A Management Plan for

Moody Branch

Wildlife and Environmental Area

2017 - 2027

Manatee County, Florida

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

A Management Plan
for
Moody Branch Wildlife and Environmental Area

Manatee County, Florida

Owned by Manatee County
Managed by the Florida Fish and Wildlife Conservation Commission

April 2017

Approved

Thomas H. Eason, Ph.D.
Director, Division of Habitat and Species Conservation

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)
Common Name of Property: Moody Branch Wildlife and Environmental Area
Location: Manatee County, Florida
Acreage Total: 960 acres
Acreage Breakdown:

Land Cover Classification	Acres	Percent of Total Area
Baygall	10.07	1.05%
Depression Marsh	33.70	3.51%
Floodplain Forest	47.04	4.91%
Mesic Flatwoods	141.24	14.73%
Mesic Hammock	11.32	1.18%
Pasture - Improved	106.04	11.06%
Ruderal	209.80	21.88%
Sandhill	13.30	1.39%
Scrub	249.14	25.98%
Scrubby Flatwoods	129.29	13.48%
Wet Flatwoods	8.12	0.85%

*GIS-calculated acreage for land cover classification varies slightly from actual total acreage.
Lease/Management Agreement No.: 03154 (Appendix 12.1)
Use: Single _____ Multiple X
Management Responsibilities:
Agency FWC
Responsibilities
LEAD, SUBLESSEE (Wildlife and Environmental Area, resource protection, law enforcement)
Designated Land Use: Wildlife and Environmental Area
Sublease (s): None
Encumbrances: None
Type Acquisition: Fish and Wildlife Habitat Program
Unique Features: Natural: Scrub and scrubby flatwoods natural communities
Archaeological/Historical: One documented within MBWEA (MA00273).
Management Needs: Habitat restoration and improvement; public access and recreational opportunities; hydrological preservation and restoration; exotic and invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.
Acquisition Needs/Acreage: No acres on FWC Additions and Inholdings list; No nearby Florida Forever Project.
Surplus Lands/Acreage: None
Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 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	1
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	3
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	5
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	3, 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	7, 8, 63
6	An **assessment** as to whether the property, or any portion, should be declared surplus. *Provide Information regarding **assessment and analysis** in the plan, and provide **corresponding map**.*	18-2.021	42
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. *Please clearly indicate parcels on a map.*	18-2.021	64, 65
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	12
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)	3-5, 40-42
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	9, 11

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	41
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	39-41
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	40-42
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	5, 66
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	61, 76, Appendix 12.10

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	62, 66
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)	40-42
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	85
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Appendix 12.14
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	14-39, 47-52, 69-80
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	40-41
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 12.5
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	42

*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	13, Appendix 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)	Appendix 12.3
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	13, Appendix 12.3
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Appendix 12.3
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	Appendix 12.3
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. *Include manager's replies to the team's findings and recommendations.*	259.036	47
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
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

Section D: Natural Resources			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. *Use brief descriptions and include USDA maps when available.*	18-2.021	14-16, Appendix 12.4
33	Insert FNAI based natural community maps when available.	ARC consensus	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	13-29, 34-39
35	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	13-29, 34-39
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	37
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	37
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	30-34
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	30-34, 53-55
40	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	13-29
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)	47-84
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.	↓	47-84
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.		71-80
42-C.	The associated measurable objectives to achieve the goals.		71-80
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*		47-84 Appendix 12.8
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.		82-84
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	14-29

44	Sustainable Forest Management, including implementation of prescribed fire management		
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		47-84
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	18-2.021, 253.034(5) & 259.032(10) ↓	71-80
44-C.	Measurable objectives (see requirement for #42-C).		71-80
44-D.	Related activities (see requirement for #42-D).		47-84, Appendix 12.5, Appendix 12.8
44-E.	Budgets (see requirement for #42-E).		82-84
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).	↓	47-84
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		71-80
45-C.	Measurable objectives (see requirement for #42-C).		71-80
45-D.	Related activities (see requirement for #42-D).		47-84
45-E.	Budgets (see requirement for #42-E).		82-84
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	56, 57
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 12.13
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).	↓	47-84
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		71-80
48-C.	Measurable objectives (see requirement for #42-C).		71-80
48-D.	Related activities (see requirement for #42-D).		47-84
48-E.	Budgets (see requirement for #42-E).		82-84

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	37
50	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	37-38
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	20-29
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	37
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).	↓	47-84
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		71-80
53-C.	Measurable objectives (see requirement for #42-C).		71-80
53-D.	Related activities (see requirement for #42-D).		47-84
53-E.	Budgets (see requirement for #42-E).		82-84

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	37
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	37, 61
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	61, 76 Appendix 12.10
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).	↓	37, 61
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		76
57-C.	Measurable objectives (see requirement for #42-C).		76

57-D.	Related activities (see requirement for #42-D).		37, 61 Appendix 12.10
57-E.	Budgets (see requirement for #42-E).		82-84

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

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. *See footnote.*	253.034(5)	58, 62
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).	↓	58, 62
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		74, 76
59-C.	Measurable objectives (see requirement for #42-C).		74, 76
59-D.	Related activities (see requirement for #42-D).		58, 62
59-E.	Budgets (see requirement for #42-E).		82-84
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	58, 62
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).	↓	58, 62
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		74, 76
61-C.	Measurable objectives (see requirement for #42-C).		74, 76
61-D.	Related activities (see requirement for #42-D).		58, 62
61-E.	Budgets (see requirement for #42-E).		82-84

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	43-46

65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	47-84
66	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	82-84 Appendix 12.12
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)	82-84 Appendix 12.12
68	A statement of gross income generated, net income and expenses.	18-2.018	82-84 Appendix 12.12

*** = 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

ADA	Americans with Disabilities Act
ARC	Acquisition and Restoration Council
BEBR	Bureau of Economic and Business Research
BSFSP	Becker-South Fork State Park
CARL	Conservation and Recreation Lands Program
CAS	Conservation Action Strategy
DEP	Department of Environmental Protection
DHR	Division of Historical Resources
DSL	Division of State Lands
FAC	Florida Administrative Code
FCT	Florida Communities Trust
FFS	Florida Forest Service
FLEPPC	Florida Exotic Pest Plant Council
FNAI	Florida Natural Areas Inventory
FS	Florida Statute(s)
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
GFC	Florida Game and Freshwater Fish Commission
GIS	Geographic Information Systems
GPS	Geographic Positioning System
IMPP	Internal Management Policies and Procedures
IPCC	Intergovernmental Panel on Climate Change
IWHRS	Integrated Wildlife Habitat Ranking System
LAP	Landowner Assistance Program
LATF	Land Acquisition Trust Fund
LMR	Land Management Review
LMRCA	Little Manatee River Conservation Area
MAG	Management Advisory Group
MBWEA	Moody Branch Wildlife and Environmental Area
NRCS	Natural Resource Conservation Service
OBVM	Objective-Based Vegetation Management
OCPB	Optimal Conservation Planning Boundary
OFW	Outstanding Florida Waters
ORB	Optimal Resource Boundary
ORV	Off-Road Vehicle
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WCPR	Wildlife Conservation Prioritization and Recovery
WEA	Wildlife and Environmental Area

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1 Introduction and General Information

Nestled within the scrub and flatwoods of northeastern Manatee County, the Moody Branch Wildlife and Environmental Area (MBWEA) conserves an important tract of the Little Manatee River watershed. Encompassing approximately 960 acres of predominantly upland habitat, the MBWEA and other proximate conservation lands protect vital habitat for the gopher tortoise, Florida mouse, Florida scrub-jay and many other imperiled, rare, and more common wildlife species.

Connected to the adjacent Becker-South Fork State Park (BSFSP) and Little Manatee River Conservation Area, the MBWEA aids in maintaining wildlife connectivity within a mosaic of other public conservation lands in the surrounding vicinity. Along with protecting and conserving habitat for its diverse assemblage of plants and animals, the MBWEA conserves watershed and water recharge lands within the Little Manatee River watershed. The area is named for Moody Branch, a small tributary of the Little Manatee River that flows from north to south across the eastern portion of the MBWEA.

The 960 acres of land that comprise the MBWEA were conserved by Manatee County and the Florida Fish and Wildlife Conservation Commission (FWC) through the FWC's Gopher Tortoise Mitigation Park Program to protect vital habitat for the gopher tortoise. The MBWEA's natural communities include scrub and flatwoods, which provide ideal habitat for the gopher tortoise and many other species.

In addition to conserving the habitat of native wildlife in the area, the MBWEA also provides opportunities for wildlife-based, outdoor recreational opportunities for the public to enjoy. Hiking and equestrian trails are available for those who enjoy being outdoors. The area's remote location coupled with high quality habitats provide for excellent wildlife viewing opportunities.

1.1 Management Plan Purpose

This Management Plan serves as the basic statement of policy and direction for the management of the MBWEA. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and historical resources found on the MBWEA. Furthermore, it identifies the FWC's future management intent, goals and associated short and long-term objectives, as well as identifying challenges and solutions. This Management Plan has been developed to guide each aspect of the MBWEA's resource and operational management for the next ten years.

Although the lands covered by this Management Plan are not titled to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), they are being presented to the Acquisition and Restoration Council (ARC) for a variety of important reasons. Foremost among these is that the FWC has determined that it is essential for all of the conservation areas that it manages, including those lands titled to entities other than the Board of Trustees, to have conservation land management plans that are in conformance with the State's statutory framework and criteria for the development of management plans for state-owned conservation lands. This ensures that each conservation area that FWC manages has a comprehensive, consistent, and accountable land management plan that is developed under and meets the current ARC, Board of Trustees, and FWC planning framework and requirements.

Further, FWC may also request for the MBWEA to be included on the list of FWC managed conservation lands that receive funding through the Land Acquisition Trust Fund (LATF) conservation land management funding formula. In order for a public conservation area to be eligible to continue to qualify to receive land management funding through the LATF land management funding formula, the area is required to have an ARC and Board of Trustees compliant land management plan that meets the State's management plan requirements for state-owned conservation lands. For these reasons, this Management Plan has been developed to meet the ARC and Board of Trustees criteria for approval.

Moreover, this Management Plan will also be submitted to Manatee County for review and approval as Manatee County holds the title for the MBWEA.

This Management Plan is presented to the ARC acting on behalf of Manatee County in compliance to Chapters 253 and 259, Florida Statutes (FS), and Chapters 18-2 and 18-4, Florida Administrative Code (FAC). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of the Florida Department of Environmental Protection (DEP) Division of State Lands (DSL). Terms (Appendix 12.2) used in this Management Plan describing management activities and associated measurable goals and objectives conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

1.1.1 FWC Planning Philosophy

The FWC's planning philosophy includes emphasizing management recommendation consensus-building among stakeholders and input from user groups and the public at the beginning of the planning process. The FWC engages stakeholders by convening a Management Advisory Group (MAG) and solicits additional input from user groups and the public at a public hearing (Appendix 12.3). The FWC also engages area, district, and regional agency staff, as well as other FWC staff expertise, in developing this Management Plan, thereby facilitating area biologist and manager "ownership" of the Management Plan,

and thus the development of meaningful management intent language, goals with associated measurable objectives, timelines for completion, and the identification of challenges and solution strategies for inclusion in the MBWEA Management Plan (Sections 5 – 8).

Furthermore, FWC maintains transparency and accountability throughout the development and implementation of this Management Plan. A "living document" concept, linking this updated Management Plan to the previous one, is accomplished by reporting on the objectives, management activities, and projects accomplished over the last planning timeframe (previous ten years; see Section 4), thereby ensuring agency accountability through time. Also, in an effort to remain adaptive for the duration of this Management Plan, continuous input and feedback will be collected from FWC staff, stakeholders, user groups, and other interested parties and individuals. As needed, amendments to this Management Plan will be presented to DSL and ARC to maintain compliance with the State's management plan requirements for state-owned conservation lands.

1.2 Location

The MBWEA is located in north central Manatee County, just south of the Hillsborough County line (Figure 1). Bradenton is about 22 miles to the southwest of the area. The MBWEA is an irregular shaped parcel that is 960 acres in size (Figure 2). As shown in Figure 3, the area lies within Sections 5, 6, 7, and 8 in Township 33 South, Range 24 East. The designated entrance and parking area of the MBWEA is located on Taylor Grade Road approximately five miles north of State Road 62.

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

The primary purpose of acquiring the MBWEA was to protect significant gopher tortoise habitat. The MBWEA was acquired to serve as an offsite mitigation facility to offset the loss of gopher tortoise habitat. Areas such as the MBWEA were acquired by FWC through its FWC Gopher Tortoise Mitigation Park Program as a means to provide an offsite compensation alternative to state and federal listed species regulatory decisions. In general, the primary acquisition and conservation goals and purposes of the FWC Gopher Tortoise Mitigation Park Program were:

1) Promote habitat conditions critical to meeting the life history requirements of the gopher tortoise and associated upland species; conserve, protect, and restore landscapes, forests, watershed, water resources, historical resources, and other elements important to ecosystem functions;

2) Provide an off-site mitigation alternative to the previous method of on-site preservation of habitat within the boundaries of development; and

3) Provide public outdoor natural resource based recreational opportunities that are compatible with the conservation and management of the area's natural and historical resources.

Although the FWC Gopher Tortoise Mitigation Park Program no longer exists, these purposes of acquisition still guide FWC's management activities at the MBWEA. The following mission statement was developed and approved by the FWC to guide management activities at the MBWEA: "It shall be the primary management mission at the MBWEA to manage plant communities and public use in a manner that gives first consideration to the habitat needs and life history requirements of the gopher tortoise."

In addition to the gopher tortoise, the MBWEA also protects several other species of concern as well as more common wildlife species. The MBWEA is part of a Strategic Habitat Conservation Area for the Florida burrowing owl, Florida scrub-jay, and short-tailed hawk. In addition to protecting wildlife, the MBWEA conserves a portion of the scrub vegetative community within the Little Manatee River watershed. The MBWEA also provides quality outdoor, natural resource-based recreational opportunities for the public to enjoy.

1.3.2 Acquisition History

Title to the MBWEA is held by Manatee County, and a perpetual conservation easement has been conveyed to FWC. This easement provides FWC lead management authority at the MBWEA. The acquisition of the 960-acre tract of the MBWEA was made in 2004 using funds from the now defunct Gopher Tortoise Mitigation Park Program to cover the FWC's share (60%) of the acquisition cost. Manatee County paid the remaining acquisition cost with grant money from the Florida Communities Trust (FCT).

The FWC implemented the Gopher Tortoise Mitigation Park Program in 1988 to provide land use regulatory programs with an alternative to on-site wildlife mitigation under Section 372.074, FS (since replaced by Chapter 379, FS), 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 to provide compatible fish and wildlife based public outdoor recreation.

Fundamentally, the Gopher Tortoise Mitigation Park Program was created to help protect endangered and threatened wildlife from the impacts of development by providing an off-site alternative to the previous method of on-site preservation of habitat within the boundaries of a development. Through this program, when developers proposed to develop habitat for an endangered or threatened species, they paid mitigation "taking" fees that were used to buy and manage high quality habitat elsewhere. Thus, the program provided an alternative method to preserve wildlife habitat while allowing developers to develop

imperiled species habitat on their project sites. It also consolidates mitigation within a geographical region by buying larger, more manageable tracts which are established as Wildlife and Environmental Areas (WEAs) and can be utilized by the public for low-intensity, natural resource-based recreation. 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 acquired through the program continue to be actively managed by the FWC in accordance with their original purpose for acquisition. Essentially, Gopher Tortoise Mitigation Parks, now established by the FWC as WEAs, provide conservation of important fish and wildlife habitat while allowing for public outdoor recreation within a multiple-use management regime that is primarily focused on restoration and management of gopher tortoise habitat. For this reason, management activities emphasize the maintenance and restoration of optimum listed species habitat.

1.4 Management Authority

The FWC is the designated lead managing agency for the MBWEA under the authority granted by Contract Numbers 03154 and 03155 between Manatee County and the FWC. 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, 870, and 597 and of the Florida Statutes. These constitutional provisions and laws provide FWC the authority to protect, conserve, and manage the State's fish and wildlife resources.

1.5 Management Directives

In accordance with the purposes for the FWC's acquisition of the MBWEA under the authority of the Gopher Tortoise Mitigation Park Program, the FWC is required to protect, conserve, and manage the MBWEA primarily to preserve and enhance habitat important to upland endangered and threatened wildlife species, especially the gopher tortoise, as well as to conserve other natural and historical resources. More specifically, the management of conservation land acquired under the FWC's Gopher Tortoise Mitigation Park Program is required to emphasize the maintenance and restoration of optimum habitat for listed species above all other uses and activities. The FWC is also directed to provide public access and recreational opportunities on the MBWEA that are compatible with the primary purpose for acquisition of the area.

1.6 Title Interest and Encumbrances

Title to the MBWEA is vested in Manatee County. In 2004, Manatee County, entered into Contract Number 03154, a perpetual conservation easement agreement, granting FWC management authority for the MBWEA. There are no known encumbrances to the property.

