystems provide a myriad of benefits to both the forest landowner and the surrounding community. The benefits are multiple and complex. The forests of Florida provide a significant amount of support to the state's economy and produce products that are essential to the standard of living our citizens have come to appreciate. Forested properties also protect hydrological systems; impound the soil thus reducing the threat of erosion, remove carbon dioxide and toxins from the air through the vegetation's photosynthetic process and propagate ecological systems upon which wildlife is dependent. They also provide valuable habitat to a variety of floral and faunal species.

As stated previously, the deed restrictions associated with this property preclude the harvesting of timber for consumptive use. Therefore, removal of timber should be limited to meet basal area objectives and/or to improve/enhance wildlife habitat.

Methodology of Field Work

Legacy Forestry Services (LAS) performed the fieldwork for this timber assessment on March 26th and 30th. The fieldwork was performed as a team of either two or three personnel.

Data were collected utilizing two overlapping plots – a variable radius plot to tally and measure merchantable pine timber and a fixed radius plot of 11.8 feet (1/100th acre)

¹ Lakes Regions of Florida, co-authored by EPA, Univ. of FL, Florida DEP, Lakewatch, and FLMS.

to measure regeneration. Plots were placed in a uniform grid pattern throughout the sandhill, mesic flatwoods, and upland pine cover types. Plot spacing was 10 chains (660 feet) between cruise lines and five chains (330 feet) along each cruise line. These three cover types total 187 acres. A total of 41 plots were placed within these three types. Merchantable timber was any pine of 4.56 inches in diameter and greater which qualified, at a minimum, as a pulpwood/mulchwood product. The diameter of each merchantable pine tree was recorded, and the tree assigned to a product class of pulpwood/mulchwood, chip'n saw, or sawlogs. These products are defined in greater detail below. The closest dominant or co-dominant tree to the plot center was measured for height and age, when determined. The regeneration tally within the 1/100th acre plot was divided into two categories – seedlings were any tree up to one inch in diameter and saplings any pine from 1.0 to 4.5 inches in diameter.

Other data included noting and recording any Category I or II invasive species on or within view on or any plot. A list of the species noted is provided in a later table. An increment coring to determine the age of the tree was taken at every fifth plot and at least two people counted each coring to verify the age. A total of eight trees were cored in the three cover types. Annual growth was not determined.

Product Specifications

Each merchantable pine tree at each plot was assigned to a product based on the following specifications.

Table 1. Forest Product Specifications

Product	Min. DBH	Length (feet)	Top Diameter (in.)
Pulpwood/Mulchwood	4.56	16	3
Chip'n Saw	8.6	25	5
Sawtimber	12.6	29	8

Timber Markets and Trends

Free market incentives have long promoted the use of rural Florida land for the production of timber. The timber market in Citrus County is substantial. A market typically exists for all of the classical timber products that these stands are capable of producing.

The primary limiting factor in marketing is the distance to processing centers or mills. While most of the traditional mills occur well to the north, Citrus County still lies within the trucking distance from which many of the peninsula Florida mills procure their raw

materials. A paper mill in Palatka plus mulching facilities in Tarrytown, San Antonio, Haines City, and Ft. Green provide the closest draws by larger mills for pulpwood and mulchwood, though smaller mulch, pine shavings, and pallet mills draw from this area as well providing important niche markets for stumpage. Demand also exists for the raw material used to produce solid wood products. A pole mill in Tarrytown draws from this area. Chip-n-saw mills are located in Perry and Union County, Florida. Poor demand has led to the closing of a chip-n-saw mill in Cross City and a Hawthorne facility utilizing larger diameter pines in the production of plywood. In both cases, indications are the plants could reopen with a return of adequate lumber and plywood demand.

Markets for hardwood timber stumpage in Citrus County are cyclical in nature. Smaller or inferior hardwoods are periodically sold as mulchwood. Larger “hard hardwoods” such as oak and hickory that are of suitable quality are merchantable as sawtimber. Larger “soft hardwoods” such as gum and magnolia are merchantable as veneer hardwood.

A market for small diameter hardwoods has developed in the past two years. A woody biomass fueled power plant, owned by Gainesville Regional Utilities, is now open in Alachua County between Gainesville and Alachua. This plant is utilizing woody biomass from various sources to include land clearing and site preparation debris, topwood and other logging slash, and small diameter hardwoods. Cellulosic ethanol and biodiesel plants could eventually offer another draw for timber stumpage. Passage of a renewable energy portfolio standard for Florida would likely be a catalyst for more biomass energy investment.

While it is not the intent of the landowner to utilize timber for consumptive use, utilizing small diameter hardwoods for woody biomass or cellulosic ethanol is a good way to reduce hardwood competition to favor pine regeneration and to reduce hazardous fuel buildup while possibly generating a small revenue stream.

Soils Information

Soils determine what species will grow on a site and how well they will grow. The *Soil Survey of Hernando County, Florida Area*² published by the USDA indicates that there are thirteen different soil types located within the subject property: Arredondo fine sand; Blichton loamy fine sand, 0-2% slopes; Blichton loamy fine sand, 2-5% slopes; Candler fine sand, 0-5% slopes; Electra Variant fine sand, 0-5% slopes; Flemington fine sandy loam, 2-5% slopes; Kendrick fine sand, 0-5% slopes; Micanopy loamy fine sand, 2-5% slopes; Nobleton fine sand, 0-5% slopes; Pomello fine sand, 0-5% slopes; Sparr fine sand, 0-5% slopes; Tavares fine sand, 0-5% slopes; and Wauchula fine sand, 0-5% slopes. The Blichton, Candler, Flemington, Micanopy, Sparr, Tavares, and to a lesser extent, Wauchula soils, are associated with the three pine cover types included in this assessment.

The primary measurement of a soil’s suitability for growing timber is known as the site index. This index indicates the average height of a stand of trees at a given age, usually

50. For example, a site index of 90 indicates that a stand of planted pine should have an average height of 90 feet at the age 50. The soil series found on the property have a site index for slash pine (*Pinus elliottii*) of 70 to 90 and longleaf from 60 to 80.

² Soil Survey of Hernando County, Florida, USDA Soil Conservation Service, July, 1977

Below is a brief description of each soil type found on the subject property.

Arredondo fine sand, #6 – This is a nearly level to poorly drained to gently sloping, well drained soil on the uplands. It is commonly associated with Candler, Kendrick, Lake, and Sparr soils. Water availability is low and permeability moderate to rapid in the surface and subsurface layers. Overstory vegetation associated with this soil is comprised of slash, longleaf, and loblolly pines, live, laurel, and water oaks, magnolia, dogwood, and hickory. Understory consists of bluestem, dwarf huckleberry, smilax, paspalum, and wiregrass. Pine productivity is considered as medium with a site index for slash of 80 and longleaf and loblolly of 70. Slash pine is the preferred species to plant.

Blichton loamy fine sand, 0-2%, #11, and 2-5% slopes, #12 – These are gently sloping, poorly drained soils common in small areas of uplands. Associated soils include Nobleton, Flemington, Wauchula, and Kenapaha. The water table is within 10 inches for up to four months and below 40 inches during dry periods. Permeability is moderate to rapid and water capacity is low in the surface layers. Associated vegetation includes oaks, hickory, magnolia, sweetgum, slash, longleaf, and loblolly pines. Understory is primarily wiregrass. Pine potential is considered high and predicted site index is 90 for slash and loblolly pine and 80 for longleaf. Slash pine is the preferred species to plant.

Candler fine sand, 0-5% slopes, #14 – This is a nearly level, gently sloping and excessively drained soil in the uplands. It is commonly associated with Arredondo, Lake, Astatula, and Tavares soils. Permeability is very rapid and water availability is low. Associated vegetation includes scrub species such as bluejack oak, turkey oak, post oak, longleaf pine, as well as slash pine. Understory species include lopsided indiagrass, wiregrass, bluestems, and panicum. Pine production is low due to seedling mortality and is rated as 70 for slash, 60 for longleaf, and 75 for sand pine. Slash and sand pine are the preferred species to plant.

Electra variant fine sand, 0-5% slopes, #19 – This is a nearly level, gently sloping, somewhat poorly drained soil on ridges on uplands. Blichton, Myakka, Pomelo, and Wauchula soils are often associated with this soil. The water table is within 20 to 40 inches for up to four months but below 40 inches during dry periods. Water capacity is very low and permeability is moderate to rapid in the surface. Overstory species include sand live oak, longleaf, slash, and sand pines. Associated understory species include wiregrass, palmetto, runner oak, blueberry, creeping bluestem, chalky bluestem, lopsided indiagrass, and panicums. Pine productivity is rated as low due to seedling mortality and sand pine is the

recommended species to plant. Site index is predicted as 70 for slash, 65 for sand, and 60 for longleaf.

Flemington fine sandy loam, 2-5% slopes, #21 – This is a gently sloping, poorly drained soils on uplands. Blichton, Nobleton, Micanopy, and Paisley soils are generally associated with this soil. The water table can be perched for up to four months. Water capacity is moderate and permeability is rapid at the surface. Associated overstory species include slash and longleaf pines, hickory, sweetgum, magnolia, laurel oak, and water oak. Understory species include dogwood, hornbeam, redcedar, American holly, beautyberry, huckleberry, and deertongue. Pine potential is high; site index is predicted at 90 for slash and loblolly pine and 75 for longleaf.