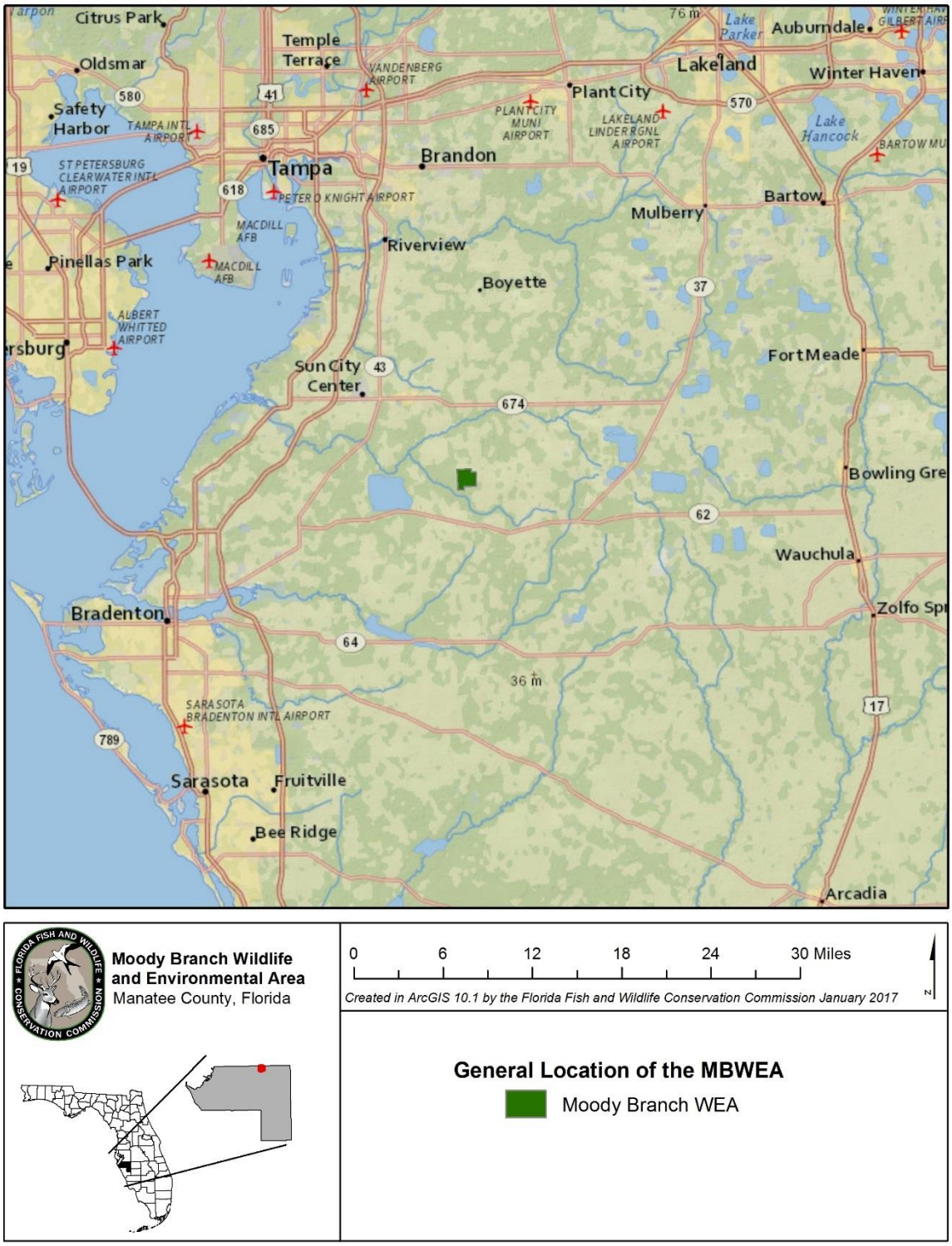


Figure 1: General Location of the MBWEA

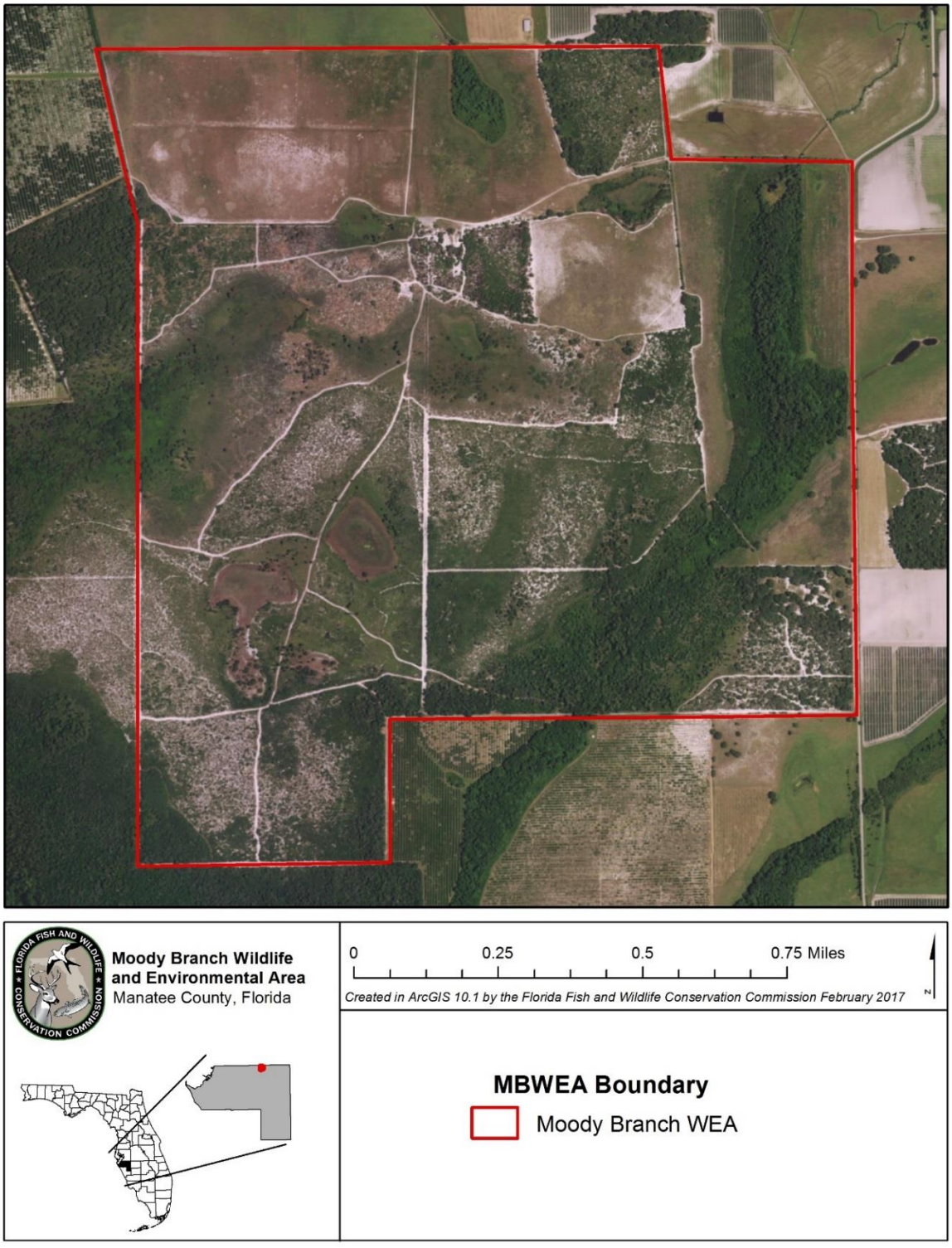


Figure 2: Boundary and Aerial Imagery of the MBWEA

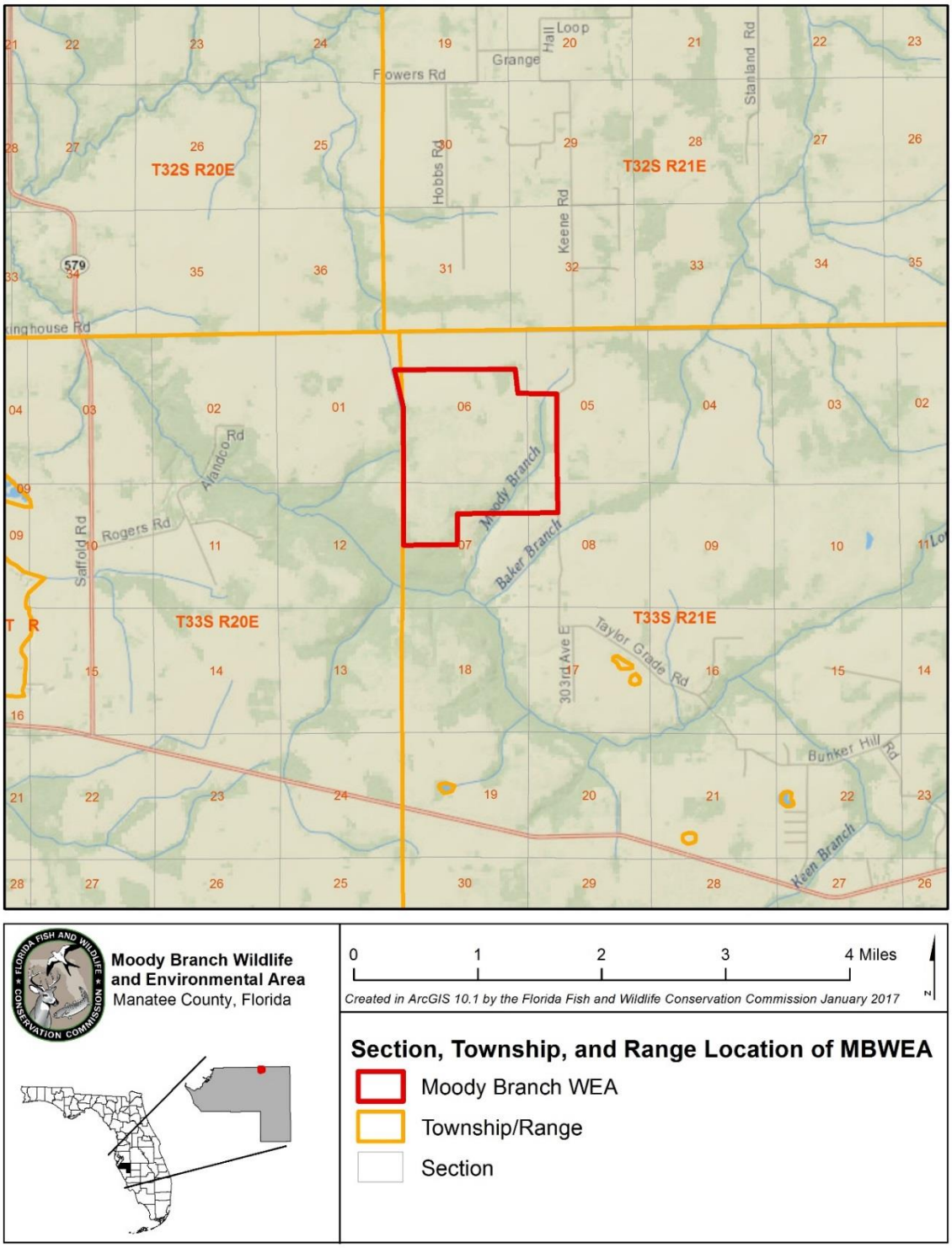
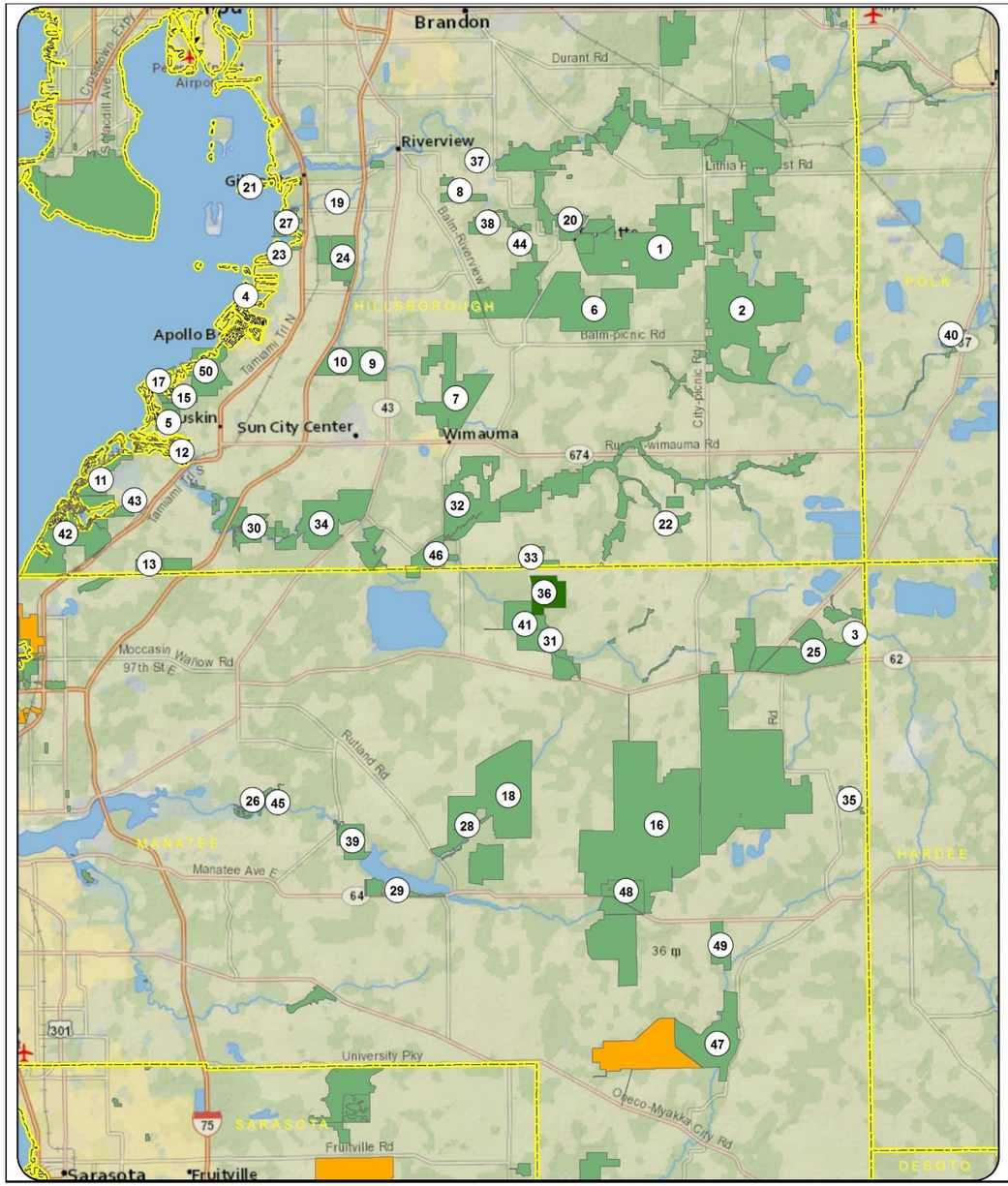


Figure 3: Section, Township, and Range Location of the MBWEA

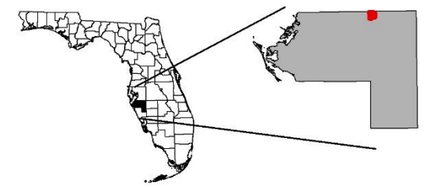


Conservation Lands within 15 miles of the MBWEA

Label	Conservation Area
1	Alafia River Corridor
2	Alafia River State Park
3	Altman Tract Conservation Easement
4	Apollo Beach Nature Preserve
5	Bahia Beach Coastal Restoration
6	Balm-Boyette Scrub
7	Balm Scrub Preserve
8	Bell Creek Preserve
9	Bullfrog Creek Scrub Preserve
10	Bullfrog Creek Wildlife and Environmental Area
11	Cockroach Bay
12	Cockroach Bay Preserve State Park
13	Cockroach Creek Greenway
14	Devil's Elbow Preserve
15	Doyle Campbell Memorial Park
16	Duette Preserve
17	E. G. Simmons Park
18	Edward Chance Reserve
19	Ekker Preserve
20	Fish Hawk Creek Preserve
21	Florida Coastal Islands Sanctuaries
22	Four Corners Conservation Easement
23	Fred and Ida Schultz Preserve
24	Golden Aster Scrub Nature Preserve
25	Headwaters at Duette Preserve
26	Hidden Harbor Riparian Conservation Area
27	Kitchen Preserve
28	Lake Manatee Lower Watershed Conservation Easement
29	Lake Manatee State Park
30	Little Manatee River
31	Little Manatee River (SWFWMD)
32	Little Manatee River Corridor
33	Little Manatee River Corridor Addition
34	Little Manatee River State Park
35	Manson Jenkins Conservation Easement
36	Moody Branch Wildlife and Environmental Area
37	Myron and Helen Gibbons Nature Preserve
38	Rhodine Scrub
39	Rye Preserve
40	South Prong Alafia River
41	Southfork State Park
42	Tampa Bay Estuarine Ecosystem - TECO Tract
43	Tampa Bay Mitigation Bank
44	Triple Creek Nature Preserve
45	Twin Rivers Preserve at Gamble Creek
46	Upper Little Manatee River
47	Upper Myakka River Watershed
48	Well Field Scrub-jay Habitat
49	Wingate Creek State Park
50	Wolf Branch

Moody Branch Wildlife and Environmental Area

Manatee County, Florida



Legend

- Moody Branch WEA
- Conservation Lands
- Florida Forever Projects
- County

N
W E
S

0 3 6 12 Miles

Created in ArcGIS 10.1 by the Florida Fish and Wildlife Conservation Commission, November 2016

Figure 4: Conservation Lands Within 15 Miles of the MBWEA

1.7 Proximity to Other Public Conservation Lands

There are 46 conservation areas located within 15 miles of the MBWEA. These conservation areas are managed by a number of entities including the DEP, the Florida Forest Service (FFS), the FWC, the Southwest Florida Water Management District (SWFWMD), Manatee and Hillsborough counties, and the National Audubon Society. The BSFSP is directly adjacent to the MBWEA's southern border. There are no Florida Forever projects within 15 miles of the MBWEA.

The established conservation lands within a 15-mile radius of the MBWEA (Table 1, Figure 4) include lands managed by public and private entities that contribute to the conservation of natural and cultural resources within this region of Florida. Most of the conservation lands within the vicinity of the MBWEA 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 by a private landowner while a public agency or not-for-profit organization holds a conservation easement and monitoring responsibility for the land. Other areas are simply owned by the private landowner, while public agencies or not-for-profit organizations manage the land.

Table 1: Conservation Lands Within 15 Miles of the MBWEA

State of Florida	**Managing Agency**
Alafia River State Park	DEP – DRP
Altman Tract Conservation Easement	DEP – WRM
Becker – South Fork State Park	DEP – DRP
Bullfrog Creek Wildlife and Environmental Area	FWC
Cockroach Bay Preserve State Park	DEP – DRP
Four Corners Conservation Easement	DEP – WRM
Lake Manatee State Park	DEP – DRP
Little Manatee River State Park	DEP – DRP
Manson Jenkins Conservation Easement	DEP – WRM
South Prong Alafia River	DEP – WRM
Wingate Creek State Park	DEP – DRP
County	**Managing Agency**
Alafia River Corridor	Hillsborough County
Apollo Beach Nature Preserve	Hillsborough County
Bahia Beach Coastal Restoration	Hillsborough County
Balm-Boyette Scrub	Hillsborough County
Bell Creek Preserve	Hillsborough County
Bullfrog Creek Scrub Preserve	Hillsborough County
Cockroach Bay	Hillsborough County
Cockroach Creek Greenway	Hillsborough County
Devil's Elbow Preserve	Manatee County
Doyle Campbell Memorial Park	Hillsborough County
Duette Preserve	Manatee County
E. G. Simmons Park	Hillsborough County

Table 1: Conservation Lands Within 15 Miles of the MBWEA

Ekker Preserve	Hillsborough County
Fish Hawk Creek Preserve	Hillsborough County
Fred and Ida Schultz Preserve	Hillsborough County
Golden Aster Scrub Nature Preserve	Hillsborough County
Headwaters at Duette Preserve	Manatee County
Hidden Harbor Riparian Conservation Area	Manatee County
Kitchen Preserve	Hillsborough County
Little Manatee River Corridor	Hillsborough County
Rhodine Scrub	Hillsborough County
Rye Preserve	Manatee County
Triple Creek Nature Preserve	Hillsborough County
Twin Rivers Preserve at Gamble Creek	Manatee County
Upper Little Manatee River	Hillsborough County
Wolf Branch	Hillsborough County
Water Management District	**Managing Agency**
Edward Chance Reserve	SWFWMD
Lake Manatee Lower Watershed Conservation Easement	SWFWMD
Little Manatee River Conservation Area	SWFWMD
Tampa Bay Estuarine Ecosystem	SWFWMD
Upper Myakka River Watershed	SWFWMD
Other Conservation Lands	**Managing Agency**
Florida Coastal Islands Sanctuaries	National Audubon Society
Myron and Helen Gibbons Nature Preserve	Tampa Bay Conservancy
Tampa Bay Mitigation Bank	Tampa Bay Mitigation
Well Field Scrub-jay Habitat	Mosaic Fertilizer

1.8 Adjacent Land Uses

As listed in the Manatee County Comprehensive Land Use Plan, the lands within the MBWEA are currently designated for conservation. The parcels around the MBWEA are zoned as agricultural, which allows agricultural and light residential use of the area. The lands within the MBWEA have the future land use designation of conservation lands. Potential uses for conservation lands include passive nature parks and green space, and limited agricultural activities and accessory structures. The privately-owned lands surrounding the MBWEA are designated as "Agriculture/Rural," which include potential agricultural, light residential, mining, and recreational uses, as well as commercial and professional services that support these potential uses.

The U.S. Census Bureau estimates that there were 357,591 people living in Manatee County in 2016. The Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that by 2030, there will be 447,218 people living in the county. Population projections for the counties surrounding Manatee County for the year

2030 according to BEBR are as follows: Desoto County – 36,919; Hardee County – 28,100; Hillsborough County – 1,710,182; Sarasota County – 453,858.

Based on the current zoning and future land use designations in the vicinity of the MBWEA, and assuming those designations remain the same, significant development of the lands adjacent to the area during this ten-year planning period appears unlikely.

1.9 Public Involvement

The FWC conducted a MAG meeting in Bradenton, Florida on February 1, 2017 to obtain input from both public and private stakeholders regarding management of the MBWEA. Results of this meeting were used by 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), FS, was held in Bradenton on March 14, 2017, to solicit input and comment from the general public regarding this Management Plan. The report of that hearing is also contained in Appendix 12.3. A website is also maintained for receipt of public input at http://myfwc.com/conservation/terrestrial/management-plans/develop-mps/ . Further testimony and input may be 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.

2 Natural and Historical Resources

2.1 Physiography

2.1.1 Climate

Like much of Florida, Manatee County experiences a humid, subtropical climate. The mean average temperatures in the city of Bradenton ranged from 61.5˚F to 83.1˚F. January has a mean minimum temperature of 51.8˚F, while July and August have a mean maximum temperature of 90.9˚F. Average total annual precipitation between 1981 and 2010 was 56.2 inches. Almost two-thirds of the area's annual rainfall occurs from June to September. Fall, winter, and spring are normally drier seasons, with precipitation averaging less than three inches per month.

2.1.2 Topography

The MBWEA is located in the southern edge of the Polk Uplands physiographic province where the Polk Uplands merge with the Desoto Plain physiographic province. The Polk Uplands are characterized by elevations that generally range between 100 and 130 feet above mean sea level. The elevation of the MBWEA ranges from 95 feet at the location where Moody Branch crosses the southern boundary of the area, to 130 feet along a small ridge near the center of the area.

2.1.3 Soils

The United States Department of Agriculture's Natural Resources Conservation Service (NRCS) data were used to identify the MBWEA's soil types and soil depth to water table. Fourteen soil types described in the soil survey of the MBWEA are distributed as shown in Figure 5. The primary soil types found on the area include Duette fine sand (17.6% of the area), Pomello fine sand (16.2%), Waveland fine sand (11%), and St. Johns fine sand (9%). Analysis of the depth to water table for soils units occurring within the MBWEA 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 survey." Soil map units may contain multiple soil components, which are given names that are unique identifiers. Soil series descriptions may be found in Appendix 12.4.

2.1.4 Geologic Conditions

The geology of the MBWEA consists of one major formation at the surface according to the geologic map of the State of Florida. This formation is known as Undifferentiated Quaternary Sediments of the Pleisto-Holocene age. These sediments are light gray, tan, brown, or black; unconsolidated or poorly consolidated; sometimes clayey and/or silty; and contain variably organic-bearing sands. The sediments can also be blue green to olive green, poorly to moderately consolidated, sandy, silty clays.

2.2 Vegetation

The MBWEA is situated between the Little Manatee River and the South Fork of the Little Manatee River in a region that is characterized by a vast landscape of pastures, row crop fields, and orange groves. The FWC has completed natural and anthropogenic community mapping of the MBWEA through the services of the Florida Natural Areas Inventory (FNAI). Through this work, FNAI has identified and mapped a total of 11 plant communities, seven imperiled plant species, and nine exotic/invasive plant species within the MBWEA.

The plant communities located on the MBWEA are listed in Table 2 and shown in Figure 7. These communities are described in Section 2.2.1. Native and rare plant species known to occur on the MBWEA are listed in Tables 3 and 4, respectively. Table 5 lists the exotic/invasive plant species found on the area and the Florida Exotic Pest Plant Council (FLEPPC) category for each species.