Kendrick fine sand, 0-5% slopes, #29 – This is a well-drained, nearly level to gently sloping soil in uplands. Associated soils include Arredondo, Blichton, Nobleton, and Kendrick, 5-8% slopes. The water table is below 72 inches. Permeability is rapid and water availability is low in the surface and subsurface. Overstory species include a mixture of pines and hardwoods – longleaf, loblolly and slash pines, magnolia, dogwood, laurel oak, live oak, and water oak. Understory species associated with this soil include bluestem, lopsided indiagrass, and panicums. Pine potential is high; site index is 90 for slash and loblolly and 75 for longleaf.

Micanopy loamy fine sand, 2-5% slopes, #34 – This is gently sloping, somewhat poorly drained soil on uplands and is commonly associated with Blichton, Flemington, Kendrick, and Nobleton soils. The water table is between 20 and 30 inches below the surface for one to three months and below 60 inches during dry periods. Water availability is low and permeability is rapid in the surface layer. Overstory vegetation includes loblolly, longleaf, and slash pines, magnolia, hickory, dogwood, laurel oak, live oak, and water oak. Associated understory species include chalky and creeping bluestems, lopsided indiagrass, toothachegrass, wiregrass, palmetto, inkberry, and waxmyrtle. Pine production is high with slash the recommended species to plant. The site index is predicted as 90 for slash and loblolly and 75 for longleaf.

Nobleton fine sand, 0-5% slopes, #36 – This is a nearly level, gently sloping, somewhat poorly drained soils in broad area in uplands. Associated soils include Blichton, Kendrick, and Micanopy. This soil can be perched to 20 to 40 inches for one to four months. Permeability is rapid and water capacity is low at the surface. Overstory species include live oak, laurel oak, water oak, slash pine, longleaf pine, hickory, magnolia, and sweetgum. Understory species include waxmyrtle, greenbrier, wiregrass, bluestems, toothachegrass, panicums, and lopsided indiagrass. Pine potential is high; site index is 90 for slash and loblolly and 75 for longleaf. Slash and loblolly are both recommended as the pine species to plant.

Pamello fine sand, 0-5% slopes, #43 – This is a nearly level, moderately well-drained soil

on low ridges in flatwoods and is associated with Basinger and Myakka soils. The water table is 24 to 40 inches for one to four months and 40 to 60 inches for eight months. Water capacity is very low except in the subsoil and permeability is very rapid in the surface. Associated species include dwarf and sand live oaks, longleaf pine, and slash pine in the overstory and palmetto, wiregrass, inkberry, waxmyrtle, runner oak, fetterbush, creeping bluestem, broomsedge, splitbeard bluestem, lopsided indiagrass, switchgrass, panicums, and paspalum. Pine production is low due to seedling mortality and site index is 70 for slash and 60 for sand and longleaf pines. Sand pine is the recommended species to plant.

Sparr fine sand, 0-5% slopes, # 47 – This soil is nearly level to gently sloping, somewhat poorly drained on seasonally wet, sandy areas on uplands. Associated soils include Arredondo, Kenapaha, Nobleton, and Tavares. The water table can be perched for one to four months. The water capacity is low and permeability is rapid in the surface layer. Overstory species include oaks, hickory, magnolia, sweetgum, slash pine, loblolly pine, and longleaf pine. Understory species include inkberry, waxmyrtle, palmetto, and wiregrass. Slash is the preferred species to plant. Pine productivity is medium and site index is 80 for slash and loblolly and 70 for longleaf.

Tavares fine sand, 0-5% slopes, #49 – This is a moderately well-drained soil in low ridges and knolls. The Adamsville, Astatula, Candler, and Sparr soils are often associated with Tavares. The water table is 40 to 60 inches below the surface and water capacity is low and permeability is rapid. Overstory species include slash pine, longleaf pine, bluejack oak, turkey oak, and post oak. Associated understory species include wiregrass, creeping bluestem, lopsided indiagrass, hairy panicum, low panicum, lovegrass, and broomsedge. Pine productivity is medium with a site index of 80 for slash and 70 for longleaf. Slash is the preferred species to plant.

Wauchula fine sand, 0-5% slopes, #52 – This is a nearly level to gently sloping, poorly drained soil on broad, low areas in flatwoods and hillsides in uplands. Associated soils are Blichton, Electra variant, Myakka, and Wabasso. The water capacity is low and permeability is high in the surface layer. The water table is less than 10 inches for one to four months and 10 to 40 inches for the remainder of the year. Associated overstory species include longleaf and slash pines; understory species include palmetto, inkberry, waxmyrtle, creeping and little bluestems, lopsided indiagrass, paspalum, deertongue, panicums, wiregrass, grassleaf goldaster, huckleberry, and runner oak. Pine potential is medium with a site index of 80 for slash and 70 for longleaf. Slash is the preferred species to plant.

These soils are summarized in the table below.

Table 2: Soil Characteristics						
Soil ID No.	Soil Type	Overstory Vegetation	Drainage	Pine Production	Site Index	Species to Plant
6	Arredondo fine sand	Loblolly, slash, and longleaf pines, live, laurel, water oaks, magnolia, hickory, dogwood	Nearly level, poorly drained to gently sloping, well-drained soils in uplands	Medium	Slash – 80 Loblolly – 80 Longleaf - 70	Slash
11	Blichton loamy fine sand, 0-2% slopes	Slash pine, longleaf pine, loblolly pine, oaks, hickory, magnolia	Gently sloping, poorly drained in small areas on uplands	High	Slash–90 Loblolly–90 Longleaf-80	Slash
12	Blichton Loamy Fine Sand, 2-5% slopes	Slash pine, longleaf pine, loblolly pine, oaks, hickory, magnolia	Gently sloping, poorly drained in small areas on uplands	High	Slash–90 Loblolly–90 Longleaf-80	Slash
14	Candler fine sand, 0-5% slopes	Bluejack, post, turkey oaks, longleaf and slash pine	Nearly level, gently sloping, excessively drained in uplands	Low-seedling mortality	Slash – 70 Sand – 75 Longleaf - 60	Slash, sand
19	Electra variant fine sand, 0-5% slopes	Sand live oak, longleaf, slash, sand pines	Nearly level, gently sloping, somewhat poorly drained soil on ridges in uplands	Low-seedling mortality	Slash – 70 Sand – 65 Longleaf -60	Slash, sand
21	Flemington fine sandy loam, 2-5% slopes	Slash, longleaf pines, hickory, sweetgum, magnolia, laurel oak, water oak	Gently sloping, poorly drained soil on uplands	High	Slash – 90 Loblolly – 90 Longleaf - 75	Slash

29	Kendrick fine sand, 0-5% slopes	Longleaf, loblolly, slash pines, magnolia, dogwood, laurel oak, live oak, water oak	Well-drained, nearly level to gently sloping in uplands	High	Slash – 90 Loblolly – 90 Longleaf - 75	Slash, loblolly
34	Micanopy Loamy Fine Sand	Slash, longleaf, loblolly, magnolia, hickory, dogwood, laurel oak, live oak, water oak	Gently sloping, somewhat poorly drained on uplands	High	Slash-90 Loblolly-90 Longleaf-75	Slash
36	Nobleton fine sand, 0-5% slopes	Live oak, laurel oak, water oak, slash, longleaf, hickory, magnolia, sweetgum	Nearly level, gently sloping, somewhat poorly drained on broad areas in uplands	High	Slash-90 Loblolly-90 Longleaf-75	Slash or Loblolly
43	Pomello fine sand, 0-5% slopes	Dwarf & sand live oaks, longleaf and slash pines	Nearly level, gently sloping, moderately well drained on low ridges in flatwoods	Low – seedling mortality	Slash – 70 Sand – 60 Longleaf - 60	Sand
47	Sparr fine sand, 0-5% slopes	Oaks, hickory, magnolia, sweetgum, slash and longleaf pines	Nearly level, gently sloping, somewhat poorly drained on seasonally wet, sandy areas in uplands	Medium	Slash – 80 Loblolly – 80 Longleaf - 70	Slash
49	Tavares fine sand, 0-5% slopes	Slash and longleaf pines, bluejack, turkey, and post oaks	Moderately well-drained on low ridges and knolls	Medium	Slash – 80 Longleaf – 70	Slash

52	Wauichula fine sand, 0-5% slopes	Longleaf and slash pines, palmetto, inkberry, waxmyrtle, creeping and little bluestems, lopsided indiangrass, paspalum, deertongue, panicums, wiregrass, goldaster, huckleberry, runner oak	Nearly level to gently sloping, poorly drained on broad, low areas in flatwoods and hillsides in uplands	Medium	Slash – 80 Longleaf- 70	Slash
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The table below summarizes the acreage and percentage cover as well as the associated cover types. All cover types mapped on the property are included.

Table 3. Soil Type By Acreage and Cover Type

Soil/#	Acres/ %	Assoc. Cover Types
Arredondo/6	3.4; 1.0%	Sandhill/bottomland forest
Blichton/11&12	43; 13.5%	Mesic hammock; upland hardwood, upland pine
Candler/14	93.4/29.3%	Sandhill, mesic flatwoods
Electra/19	6.2/1.9%	Mesic flatwoods, mesic hammock
Flemington/21	31.1/9.8%	Upland pine, upland hardwood
Kendrick/29	2.3/.7%	Mesic hammock, bottomland forest
Micanopy/34	26/8.2%	Upland hardwood, upland pine
Pomello/43	8.3/2.6%	Mesic hammock
Sparr/47	16.2/5.1%	Upland pine, sandhill, baygall
Tavares/49	26.7/8.4%	Mesic hammock, sandhill, upland pine, baygall
Wauchula/52	47.3/14.9%	Upland pine, mesic hammock, mesic flatwoods, bottomland forest

By examining the soils tables above, one can see that a total of 210 acres or 66 percent of the total property is considered as having medium to high potential for the growth of pine. Please note that, although many of the soils recommend slash as the species to plant, these same soils can productively grow longleaf pines. This recommendation from the Soil Survey is based on maximum timber production rather than ecological or habitat management.

Stand Descriptions

The stand descriptions below include only the three pine communities found on JBBWEA – sandhill, upland pine, and mesic flatwoods. These are the only three stands in which LFS performed a field reconnaissance and recorded data.

Sandhill – This is the largest of the three stands included in this assessment and totals 118.13 acres. It is found in the southernmost and westernmost portions of the tract. At the time of the field reconnaissance in March 2018, both areas had been recently burned. The stand consists of an overstory of longleaf pine with some turkey oak, laurel oak, pignut hickory, sweetgum, and scattered dead redbay; understory consists of a variety of species to include palmetto, scattered scrub oaks, toothache tree, cherry laurel seedlings, fetterbush, bumelia, broomsedge, wiregrass, prickly-pear cactus, reindeer moss, greenbrier vine, vaccinium spp., American beautyberry, inkberry, gopher apple, sparkleberry, sunshine mimosa, pawpaw, stinging nettle, and various grasses. The primary soil associated with this sandhill is Candler, an excessively drained, rapidly permeable soil often associated with areas of this kind. Other soils associated with this stand are Arredondo, Sparr, and Tavares.

Stand density is moderate and averages 52 trees per acre. Basal area averages 38 square feet per acre. The average diameter is 10.9 inches; tallied trees measured five (5) to twenty-two (22) inches. The average height is 58.1 feet. Timber volume totals 36 tons per acre to include 9.8 tons per acre of pulpwood/mulchwood, 9.7 tons per acre of chip ‘n saw, and 16.6 tons per acre of sawtimber. The average age of the trees cored is 78. Regeneration was noted on ten of the 24 plots within this stand; where tallied, this number varied from two to 139 seedlings on the 1/100th acre plot. Seven of the plots are located in the southern block of the sandhill stand. The overall average for the stand is 1,088 seedlings per acre. All were newly emerging seedlings from the recent cone crop. Refer to the regeneration map included with this report.

Diameter and Basal Area Distribution – This stand exhibits a widespread diameter distribution; one-half of the trees are 10 inches and diameter or less and one-half are 11 inches and greater. However, the basal area is heavily skewed toward the larger diameter trees; 30 square feet per acre is in the 11 inch and above diameter class while only eight square feet is 10 inches and below.

Cogongrass was noted in three points within this stand. All were located in the western of the two blocks. Refer to the Invasive Species Map for the location of these points.



Typical JBBWEA sandhill longleaf stand

Table 4. Stand/Stock Table for Sandhill

Florida Fish and Wildlife Conservation Commission Janet Butterfield Brooks Preserve Wea Stand/Stock Table - Sandhill							
Longleaf Pine							
DBH Class	Stems/Ac.	Total # Stems	BA/Ac.	PW Tons/Ac.	CNS Tons/Ac.	ST Tons/Acs.	Total Vol./Ac.
5	6	2	1	1	----	----	1
6	2	1	0	----	----	----	0
7	5	3	1	1	----	----	1
8	2	2	1	1	----	----	1
9	5	5	2	----	2	----	2
10	5	7	3	----	2	----	3
11	6	9	4	1	3	----	3
12	5	10	4	1	3	----	4
13	1	2	1	----	----	1	1
14	3	7	3	1	----	2	3
15	3	8	3		----	3	3
16	3	9	4	1	----	2	4
17	3	13	5		----	5	5
18	1	6	3	1	----	2	2
19	1	3	1	----	----	1	1
20	0	2	1	----	----	----	1
21	0	1	0	----	----	----	0
22	0	2	1	----	----	----	1

Upland Pine

This stand totals 36.61 acres and is present in three small separate areas within the east half of the property. One such area, in the northeast corner of JBBWEA, is pedestrian access only as no roads are present in this portion of the tract. This unit can be considered as a “hybrid” between the sandhill and mesic flatwoods characterized by a pine and hardwood mixture with pines predominating the stand composition. Overstory species noted include longleaf pine, slash pine, laurel oak, post oak, sweetgum, pignut hickory, redcedar, cabbage palm, and magnolia. Understory species include palmetto, greenbrier, Virginia creeper, grapevine, beautyberry, sparkleberry, and toothache tree.

Based on the eleven sample plots within this stand, the merchantable timber averages 20 tons per acre as follows: three (3) tons of pulpwood/mulchwood and 17 tons of sawtimber. As with the mesic hammock, no chip ‘n saw trees were tallied. Pine stocking averages 15

per acre. The average height is 68.3 feet, the average diameter is 15.2 inches, and the average basal area is 19 square feet per acre. Average age, based on two corings, is 77. Regeneration was noted on two plots of eleven and averaged 270 per acre; however, this average is misleading as 28 seedlings were noted on one plot and one seedling and one sapling on another. As with the sandhill, these seedlings were all newly emerged from the recent cone crop and responding to the recent prescribed burn.

Diameter and Basal Area Distribution Unlike the sandhill units, the upland pine consists of only trees 10 inches in diameter and greater. Tallied longleaf trees varied from 10 to 22 inches; one slash pine of 26 inches was also tallied.

Cogongrass was noted at two points within the block adjacent to Citrus Way. Refer to the invasive species map for the location of these points.

Soils associated with the upland pine include Blichton, Flemington, Micanopy, Sparr, Tavares, and Wauchula.



View of upland pine stand at JBBWEA

Table 5. Stand and Stock Table for Upland Pine

Florida Fish and Wildlife Conservation Commission Janet Butterfield Brooks Preserve Wea Stand/Stock Table - Upland Pine							
Longleaf Pine							
DBH Class	Stems/Ac.	Total # Stems	BA/Ac.	PW Tons/Ac.	CNS Tons/Ac.	ST Tons/Acs.	Total Vol./Ac.
10	2	1	1	1	----	----	1
13	4	4	4	1	----	3	4
14	1	1	1	----	----	1	1
16	3	5	5	1	----	4	5
17	1	1	1	----	----	1	1
18	2	3	3	----	----	3	3
19	0	1	1	----	----	1	1
20	1	2	2	----	----	2	2
21	0	1	1	----	----	1	1
22	0	1	1	----	----	1	1
Slash Pine							
DBH Class	Stems/Ac.	Total # Stems	BA/Ac.	PW Tons/Ac.	CNS Tons/Ac.	ST Tons/Acs.	Total Vol./Ac.
26	0	1	1	----	----	1	1

Mesic Flatwoods

This stand totals 32.26 acres and are noted in two separate units adjacent to the sandhill areas. This stand is characterized by several species of pines with a considerable composition of hardwoods. Species noted include longleaf pine, slash pine, magnolia, redcedar, turkey oak, post oak, laurel oak, water oak, sweetgum, pignut hickory, and cabbage palm. Understory species noted include palmetto, wiregrass, sumac, Adam's needle, shiny blueberry, pawpaw, Virginia creeper, greenbrier, sparkleberry, blackberry, bracken fern, broomsedge, grapevine, lyonia, and aster. Like the sandhill stand, this stand had also been recently burned.

Pine stocking averages 20 trees per acre with an average basal area of 31 square feet per acre. Of these totals, 18 trees per acre are longleaf with a basal area of 28. Both of these numbers are less than found in the sandhill stand. The average diameter is greater than in the sandhill stand averaging 16.7 inches. The average height of the trees sampled is also greater than in the sandhill stand, averaging 61.6 feet. Only two ages were measured and average 77 years. Merchantable volume totals 31 tons per acre, consisting of seven (7) tons of pulpwood/mulchwood and 24 tons of sawtimber. No chip' n saw trees were tallied.

Approximately two tons of pulpwood and two tons of sawtimber of this total were slash, the remainder longleaf. No regeneration was recorded. Data for this stand are limited and are derived from six plots.

Diameter and Basal Area Distribution – Of the three stands, the mesic flatwoods exhibited a diameter distribution of larger trees. Trees tallied ranged from 13 to 22 inches, averaging 16.7 inches. Of the average basal area of 28 square feet per acre, 16 square feet is for trees 17 inches and above. Eleven trees per acre are associated with trees 16 inches or less; 9 with 17 inches and above.

Soils associated with this stand include Candler, Electra, and Wauchula.

Refer to soils map included with this management plan which depicts the property along with the soil locations and acreage.