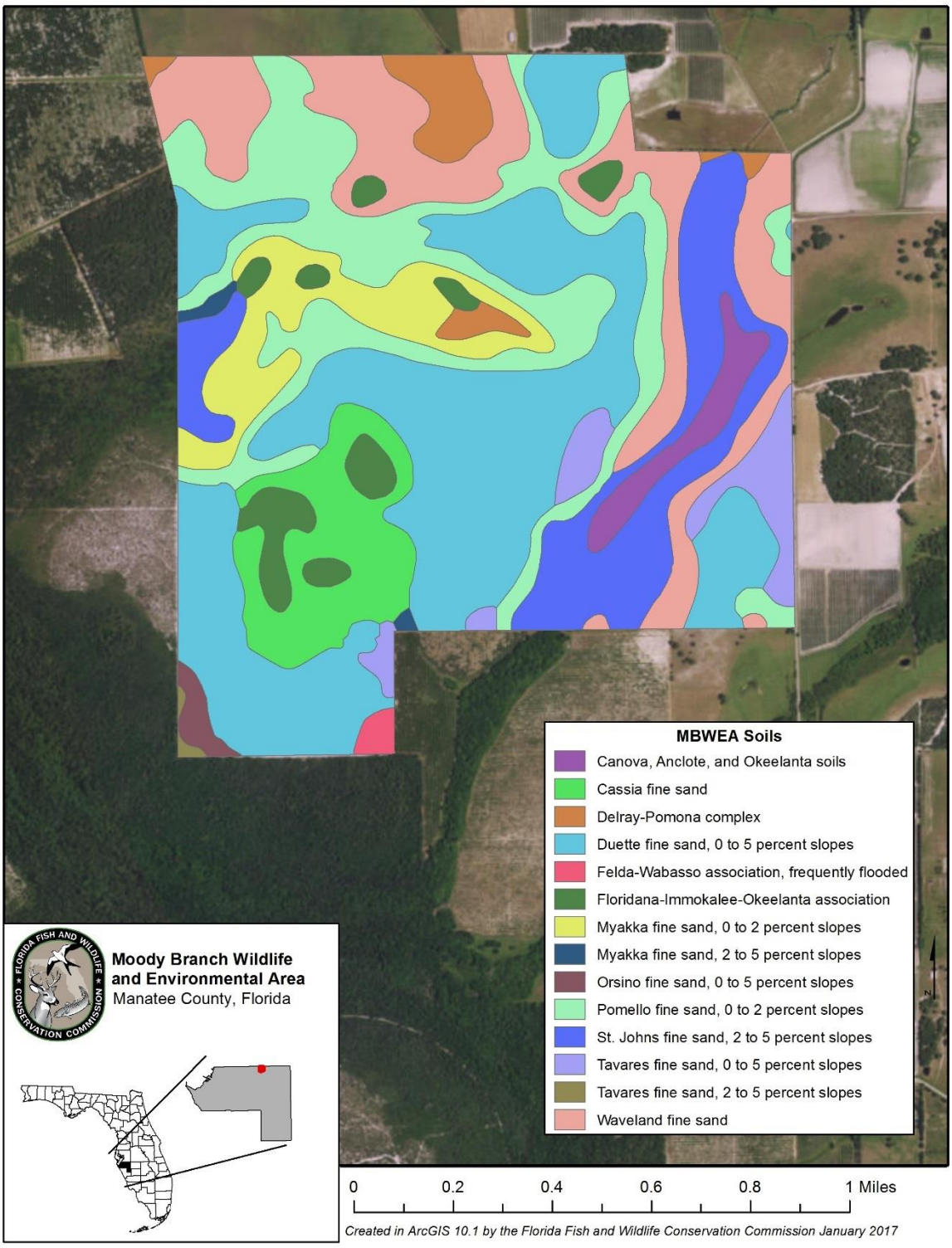


Figure 5: Soils Found at the MBWEA

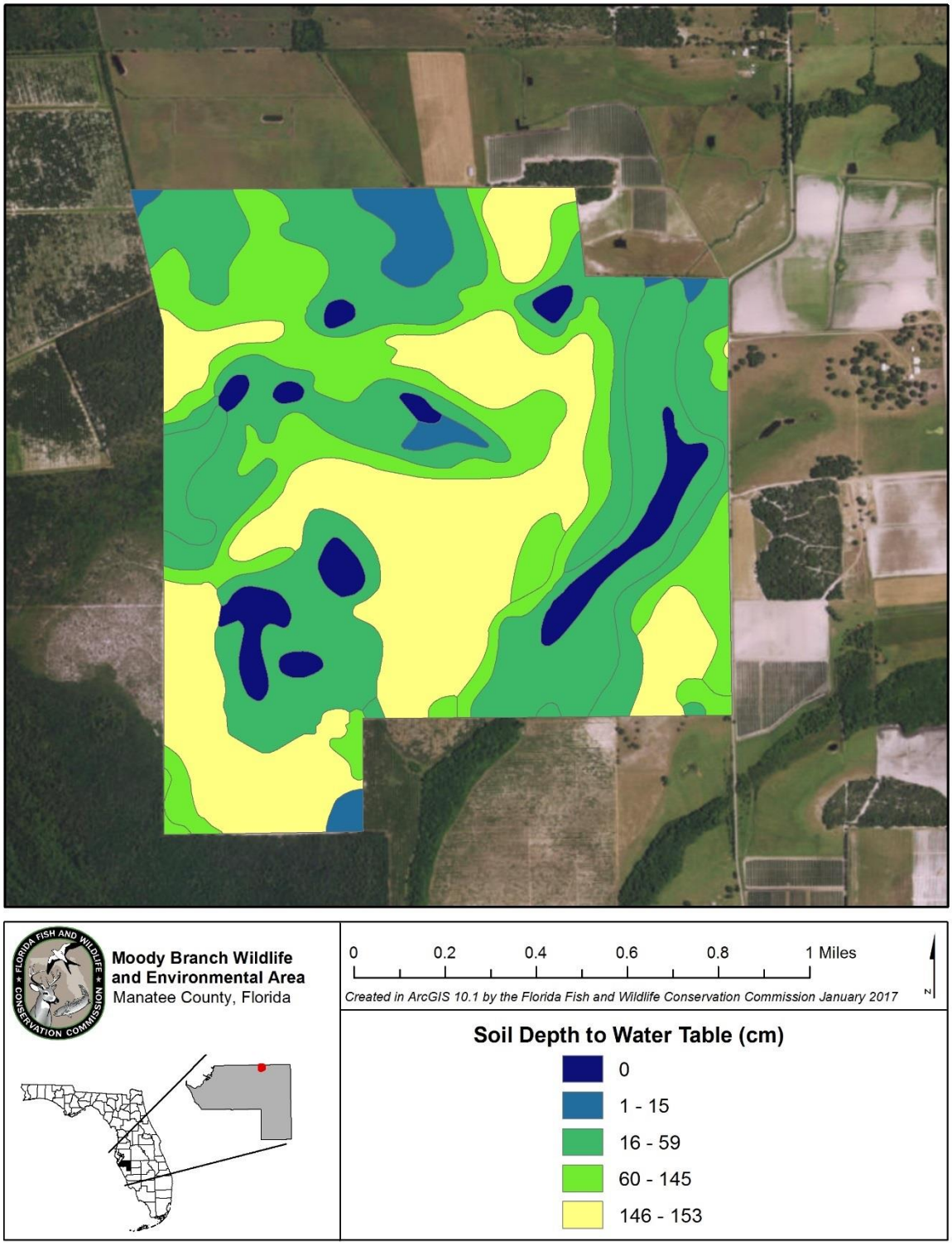


Figure 6: MBWEA Soil Depth to the Water Table

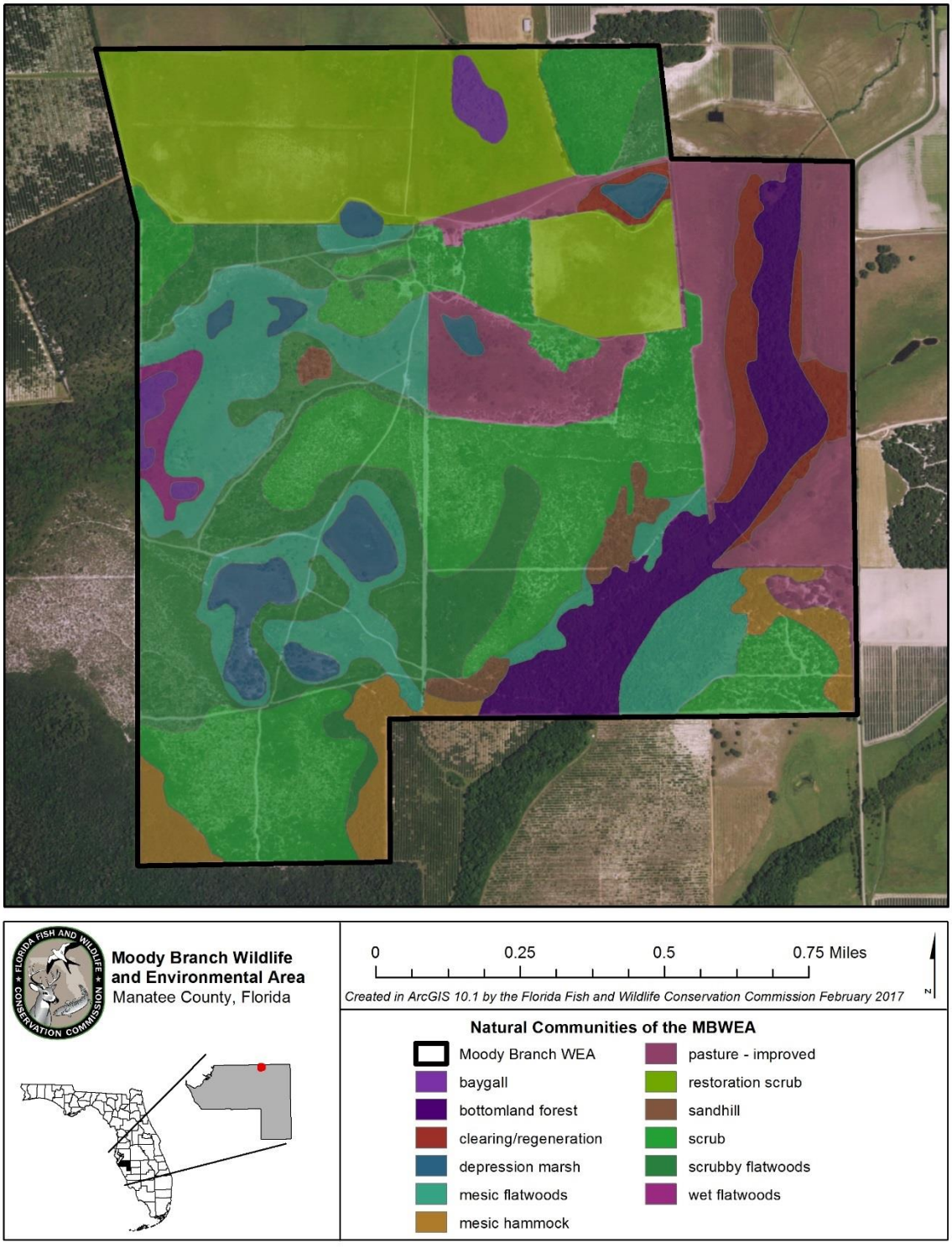


Figure 7: Plant Communities Found at the MBWEA

Table 2: FNAI Mapped Natural Communities of the MBWEA

Community Type	GIS Acres	Percentage*
Baygall	10.07	1.05%
Depression Marsh	33.70	3.51%
Floodplain Forest	47.04	4.90%
Mesic Flatwoods	141.24	14.73%
Mesic Hammock	11.32	1.18%
Pasture - Improved	106.04	11.06%
Restoration Scrub	166.39	17.35%
Ruderal	43.41	4.53%
Sandhill	13.30	1.39%
Scrub	249.14	25.98%
Scrubby Flatwoods	129.29	13.48%
Wet Flatwoods	8.12	0.85%

*Percentage based on total FNAI mapped acres

Table 3: Native Plant Species Documented at the MBWEA

Common Name	Scientific Name
American beautyberry	*Callicarpa americana*
Atlantic St. John's wort	*Hypericum reductum*
Beaksedge	*Rhynchospora* sp.
Beggarticks	*Bidens alba* var. *radiata*
Blackroot	*Pterocaulon pycnostachyum*
Blue maidencane	*Amphicarpum muhlenbergianum*
Bottlebrush threeawn	*Aristida spiciformis*
Bracken fern	*Pteridium aquilinum*
Broomsedge bluestem	*Andropogon virginicus*
Carolina redroot	*Lachnanthes caroliana*
Cat greenbrier	*Smilax glauca*
Chapman's oak	*Quercus chapmanii*
Cinnamon fern	*Osmunda cinnamomea*
Coastalplain chaffhead	*Carphephorus corymbosus*
Coastalplain staggerbush	*Lyonia fruticosa*
Combleaf mermaidweed	*Proserpinaca pectinata*
Crown grass	*Paspalum* sp.
Cupscale grass	*Sacciolepis* sp.
Dahoon	*Ilex cassine*
Dogfennel	*Eupatorium capillifolium*
Dotted smartweed	*Polygonum punctatum*
Dwarf huckleberry	*Gaylussacia dumosa*
Dwarf live oak	*Quercus minima*
Dwarf wax myrtle	*Myrica cerifera* var. *pumila*

Table 3: Native Plant Species Documented at the MBWEA

Common Name	Scientific Name
Earleaf greenbrier	*Smilax auriculata*
Eastern poison ivy	*Toxicodendron radicans*
Fascicled beaksedge	*Rhynchospora fascicularis*
Feay's palafox	*Palafoxia feayi*
Fetterbush	*Lyonia lucida*
Flatsedge	*Cyperus* sp.
Florida goldenaster	*Chrysopsis floridana*
Florida rosemary	*Ceratiola ericoides*
Florida wild indigo	*Baptisia calycosa*
Forked bluecurls	*Trichostema dichotomum*
Fourpetal St. John's wort	*Hypericum tetrapetalum*
Gallberry	*Ilex glabra*
Garberia	*Garberia heterophylla*
Goldenclub	*Orontium aquaticum*
Gopher apple	*Licania michauxii*
Grassy arrowhead	*Sagittaria graminea*
Greenbrier	*Smilax* sp.
Groundsel tree	*Baccharis halimifolia*
Hairsedge	*Bulbostylis* sp.
Highbush blueberry	*Vaccinium corymbosum*
Hog plum	*Ximenia americana*
Hottentot fern	*Thelypteris interrupta*
Laurel greenbrier	*Smilax laurifolia*
Laurel oak	*Quercus laurifolia*
Little bluestem	*Schizachyrium scoparium*
Live oak	*Quercus virginiana*
Lizard's tail	*Saururus cernuus*
Loblolly bay	*Gordonia lasianthus*
Longhorn false rein orchid	*Habenaria quinqueseta*
Longleaf pine	*Pinus palustris*
Lopsided indiangrass	*Sorghastrum secundum*
Love grass	*Eragrostis* sp.
Maidencane	*Panicum hemitomon*
Meadow beauty	*Rhexia* sp.
Milk pea	*Galactia* sp.
Muscadine	*Vitis rotundifolia*
Myrtle oak	*Quercus myrtifolia*
Narrowleaf silkgrass	*Pityopsis graminifolia*
Netted chain fern	*Woodwardia areolata*
Netted pawpaw	*Asimina reticulata*
Panic grass	*Panicum* sp.

Table 3: Native Plant Species Documented at the MBWEA

Common Name	Scientific Name
Peelbark St. John's wort	*Hypericum fasciculatum*
Piedmont staggerbush	*Lyonia mariana*
Pinebarren frostweed	*Helianthemum corymbosum*
Pinebarren goldenrod	*Solidago fistulosa*
Pineywoods dropseed	*Sporobolus junceus*
Pink sundew	*Drosera capillaris*
Pinweed	*Lechea* sp.
Possumhaw	*Viburnum nudum*
Pricklypear	*Opuntia humifusa*
Red maple	*Acer rubrum*
Resurrection fern	*Pleopeltis polypodioides* var. *michauxiana*
Rice cutgrass	*Leersia oryzoides*
Royal fern	*Osmunda regalis* var. *spectabilis*
Rush	*Juncus* sp.
Sand blackberry	*Rubus cuneifolius*
Sand holly	*Ilex ambigua*
Sand live oak	*Quercus geminata*
Sand pine	*Pinus clausa*
Sand spikemoss	*Selaginella arenicola*
Sandyfield beaksedge	*Rhynchospora megalocarpa*
Saw palmetto	*Serenoa repens*
Scrub Pinweed	*Lechea cernua*
Shiny blueberry	*Vaccinium myrsinites*
Shortleaf gayfeather	*Liatris tenuifolia*
Shortspike bluestem	*Andropogon brachystachyus*
Slender flattop goldenrod	*Euthamia caroliniana*
Small-leaf viburnum	*Viburnum obovatum*
Soft rush	*Juncus effusus* subsp. *solutus*
South Florida slash pine	*Pinus elliottii* var. *densa*
Southern needleleaf	*Tillandsia setacea*
Spanish moss	*Tillandsia usneoides*
Sugarcane plumegrass	*Saccharum giganteum*
Swamp azalea	*Rhododendron viscosum*
Swamp bay	*Persea palustris*
Swamp smartweed	*Polygonum hydropiperoides*
Sweetbay	*Magnolia virginiana*
Sweetgum	*Liquidambar styraciflua*
Tall elephantsfoot	*Elephantopus elatus*
Tarflower	*Bejaria racemosa*
Turkey oak	*Quercus laevis*
Turkey tangle frog fruit	*Phyla nodiflora*

Table 3: Native Plant Species Documented at the MBWEA

Common Name	Scientific Name
Vanillaleaf	*Carphephorus odoratissimus*
Virginia buttonweed	*Diodia virginiana*
Virginia chain fern	*Woodwardia virginica*
Virginia creeper	*Parthenocissus quinquefolia*
Virginia willow	*Itea virginica*
Wax myrtle	*Myrica cerifera*
Whitehead bogbutton	*Lachnocaulon anceps*
Whitetop aster	*Sericocarpus tortifolius*
Wild olive	*Osmanthus americanus*
Wild pennyroyal	*Piloblephis rigida*
Winged sumac	*Rhus copallinum*
Wiregrass	*Aristida stricta* var. *beyrichiana*
Witch grass	*Dichanthelium* sp.
Yellow-flowered butterwort	*Pinguicula lutea*
Yellow jessamine	*Gelsemium sempervirens*
Yellow milkwort	*Polygala rugelii*

Table 4: Imperiled Plant Species Documented at the MBWEA

Common Name	Scientific Name	Status
Florida goldenaster	*Chrysopsis floridana*	SE
Florida perforate cladonia	*Cladonia perforata*	SE
Florida wild indigo	*Baptisia calycosa*	SE
Garberia	*Garberia heterophylla*	ST
Scrub Pinweed	*Lechea cernua*	ST

Status abbreviations: ST = State Threatened, SE = State Endangered

Table 5: Exotic/Invasive Plant Species Documented at the MBWEA

Common Name	Scientific Name	Category
Asian sword fern	*Nephrolepis multiflora*	I
Bahiagrass	*Paspalum notatum*	
Caesar's weed	*Urena lobata*	II
Cogon grass	*Imperata cylindrica*	I
Guinea grass	*Panicum maximum*	I
Natal grass	*Rhynchelytrum repens*	I
Peruvian primrosewillow	*Ludwigia peruviana*	
Smooth rattlebox	*Crotalaria pallida* var. *obovata*	
Smutgrass	*Sporobolus indicus*	
Tropical Mexican clover	*Richardia brasiliensis*	

2.2.1 FNAI Natural Community Descriptions

2.2.1.1 Baygall (~10.07 acres)

Baygall is characterized by dense stands of evergreen trees and shrubs that occur in depressions or seepage areas where groundwater is at or near the surface for long periods of time. Although most baygalls are small in acreage, some form large, mature forests. Soils are generally composed of peat, with seepage from uplands, rainfall, and capillary action from adjacent wetlands maintaining a saturated substrate. Baygall typically develops at the bases of slopes, edges of floodplains, in depressions, and in stagnant drainages. Generally influenced by flowing water, baygall is often drained by small blackwater streams.

Dense evergreen trees dominate the baygall communities of MBWEA and include sweetbay and live oak in the canopy and loblolly bay, sweetbay, and swamp bay in the subcanopy. Red maple occurs in the canopy as well. The variable and often thick tall shrub layer includes red maple, gallberry, Virginia willow, fetterbush, sweetbay, swamp bay, live oak, swamp azalea, highbush blueberry, shiny blueberry, possumhaw, and small-leaf viburnum. Shorter shrubs are less common and include Virginia willow, live oak, saw palmetto, and possumhaw. Herbaceous plants in this community are infrequent and fern dominated. Species include longhorn false rein orchid, cinnamon fern, royal fern, and Virginia chain fern. Vines include Virginia creeper, cat greenbrier, laurel greenbrier, eastern poison ivy, and muscadine. Vines are typically very common especially around the perimeter of the community. No rare or invasive exotic plants were observed in this community.

Historically this community would not have been present at the MBWEA. Due to fire exclusion and woody encroachment, this community has established in areas that were historically wet flatwoods. These wet flatwood would have been dominated by widely spaced longleaf pines with a groundcover dominated by hydrophytic herb species, primarily wiregrass.