Typical mesic flatwoods found on JBBWEA

Table 6. Stand and Stock Table for Mesic Flatwoods

Florida Fish and Wildlife Conservation Commission Janet Butterfield Brooks Preserve Wea Stand/Stock Table - Mesic Flatwoods							
Longleaf Pine							
DBH Class	Stems/Ac.	Total # Stems	BA/Ac.	PW Tons/Ac.	CNS Tons/Ac.	ST Tons/Acs.	Total Vol./Ac.
13	2	1	2	2	----	----	2
15	3	2	3	----	----	3	3
16	6	5	8	----	----	8	8
17	3	3	5	2	----	3	4
19	3	3	5	----	----	5	5
20	1	1	2	2	----	----	2
21	1	1	2	----	----	2	2
22	1	1	2	2	----	----	2
Slash Pine							
DBH Class	Stems/Ac.	Total # Stems	BA/Ac.	PW Tons/Ac.	CNS Tons/Ac.	ST Tons/Acs.	Total Vol./Ac.
17	1	1	2	----	----	2	2
19	1	1	2	2	----	----	2

Overall Data

A total of 41 plots were taken within the three stands. These stands average 37 trees per acre, with less than one tree per acre of slash pine. Average basal area is 32; less than one square foot per acre is slash. The average longleaf diameter is 11.8 inches; the average slash diameter is 19.5 (only three slash were tallied). Overall average volume is 31.2 tons – 7.5 tons pulpwood/mulchwood, 5.7 tons of chip’n saw (all in the sandhill stand), and 18 tons of sawtimber. Of this total, only .8 tons of pulpwood and sawtimber is slash pine. The average height is 61 feet and average age is 78. Regeneration was tallied on 12 of the 41 plots, 10 of which were within the sandhill stand. One sapling, two inches (2) in diameter was tallied and was located in the northeastern block of the upland pine stand; newly emerging seedlings accounted for the remainder of the regeneration. Refer to the regeneration map for a distribution of this regeneration.

Diameters ranged from five to 22 inches; however, only nine (9) percent of the trees tallied were 10 inches or less, indicating an older age distribution. This was particularly acute in the mesic flatwoods and upland pine stands.

The table below provides summary data for the three stands.

Table 7. Overall Summary of Timber Data By Stand

Florida Fish and Wildlife Conservation Commission Janet Butterfield Brooks Preserve Wea												
		Longleaf Pine						Slash Pine				
		Trees/Ac.	Total Stems	BA/Ac.	Ave. Age	Ave. Ht.		Trees/Ac.	Total Stems	BA/Ac.	Ave. Age	Ave. Ht.
Stand Type	Upland Pine	18	20	18	78	68		0	1	1	----	75
	Mesic											
	Flatwoods	18	17	28	77	61.6		2	2	3	----	----
	Sandhill	52	92	38	78	58.2		----	----	----	----	----

The invasive species cogongrass was noted on or near five plots. Three of these are located in the western sandhill block and two within the upland pine block adjacent to Citrus Way.

Annual Growth

The annual growth rings of the increment corings were not measured to determine percentage annual growth. Because of the compressed spacing of the rings in the last inch or more of each coring, measuring the rings would have proven difficult and inaccurate. However, it was obvious that anywhere from 10 to 15 annual rings were spaced in the outer-most inch of the corings. The trees selected for age ranged from 15 to 20 inches in diameter. Therefore, based on a study by Dr. Kim Coder of the University of Georgia School of Forestry, the percentage volume growth of the sampled trees (8) reveals an average annual growth of two to three percent for trees 15 to 18 inches and one to two percent for the 20 inch tree.³

As mentioned previously, the trees are growing approximately one to three percent per year. Therefore, based on the current overall volume of 31.2 tons per acre and an annual growth of two percent, volume is projected as follows:

Table 8. Projected Growth in 5 Year Intervals at 2% Per Year

Growth Period	Projected Tons/Acre
2023	34.35
2028	38.03
2033	41.99
2038	46.36

However, due to the age of the trees and the low rate of growth, it is likely that annual mortality of these trees may exceed annual growth. Thus, the five-year monitoring of basal area and volume, if desired, will indicate positive or negative growth. Following the

management recommendations below will provide guidance on reaching the desired basal area and uneven-aged management objectives.

³ Coder, Dr. Kim D, Warnell School, University of Georgia, *Tree Growth Rate Table: Absolute Area Increase and Annual Percentage Growth*, Publication WSFNR-17-WML, Dec, 2017.

Timber Management Recommendations – Thinning/Chipping

The following recommendations should allow the landowner to meet the previously stated objective of establishing/maintaining uneven-aged upland pine communities with an average basal area range of 20 to 60 square feet per acre. Please note that the current average basal area is 32 and ranges from 19 in the upland pine to 38 in the sandhill.

Although only trees 15 to 20 inches in diameter were sampled for age, resulting in an age range of 71 to 84 years, smaller diameter trees, primarily in the seven to ten-inch range were present, albeit in smaller numbers. Therefore, at least a three-tier age class (10 year classes) exists presently.

Timber Harvesting-Whole Tree Chipping

Timber harvesting for consumptive use is prohibited by the deed restrictions for this property as requested by Ms. Janet Butterfield Brooks. Because of the age of the larger diameter trees, natural mortality through insects, diseases, and lightning will likely reduce the stocking and basal area of these larger trees over time. Harvesting to reduce or maintain basal area may not be necessary.

However, the skewed diameter distribution toward large diameter trees in both the upland pine and mesic flatwoods indicates an older stand with few age classes. Promoting the establishment of younger trees through natural regeneration will be necessary to develop an uneven-age distribution over time. In addition, both of these stands exhibit considerable hardwood encroachment. These hardwoods, may, over time, out-compete the existing pines if not controlled. In addition, regeneration within both of these units was noted on just one plot, indicating that shade and competition from the hardwoods may already be taking its toll.

One method to control these hardwoods is to allow their complete or partial removal via whole tree chipping as stated earlier in the timber markets section of this report. Two logging companies who work in the Hernando County area have the wherewithal to do this work – M.A. Rigoni of Perry, Florida and R.J. Nathe & Sons, Inc. of Dade City, Florida. Both would haul the chips to the GREC facility in Gainesville where they would be utilized for electrical generation. Because of the hauling distance and the relatively low value of wood chips, it is unlikely that these contractors would be able to pay stumpage for

the wood chips as is the common practice for traditional forest products such as pulpwood or sawlogs. However, a “break-even” scenario may allow the logger to harvest the woodchips at no cost to the landowner. This is an efficient, environmentally friendly, and low-cost or no-cost way to reduce competing hardwoods. Removal of some or all of the hardwood canopy would result in increased sunlight stimulating longleaf pine regeneration, particularly in the upland pine stand. In addition, getting a fire to carry through the mesic hammock and even the upland pine could be difficult due to the lack of consistent ground fuel and pine straw to carry a fire.

Regeneration Management

As discussed previously, longleaf regeneration was noted on approximately thirty percent of the property (12 of 41 plots) with little to none in either the upland pine or mesic flatwoods units and only within 10 of 24 plots in the sandhill unit. One method to manage for uneven-aged pine is to promote regeneration in clustered areas within a pine stand while maintaining an overstory of older, larger trees. This method is known as group selection and may encompass only small areas of from .25 to two acres. These small clearcut areas allow adjacent seed trees to establish regeneration in small pockets throughout the stand. Over time, these older trees produce new seedfall and regeneration, and, over the decades, result in multiple ages of trees. Periodic thinning of each successive generation can be used to maintain the desired basal area. As the basal area increases, some of the oldest trees can be removed or killed in place to produce snags for roosting birds.

The Pro-B method or proportional basal area method, proportionately distributes stand basal area into a 1:2:3 ratio of trees less than six inches, six to 12 inches, and greater than 12 inches. In other words, the basal area of trees twelve inches and greater would be three times the basal area of trees less than six inches. Trees can be harvested across a wide range of size classes. For traditional silviculture, the worst trees would be harvested while leaving the best. However, FWC may choose to leave some of “worst” trees which have flat-topped full canopies for nesting or cone production. The Pro-B method can employ either single tree selection or group selection thinning. The “ideal” Pro-B diameter distribution results in larger numbers of smaller diameter trees as these trees each have considerably less basal area than larger trees. The chart below, taken from a powerpoint presentation by Dale Brockway of the USDA Forest Service, Southern Research Station in Auburn, Alabama, and Dr. Ed Lowenstein of the School of Forestry and Wildlife Sciences, Auburn University, demonstrates numbers of trees per diameter class to achieve a target basal area. This chart displays management of three species at a higher basal area than desired for JBBWEA; however, this example can be modified for use at JBBWEA.

(Objective is to reduce total basal area to a target of 50 feet² per acre, leaving a 1:2:3 ratio among residuals) (See instructions below)

Forest: _____; District: _____; Compartment # _____; Stand # _____

Size-Class (inches)	Diameter Range (inches)	Species 1 Density (trees/acre)	Species 1 Basal Area (feet ² /acre)	Species 2 Density (trees/acre)	Species 2 Basal Area (feet ² /acre)	Species 3 Density (trees/acre)	Species 3 Basal Area (feet ² /acre)	All Species Density (trees/acre)	All Species Basal Area (feet ² /acre)
0.5	0 to < 1	0	0.000	0	0.000	0	0.000	0	0.000
2	1 to < 3	40	0.87	26	0.57	4	0.09	70	1.53
4	3 to < 5	28	2.4	11	1.0	0	0.0	39	3.4
6	5 to < 7	23	4.5	8	1.6	0	0.0	31	6.1
8	7 to < 9	18	6.3	5	1.7	0	0.0	23	8.0
10	9 to < 11	14	7.6	2	1.1	0	0.0	16	8.7
12	11 to < 13	9	7.1	5	3.9	0	0.0	14	11.0
14	13 to < 15	18	19.2	0	0.0	0	0.0	18	19.2
16	15 to < 17	9	12.6	0	0.0	0	0.0	9	12.6
18	17 to < 19	5	8.8	0	0.0	0	0.0	5	8.8
20	19 to < 21	2	4.4	0	0.0	0	0.0	2	4.4
22	21 to < 23	1	2.6	0	0.0	0	0.0	1	2.6
24	23 to < 25	1	3.1	0	0.0	0	0.0	1	3.1
26	25 to < 27	0	0.0	0	0.0	0	0.0	0	0.0
28	27 to < 29	0	0.0	0	0.0	0	0.0	0	0.0
30	29 to < 31	0	0.0	0	0.0	0	0.0	0	0.0
32	31 to < 33	0	0.0	0	0.0	0	0.0	0	0.0
34	33 to < 35	0	0.0	0	0.0	0	0.0	0	0.0
36	35 to < 37	0	0.0	0	0.0	0	0.0	0	0.0
38	37 to < 39	0	0.0	0	0.0	0	0.0	0	0.0
Average per Acre		168	79.6	57	9.9	4	0.1	229	89.6

Instructions: (1) Enter the names or abbreviations of the major tree species (or species groups) into cells C5, D5, F5, G5, I5 and J5.
(2) Enter tree data ONLY into the yellow cells of columns C, F and I (as the number of trees per acre for each diameter size-class).
(3) DO NOT make entries into any other cells (since overwriting the embedded formulas will decrease the accuracy of your results).
(4) Calculations will cascade through the spreadsheet, with recommended marking guides appearing in column V (green cells).
(5) Print out your results and remember to label your output by Forest, District, Compartment and Stand.

Due to the difficulty of successfully planting longleaf seedlings, natural generation, as suggested above, is the preferred method of seedling establishment. Planting in excessively drained soils, such as the Candler series, is often unsuccessful due to high seedling mortality.

Other Timber Management Recommendations

Prescribed Fire

The sandhill and a portion of the mesic flatwoods had been burned a few months prior to the field reconnaissance for this timber assessment. As a result of the burn and a prolific cone crop this past season, newly emerging longleaf seedlings were prevalent, sometimes in large numbers, on a number of plots within the sandhill unit. These seedlings shall need to be protected from future burning for at least two years or until such time as they reach the grass stage.⁴ However, if additional openings without seedlings are desired, burning of very small units within the sandhill may be necessary.

A regular cycle of periodic burning (three to five years) will stimulate regeneration

over time and is a necessary management tool for sandhills and other longleaf cover types.

⁴ Roth, Lin and Robert Franklin, *Timing of Prescribed Fire in Longleaf Pine Management: Benefits, Risks, and Roles by Season*”, Clemson Univ, Forestry Leaflet 32.

Cone crops are irregular and generally do not produce seeds or seedlings annually. As this regeneration becomes older and larger and adds to the basal area, larger trees can be removed to maintain the desired basal area.

If protection of the longleaf seedlings is desired, burning should be postponed until the seedlings have reached the grass stage and can withstand fire. If the objective is to clear an area of seedlings to create openings, burning when the seedlings are less than two years old is recommended.

Herbiciding

Herbiciding of hardwoods within the upland pine and mesic flatwoods can be done in lieu of the whole tree chipping mentioned above. Herbicide can be applied either via a broadcast application if total removal is desired or selectively via hack’n squirt or a basal bark application. The latter may be preferable as small openings can be created utilizing this method. Placing these openings near longleaf seed trees should result in the establishment of seedlings in clusters throughout the stand(s). These clusters of regeneration can be thinned over time to maintain the desired basal area. As they mature and produce cones, other areas can be treated to create additional openings resulting in multiple age groups over time.

Periodic Monitoring

A series of sample plots to check basal area can be done on a periodic basis, perhaps every five years. A similar sampling pattern of one plot per five acres, as was done for this assessment, should prove sufficient; however, additional plots will result in greater accuracy.

Table 5 summarizes the management recommendations and associated costs mentioned above.

Table 9. Summary/Schedule of Recommendations

Recommendation	Stand	Objective	Timing
Whole tree chipping	Mesic flatwoods; Upland pine	Reduce hardwood competition to create openings for longleaf establishment	When site is dry; just before appearance of cones

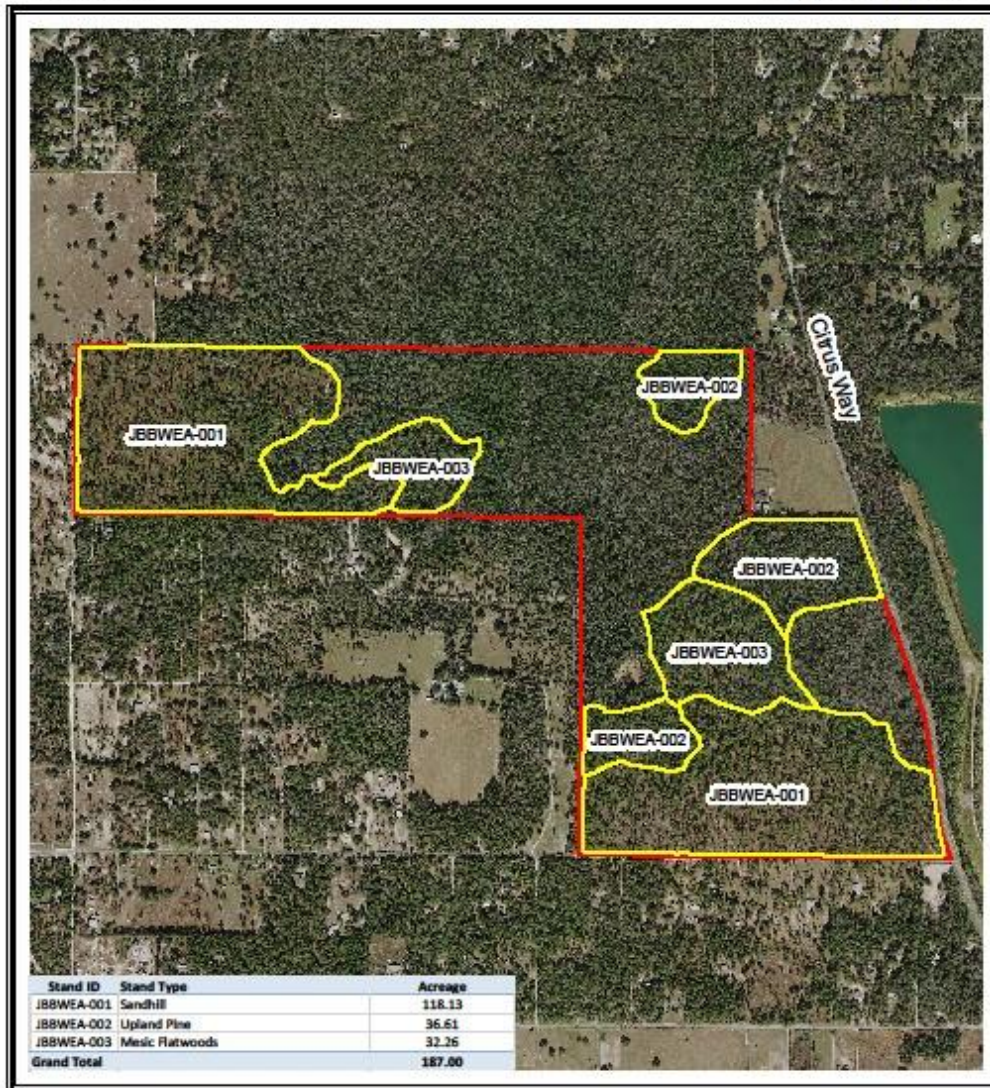
Prescribed Burning	Sandhill	Reduce hardwoods; encourage longleaf growth	Spring or summer; existing seedlings in grass stage
Prescribed Burning	Sandhill	Reduce longleaf regeneration	Anytime
Herbiciding	Mesic flatwoods; Upland pine	Create openings for longleaf regeneration	Spring or summer
Basal area monitoring	All	To determine current basal area	Every five years

MAP APPENDIX

- **Timber Stand Map**
- **Soils Map**
- **Topographic Map**
- **Cruise Plot Map By Stand**
- **Invasive Species Map**
- **Regeneration Map**

FWC
Janet Butterfield Brooks Preserve Wea
Stand Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida

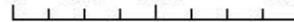


NOTICE:

This map is not a survey. Therefore, any derived acreage numbers on this map or accompanying report are approximate and should only be used for planning and management.

This map is not suitable for engineering design or construction. Further, the use of any associated acreage numbers for sales or negotiations is entirely at the risk of the buyer and seller.