2.2.1.2 Depression Marsh (~33.70 acres)

Depression marsh, a herbaceous wetland community found in low flatlands, forms the characteristic pockmarked landscape seen on aerial photographs of the flat landscapes of the Florida peninsula. Depression marsh is usually characterized as a shallow, rounded depression in sand substrate with herbaceous vegetation and shrubs, often in concentric bands. These marshes also frequently form an outer rim around swamp communities such as dome swamps. They form when the overlying sands slump into depressions dissolved in underlying limestone. Depression marshes often burn with the surrounding landscape, and are seasonally inundated. Depression marshes typically occur in landscapes occupied by fire-maintained natural communities such as mesic flatwoods, dry prairie, or sandhill.

At the MBWEA, the shrub layer of depression marshes is typically very sparse and is only present in the outer edges of these communities. Peelbark St. John's wort, groundsel tree,

wax myrtle and Piedmont staggerbush are commonly observed shrub species. The herbaceous layer is dense and species rich. Dominant species include blue maidencane, shortspike bluestem, broomsedge bluestem, Virginia buttonweed, dogfennel, soft rush, Carolina redroot, rice cutgrass, Peruvian primrosewillow, maidencane, panic grass, crown grass, turkey tangle frog fruit, swamp smartweed, dotted smartweed, combleaf mermaidweed, fascicled beaksedge, sugarcane plumegrass, cupscale grass, grassy arrowhead, and Virginia chain fern. No rare or invasive exotic plants were observed in this community.

Disturbances in this community at the MBWEA include hog damage, fire exclusion, woody encroachment, firebreaks, and former cattle disturbance. Despite the high number of disturbances, these depression marsh on MBWEA is fairly high quality. Repeated growing season fires will maintain the depression marsh community in good condition.

2.2.1.3 Floodplain Forest (~47.04 acres)

Floodplain forests, sometimes referred to as bottomland forests, occur within floodplains and swamps on higher ground that is rarely inundated except during unusual flood events. Found in areas intermediate between swamps and uplands, the canopy may be quite diverse with both deciduous and evergreen hydrophytic to mesophytic trees. Floodplain forest is a closed-canopy forest found on terraces and levees within riverine floodplains and in shallow depressions. Floodplain forests along smaller streams are prone to periodic flooding attributable to localized rainfall that increases seepage and runoff from surrounding uplands. In floodplains along larger rivers and tributaries, bottomland forests on higher terraces, ridges, and levees are subject to only short seasonal floods due to high relief or quickly drained sandy soils, or both conditions. The water table in these forests is high in blackwater or spring-fed floodplains, but relatively low during dry periods in alluvial floodplains. Inundation occurs only during higher floods, regardless of the stream type.

The primary canopy components of floodplain forest at the MBWEA include sweetbay, longleaf pine, and water oak. In the subcanopy layer are sweetgum, sweetbay, swamp bay, and water oak. Both of these strata are of a young age class and are poorly developed with a partially closed canopy. The moderate shrub layer includes dahoon, Virginia willow, wax myrtle, swamp bay, water oak, swamp azalea, and saw palmetto. Floodplain forest herbs include goldenclub, cinnamon fern, lizard's tail, hottentot fern, and netted chain fern. Vines include earleaf greenbrier, laurel greenbrier, and muscadine. The strata of this community are not very well developed or diverse. No rare or invasive exotic species were documented in this community.

Historically this community occupied a narrow linear area along Moody Branch in the easternmost area of the MBWEA. This community appears to be not very well defined or formed on the historic aerial photography. Fires undoubtedly carried through this area and limited canopy development and species composition. Due to fire exclusion and woody encroachment, this community has been allowed to expand in size and displace areas that were historically mesic flatwoods.

2.2.1.4 Mesic Flatwoods (~141.24 acres)

Mesic flatwoods are the most widespread natural community in Florida, covering the flat sandy terraces left behind by former high sea levels. Mesic flatwoods are characterized by an open canopy of tall pines and a dense, low ground layer of shrubs, grasses, and forbs. Longleaf pine is the principal canopy tree in northern and Central Florida, transitioning to predominately slash pine in south Florida. Soils are acidic, nutrient-poor, fine sands with upper layers darkened by organic matter. Drainage in this flat terrain can be impeded by a loosely cemented organic layer (spodic horizon) formed within several feet of the soil surface. The soils may be alternately xeric during dry periods, and saturated or even inundated after heavy rain events.

The widely scattered and mature canopy of the mesic flatwoods at the MBWEA includes South Florida slash pine, longleaf pine, and scattered water oak. The latter is also present in the subcanopy and tall shrub layers. Other tall shrubs include gallberry, coastalplain staggerbush, fetterbush, wax myrtle, swamp bay, sand live oak, and water oak. Short shrubs present within this community include netted pawpaw, Atlantic St. John's wort, fourpetal St. John's wort, gallberry, coastalplain staggerbush, fetterbush, wax myrtle, dwarf wax myrtle, swamp bay, sand live oak, water oak, winged sumac, and saw palmetto. Numerous grasses, including broomsedge bluestem, bottlebrush threeawn, wiregrass, witch grass, little bluestem and lopsided indiangrass, occur here. Herbs include complement pink sundew, whitehead bogbutton, cinnamon fern, bracken fern, fascicled beaksedge, sand blackberry, and Virginia chain fern. Vines include yellow jessamine, earleaf greenbrier, and muscadine. The overall quality of this community at the MBWEA is good. Some small areas of the mesic flatwoods have lacked fire, and encroaching hardwood species are evident.

Disturbances in this community include hog damage, fire exclusion, woody encroachment, former cattle disturbance, and exotic species. Cogon grass was documented within the mesic flatwoods community. Despite several sources of disturbance, this community is still in good condition.

2.2.1.5 Mesic Hammock (~11.32 acres)

Mesic hammock is a well-developed evergreen hardwood and/or palm forest, typically with a closed canopy of live oak. Mesic hammock may occur as "islands" on high ground within basin or floodplain wetlands, as patches of oak/palm forest in dry prairie or flatwoods communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were likely restricted to fire shadows, or other naturally fire-protected areas such as islands and peninsulas of lakes. Other landscape positions that can provide protection from the spread of fire are likely places for mesic hammock development, including edges of lakes, sinkholes, other depressional or basin wetlands, and river floodplains. Although mesic hammock is not generally considered a fire-adapted community, some small patches of hammock occurring as islands within marshes or prairies may experience occasional low-intensity ground fires. Mesic hammocks occur on well-drained sands mixed with organic matter and are rarely inundated. High moisture is maintained by heavy shading of the ground layer and accumulation of litter. Where limestone is near the surface, rocky outcrops are common in mesic hammocks.

At the MBWEA, the mesic hammock community is dominated by live oak overtopping a variable, but mostly shrubby, understory. Live oak occurs in the subcanopy and in the shrub layers where it is complemented by saw palmetto. The herb layer in mesic hammocks is often sparse. Here, both primary components – bahiagrass and Caesar's weed – are non-native species. Spanish moss is the sole epiphyte observed and vines are limited to earleaf greenbrier. The community classified as mesic hammock is essentially a pasture-like area dominated by live oak.

Historically this area of the MBWEA would have been scrub and scrubby flatwoods. The mesic hammock found on the area is an artifact of past disturbances.

2.2.1.6 Pasture – Improved (~106.04 acres)

Improved pastures have been cleared of their native vegetation. They are dominated by planted, non-native plant species, and they contain evidence of current or recent cultural activities such as mowing or grazing.

At the MBWEA, improved pastures are typically herbaceous dominated and lack both trees and shrubs. Dominant species include broomsedge bluestem, beggarticks, flatsedge, dogfennel, and crown grass, among other disturbance weeds.

Historically these areas would have been mesic flatwoods, wet flatwoods, depression marsh, scrub, and scrubby flatwoods. Cogon grass has been documented in this community, located in the eastern and central portions of the MBWEA.

2.2.1.7 Ruderal (~209.8 acres)

Ruderal sites display human disturbance and intervention, such as parking lots, buildings, roads, clearings, etc. These areas have little or no resemblance to the historic or surrounding natural plant communities. Plants common to these areas typically favor disturbed soils and are often represented by non-indigenous and invasive species.

Shrubs and vines found in the MBWEA's ruderal areas include groundsel tree, fetterbush, sand live oak, saw palmetto, and muscadine. Soils are often disturbed in ruderal areas, a factor which can encourage colonization by weedy and non-native plant species. Examples present include cogon grass, Peruvian primrosewillow, bahiagrass, smutgrass, and Caesar's weed. Other herbaceous plants include shortspike bluestem, bluestem, wiregrass, smooth rattlebox, witch grass, dogfennel, slender flattop goldenrod, shortleaf gayfeather, yellow milkwort, meadow beauty, beaksedge, tropical Mexican clover, little bluestem, pinebarren goldenrod, and Virginia chain fern. Ruderal areas contain numerous invasive exotic species. Ruderal types identified on the MBWEA include clearing, clearcut/early regeneration, and developed property. The MBWEA's ruderal areas are located on historic mesic flatwoods, scrub, scrubby flatwoods, and wet flatwoods.

2.2.1.8 Sandhill (~13.3 acres)

Sandhill occurs on rolling hills with deep, often yellowish, well-drained sands. These are open, xeric communities dominated by widely spaced longleaf pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. The midstory trees and low shrubs can be sparse to dense, depending on fire history, and typically include turkey oak, bluejack oak, sand live oak, sand post oak, sparkleberry, dwarf huckleberry, pricklypear, and gopher apple. The diverse herbaceous groundcover is often dominated by wiregrass, with other grasses and herbs including pineywoods dropseed, lopsided indiangrass, and a variety of forbs with many species of legumes and asters.

At the MBWEA, the open sandhill canopy includes sand pine, longleaf pine, and turkey oak. In the subcanopy there is sand pine, laurel oak, and turkey oak. Tall shrubs include sand holly, sand pine, sand live oak, laurel oak, and turkey oak. Among the short shrubs are coastalplain staggerbush, scrub wild olive, Chapman's oak, laurel oak, turkey oak, myrtle oak, saw palmetto, shiny blueberry, and hog plum. The sparse, yet intact herbaceous layer includes bluestem, wiregrass, Florida wild indigo, coastalplain chaffhead, love grass, milk pea, shortleaf gayfeather, narrowleaf silkgrass, whitetop aster, lopsided indiangrass, and pineywoods dropseed. Sandhill at the MBWEA is typically found adjacent to scrubby flatwoods and scrub communities.

Fire exclusion and woody encroachment are evident in this community, but quality ground cover species still persist. This community occurs in small patches scattered throughout the property. One sandhill site in the south-central portion of the MBWEA has become invaded by woody scrub species. Past fire exclusion has allowed the scrub elements to invade and dominate this site.

Historically this community would have had few scattered turkey oaks topped by an open canopy of longleaf pine. The groundcover would have been diverse and dominated by wiregrass and a suite of other sandhill obligate species. The most diverse strata layer of this community is the herbaceous groundcover. The FWC's efforts to conduct prescribed burning on the area is helping to reduce shrub and woody encroachment and stimulate the groundcover species to produce seed and proliferate.

2.2.1.9 Scrub (~249.14 acres, plus 166.39 acres of restoration scrub)

Scrub is a community composed of evergreen, xerophytic shrubs, with or without a canopy of pines, and is found on dry, infertile, sandy ridges. Scrub communities dominated by a canopy of sand pine are usually found on the highest sandy ridgelines. The pine canopy may range from widely scattered trees with a short, spreading growth form, to tall thin trees forming a dense canopy of uniform height. Scrub is located on dry, infertile, sandy ridges which often mark the location of former shorelines.

The canopy and subcanopy of scrub at the MBWEA is open and composed of widely scattered trees. The canopy includes sand pine, South Florida slash pine, sand live oak, turkey oak, and live oak. The subcanopy consists of sand pine, Chapman's oak, sand live oak, and live oak. Tall shrubs are typically greater than 15 feet in height and occur in dense thickets. Common tall shrubs include scrub wild olive, sand pine, Chapman's oak, sand live oak, myrtle oak, live oak, winged sumac, and saw palmetto. Short shrubs dominate areas were tall shrubs do not occur and include netted pawpaw, Florida rosemary, garberia, fourpetal St. John's wort, sand holly, gopher apple, fetterbush, wax myrtle, pricklypear, scrub wild olive, wild pennyroyal, sand pine, Chapman's oak, sand live oak, turkey oak, myrtle oak, live oak, winged sumac, saw palmetto, and hog plum. The very sparse herbaceous layer includes bluestem, wiregrass, vanillaleaf, the rare Florida goldenaster, flatsedge, tick trefoil, slender flattop goldenrod, milk pea, pinweed, shortleaf gayfeather, Asian sword fern, Feay's palafox, bahiagrass,

narrowleaf silkgrass, resurrection fern, blackroot, sandyfield beaksedge, and beak sedge. Epiphytes present are southern needleleaf and Spanish moss. Vines include milk pea, greenbrier, and muscadine.

Major disturbances in the scrub at the MBWEA include fire exclusion and woody encroachment. Forestry operations, firebreaks, ORV trails, clearing, and past cattle disturbances are also evident, but to a lesser degree. The FWC has conducted restoration activities on 166 acres of the most heavily disturbed portions of the MBWEA. However, these areas have not yet returned to a desired state, and are therefore classified as restoration scrub. One area of scrub contains the globally imperiled Florida Goldenaster. This species needs exposed, xeric, sandy soils of scrub and scrubby flatwoods to persist. As the FWC continues prescribed burning within the scrub of the MBWEA, this species will benefit by having more habitat for its establishment.

2.2.1.10 Scrubby Flatwoods (~129.29 acres)

Scrubby flatwoods have an open canopy of widely spaced pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand. Principal canopy species are longleaf pine and slash pine in northern and Central Florida. The shrub layer consists of oak species and shrubs typical of mesic flatwoods, as well as grasses and dwarf varieties of other shrubs. Scrubby flatwoods occur on slight rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods. Soils of scrubby flatwoods are moderately well-drained sands with or without an organic layer (spodic horizon).

At the MBWEA, scrubby flatwoods occur in association with the mesic flatwoods and scrub communities on the area. The MBWEA's scrubby flatwoods show evidence of woody encroachment and past fire exclusion. Canopy and subcanopy species are scattered to dense, and include sand pine, longleaf pine, and live oak. The dense and variable tall shrub layer includes coastalplain staggerbush, Chapman's oak, sand live oak, and myrtle oak. Short shrubs include tarflower, dwarf huckleberry, Atlantic St. John's wort, gopher apple, coastalplain staggerbush, fetterbush, scrub wild olive, Chapman's oak, sand live oak, myrtle oak, live oak, saw palmetto, and hog plum. The herbaceous layer varies from well-developed to non-existent and includes broomsedge bluestem, wiregrass, hairsedge, coastalplain chaffhead, pinebarren frostweed, shortleaf gayfeather, Feay's palafox, narrowleaf silkgrass, resurrection fern, little bluestem, lopsided indiangrass, pineywoods dropseed, whitetop aster and forked bluecurls.

Caesar's weed is found infrequently within this community, typically in areas that are adjacent to disturbances. Major disturbances in the scrubby flatwoods at the MBWEA include fire exclusion and woody encroachment. Forestry operations, firebreaks, ORV trails, clearing, and past cattle disturbances are also evident, but to a lesser degree. One area of scrubby flatwoods contains the globally imperiled Florida Goldenaster. This species

needs exposed, xeric, sandy soils of scrub and scrubby flatwoods to persist. Prescribed fire within the scrubby flatwoods of the MBWEA would benefit this species by providing more open areas for its establishment.

2.2.1.11 Wet Flatwoods (~8.12 acres)

Wet flatwoods occur in broad, low flatlands, often in a mosaic with these communities. They are found in the ecotones between mesic flatwoods, shrub bogs, wet prairies, dome swamps, or strand swamps. Wet flatwoods are pine forests with a sparse or absent midstory and a dense groundcover of hydrophytic grasses, herbs, and low shrubs. The relative density of shrubs and herbs varies greatly in wet flatwoods. Shrubs tend to dominate where fire has been absent for a long period or where cool season fires predominate; herbs are more abundant in locations that are frequently burned. Soils and hydrology also influence the relative density of shrubs and herbs. Soils of shrubby wet flatwoods are poorly to very poorly drained sands. These soils generally have a mucky texture in the uppermost horizon. Loamy sands are typical of soils in grassy wet flatwoods.

Wet flatwoods at the MBWEA primarily occur along the extreme western boundary of the area. Wet flatwoods also occur as small inclusions adjacent to depression marshes and mesic flatwoods. The one location of wet flatwoods large enough to be mapped is adjacent to an offsite depression marsh. The portion of this depression marsh that occurs on the property is less than half of an acre and was not mapped. This area is heavily disturbed by the boundary firebreak, baygall invasion, fire exclusion, ditching, and general soil disturbance.

The canopy and subcanopy includes South Florida slash pine and loblolly bay. The shrub layer is quite thick and includes swamp bay, wax myrtle, loblolly bay, gallberry, and saw palmetto. The herbaceous layer contains cinnamon fern, Virginia chain fern, fascicled beaksedge, and wiregrass. The high percentage of ferns in this community is the result of shading from swamp bay. Spanish moss was the only observed epiphyte and greenbrier was the only vine present.

Historically this community would have occurred as an upslope ecotone of the offsite depression marsh and would have been dominated by wire grass and other hydrophytic herbs. Trees would have consisted of widely spaced South Florida slash pines with a minimal shrub layer comprising a low percent cover. Herbaceous groundcover would have been the key component of this area. Prescribed fire is needed in this community to reduce the baygall encroachment.

2.2.2 Forest Resources

As described in detail above, the MBWEA contains several natural communities containing timber resources, including scrub, scrubby flatwoods, mesic flatwoods, and floodplain forest. Most of the area has experienced timber harvesting in the past. Currently, the FWC is

working to restore the natural communities of the area with timber thinning, planting, prescribed burning, and other forest maintenance management actions.

The FFS will complete a FWC Timber Assessment for the MBWEA, which will be incorporated into Appendix 12.5 of this management plan upon completion. The FWC will continue to cooperate with the FFS on all actions that involve the timber resources of the MBWEA.

2.3 Fish and Wildlife Resources

As noted earlier, a diversity of wildlife species is found on the MBWEA. The FWC maintains an inventory of fauna that occurs on the area. These species include mammals (Table 6), birds (Table 7), reptiles and amphibians (Table 8), and non-native animals (Table 9).

Table 6: Mammal Species Observed at the MBWEA

Common Name	Scientific Name
Cotton mouse	*Peromyscus gossypinus gossypinus*
Coyote	*Canis latrans*
Eastern cottontail	*Sylvilagus floridanus*
Eastern mole	*Scalopus aquaticus*
Florida mouse	*Podomys floridanus*
Golden mouse	*Ochrotomys nutttalli*
Gray fox	*Urocyon cinereoargenteus*
Gray squirrel	*Sciurus carolinensis*
Oldfield mouse	*Peromyscus polionotus*
Raccoon	*Procyon lotor*
Sherman's fox squirrel	*Sciurus niger shermani*
Southeastern pocket gopher	*Geomys pinetis*
White-tailed deer	*Odocoileus virginianus*

Table 7: Bird Species Observed at the MBWEA

Common Name	Scientific Name
American redstart	*Setophaga ruticilla*
American robin	*Turdus migratorius*
Bachman's sparrow	*Aimophila aestivalis*
Barred owl	*Strix varia*
Blue grosbeak	*Passerina caerulea*
Blue jay	*Cyanocitta cristata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Blue-headed vireo	*Vireo solitarius*
Brown thrasher	*Toxostoma rufum*
Burrowing owl	*Athene cunicularia*

Table 7: Bird Species Observed at the MBWEA

Common Name	Scientific Name
Carolina wren	*Thryothorus ludovicianus*
Cattle egret	*Bubulcus ibis*
Chipping sparrow	*Spizella passerina*
Chuck-will's-widow	*Caprimulgus carolinensis*
Common ground-dove	*Columbina passerina*
Common nighthawk	*Chordeiles minor*
Common snipe	*Gallinago gallinago*
Common yellowthroat	*Geothlypis trichas*
Downy woodpecker	*Picoides pubescens*
Eastern meadowlark	*Sturnella magna*
Eastern phoebe	*Sayornis phoebe*
Eastern towhee	*Pipilo erythrophthalmus*
Fish crow	*Corvus ossifragus*
Florida sandhill crane	*Grus canadensis*
Florida scrub-jay	*Aphelocoma coerulescens*
Gray catbird	*Dumetella carolinensis*
Great blue heron	*Ardea herodias*
Great crested flycatcher	*Myiarchus crinitus*
Hairy woodpecker	*Picoides villosus*
House wren	*Troglodytes aedon*
Loggerhead shrike	*Lanius ludovicianus*
Mourning dove	*Zenaida macroura*
Northern bobwhite	*Colinus virginianus*
Northern cardinal	*Cardinalis*
Northern flicker	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Northern parula	*Parula americana*
Ovenbird	*Seiurus aurocapillus*
Palm warbler	*Dendroica palmarum*
Pileated woodpecker	*Dryocopus pileatus*
Pine warbler	*Dendroica pinus*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-eyed vireo	*Vireo olivaceus*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ruby-crowned kinglet	*Regulus calendula*
Southeastern American kestrel	*Falco sparverius paulus*
Southern bald eagle	*Haliaeetus leucocephalus*
Summer tanager	*Piranga rubra*

Table 7: Bird Species Observed at the MBWEA

Common Name	Scientific Name
Swallow-tailed kite	*Elanoides forficatus*
Tufted titmouse	*Parus bicolor*
White-eyed vireo	*Vireo griseus*
Wild turkey	*Meleagris gallopavo*
Wood duck	*Aix sponsa*
Wood stork	*Mycteria americana*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-billed cuckoo	*Coccyzus americanus*
Yellow-rumped warbler	*Dendroica coronata*

Table 8: Reptile and Amphibian Species Observed at the MBWEA

Common Name	Scientific Name
American alligator	*Alligator mississippiensis*
Barking treefrog	*Hyla gratiosa*
Eastern coachwhip	*Masticophis flagellum*
Eastern fence lizard	*Sceloporus undulatus*
Eastern indigo snake	*Drymarchon corais couperi*
Eastern narrowmouth toad	*Gastrophryne carolinensis*
Florida scrub lizard	*Sceloporus woodi*
Gopher frog	*Rana capito*
Gopher tortoise	*Gopherus polyphemus*
Green anole	*Anolis carolinensis*
Green treefrog	*Hyla cinerea*
Greenhouse frog	*Eleutherodactylus planirostris*
Oak toad	*Bufo quercicus*
Pinewoods treefrog	*Hyla femoralis*
Six-lined racerunner	*Cnemidophorus sexlineatus*
Southeastern five-lined skink	*Eumeces inexpectatus*
Southern black racer	*Coluber constrictor priapus*
Southern leopard frog	*Lithobates sphenocephalus*
Squirrel treefrog	*Hyla squirella*
Yellow-bellied slider	*Trachemys scripta scripta*
Yellow rat snake	*Elaphe obsoleta quadrivittata*

Table 9: Non-native Animal Species Observed at the MBWEA

Common Name	Scientific Name
Feral hog	*Sus scrofa*
Nine-banded armadillo	*Dasypus novemcinctus*

2.3.1 Integrated Wildlife Habitat Ranking System

The FWC has developed the Integrated Wildlife Habitat Ranking System (IWHRS) as a Geographic Information Systems (GIS)-based assessment tool that incorporates a wide variety of land cover and wildlife species data. The IWHRS evaluates the Florida landscape based upon the 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 IWHRS 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 IWHRS (2009) indicates that the MBWEA has a mean wildlife value of 5.3 (Figure 8).