0 561 1,122 2,244 Feet



Legend

Stands

Property Boundary (318.41 acres)



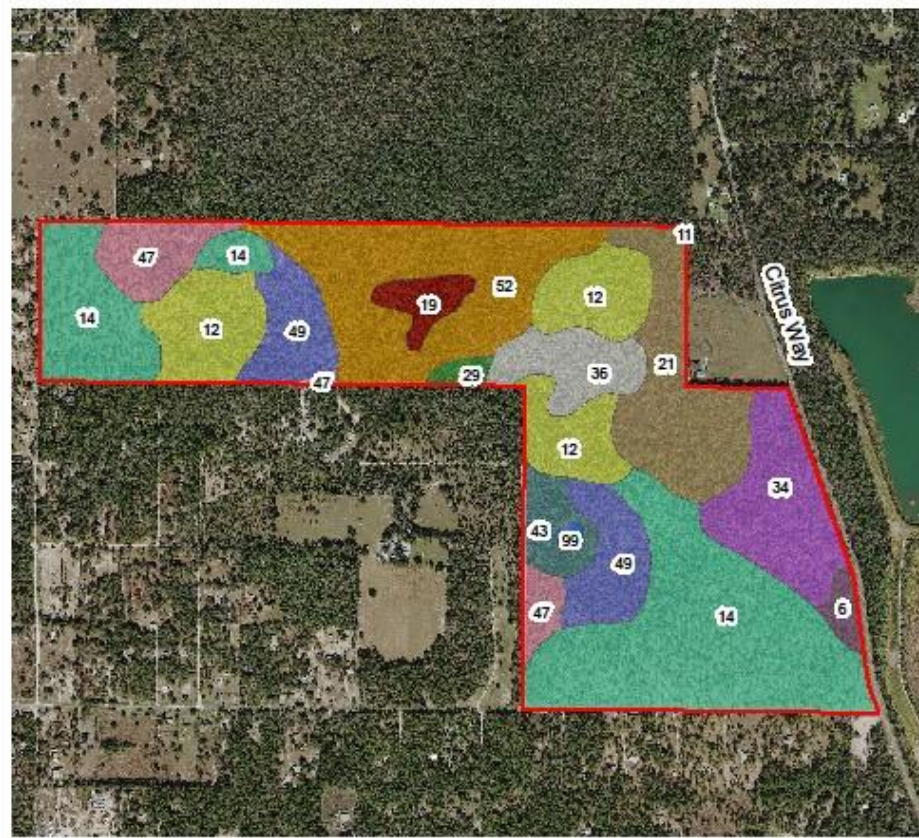
NATURAL RESOURCE
PLANNING SERVICES, INC.
P.O. Box 564
San Antonio, FL 33576
(352) 588-2580

2017 FDOT Aerial Imagery
Mapping Scale: 1 in: 1,122 ft

Map Created on: 4/27/2018
Map Created by: K. Hunt

FWC
Janet Butterfield Brooks Preserve Wea
Soil Type Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida



Legend

 Property Boundary (218.41 acres)

Soil Types	
8 - ARREDONDO FINE SAND, 0 TO 5 PERCENT SLOPES (3.4 acres)	34 - MIDWAY LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES (28 acres)
11 - BLUCHTON LOAMY FINE SAND, 0 TO 2 PERCENT SLOPES (<1 acre)	35 - NOBLETON FINE SAND, 0 TO 5 PERCENT SLOPES (13.7 acres)
12 - BLUCHTON LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES (42.7 acres)	43 - POMELLO FINE SAND, 0 TO 5 PERCENT SLOPES (8.3 acres)
14 - CAWDLER FINE SAND, 0 TO 5 PERCENT SLOPES (60.4 acres)	47 - SPARR FINE SAND, 0 TO 5 PERCENT SLOPES (16.2 acres)
19 - ELECTRA VARIANT FINE SAND, 0 TO 5 PERCENT SLOPES (6.2 acres)	49 - TAWNES FINE SAND, 0 TO 5 PERCENT SLOPES (26.7 acres)
21 - FLEMINGTON FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES (21.1 acres)	99 - WATER (1 acre)
28 - KENDRICK FINE SAND, 0 TO 5 PERCENT SLOPES (2.3 acres)	52 - WAUCHULA FINE SAND, 0 TO 5 PERCENT SLOPES (47.3 acres)



0 561 1,122 2,244 Feet

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2017 FDOT Aerial Imagery
Mapping Scale: 1 in: 1,122 ft

Map Created on: 4/25/2018
Map Created by: K. Huest



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FWC
Janet Butterfield Brooks Preserve Wea
Topography Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida



NOTICE:

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0 561 1,122 2,244 Feet

Legend

- Property Boundary (318.41 acres)
- Elevation Line (110 to 200 ft)

2017 FDOT Aerial Imagery
Mapping Scale: 1 in: 1,122 ft

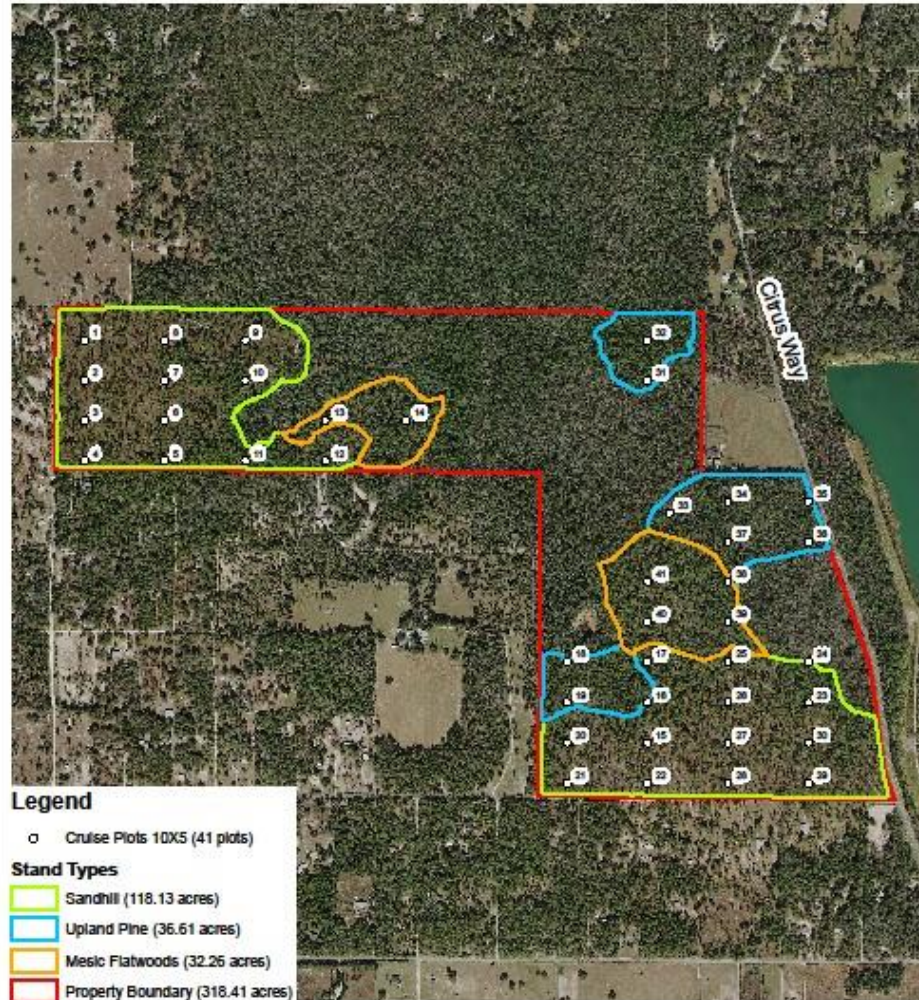
Map Created on: 4/25/2018
Map Created by: K. Hurst



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FWC
Janet Butterfield Brooks Preserve Wea
Timber Cruise Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida



0 561 1,122 2,244 Feet

NOTICE:

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2017 FDOT Aerial Imagery
Mapping Scale: 1 in. = 1,122 ft