2.3.2 Imperiled Species

Eight imperiled animal species have been documented at the MBWEA (Table 10). All abbreviations and status determinations were derived from *Florida's Endangered and Threated Species List* published by FWC in January 2017. The FWC maintains the state list of animals designated as Federally-designated endangered or threatened, State-designated threatened, or State-designated species of special concern, in accordance with Rules 68A-27.003, and 68A-27.005, respectively, FAC, http://www.flrules.org/Default.asp.

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 FWC, or that are designated as Endangered or Threatened by the U.S. Fish and Wildlife Service. This designation is also commonly known as "listed species."

On November 8, 2010, new threatened species rules approved by the FWC were implemented. All federally listed species that occur in Florida will now be included on Florida's list as federally-designated Endangered or federally-designated Threatened species. In addition, the state has implemented a listing process to identify species that are not federally listed, but that may be at risk of extinction. These species will be called state-designated Threatened. All previous state-designated imperiled species were grandfathered on the list and are currently undergoing status reviews. The FWC will continue to maintain a separate Species of Special Concern category until all the former imperiled species have been reviewed and those species are either determined to be state-designated Threatened or removed from the list.

Table 10: Rare and Imperiled Wildlife Species Observed at the MBWEA

Common Name	Scientific Name	Status
Birds		
Florida sandhill crane	*Grus canadensis pratensis*	ST
Florida scrub-jay	*Aphelocoma coerulescens*	FT
Southeastern American kestrel	*Falco sparverius paulus*	ST
Wood stork	*Mycteria americana*	FT
Mammals		
Sherman's fox squirrel	*Sciurus niger shermani*	SSC
Reptiles		
American alligator	*Alligator mississippiensis*	FT(S/A)
Eastern Indigo Snake	*Drymarchon couperi*	FT
Gopher tortoise	*Gopherus polyphemus*	ST

Status Abbreviations: ST = State Threatened, FT(S/A) = Federally Threatened (Due to similarity in appearance to another threatened species), SSC = Species of Special Concern

2.3.3 FWC Wildlife Observations and FNAI Element Occurrences

FNAI assigns a rank to each "element" occurrence, which is an exemplary or rare component of the natural environment. As defined by FNAI, an "element" is any exemplary or rare component of the natural environment such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological features. An element occurrence is a single extant habitat which sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element. This ranking system was developed by The Nature Conservancy (TNC) and the Natural Heritage Program Network based on the element's 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: www.fnai.org/ranks.cfm.

Known locations of FWC wildlife occurrences and FNAI element occurrences on the MBWEA from the most recent GIS databases of the respective agencies are displayed in Figure 9. Appendix 12.6 contains a letter from FNAI authorizing the FWC to utilize their database for the purpose of displaying known plant and animal resources.

2.4 Native Landscapes

As previously discussed, the landscape of the MBWEA is dominated by scrub and scrubby flatwoods. It is rare to find intact sandhill in this region of Florida, but a few small sandhills can be found on the MBWEA. The area also features floodplain forest along Moody Branch, mesic flatwoods, and a few depression marshes. All of the natural plant communities found at the MBWEA are described in detail in Section 2.2.1.

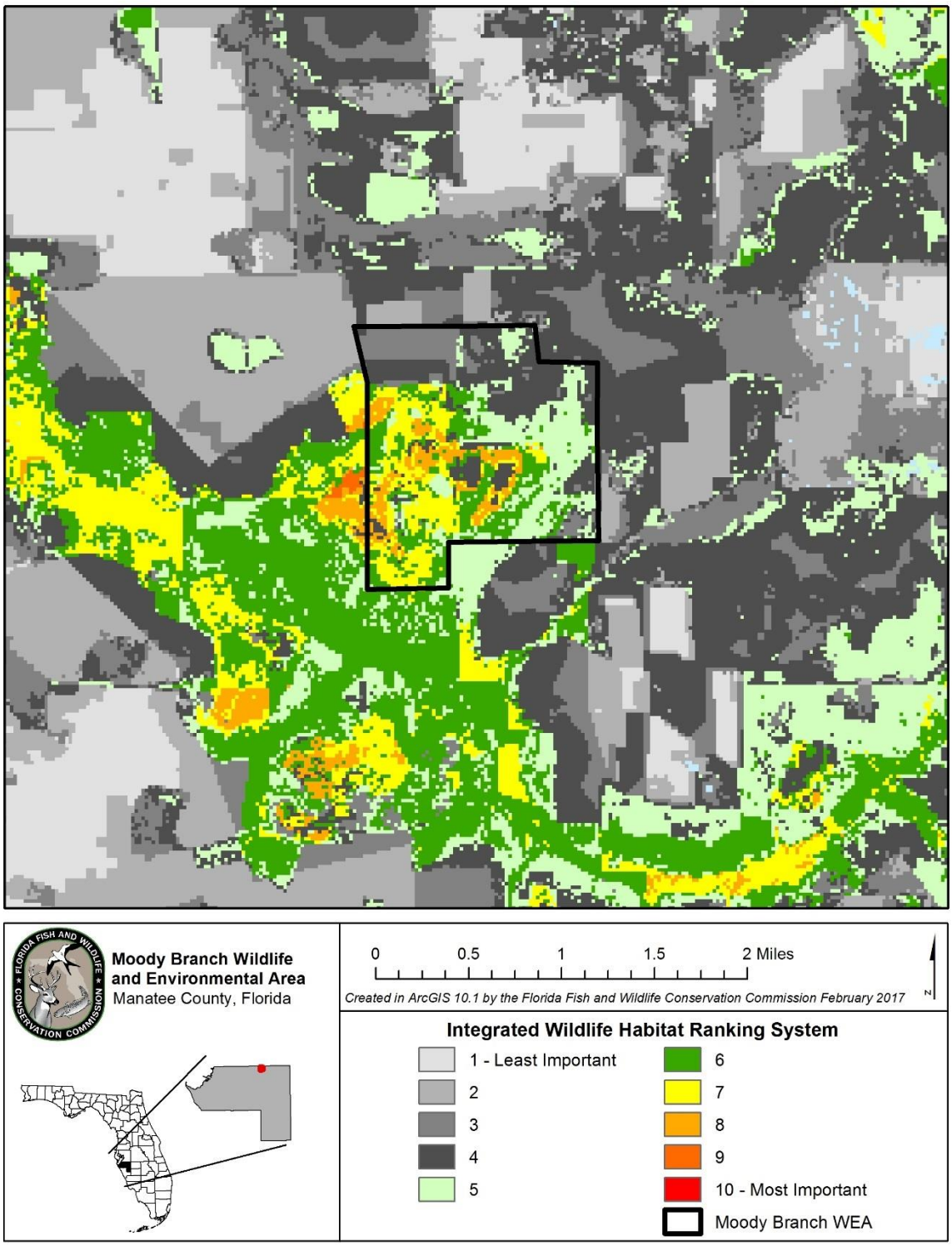


Figure 8: Integrated Wildlife Habitat Ranking System Values for the MBWEA

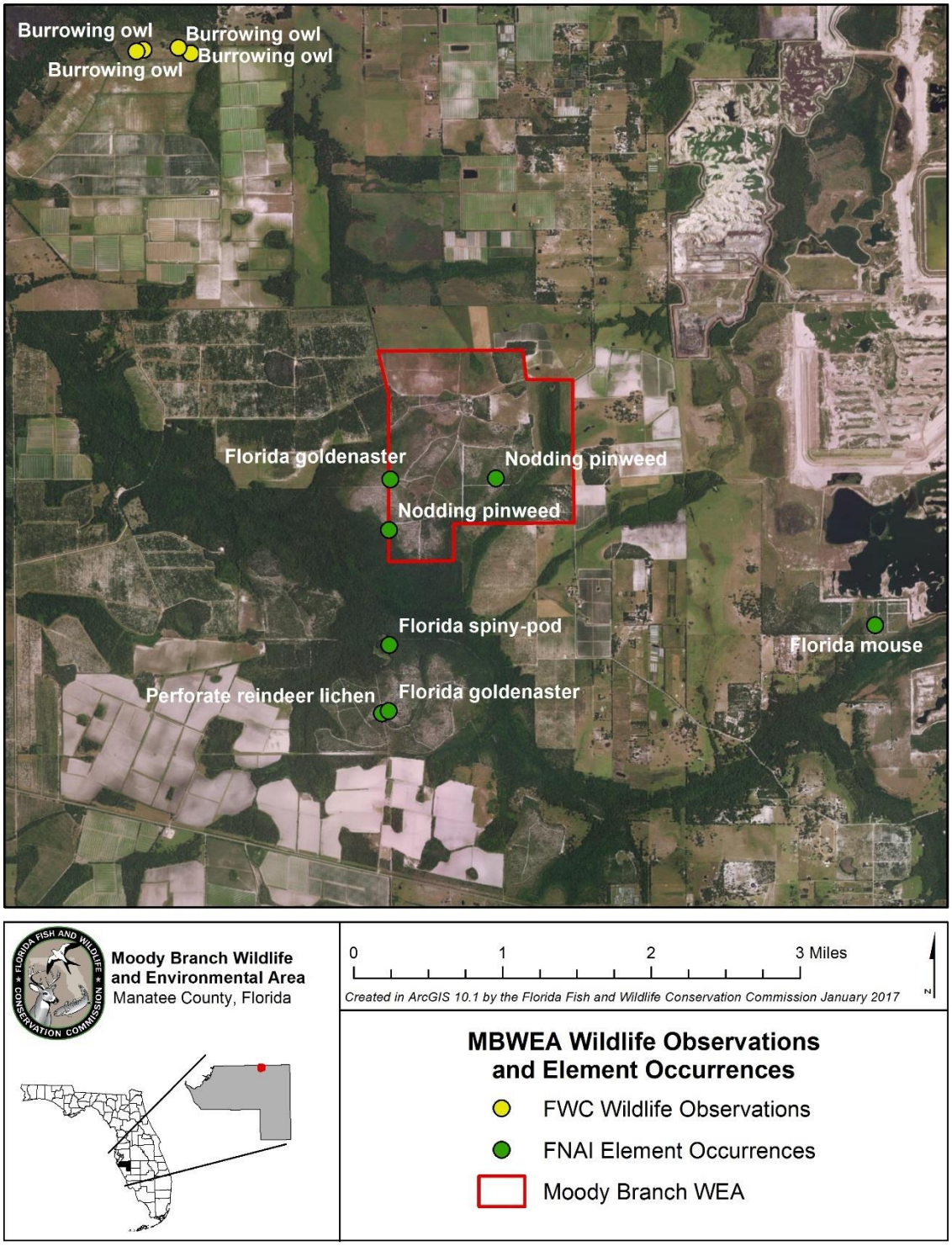


Figure 9: FWC Wildlife Observations and FNAI Element Occurrences

2.5 Water Resources

As discussed earlier, the MBWEA is named for Moody Branch, a small stream that runs from north to south through the eastern portion of the area. Moody Branch flows into the South Fork of the Little Manatee River, which flows through the BSFSP just south of the MBWEA. The South Fork joins the main branch of the Little Manatee River south of Wimauma before flowing into the Gulf of Mexico near Ruskin. More than half of the MBWEA drains to Moody Branch (Figure 10), but the southeast portion of the area drains directly to the South Fork of the Little Manatee River. The northern portion of the MBWEA drains to the Carlton Branch, which flows to the North Fork of the Manatee River. A small sliver of the northeast corner of MBWEA drains to the Howard Prairie Branch, which also flows to the North Fork of the Little Manatee River. Other water resources on the MBWEA include small depression marshes.

All surface waters of the State are classified by DEP according to designated uses as described in Chapter 62-302.44 FAC. The surface waters of the MBWEA are designated as Class III, and classified for fish consumption; recreation, as well as propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Additionally, it is the policy of DEP to afford the highest protection to Outstanding Florida Waters (OFW) and Outstanding National Resource Waters (Chapter 62-302.700 FAC). No portions of the MBWEA are designated as OFW. However, the Little Manatee River is designated as an OFW, and the MBWEA is an important part of the Little Manatee River watershed. No degradation of water quality, other than that allowed in subsections Chapter 62-4.242(2) and (3) FAC, is permitted in these OFW, notwithstanding any other DEP rules that may allow water quality lowering.

2.6 Beaches and Dunes

The MBWEA does not contain any beach or dune resources.

2.7 Mineral Resources

There are no known commercially viable mineral deposits on the MBWEA.

2.8 Historical Resources

The Florida Department of State's Division of Historical Resources (DHR) Master Site File observations are broken down into five categories: sites, structures, resource groups, historic bridges, and historic cemeteries. There is one historical site recorded in the DHR Master Site File within the boundary of the MBWEA (MA00273). This site consists of prehistoric lithics (stone work). Additionally, prehistoric burial mounds and scattered artifacts have been discovered within one mile of the area. It is possible that there are archaeological sites on the MBWEA that have not yet been recorded in the DHR Master Site File. As a result, the FWC will work with the DHR to document any historical or archaeological sites as necessary and feasible. All Master Site recordings, assessments, and preservation strategies will be coordinated with the DHR.

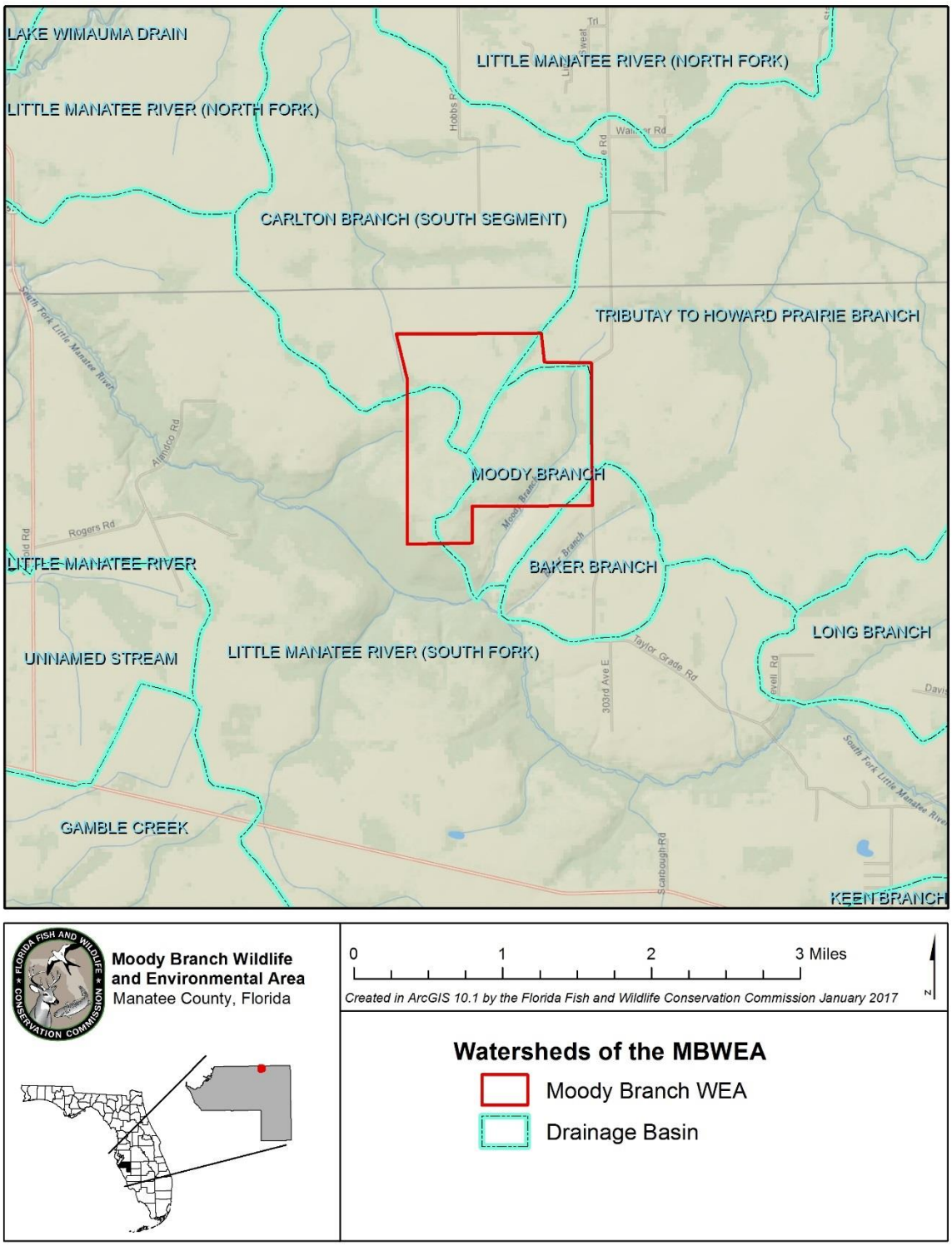


Figure 10: Watersheds of the MBWEA

2.9 Scenic Resources

The MBWEA offers beautiful scenery across its various natural landscapes. Several portions of the area offer sweeping vistas over scrub habitat. The natural communities found at the MBWEA are described in section 2.2.1 of this Management Plan. The MBWEA's abundant wildlife and peaceful, remote location offer outstanding wildlife- and bird-watching opportunities.

3 Uses of the Property

3.1 Previous Use and Development

Thousands of years before Europeans arrived, Native Americans hunted, fished, and gathered wild plants throughout Florida. Evidence of Native American presence in the vicinity of the MBWEA dates back to at least 900 A.D. Native Americans who practiced what is now known as the Safety Harbor culture established a collection of chiefdoms around Tampa Bay. From around 900 A.D. to the 17th century, these skilled hunters and anglers inhabited areas along rivers and near the shores of the bay. They often traveled inland to hunt. Though some land alteration occurred during this period, only minor alteration of the landscape is thought to have taken place until the advent of European settlement beginning with the Spanish occupation of Florida in the sixteenth century. It is believed Hernando de Soto landed on the shores of Tampa Bay in 1539, possibly near the mouth of the Little Manatee River, before beginning his expedition along the Gulf Coast.

Along with more advanced agricultural practices, the Spanish and other settlers brought livestock, primarily cattle and hogs, as well as horses to Florida. This began an era of broad use of the landscape for agriculture. Rangeland cattle grazing and other agricultural practices began to be utilized in a more systematic way and occurred throughout much of the central Florida peninsula through most of the European settlement era from the 16th through 20th centuries. Use of these agricultural practices began an era of increased alteration of the natural landscape. However, it was not until the 19th and 20th centuries that major settlement and more extensive alteration of the landscape in the area began with the widespread use of more intensive agriculture such as row cropping, citrus production, silviculture, and associated development.

While the coastal portions of Manatee County have become heavily populated, the portion of the county around the MBWEA has remained a rural, agricultural area. Prior to FWC acquisition, much of what is now the MBWEA experienced timber harvesting and agricultural activities. The previous owner of the property grew potatoes and other crops. At the time of acquisition, 120 acres of the area had been recently disked for row crops, but no crops had been planted. There was also evidence of past cattle operations on the area.

3.2 Current Use of the Property

Currently, the MBWEA is managed for the conservation and protection of fish and wildlife habitat and fish and wildlife based public outdoor recreation. A wide range of operational and resource management actions are conducted on the MBWEA each year including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive exotic 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; archeological and historical resources monitoring and protection; and research related activities.

Current and anticipated resource uses of the property are diverse. The area offers excellent opportunities for bird watching due to the diversity of bird species that have been observed at the MBWEA. The diversity of vegetation not only harbors a variety of bird species but also provides good opportunities for mammalian wildlife viewing. Other uses include hiking, photography, sightseeing, and horseback riding.

Due to the proximity of population centers in Manatee and Hillsborough Counties, public use can be expected to increase as public awareness of opportunities increases. The MBWEA is open to the public 365 days per year. The FWC does not administer hunts on this area, but there are plenty of opportunities for the public to view wildlife.

3.2.1 Visitation and Economic Benefits

Visitation and public use of the area for fish and wildlife based public outdoor recreational opportunities is the primary source of economic benefits from the MBWEA, and contribute to the overall economy for this region of Florida. If the current maximum visitation level of 107 visitors per day were achieved, a total of 39,055 visitors per year could be expected. If the area were at carrying capacity, FWC economic analysis estimates indicate that the MBWEA could potentially generate an estimated economic impact of $4.4 million for the State and the central region of Florida. This estimated annual economic impact would aid in the support or creation of an estimated 77 jobs. However, it should be noted that the current visitation rates for the area are estimated to be far below the area's established carrying capacity.

The above figures are based on expenditure data from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (USFWS) and 2006 IMPLAN economic models assembled by Southwick Associates and the USFWS. The results were updated to 2010 based on hunting and fishing license trends and inflation. The results were combined and weighted based on the numbers of hunters, anglers, and wildlife viewers statewide. The results assume participants' expenditures and the results impacts are consistent throughout the state. Users applying these results to local situations should be aware that

differences might exist between these statewide averages and the site in question, and make adjustments if needed.

Further potential economic impact of the MBWEA will depend upon future uses described in this Management Plan. Additional economic impacts from environmental lands such as the MBWEA might occur in conjunction with sales of various permits, recreational user fees, and ecotourism activities, if such projects could be feasibly developed. The annual area regulations can be consulted to clarify the necessary and required permits, fees, and regulations. Additionally, the long-term value of ecosystem services, including the protection of air and water quality functions, are considered to be significant to local and regional land and water resources, as well as human health.

3.3 Single- or Multiple-use Management

The MBWEA will be managed under the multiple-use concept as a Wildlife and Environmental Area. The MBWEA will provide fish and wildlife resource based public outdoor recreation and educational opportunities, while protecting the natural and historical resources found on the area. Any natural and historical resources of the MBWEA will be managed under the guidance of ARC, the Conceptual State Lands Management Plan, and as outlined in the original purposes for acquisition.

3.3.1 Analysis of Multiple-use Potential

The following actions or activities have been considered under the multiple-use concept as possible uses to be allowed on the MBWEA. 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 (Appendix 12.7). 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:

	Approved	**Conditional**	**Rejected**
Apiaries		✓	
Astronomy		✓	
Bicycling	✓		
Cattle grazing			✓
Citrus or other agriculture			✓
Ecosystem services and maintenance	✓		
Ecotourism		✓	
Environmental Education	✓		
First-responder training		✓	

	Approved	Conditional	Rejected
Fishing		✓	
Geocaching		✓	
Hiking	✓		
Horseback riding	✓		
Hunting		✓	
Linear facilities			✓
Military training		✓	
Preservation of historical resources	✓		
Primitive camping		✓	
Protection of imperiled species	✓		
Off-road vehicle use			✓
Shooting sports park		✓	
Soil and water conservation	✓		
Timber harvest		✓	
Wildlife observation	✓		

3.3.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on the MBWEA are made in accordance with the requirements of Section 253.034(10) FS, 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, the ARC and the Board of Trustees prior to any incompatible use or linear facility being authorized on the MBWEA.

3.3.3 Assessment of Impact of Planned Uses of the Property

To communicate 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 MBWEA (Sections 5 – 7). A detailed assessment of the benefits and potential impacts of planned uses and activities on natural and historical resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.4 Acreage Recommended for Potential Surplus Review

On conservation lands where FWC is the lead manager, FWC evaluates and identifies recommended areas for a potential surplus designation by 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, 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 MBWEA by 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, and continue to provide good fish and wildlife resource based public outdoor recreational opportunities. Therefore, no portion of the MBWEA is recommended for potential surplus review.

4 Accomplished Objectives from the MBWEA Management Plan 2004 – 2014

This section is dedicated to reporting the extent to which the Objectives described in the MBWEA Management Plan 2004 – 2014 (pages 31 - 33) were successfully completed. Accomplishments for the MBWEA during the previous planning timeframe are further discussed in more comprehensive detail throughout **Section 5 Management Activities and Intent** of this Management Plan.

The following **Resource Management Goals and Objectives** from the 2004 – 2014 MBWEA Management Plan describe the planned activities for the MBWEA during this 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.

Objectives Accomplished from the 2004 Moody Branch WEA Management Plan

Goals and Objectives	Percent Accomplished
Goal 1: FY 04/05: Land Management Planning, Security, Biological Inventory, and Exotic Plant Control	
Objective 1: Complete boundary fencing and posting. *Comment: Fencing and posting the boundary of the MBWEA was completed in 2005. FWC staff continue to monitor boundary fencing and signs, and conduct repairs as needed.*	100%

Objective 2: Establish law enforcement presence to control illegal entry and poaching. *Comment: FWC Law Enforcement officers routinely visit the MBWEA.*	100%
Objective 3: Erect signage to establish ownership and management presence, and to inform the public of the site acquisition and purpose. *Comment: Ownership and management informational signs were installed by Manatee County and FWC.*	100%
Objective 4: Conduct an initial assessment of Florida scrub-jay population and surveys for other listed plant and animal species. *Comment: The FWC has conducted Florida scrub-jay surveys annually at MBWEA since FY 2004-2005.*	100%
Objective 5: Conduct a standard habitat assessment to capture baseline data prior to the implementation of habitat management operations. *Comment: The FWC conducted OBVM on the area in 2008 and 2015.*	100%
Objective 6: Establish perimeter and interior fire lines consistent with Florida scrub-jay management and fire control needs. *Comment: The FWC has established appropriate perimeter and interior fire lines on the MBWEA.*	100%
Objective 7: Survey for exotic plant infestations and begin eradication or control efforts on highly invasive exotic plant species such as cogon grass and tropical soda apple. *Comment: FWC staff continue to monitor for and treat exotic plants on MBWEA.*	100%
Goal 2: FY 05/06: Land Management Implementation and Habitat Restoration Planning	
Objective 1: Initiate a prescribed burning program to reduce fuel loads and enhance critical habitat needs for listed species. *Comment: The FWC implemented a prescribed burning regimen at MBWEA in 2005, and continues to conduct prescribed burning on the area.*	100%
Objective 2: Continue surveys for listed plant and animal species. *Comment: The FWC has conducted Florida scrub-jay surveys annually at MBWEA since FY 2004-2005. Additionally, a gopher tortoise survey was conducted in 2015, a Florida mouse survey was conducted in 2016, and a goldenaster survey was completed by FNAI in 2006.*	100%

Objective 3: Develop a restoration plan for upland agricultural lands. *Comment: A restoration plan for upland agricultural lands at MBWEA was completed by FWC in November 2004.*	100%
Objective 4: Perform a formal evaluation of wetlands in cooperation with Manatee County, SWFWMD, DEP, and other appropriate regulatory agencies to determine the extent of wetland restoration that is needed. *Comment: Wetlands at MBWEA were evaluated in FY 2006 - 2007 and 2007 - 2008 to determine if wetland restoration was needed on the area.*	100%
Objective 5: Continue controlling exotic plants. Coordinate with DEP to determine the extent of feral hog presence and develop control strategies. *Comment: FWC staff continue to monitor for and treat exotic plants on MBWEA. The FWC conducted feral hog control on the area from 2005 to 2007.*	100%
Objective 6: Conduct professional archaeological assessment in preparation for ground disturbances associated with planned management activities. *Comment: A majority of the MBWEA was surveyed in 1982. One site (MA00273) at MBWEA has been recorded in DHR's Master Site File. There is a potential for additional sites to be located on the area based on similar areas in the county. FWC will continue to work with DHR for the management of historical resources.*	100%
Goal 3: FY 06/07: Upland Habitat Restoration and Public Use Planning	
Objective 1: Continue prescribed burning program. *Comment: The FWC implemented a prescribed burning regimen at MBWEA in 2005, and continues to conduct prescribed burning on the area.*	100%
Objective 2: Continue surveys for listed species. Conduct area-wide gopher tortoise burrow survey. *Comment: The FWC has conducted Florida scrub-jay surveys annually at MBWEA since FY 2004-2005. Additionally, a gopher tortoise survey was conducted in 2015, a Florida mouse survey was conducted in 2016, and a goldenaster survey was completed by FNAI in 2006.*	100%
Objective 3: Implement upland restoration program. *Comment: Groundcover restoration projects were implemented in 2005. The FWC continues to conduct prescribed burning and exotic species treatments on these projects.*	100%

Objective 4: Develop plans for a trail network and wildlife observation platforms. Coordinate with Manatee County and DEP to align trail link with the Gateway-Greenway Trail. *Comment: Plans for a trail network were developed by FWC and Manatee County. A trail network has been established by Manatee County.*	100%
Goal 4: FY 07/08: Wetland Habitat Restoration and Public Use Infrastructure	
Objective 1: Implement wetland restoration plan. *Comment: FWC will conduct and implement a hydrologic assessment during the new 10-year management plan cycle.*	0%
Objective 2: Establish trails and install wildlife observation platforms. *Comment: Manatee county has developed equestrian and hiking trails. Area visitation levels do not currently warrant construction of an observation platform.*	90%
Objective 3: Install interpretive signage along the trail system. *Comment: The trail system was constructed in 2016. Appropriate signage will be installed as recreation improvements continue.*	0%
Goal 5: FY 08/09: Trailhead Construction and Environmental Education	
Objective 1: In cooperation with Manatee County, install a parking lot, pavilion, picnic tables, fitness trail, and playground. *Comment: Manatee County has constructed a parking lot and picnic pavilion. Area visitation levels do not currently warrant construction of a fitness trail or playground.*	80%
Objective 2: Initiate environmental education program following completion of the trailhead and other public use infrastructure. *Comment: The trail system and parking area was constructed in 2016. FWC will coordinate with Manatee County to provide environmental education programs.*	0%
Objective 3: Establish supplemental landscaping in concert with trailhead installation. *Comment: Coordinate with Manatee County to determine appropriate restoration of the trailhead area.*	0%

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 historical resources. In general, the FWC management intent for the MBWEA is to restore and maintain natural communities in a condition that sustains ecological processes and conserves biological diversity, especially fish and wildlife resources. In conjunction with this primary emphasis, it is FWC's intent to provide quality fish and wildlife resource based public outdoor recreational opportunities on the MBWEA. The FWC will utilize the best available data, guidelines, natural resource management practices, and recreational 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

Pursuant to Chapter 259.036, FS, the DEP-DSL is required to "cause periodic management reviews to be conducted" on Board of Trustees conservation lands to determine if they "are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032." However, as previously discussed, title to the MBWEA is held by Manatee County and, therefore, no land management review (LMR) is statutorily required for the area. As a result, no LMR has been conducted for the MBWEA.

5.2 Adaptive Management

Adaptive management is "learning by doing";[1] 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.[1, 2] 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.[2, 3] 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. [2, 3]

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 historical resources of the MBWEA.

5.2.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of the MBWEA. 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 imperiled and focal fish and wildlife species, monitoring protocols are established through 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. Exotic and invasive plant and animal species (Section 5.5) are also monitored as needed and appropriate. Recreational uses are monitored through FWC's Public Access and Wildlife Viewing program, and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 5.6.3). Historical resources (Section 5.9) are monitored with guidance from the Florida Department of State's Division of Historical Resources (DHR).

5.2.2 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.

5.2.3 Implementation

The MBWEA 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, Public Access and Wildlife Viewing, Recreation Master Plans, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of the MBWEA, 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 MBWEA, FWC will focus on managing for native habitat diversity, emphasizing maintenance of high-quality natural communities, and restoration of disturbed areas. 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. Retention of the native old growth component of forests, while also providing for natural regeneration, remains an important consideration. The MBWEA has high-quality native communities including scrub, scrubby flatwoods, mesic flatwoods, and sandhill that FWC will continue to manage and protect. On disturbed upland sites, FWC intends to initiate ground cover and natural community restoration.

The FNAI has conducted surveys and mapped the current vegetative communities and historic vegetation communities on the MBWEA(see Section 2 of this Management Plan). This information will be used to guide and prioritize management and restoration efforts on the area.

5.3.1 Objective-Based Vegetation Management

The FWC uses a comprehensive resource management approach to managing FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. The FWC uses OBVM to monitor how specific vegetative attributes are responding to FWC 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. The FWC contracts with FNAI to provide these mapping services, and plans to have natural community maps recertified on most areas on a five-year basis. 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.

After natural communities have been mapped, FWC land managers will identify those natural communities that will influence and guide management decisions, known as the actively managed natural communities. Through OBVM monitoring, FWC collects data on a number of specific vegetation attributes that provide insight about the condition of the natural community. Because FWC is interested in the overall effect of management on the natural communities, OBVM data is analyzed at the natural community level.

Measurable habitat management objectives referred to as desired future conditions (DFCs) are established 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 the 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 (http://www.fnai.org/reference-natural-communities.cfm). FWC staff considers the reference site attribute values when setting area-specific DFCs for natural communities.

Vegetation monitoring samples the selected attributes, with the results being compared to the established DFCs. 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 desired habitat conditions. Measured changes in vegetation condition are intended to be used to inform future land management actions.

Initial mapping and vegetation sampling provides FWC staff with baseline data indicating natural community structure, distribution, and condition on the area. Comparing the subsequent monitoring results to desired future conditions, provides important operational information on a natural community's vegetation structural status at a given point in time and trend over time. Using this information, managers can evaluate, adjust, and modify their management practices to meet the stated objectives. 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

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.

Timber removal, site preparation, and lack of fire have all combined to alter the plant species composition of the area resulting in a loss of fuel and inhibiting the return to a more "natural" fire management regime. Site-specific combinations of prescribed fire, mechanical and chemical vegetation control, and reforestation are likely necessary actions needed to restore the area to historic natural communities.

The FWC employs a fire management regime to increase both species and habitat diversity and will continue a prescribed burning program on the MBWEA in accordance with vegetative management objectives. As fire moves across a landscape, some areas carry fire better than others. Areas with higher vegetative fuel loads typically burn more evenly and with greater intensity. Areas with lower vegetative fuel loads or wetland areas inundated with water typically will not carry fire as evenly, and usually burn at a lower intensity. Employing a burning program with different burning frequencies, intensities, and seasonality (dormant season vs. growing season) of prescribed burns create habitat diversity and a mosaic of vegetation patterns. This mosaic is designed to have both frequently burned and infrequently burned aspects.

On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. This condition creates unsuitable habitat for many wildlife species. Mechanical control of brush on upland sites by roller chopping, logging, shredding, or incidentally by equipment during commercial thinning operations, can reduce shading and encourage the grasses and forbs that are necessary to sustain prescribed fire.

Single drum (with standard, not offset blades), one-pass roller chopping can be a valuable management tool, enabling the use of prescribed fires in areas heavily invaded by dense woody vegetation. However, roller chopping may damage the herbaceous ground cover, especially wiregrass. Additionally, roller chopping is not usually conducted in scrub or scrubby flatwoods. Therefore, it will likely not be used at MBWEA, and any use will be limited to situations where burning can only be accomplished by first reducing woody vegetation by mechanical means.

Whenever possible, existing firebreaks such as roads and trails, as well as natural breaks such as creeks and wetlands, will be used to define burning compartments. 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 vegetative cover types, such as forests and wetlands, are known as ecotones. With the possible exception of wildfire suppression, mechanical soil disturbance in ecotones will be avoided in order to protect habitats for important rare species that often occur between flatwoods and riparian drainages. Silvicultural site preparation and creation of firebreaks are avoided when possible in these zones. Additionally, fires are allowed to burn into the edges of marshes, swamps, and other wetlands in order to maintain these habitats. Once fuel loads have been

reduced and a more open appearance has returned to these ecotone areas, vegetative management objectives will likely dictate a fire return interval that averages 1-4 years, preferably during the spring and early summer months. Actual fire return intervals vary based on the fire return intervals of the intervals of the surrounding communities. For example, Scrub and scrubby flatwoods require longer fire return intervals, so the ecotone areas at the MBWEA near these communities may not burn as frequently as the ecotones around mesic flatwoods and sandhill communities.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan will be developed and implemented for the MBWEA. This plan will include, but not be limited to, delineation of burn management units, detailed 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. Approximately 80% of the fire-adapted communities are maintained within the recommended fire return intervals. As detailed in the goals and objectives in Section 6 below, FWC plans to conduct prescribed burning on 150 acres of the area's fire adapted communities per year resulting in 100% of the area being maintained within the recommended fire return intervals during this planning period. Potential projected challenges with continuing to successfully implement prescribed fire on the area are described further in Section 7. A prescribed burn plan will be completed for the MBWEA and included in this Management Plan as Appendix 12.8. 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 MBWEA are discussed in more detail below.

5.3.3 Habitat Restoration

The FWC has initiated several restoration activities at the MBWEA since its acquisition of the area in 2004. Fire was previously excluded from the area, which allowed hardwoods and sand pine to encroach on the MBWEA's natural communities. The FWC has reintroduced fire to the area, and the FWC has conducted mechanical treatments on the area. These activities include mowing along roads, shredding shrubs, and cutting hardwoods and sand pines. In some portions of the area's scrub and scrubby flatwoods, the FWC has planted oaks and native herbaceous plants. Additionally, the FWC has backfilled ditches that altered the natural hydrology of the area, and the FWC continues to treat invasive plant species.

In addition to the prescribed burning activities described in Section 5.3.2, the FWC employs OBVM, with established DFCs and periodic natural community monitoring, and has implemented resource management regimes, including prescribed burning, mechanical treatments, exotic plant species treatments, etc., which includes scrub, scrubby flatwoods, mesic flatwoods, and floodplain forest communities on the area. Continuing habitat

management activities on the MBWEA will focus on enhancing natural communities, maintaining recommended fire return intervals for fire adapted communities, treating and removing exotic plant species, and controlling vegetation through mowing and roller chopping as needed. Chemical and mechanical treatments may also be implemented in some select hardwood habitats in order to restore these areas to an earlier successional condition. Exotic species control is more extensively discussed in Section 5.5, below. Further specific habitat management and improvement objectives planned for the MBWEA are described in Section 6 below.

5.4 Fish and Wildlife Management, Imperiled and Focal Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

5.4.1 Fish and Wildlife

Due to the variety of natural communities, a diversity of associated wildlife (including rare, imperiled, common game, and non-game species), can be found on the MBWEA. In managing for wildlife species, an emphasis is placed on conservation, protection, and management of natural communities. As noted above, natural communities important to wildlife on MBWEAinclude scrub, scrubby flatwoods, and mesic flatwoods. Natural communities that are less represented on the area include sandhill, depression marsh, floodplain forest, mesic hammock, and wet flatwoods.

The natural community diversity of the MBWEA creates a habitat mosaic for a wide variety of wildlife species. Resident wildlife will be managed for optimum richness, diversity, and abundance. In addition to resident wildlife, the MBWEA provides resources critical to many migratory birds including waterfowl, passerines, raptors, and others. Habitats important to migratory species will be protected, maintained, or enhanced.

Wildlife monitoring emphasis is placed on documenting the occurrence and abundance of rare and imperiled species on the property. The FWC will continue to update inventories for certain species, with emphasis on rare and imperiled wildlife species. Monitoring of wildlife species is an ongoing effort for the area.

Concurrent with ongoing species inventory and monitoring activities, management practices are designed to restore, enhance or maintain rare and imperiled species, and their habitats. 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 and timber stand improvements will address rare and imperiled species requirements and habitat needs. Section 5.4.2 below provides further information on FWC's comprehensive species management strategy for rare and imperiled wildlife and their respective habitats.

5.4.2 Imperiled and Focal 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 managing FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. The FWC uses OBVM to monitor how specific vegetative parameters are responding to FWC management, and uses the WCPR program to ensure management is having the desired effect on wildlife.

The goal of WCPR is to provide assessment, recovery, and planning support for the FWC-managed areas to enhance management of focal species and the recovery of imperiled species. WCPR program objectives include prioritizing what FWC does for imperiled and focal species on FWC-managed areas; ensuring the actions taken on these areas are part of statewide conservation programs and priorities; and informing others about the work accomplished on lands FWC manages.

The WCPR program helps FWC take a proactive, science-based approach to species management on FWC-managed lands. This approach assesses information from statewide potential habitat models and Population Viability Analysis, and in conjunction with input from species experts and people with knowledge of the area, creates site-specific wildlife assessments for imperiled wildlife species and a select suite of focal species which are the focus of the WCPR program. Staff combines these assessments with area-specific management considerations to develop a Species Management Strategy for the area. Each strategy contains area-specific measurable objectives for managing priority species and their habitat, prescribes management actions to achieve these objectives, and identifies monitoring protocols to verify progress towards meeting the objectives. By providing FWC managers with information on actions they should undertake, the FWC intends for the Strategy to assure the presence and persistence of Florida's endangered and threatened fish and wildlife species (see http://myfwc.com/media/1515251/Threatened-Endangered-Species.pdf), as well as select WCPR focal species found on the area.