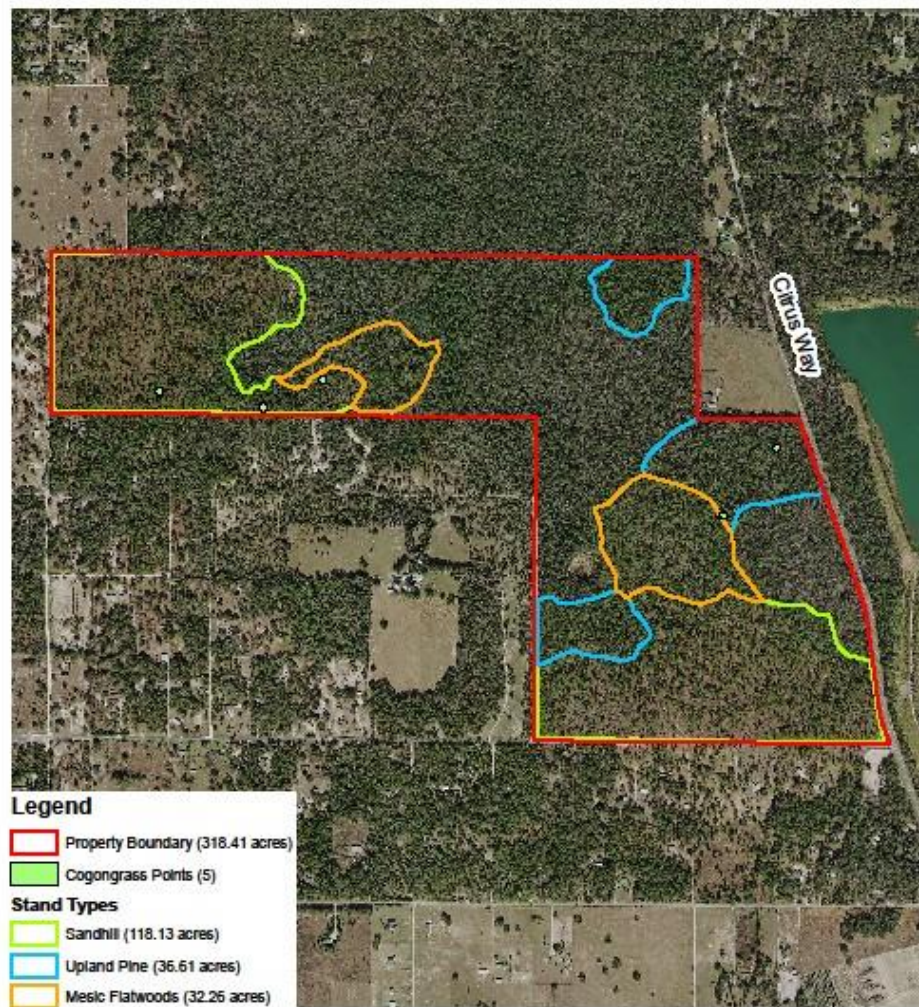
Map Created on: 4/27/2018
Map Created by: K. Hunt



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FWC
Janet Butterfield Brooks Preserve Wea
Invasive Species Location Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida



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0 561 1,122 2,244 Feet

2017 FDOT Aerial Imagery
Mapping Scale: 1 in: 1,122 ft

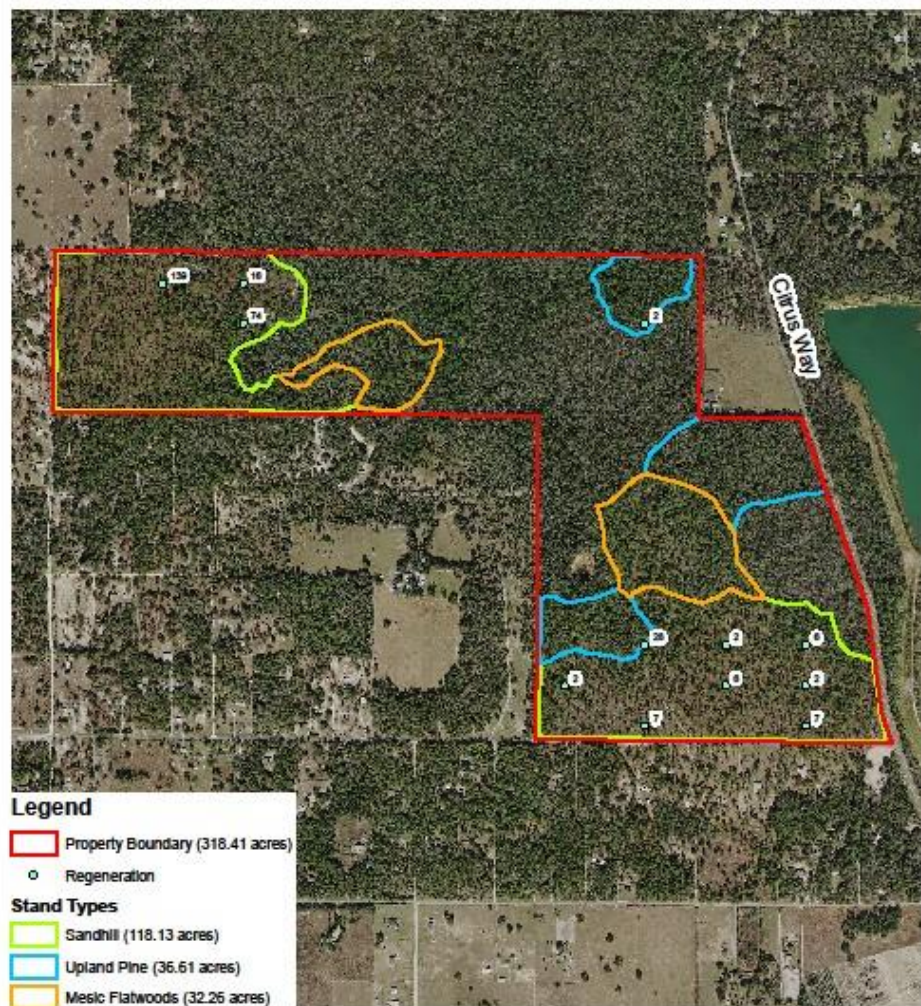
Map Created on: 4/27/2018
Map Created by: K. Hunt



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FWC
Janet Butterfield Brooks Preserve Wea
Regeneration Map

Section: 01 & 02
Township: 22
Range: 18
Hernando County, Florida



0 561 1,122 2,244 Feet

NOTICE:

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2017 FDOT Aerial Imagery
Mapping Scale: 1 in: 1,122 ft

Map Created on: 4/27/2018
Map Created by: K. Hunt



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12.13 Management Procedures Guidelines - Management of Archaeological and Historical Resources

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised June 2021)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. Historic Property Definition

Historic properties include archaeological sites and historic structures as well as other types of resources. Chapter 267, Florida Statutes states: “ *‘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 Chapter 267, F.S. and state policy related to historic properties, state agencies of the executive branch must provide the Division of Historical Resources (Division) the opportunity to comment on any undertakings with the potential to affect historic properties that are listed, or eligible for listing, in the National Register of Historic Places, 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 undertaking. (267.061(2)(a))

State agencies must consult with the Division when, as a result of state action or assistance, a historic property will be demolished or substantially altered in a way that will adversely affect the property. State agencies must take timely steps to consider feasible and prudent alternatives to the adverse effect. If no feasible or prudent alternatives exist, the state agency must take timely steps to avoid or mitigate the adverse effect. (267.061(2)(b))

State agencies must consult with Division to establish a program to locate, inventory and evaluate all historic properties under ownership or controlled by the agency. (267.061(2)(c))

State agencies are responsible for preserving historic properties under their control. State agencies are directed to use historic properties available to the agency when that use is consistent

with the historic property and the agency's mission. State agencies are also directed to pursue preservation of historic properties to support their continued use. (267.061(2)(d))

C. Statutory Authority

The full text of Chapter 267, F.S. and additional information related to the treatment of historic properties is available at:

<https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/>

D. Management Implementation

Although the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual and do not include detailed project information. Specific information for individual projects must be submitted to the Division for review and comment.

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. The Division's recommendations may include, but are not limited to: approval of the project as submitted, recommendation for a cultural resource assessment survey by a qualified professional archaeologist, and modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions or alterations to historic structures as well as new construction must also be submitted to the Division for review. Projects involving structures fifty years of age or older must be submitted to the Division for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant.

Adverse effects to historic properties must be avoided when possible, and if avoidance is not possible, additional consultation with the Division is necessary to develop a mitigation plan. Furthermore, managers of state property should make preparations for locating and evaluating historic properties, both archaeological sites and historic structures.

E. Archaeological Resource Management (ARM) Training

The ARM Training Course introduces state land managers to the nature of archaeological resources, Florida archaeology, and the role of the Division in managing state-owned archaeological resources. Participants gain a better understanding of the requirements of state and federal laws with regard to protecting and managing archaeological sites on state managed lands. Participants also receive a certificate recognizing their ability to conduct limited monitoring activities in accordance with the Division's Review Procedure, thereby reducing the time and money spent to comply with state regulations. Additional information regarding the ARM Training Course is available at:

<https://dos.myflorida.com/historical/archaeology/education/arm-training-courses/>

F. Matrix for Ground Disturbance on State Lands

The matrix is a tool designed to help streamline the Division's Review Procedure. The matrix allows state land managers to make decisions about balancing ground disturbance and stewardship of historic resources. The matrix establishes types of undertakings that are either minor or major disturbances and then guides the land manager to consult the Division, conduct ARM-trained project monitoring, or proceed with the project. Additional information regarding the matrix is available at:

<https://dos.myflorida.com/historical/archaeology/education/dhr-matrix-for-ground-disturbance-on-state-lands/>

G. Human Remains Treatment

Chapter 872, *Florida Statutes* makes it illegal to willfully and knowingly disturb human remains. In the event human remains are discovered, cease all activity in the area that may disturb the remains. Leave the bones and nearby items in place. Immediately notify law enforcement or the local district medical examiner of the discovery and follow the provisions of Chapter 872, FS. Additional information regarding the treatment of human remains and cemeteries is available at:

<https://dos.myflorida.com/historical/archaeology/human-remains/>
<https://dos.myflorida.com/historical/archaeology/human-remains/abandoned-cemeteries/what-are-the-applicable-laws-and-regulations/>

H. Division of Historical Resources Review Procedure

Projects on state owned or controlled properties may submit projects to the Division for review using the streamlined State Lands Consultation Form. The form provides instructions to submit projects for review and outlines the necessary information for the Division to complete the review process. The State Lands Consultation Form and additional information about the Division's review process is available at:

<https://dos.myflorida.com/historical/preservation/compliance-and-review/state-lands-review/>

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Compliance and Review Section
Bureau of Historic Preservation
Division of Historical Resources

R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

StateLandsCompliance@dos.myflorida.com

Phone: (850) 245-6333
Toll Free: (800) 847-7278
Fax: (850) 245-6435

12.14 Land Management Uniform Accounting Council Categories

Land Management Uniform Cost Accounting Council and FWC Activity Code Groupings

Resource Management

Exotic Species Control

- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

Prescribed Burning

- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

Cultural Resource Management

- 201 Cultural resource management

Timber Management

- 202 Timber management

Hydrological Management

- 194 Lake restoration
- 215 Hydrology management
- 216 Dams, dikes, levees
- 217 Canals
- 218 Water level management

Other

- 185 GIS
- 200 RESOURCE MANAGEMENT
- 203 Tree and shrub planting
- 213 Wildlife management
- 214 Listed Species management
- 219 Upland restoration
- 221 Animal surveys
- 228 Inland aerial surveys
- 235 Vegetation and plant surveys
- 250 MONITORING AND ASSESSMENTS
- 252 Biomedical monitoring
- 253 Ecological monitoring
- 256 Habitat monitoring analysis
- 263 Nest box monitoring
- 264 Population demographics
- 275 Permits and authorizations
- 276 Commission rule development and review
- 281 Technical assistance
- 282 Herbaceous seeding
- 283 Clearings
- 284 Feeding/watering
- 285 Nest structures
- 286 Population control
- 287 Stocking enhancements/population augmentation
- 288 Nuisance animal complaints 282 Herbaceous seeding

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289	Native vegetation management (mechanical)
290	Native vegetation management (chemical)
293	Mortality investigations
294	Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level 295 Biological data collection, analysis, and reporting
296	Habitat protection technical assistance
750	URTD assessment
789	Site Preparation – GCR
790	Irrigation – GCR
791	Seed Collection – Hand
792	Seed Collection – Mechanical
793	Herbicide Maintenance Treatment

Administration

Central Office/Headquarters

100	ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
104	Budget/purchasing/accounting

Districts/Regions

See Location code

Units/Projects

See Location code

Support

Land Management Planning

103	Meetings C includes workshops, conferences, staff, and other meetings.
204	Resource Planning

Land Management Reviews

101	Project inspection C field inspections of projects.
209	Land Management Reviews

Training/Staff Development

150	PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.
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Vehicle Purchase

128	New Vehicle and Equipment Purchase
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Vehicle Operation and Maintenance

923	FEM C vehicles/equipment
-----	--------------------------

Other

140	REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
141	Grant applications
180	SYSTEMS ADMINISTRATION AND MANAGEMENT
182	Data management
184	Metadata development and management
187	IT
188	Web development
226	Human dimensions surveys
721	Geospatial analysis techniques

Capitol Improvements

New Facility Construction

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Management Plan

- 910 New facility construction C buildings/structures
- 912 New construction C roads/bridges
- 913 New construction C trails
- 914 New construction C fences

Facility Maintenance

- 920 Facility and equipment maintenance (FEM) C buildings/structures
- 921 FEM C utilities
- 922 FEM C custodial functions
- 925 FEM C boating access
- 926 FEM C roads/bridges
- 927 FEM C trails
- 928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

- 145 Technical bulletin

Operations

- 311 Boundary signs
- 312 Informational signs
- 320 Outreach and education C attending or developing educational or informational materials or events for the public
- 341 Public use administration (hunting)
- 342 Public use administration (non-hunting)
- 350 Customer service support C disseminating written or verbal information or assistance to the public
- 700 STUDIES
- 740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

12.15 Operation Plan Fiscal Year 2020-2021

Activity	Man Days	Salary	Fuel Cost	Other	Total	Units	Accomplishments
100-Administration	0.00	\$0.00	\$0.00	\$535.00	\$535.00	3	Staff coordinated logistics and provided support for resource management activities; staff prepared and edited 1 annual work plan, 1 accomplishment report, and 1 annual report.
200-Resource Management	0.00	\$0.00	\$0.00	\$300.00	\$300.00	0	Conducted general resource management.
204-Resource planning	6.38	\$2,352.58	\$34.43	\$0.00	\$2,387.01	0	Staff planned WEA activities.
206-Prescribed burning - growing season	6.06	\$1,597.60	\$32.74	\$0.00	\$1,630.34	104	Staff burned 104 acres; maintained, repaired, and purchased fire gear.
208-Firebreaks	6.94	\$1,629.83	\$37.46	\$992.62	\$2,659.91	5	Staff maintained 5 miles of firelines.
212-Exotic plant control (chemical)	2.38	\$586.51	\$12.83	\$0.00	\$599.34	2	Staff treated 0.51 acres of cogongrass, 0.81 acres of natal grass, and 0.59 acres of fence lines.
250-Monitoring and assessments	1.00	\$270.22	\$5.40	\$0.00	\$275.62	1	Staff conducted routine monitoring for species of management concern; Staff monitored 1 SEAK nest box.

289-Native vegetation management (mechanical)	1.44	\$326.74	\$7.76	\$21,527.00	\$21,861.50	75	Contractors removed 35 trees, 2 oak sprout clusters, and ground down 32 stumps; staff shredded 4.8 acres of overgrown hardwoods; staff hand-pulled 1.11 acres of showy rattlebox.
923-FEM -- vehicles/equipment	0.00	\$0.00	\$0.00	\$525.61	\$525.61	0	Staff maintained, repaired, and purchased parts for various equipment.
926-FEM -- roads/bridges	0.13	\$31.05	\$0.68	\$0.00	\$31.73	1	Staff purchased materials to maintain and repair 1 easement access road.
928-FEM -- fences	0.94	\$204.18	\$5.06	\$0.00	\$209.24	4	Staff maintained, repaired, and purchased supplies for 4 miles of fence.
	25.27	\$6,998.71	\$136.36	\$23,880.23	\$31,015.30		

12.16 Arthropod Control Plan



Nicole 'Nikki' Fried
COMMISSIONER

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

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

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. Fill this form out if control work is necessary or planned.

Name of Designated Land: Janet Butterfield Brooks Wildlife and Environmental Area

Is Control Work Necessary: ☐ Yes ☒ No

Location: Hernando County

Land Management Agency: Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary? ☐ Yes ☒ No
If "Yes", please explain:

Which Surveillance Techniques Are Proposed?

Please Check All That Apply: N/A

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

If "Other", please explain: N/A

Arthropod Species for Which Control is Proposed: N/A

Proposed Larval Control:

Proposed larval monitoring procedure:

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 Larvaciding Applications:

(Please Check All That Apply:) N/A

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide: N/A

Chemical or Common name: N/A

☐ Ground

☐ Aerial

Rate of application:

Method of application:

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:

Rate of application:

Method of application:

Proposed Modifications for Public Health Emergency Control: In the event of a declared public health emergency, control may be performed by the arthropod control agency, as part of a larger treatment plan to safeguard public health. Land managers of the area will be notified prior to treatment.

Proposed Notification Procedure for Control Activities:

Manager of the area will be notified by e-mail when treatment of the area will occur. The notice should include a map of the area being treated, the material to be used and the general time of day the treatment will occur.

Records:

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

☒ Yes ☐ No

Records Location: Hernando County Mosquito Control, 15400 Wiscon Rd., Brooksville FL 34601

How long are records maintained: 3+ years

Vegetation Modification:

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

None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:

None

Include proposed operational schedules for water fluctuations:

None

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

None

Proposed Modification of Aquatic Vegetation:

None

Land Manager Comments:

Arthropod Control Agency Comments:

In the event of a public health emergency or a Mosquito Borne Illness Advisory by the State Health Department all appropriate and necessary treatments will be performed.

James C Conner III Digitally signed by James C Conner III
Date: 2022.02.11 12:03:51 -05'00'

Signature of Lands Manager or Representative Date

Sandra Fisher-Grainger 10/20/21
Signature of Mosquito Control Director / Manager Date

12.17 Hernando County Letter of Compliance with Local Government Comprehensive Plan



DEPARTMENT OF PLANNING AND ZONING PLANNING DIVISION

1653 BLAISE DRIVE ♦ BROOKSVILLE, FLORIDA 34601
P 352.754.4057 ♦ F 352.754.4420 ♦ W www.HernandoCounty.us

February 25, 2022

(via email)

Dylan (Imlah) Haase, AICP
Senior Conservation Planner
Florida Fish and Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, Florida 32399
Phone: 850.487.9102
Dylan.Haase@MyFWC.com

RE: Chassahowitzka Wildlife Management Area (CWMA) Management Plan

Dear Mr. Haase:

Hernando County has reviewed the Janet Butterfield Brooks Wildlife and Environmental Area Land Management Plan and find the Plan to be consistent with the Hernando County 2040 Plan (comprehensive plan).

Thank you for the opportunity to review the Plan. Please feel free to contact me, or my staff with any questions.

Sincerely;

Ronald F. Pianta
Digitally signed by
Ronald F. Pianta
Date: 2022.02.25
09:09:43 -05'00'

Ronald F. Pianta, AICP
Planning and Zoning Director

Cc: Mike Singer, Conservation lands Specialist
Dawn Velsor, Environmental Planner