In summary, for FWC-managed areas, the WCPR program helps assess imperiled and focal wildlife species needs and opportunities, prioritize what FWC does for imperiled and focal

species, prescribe management actions to aid in species recovery, prescribe monitoring protocols to allow evaluation of the species' response to management, and ensure the information is shared with others. Through the actions of this program, FWC will facilitate fulfilling the needs of focal and imperiled wildlife species on the MBWEA. In the long-term, by implementing these strategies on FWC-managed lands and continuing to assess wildlife species' needs, FWC will continue to play an integral role in aiding the recovery of imperiled species and preventing the future imperilment of declining wildlife species.

The FWC MBWEA and Bullfrog Creek WCPR Species Management Strategy was completed for the MBWEA and nearby Bullfrog Creek WEA in January 2015 (Appendix 12.9). Using statewide landcover-based habitat models, the MBWEA WCPR Strategy identifies 18 species and one group of species (wading birds) as having potential habitat on the MBWEA (Table 11). Of the focal species identified as having habitat on the area, the MBWEA WCPR Strategy provides measurable objectives and recommends some level of monitoring for the gopher tortoise, Florida scrub-jay, and southeastern American kestrel. The Florida mottled duck is modeled to have potential habiat on the MBWEA, but this species has limited management opportunities on this area.

As discussed in Section 1.3.1, the primary purpose of acquiring the MBWEA was to protect significant natural habitat important to the gopher tortoise. The scrub and scrubby flatwood plant communities found at the MBWEA provide excellent habitat for the gopher tortoise. These communities have well-drained, sandy soils and a scant tree canopy with abundant low-growing vegetation. These communities are fire dependent, and they require regular burning cycles. Gopher tortoises have adapted to living in fire dependent habitats by digging burrows deep into the soil. If fire is excluded from gopher tortoise habitat, the herbs that tortoises like to feed on will be shaded out by dense shrubs and small trees, which in turn impacts the gopher tortoise population

According to a 2003 survey, the MBWEA had a gopher tortoise density of 1.10 tortoises per acre. Regular surveys can help identify trends in gopher tortoise populations and quantify the health of gopher tortoise habitat. Managing the MBWEA's habitat for gopher tortoises is beneficial to many other animal species, including gopher frog and Florida mouse.

Florida scrub-jays also occur at the MBWEA. These birds have very specific habitat requirements, and the MBWEA WCPR Strategy estimates there are currently about 380 acres of potential Florida scrub-jay habitat within the MBWEA. In a 2017 survey, three Florida scrub-jay family groups and a total of 11 birds were found on the area. The

available habitat at the MBWEA could support over ten family groups, which could be important to providing stability to the Florida scrub-jay population in the region.

During the previous 10-year planning period, the FWC conducted imperiled and focal species surveys for gopher tortoise, Florida scrub-jay, and other species. The FWC also installed and monitored two southeastern American kestrel nest boxes. These imperiled species projects, along with other ongoing imperiled species management activities, will continue to be implemented in accordance with the MBWEA WCPR Species Management Strategy.

Table 11: Focal species with modeled potential habitat the MBWEA

Common Name	Scientific Name
Bachman's sparrow	*Peucaea aestivalis*
Brown-headed nuthatch	*Sitta pusilla*
Burrowing owl	*Athene cunicularia floridana*
Cooper's hawk	*Accipiter cooperii*
Florida black bear	*Ursus americanus floridanus*
Florida mottled duck	*Anas fluvigula*
Florida mouse	*Podomys floridanus*
Florida pine snake	*Pituophis melanoleucus mugitus*
Florida sandhill crane	*Grus canadenses pratensis*
Florida scrub-jay	*Aphelocoma coerulescens*
Gopher frog	*Lithobates capito*
Gopher tortoise	*Gopherus polyphemus*
Northern bobwhite	*Colinus virginianus*
Sherman's fox squirrel	*Sciurus niger shermani*
Short-tailed hawk	*Buteo brachyurus*
Southeastern American kestrel	*Falco sparverius Paulus*
Southern bald eagle	*Haliaeetus leucocephalus*
Swallow-tailed kite	*Elanoides forficatus*
Wading birds	Multiple species

5.5 Exotic and Invasive Species Maintenance and Control

The FWC will continue efforts to control the establishment and spread of FLEPPC Category I or II plants on the MBWEA. Category I invasive plants displace native plant species causing damage to native plant communities. Category II invasive/exotic plants have become more prevalent, but they have not yet caused damage to native plant communities. Control technologies may include mechanical, chemical, biological, and other appropriate treatments. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices for their application.

Exotic and invasive plant species known to occur on the MBWEA and treated annually by FWC include Asian sword fern, Caesar's weed, cogon grass, guinea grass, and natal grass.

Exotic and invasive plant species have been identified as occurring at varying densities on approximately 20 acres of the MBWEA. However, the FWC's methodology for determining the number of acres "infested" with invasive exotic plants only represents a cumulative acreage, and does not reflect the degree of the invasive exotic occurrence. The degree of infestation among areas identified with invasive exotic plant occurrences often varies substantially by species, level of disturbance, environmental conditions, and the status of ongoing eradication and control efforts. The FWC will continue to focus treatments on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring.

Additionally, the FWC will continue efforts to control the introduction of exotic and invasive species, as well as pests and pathogens, on the MBWEA by inspecting any vehicles and equipment brought onto the area by contractors and requiring that they be free of vegetation and dirt. If vehicles or equipment used by contractors are found to be contaminated, they will be referred to an appropriate location to clean the equipment prior to being allowed on the area. This requirement is included in every contract for contractors who are conducting any operational or resource management work on the area. In this way, FWC implements a proactive approach to controlling the introduction of exotic pests and pathogens to the area.

An exotic animal species of concern on the MBWEA is the feral hog. These animals have high reproductive rates, and when populations reach high densities, feral 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 feral hog control measures as necessary. Feral hog populations may be controlled by trapping, as necessary, to aid in minimizing the negative impacts caused by feral hog populations on the area.

Currently, maintenance and control of invasive exotic plant species (Table 5) continues to be a significant management challenge at the MBWEA. During the previous 10-year planning period, FWC continued to implement extensive exotic and invasive species control and maintenance activities throughout the MBWEA. These included exotic plant species treatments on over 200 acres per year within areas classified as infested, resulting in an overall 98% of the MBWEA currently being in a maintenance condition. An estimated 98% of the MBWEA remains classified in an infested condition, including the portions of the area that are in maintenance condition where exotic plants have not been eradicated, thus requiring continued intensive treatments. The FWC will continue to focus control and maintenance activities on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring activities. Ongoing exotic plant species objectives and challenges for the MBWEA are further detailed in Sections 6 and 7 below.

5.6 Public Access and Recreational Opportunities

5.6.1 Americans with Disabilities Act

When public facilities are developed on areas managed by 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 ADA[4] 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 Recreation Master Plan

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife resource based public outdoor recreational opportunities for the MBWEA. To accomplish this, FWC will work with recreational stakeholders and the general public to develop a Recreation Master Plan for the MBWEA that will be used to further design and develop appropriate infrastructure that will support the recreational use of the area by the general public. This Recreation Master Plan will include planning for parking, trail design, and area resource interpretation.

5.6.3 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 provide the experience of being "immersed in nature" that visitors to FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing, and fish and wildlife resource based public outdoor recreation opportunities. Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, FWC has determined that the

MBWEA can currently support 107 visitors per day. However, an objective to increase the public access carrying capacity to 128 visitors per day has been proposed in Section 6.4 of this Management Plan. It is important to note that public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the respective area in order to protect the natural and historical resources on the MBWEA and to ensure that visitors will have a high-quality visitor experience. The public access carrying capacity will be periodically reevaluated, and additional capacity may be contemplated as part of the Recreation Master Plan development and implementation process.

5.6.4 Wildlife Viewing

The MBWEA is home to a variety of resident wildlife found within its scrub and other natural communities. These communities provide outstanding wildlife viewing opportunities. The observant visitor may see white-tailed deer, Florida scrub-jay, gopher tortoise, and many other species of wildlife.

5.6.5 Hunting

Due to the MBWEA's small size and its original purpose of serving as a gopher tortoise mitigation park, hunting is not permitted at the MBWEA.

5.6.6 Fishing

Fishing is permitted at the MBWEA. However, the limited water resources on the area do not support substantial fish populations.

5.6.7 Boating

The water resources found at the MBWEA are not able to support boating or paddling opportunities.

5.6.8 Hiking

Currently, the MBWEA offers 12 miles of undesignated trails that are available for hiking.

5.6.9 Bicycling

Currently, bicycling is not permitted at the MBWEA.

5.6.10 Equestrian

Manatee County has installed a parking area for trailers, as well as directional signage on the MBWEA for equestrian users. The MBWEA offers 12 miles of undesignated trails that are available for equestrian users.

5.6.11 Camping

Camping is not permitted at the MBWEA.

5.6.12 Geocaching

Geocaching, also known as Global Positioning System (GPS) Stash Hunt and GeoStash, is a contemporary combination of orienteering and scavenger hunting utilizing a GPS receiver unit. Geocache websites routinely promote good stewardship. However, the potential exists for resource damage, user conflicts, or safety issues caused by inappropriately placed caches and/or links that do not provide adequate information about the area.

It is the policy of the FWC to allow placement of geocaches only in those locations that do not present the potential for resource damage, user conflicts, or threats to the safety of the activity participants. The placement of geocaches on FWC-managed lands is governed by specific guidelines. These guidelines may be found on the following FWC website: http://myfwc.com/media/1074886/FWC_Geocache_Guidelines.pdf .

5.6.13 Environmental Education

5.6.13.1 Interpretation

The MBWEA offers an interpretive kiosk to educate visitors about the natural resources found on the area.

5.6.13.2 Programs

No regularly occurring educational or recreational programs are currently taking place at the MBWEA. Area staff conduct various programs on occasion upon request, as feasible.

To facilitate wildlife viewing recreational opportunities on the area, FWC has continued to establish and maintain public recreational facilities. During the previous 10-year planning period, FWC and Manatee County completed several public access, recreational, and facility improvements on the MBWEA, including the addition of a picnic pavilion, ADA compliant parking area, and a designated equestrian trail. Further planned public access facility improvements are detailed in Section 6 below. Ongoing public access and recreational opportunity management challenges are addressed in Section 7 below. In addition, the FWC will continue to implement public access, recreational, and educational opportunities on the area in accordance with the MBWEA Recreation Master Plan upon its development and approval.

5.7 Hydrological Preservation and Restoration

As previously discussed, the MBWEA is located within the Little Manatee River watershed. Only minor hydrologic alterations have occurred on the area. The FWC will conduct or obtain an onsite hydrological and risk assessment to identify hydrology restoration needs.

5.8 Forest Resource Management

A Timber Assessment of the timber resources of the MBWEA will be conducted by the FFS, or a contracted professional forester. The management of timber resources will be considered in the context of the Timber Assessment and the overall land management goals and activities.

Timber resources include some dense scrubby flatwoods in need of thinning for habitat improvement. Thinning of the forest over-story, hydrological restoration and reintroduction of prescribed burning are the most important factors in re-establishment of natural communities and the enhancement of wildlife habitats in these areas. Any portions of the MBWEA needing reforestation will be planted with longleaf pine or another on-site species as appropriate. Degraded or disturbed bottomland hardwood sites will be encouraged to reforest naturally with native wetland oaks, hardwoods, and other appropriate native plant species.

Pursuant to OBVM DFCs, FWC will continue to manage timber resources for wildlife benefits and natural community restoration. Management activities including the use of timber thinning and harvesting may be utilized. 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, artificial reforestation may be implemented. Planting trees on these selected sites is used to increase the rate of reforestation and to ensure diversity. Forested wetlands are managed for stands with old growth characteristics. Snags will be protected to benefit cavity-nesting species.

5.9 Historical Resources

Procedures outlined by DHR will be followed to preserve the historical sites of the MBWEA. The FWC will consult with DHR in an attempt to locate any additional historical features on the area. In addition, FWC will ensure management staff has DHR Archaeological Resources Monitoring training. The FWC will refer to and follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for management of these resources, and prior to any facility development or other ground disturbing activities. Furthermore, as appropriate and necessary, FWC will contact professionals from DHR for assistance prior to any ground-disturbing activity on the MBWEA.

To date, the DHR Master Site File indicates one known historic site on the MBWEA. The FWC will submit subsequently located historic sites on the MBWEA to DHR for inclusion in their Master Site File. In cooperation with DHR, FWC will continue to monitor the known site that is located on the area on a rotating, regular basis.

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, and provide ample opportunities for fish and wildlife resource based public outdoor recreation. For these reasons, planned capital facilities and infrastructure will focus on improving access, recreational potential, hydrology, or other resource and operational management objectives.

Current capital facilities and infrastructure on the MBWEA include a parking area, picnic pavilion, interpretive kiosk, and 12 miles of undesignated trails (Figure 11).

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

5.11 Land Conservation and Stewardship Partnerships

The FWC utilizes a three-tiered approach to identifying, acquiring, or otherwise protecting important conservation lands adjacent to or in proximity to existing FWC-managed areas. This involves development of an Optimal Resource Boundary (ORB), Optimal Conservation Planning Boundary (OCPB) and associated Conservation Action Strategy (CAS). Increasingly, cooperative land steward partnership efforts with private landowners plays an integral role in this effort as does ongoing land conservation, either through fee-simple or less-than-fee conservation easements. In combination, this tiered model helps FWC to further the regional conservation of important fish and wildlife habitats through a proactive, comprehensive, and cooperative approach towards conservation.

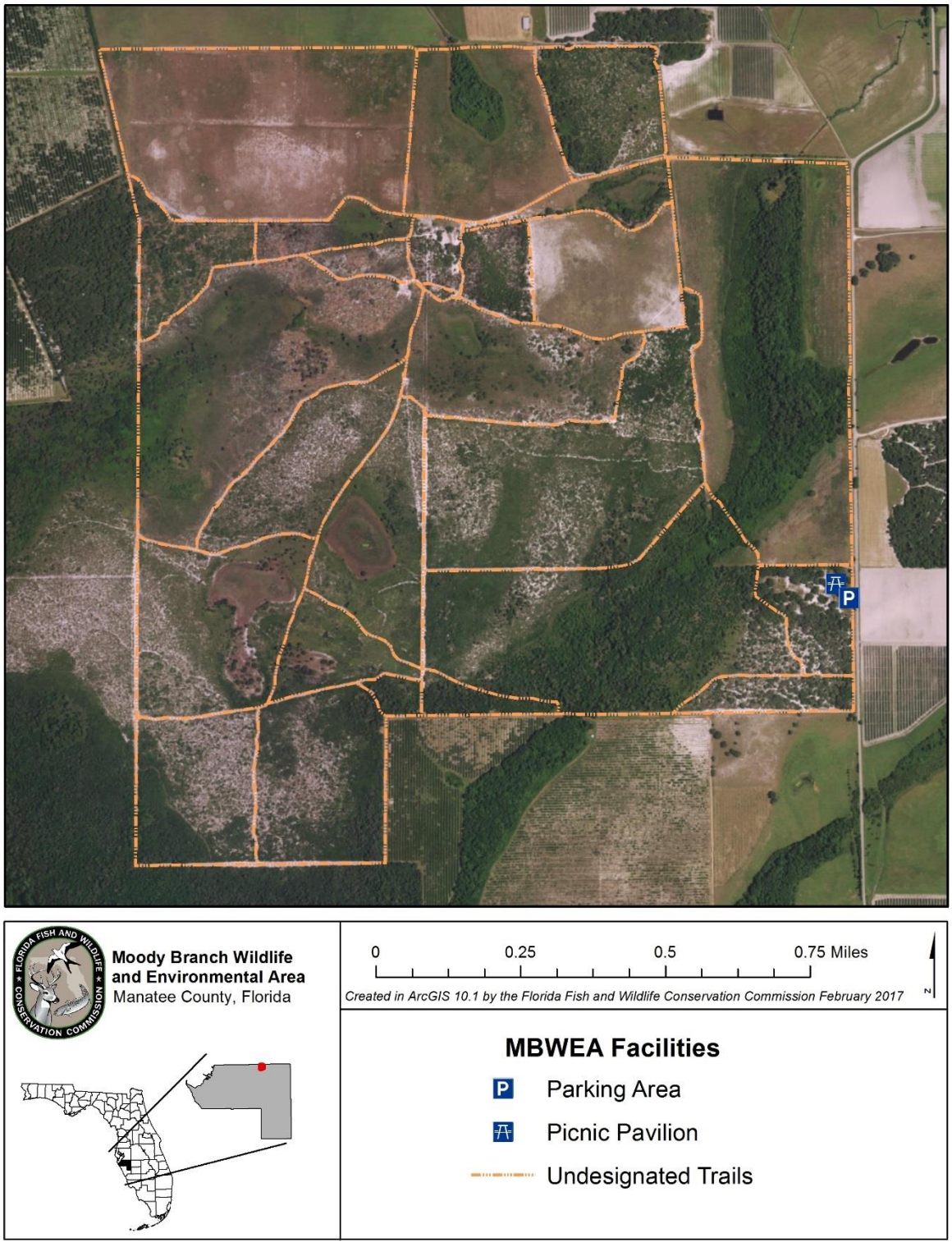


Figure 11: MBWEA Facilities

5.11.1 Optimal Resource Boundary

This three-tiered model begins with the development of an ORB, which is a resource-based analysis on a regional scale that integrates important FWC conservation research and analysis into practical planning, acquisition, and management efforts through GIS analysis. The ORB focuses on critical and important wildlife species or habitat considerations such as rare and imperiled species habitat within a particular region or ecosystem on a landscape scale within which an FWC managed area is contained. Urban areas or lands that have already been conserved or protected are eliminated from the ORB.

5.11.2 Optimal Conservation Planning Boundary

The second tier is known as the OCPB. The OCPB combines the regional natural resources identified in the ORB, as well as regional and local area conservation planning, including habitat conservation and restoration, habitat linkages, management challenges, land use and zoning issues, infrastructure including roads and developments, improving access, eliminating inholdings, providing prescribed burn buffers, resolving boundary irregularities, water resource protection, and conserving other important natural and historical resources.

The OCPB provides the basis for development of a broader CAS for the MBWEA. Although the OCPB provides the basis for potential future voluntary, willing-seller conservation acquisitions, it is designed to function primarily as a conservation planning boundary. The OCPB identifies surrounding lands and natural resources that may be important to the continued viability of fish and wildlife populations in the region. As they are currently managed, these lands appear to contribute to regional conservation and may support conservation landscape linkages.

5.11.3 Conservation Action Strategy

The CAS is the third tier, and implements the results of the ORB and OCPB tiers. This element of the process incorporates the conservation planning recommendations into an action strategy that prioritizes conservation needs. The CAS is integral to the development of conservation stewardship partnerships and also implements the current approved process for establishing the FWC Florida Forever Inholdings and Additions acquisition list.

Primary components of the CAS may include:

- FWC Landowner Assistance Program
- FWC conservation planning
- FWC Additions and Inholdings Program Land Conservation Work Plan
- Forest Stewardship Program proposals
- Florida Forever project proposals and boundary modifications
- Conservation easements
- Federal or State grant conservation proposals

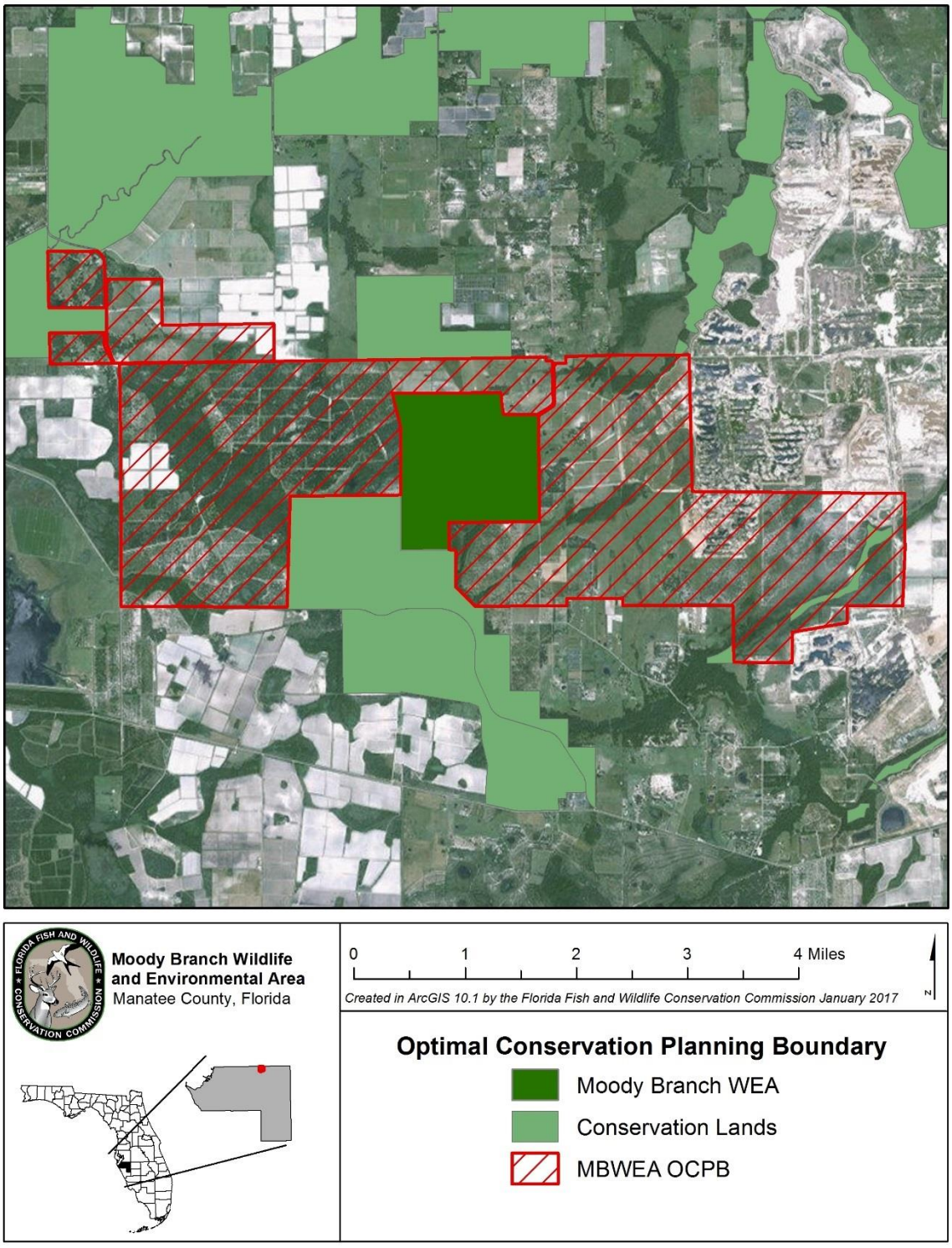


Figure 12: MBWEA Optimal Conservation Planning Boundary

- Regional or local conservation proposals
- Local, state, and federal planning proposals
- Non-governmental organization conservation proposals

Continued conservation of these lands may be aided by available voluntary landowner stewardship programs, conservation easements, and in some cases, potential voluntary conservation acquisitions. Participation in any FWC conservation effort is entirely voluntary and at the sole choice of willing landowners.

Private landowners seeking assistance with habitat management will likely find it offered within FWC's Landowner Assistance Program (LAP). The FWC employs biologists who are available to provide wildlife-related assistance with land-use planning and habitat management. 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. More information on FWC's LAP program and online habitat management tools are available online at: http://myfwc.com/conservation/special-initiatives/lap/ .

5.11.4 FWC Florida Forever Additions and Inholdings Acquisition List

Currently, FWC has not identified any acres of potential additions or privately held inholdings for the MBWEA. Upon completion of the CAS, additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended.

5.12 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For the MBWEA, the FWC will continue to assess and identify research needs, and pursue 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 MBWEA must have prior approval by FWC.

5.13 Cooperative Management and Special Uses

5.13.1 Cooperative Management

The FWC is responsible for the overall management and operation of the MBWEA as set forth in the conservation easement agreement with Manatee County. In keeping with the conservation easement agreement, 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 DHR to ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 12.10) are followed with regard to any ground-disturbing activities. In addition, the FFS assists FWC by providing technical assistance on forest resource management. Also, FWC

cooperates and consults with the SWFWMD and DEP for the monitoring and management of both ground and surface water resources of the MBWEA, and coordinates with DEP for habitat management activities on the border shared with BSFSP.

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 MBWEA. 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 MBWEA, 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 MBWEA. 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 FWC to DSL and ARC for approval consideration prior to authorization.

5.13.3 Apiaries

Currently, there are no apiaries operating on the MBWEA. However, use of apiaries is conditionally approved for the MBWEA, and is deemed to be consistent with purposes for acquisition, is in compliance with the Conceptual State Lands Management Plan, and is consistent with the FWC agency mission, goals, and objectives as expressed in the agency Strategic Plan and priorities document (Appendix 12.7). Location, management, and administration of apiaries on the MBWEA will be guided by the FWC Apiary Policy. The FWC Apiary Policy (Appendix 12.11.1) will be followed with regards to site location, management, and administration of apiaries. An apiary assessment completed for the MBWEA has concluded that the area can support one apiary site (Appendix 12.11.2).

5.14 Climate Change

Because of Florida's unique ecology and topography, any potential impacts as a result of climate change may be particularly acute and affect multiple economic, agricultural, environmental, and health sectors across the state. The impact of climate change on wildlife and habitat may already be occurring, from eroding shorelines and coral bleaching to increases in forest fires and saltwater intrusion into inland freshwater wetlands.

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is likely 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. The current trend of global temperature increase has appeared to accelerate 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.[5]

This apparent change in global climate has the potential 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 likely 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; [6, 7, 8] more frequent invasions and outbreaks of exotic invasive species;[9] and loss of habitat in coastal areas due to sea level rise.[10] 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. 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.[11] A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the potential effects of climate change on Florida's conservation lands are just beginning to be studied and are not yet well understood. For example, FWC has begun a process for currently developing climate change adaptation strategies for monitoring, evaluating, and determining what specific actions, if any, may be recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation, and the possible spread of exotic and invasive species. Currently, FWC is continuing its work on the development of these potential 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 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. To this end, when appropriate, FWC

will participate in organizations such as the Peninsular Florida Land Conservation Cooperative or similar organizations so that FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, FWC will consider the need for conducting 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.

The Tampa Bay region may potentially be affected by inundation and saltwater intrusion from sea level rise (Figure 12). While sea level rise will not directly impact MBWEA, the area could see fluctuations in the frequency and severity of storm events, alteration of vegetation reproductive cycles, and changes in the fire regime. Florida's low-lying coastal habitats, such as salt marsh and hardwood swamp natural communities are projected to face the most direct and dramatic impacts of climate change, particularly from a projected rising sea level and from the projected increased frequency and intensity of coastal storms.[12, 13, 14, 15] The effects of sea level rise in the recent past have been observed on the nearby Terra Ceia Preserve State Park; cabbage palms have been dying on coastal islands due to salinity increases. The potential loss of habitat may result in the loss of species using that habitat, including migrating and nesting birds. Storm events also cause considerable physical damage to native vegetation along vulnerable shorelines, impacting nesting habitat for sea life and shorebirds. The projected rise in sea levels may decrease the availability and abundance of prey for wading birds that forage in shallow waters on the expansive tidal flats of the Gulf Coast. Climate change may amplify and hasten these effects, potentially at rates that exceed the normal resiliency of plant communities to recover, shift or adapt accordingly.[16, 17] Projected salt water intrusion into the subsurface freshwater lens from potential sea level rise and saltwater inundation of surface freshwaters from storm surges may alter coastal ecosystems and freshwater marshes, possibly resulting in more salt-tolerant aquatic plant communities.

To address the potential impacts of climate change on the MBWEA, 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 MBWEA 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.

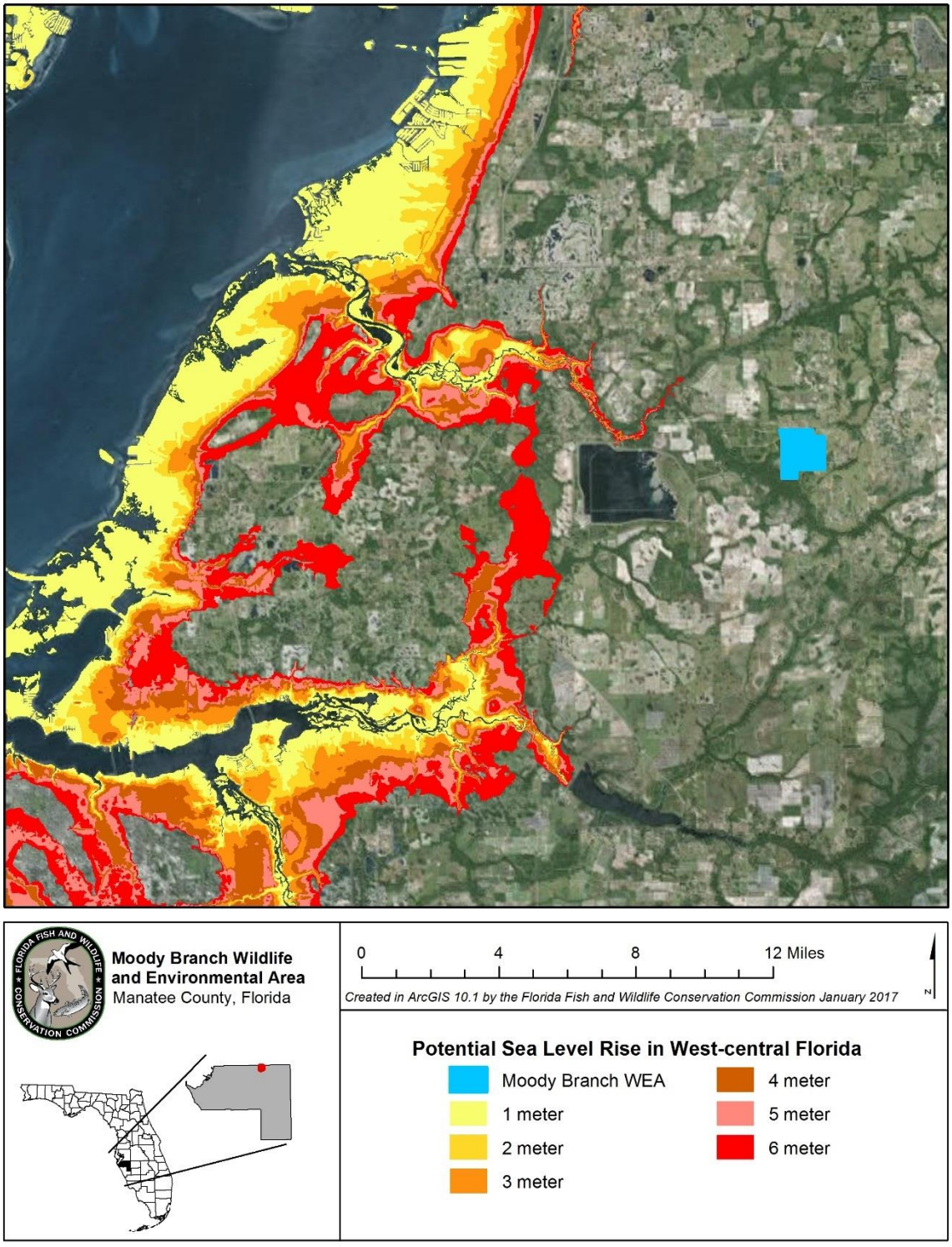


Figure 13: Potential Sea Level Rise

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 MBWEA. 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.

Short-term

6.1.1 Conduct prescribed burning on 150 acres of fire adapted communities in mesic flatwoods, scrubby flatwoods, sandhill, scrub, wet flatwoods, and restoration scrub per year.

6.1.2 Maintain 400 acres of fire adapted communities (75%) within 2 - 10 year target fire return interval.

6.1.3 Develop and implement a prescribed burn plan.

6.1.4 Conduct habitat/natural community improvement on 75 acres per year including mowing and heavy brush mowing.

6.1.5 Conduct habitat/natural community restoration activities, including hardwood and pine plantings, on 166 acres.

6.1.6 Continue to implement OBVM.

6.1.7 Continue to maintain 250 acres of Florida scrub-jay habitat in suitable condition.

Long-term

6.1.8 Continue to conduct prescribed burning on 150 acres of fire adapted communities in mesic flatwoods, scrubby flatwoods, sandhill, scrub, wet flatwoods, and restoration scrub per year.

6.1.9 Continue to maintain 550 acres of fire adapted communities (100%) per year within appropriate target fire return intervals.

6.1.10 Continue to implement OBVM.

6.1.11 Continue to implement the prescribed burn plan.

6.1.12 Continue to conduct habitat/natural community improvement on 75 acres per year.

6.1.13 Continue to conduct habitat/natural community restoration activities, including hardwood and pine plantings, on 166 acres.

6.1.14 Contract for remapping of historic and current natural communities.

6.1.15 Continue to maintain 250 acres of Florida scrub-jay habitat in suitable condition.

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

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

Short-term

6.2.1 Continue to implement the WCPR Strategy by managing identified habitats and monitoring identified species.

6.2.2 As described in the WCPR Strategy, continue to conduct annual maintenance and monitoring on two southeastern American kestrel nest boxes.

6.2.3 As described in the WCPR Strategy, continue annual monitoring of Florida scrub-jays.

6.2.4 As described in the WCPR Strategy, continue to collect opportunistic wildlife species occurrence data for gopher frogs, indigo snakes, pine snakes, sandhill cranes, bald eagles, and fox squirrels on the area.

Long-term

6.2.5 Continue to implement WCPR strategy by managing identified habitats and monitoring identified species.

6.2.6 As described in the WCPR Strategy, continue to conduct annual maintenance and monitoring on two southeastern American kestrel nest boxes.

6.2.7 As described in the WCPR Strategy, assess the need for additional southeastern American kestrel nest boxes.

6.2.8 As described in the WCPR Strategy, continue annual monitoring of Florida scrub-jays.

6.2.9 In accordance to the WCPR Strategy and the Wildlife and Habitat Management plan for statewide monitoring of populations on Wildlife Management Areas, continue long-term gopher tortoise surveys on MBWEA.

6.2.10 As described in the WCPR Strategy, conduct a rare plant survey.

6.2.11 As described in the WCPR Strategy, continue to collect opportunistic wildlife species occurrence data for gopher frogs, indigo snakes, pine snakes, sandhill cranes, bald eagles, and fox squirrels on the area.

6.2.12 Update the WCPR Strategy.

6.3 Other Wildlife (Game and Nongame) habitat maintenance, enhancement, restoration, or population restoration

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

Short-term

6.3.1 Continue to collect opportunistic wildlife occurrence data on the area.

Long-term

6.3.2 Continue to collect opportunistic wildlife occurrence data on the area.

6.4 Exotic and Invasive Species Maintenance and Control

Goal: Remove exotic and invasive plants and animals and conduct needed maintenance- control.

Short-term

6.4.1 Annually treat at least 150 acres of FLEPPC Category I and Category II invasive exotic plant species, including cogon grass, Old World climbing fern, Brazilian pepper, melaleuca, Burma reed, downy rose-myrtle).

Long-term

6.4.2 Continue to annually treat at least 150 acres of FLEPPC Category I and Category II invasive exotic plant species, including cogon grass, Old World climbing fern, melaleuca, Burma reed, downy rose-myrtle, and Brazilian pepper.

6.4.3 Continue to monitor for occurrences of invasive exotic plant and animal species and implement control measures as necessary.

6.4.4 Implement control measures on feral hogs.

6.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term

6.5.1 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 107 visitors per day.

6.5.2 Provide an area website for interpretation and education.

6.5.3 Coordinate and cooperate with Manatee County on trail maintenance and modifications and additions.

6.5.4 Cooperate with other agencies, Manatee County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas.

6.5.5 Continue to identify partnerships that could provide for environmental educational programs and outreach.

6.5.6 Develop a Recreation Master Plan.

6.5.7 Coordinate with Manatee County to ensure FCT obligations are met.

6.5.8 Cooperate with BSFSP on connecting trail systems.

6.5.9 Monitor trail annually for visitor impacts.

Long-term

6.5.10 Implement Recreation Master Plan.

6.5.11 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 128 visitors per day.

6.5.12 Continue to provide the area website, and develop a kiosk and bird list for interpretation and education.

6.5.13 Develop one mile of designated trail.

6.5.14 Monitor trails annually for visitor impacts.

6.5.15 Reassess recreational opportunities every three years.

6.5.16 Cooperate with other agencies, County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas.

6.5.17 Continue to identify partnerships that could provide for environmental educational programs and outreach.

6.5.18 Continue to coordinate with Manatee County to ensure FCT obligations are met.

6.5.19 Cooperate with DEP and Manatee County on connecting Moody Branch with the Gateway – Greenway Trail.

6.5.20 Cooperate with BSFSP on connecting trail systems.

6.6 Hydrological Preservation and Restoration

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

Short-term

6.6.1 Continue to cooperate with the SWFWMD for the monitoring of surface and ground water quality and quantity.

Long-term

6.6.2 Conduct or obtain a site hydrological assessment to identify potential hydrology restoration needs.

6.6.3 As recommended by the Hydrology Assessment, install and maintain low-water crossings and culverts as appropriate to maintain and enhance natural hydrological functions.

6.6.4 Continue to cooperate with the SWFWMD for the monitoring of surface and ground water quality and quantity.

6.7 Forest Resource Management

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

Short-term

6.7.1 Cooperate with the Florida Forest Service (FFS) to complete a Timber Assessment.

6.7.2 Consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

Long-term

6.7.3 Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

6.8 Historical Resources

Goal: Protect, preserve, and maintain cultural and historical resources.

Short-term

6.8.1 Coordinate with DHR to assess the need for conducting a cultural resource survey on the area.

6.8.2 Monitor the one known recorded sites and submit updates of additional sites to DHR for inclusion in their Master Site file.

6.8.3 Ensure management staff has DHR Archaeological Resources Monitoring training.

6.8.4 Follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of historical resources.

Long-term

6.8.5 Continue to monitor the one known recorded site and submit updates of additional sites to DHR for inclusion in their Master Site file.

6.8.6 Coordinate with DHR in designing site plans for development of infrastructure.

6.8.7 Continue to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of historical resources.

6.9 Capital Facilities and Infrastructure

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

Short-term

6.9.1 Continue to coordinate with Manatee County to maintain one facility (entrance facility).

6.9.2 Coordinate and cooperate with Manatee County on designated trail maintenance and modifications and additions.

6.9.3 Maintain 12 miles of undesignated trails (i.e. service roads) on the area (as applicable).

Long-term

6.9.4 Monitor trails and infrastructure biannually for visitor impacts.

6.9.5 Continue coordinate with Manatee County to maintain one facility (entrance facility).

6.9.6 Coordinate and cooperate with Manatee County on designated trail maintenance and modifications and additions.

6.9.7 Explore the feasibility of constructing an equipment storage facility if needed.

6.9.8 Develop one mile of designated hiking trails.

6.9.9 Explore the feasibility of constructing a wildlife viewing platform and/or a foot bridge.

6.9.10 Improve one facility (kiosk).

6.9.11 Continue to maintain 12 miles of undesignated trails on the area.

6.10 Land Conservation and Stewardship Partnerships

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

Short-term

6.10.1 Identify potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational/resource management needs.

6.10.2 Identify and develop conservation stewardship partnerships.

6.10.3 Identify and pursue conservation acquisition needs.

6.10.4 Develop and maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for FWC's LAP and Land Acquisition Programs.

6.10.5 Develop a Conservation Action Strategy.

6.10.6 Contact and inform adjoining landowners about the FWC LAP to pursue non-acquisition conservation stewardship partnerships.

6.10.7 Determine which parcels should be added to the FWC acquisition list.

6.10.8 Identify potential non-governmental organization partnerships and grant program opportunities.

6.10.9 Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop.

6.10.10 Identify potential conservation easements donations.

6.10.11 Evaluate and determine if any portions of the MBWEA are no longer needed for conservation purposes, and therefore may be considered for potential surplus designation.

Long-term

6.10.12 To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed OCPB for the MBWEA as appropriate and necessary.

6.10.13 Continue to identify and develop conservation stewardship partnerships.

6.10.14 Continue to identify and pursue conservation acquisition needs.

6.10.15 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for the FWC LAP and land acquisition program.

6.10.16 Continue to propose nominations of selected properties as additions to the FWC acquisition list.

6.10.17 Continue to pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow.

6.10.18 As feasible, continue to periodically contact and meet with adjacent landowners for willingness to participate in the Conservation Action Strategy, and coordinate landowner assistance/conservation stewardship partnership workshops as deemed appropriate.

6.10.19 Coordinate and conduct landowner assistance/conservation stewardship partnership workshop(s) as necessary and appropriate.

6.10.20 Continue to identify potential conservation easements donations.

6.10.21 Continue to evaluate and determine if any portions of the MBWEA are no longer needed for conservation purposes, and therefore may be considered for potential surplus designation.

6.11 Cooperative Management and Special Uses

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

Short-term

6.11.1 Continue to cooperate with Manatee County regarding the management and use of the area.

6.11.2 Continue to cooperate with management staff at the adjacent BSFSP on issues regarding resource management.

6.11.3 Continue to cooperate with adjacent landowners with prescribed burning, exotic species control, and other management issues as needed.

Long-term

6.11.4 Continue to cooperate with Manatee County regarding the management and use of the area.

6.11.5 Coordinate with Manatee County to ensure consistency between the FCT management plan and the FWC management plan.

6.11.6 Continue to cooperate with management staff at the adjacent BSFSP on issues regarding resource management.

6.11.7 Continue to cooperate with adjacent landowners with prescribed burning, exotic species control, and other management issues as needed.

6.12 Climate Change

Goal: 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 MBWEA.

Long-term

6.12.1 Coordinate with FWC's Fish and Wildlife Research Institute (FWRI) Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the MBWEA.

6.12.2 Incorporate appropriate climate change monitoring protocols and management strategies into the OBVM program for the MBWEA.

6.12.3 Incorporate appropriate climate change adaptation strategies into the WCPR for MBWEA.

6.12.4 As appropriate, update the MBWEA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of MBWEA's fire-adapted habitats.

6.12.5 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; assess the need to incorporate public education about climate change into FWC's public education curriculum.

6.13 Research Opportunities

Goal: Explore and pursue cooperative research opportunities.

Long-term

6.13.1 Explore and pursue cooperative research opportunities through universities, FWRI, and others as appropriate.

6.13.2 Continue to cooperate with researchers, universities, and others as appropriate.

6.13.3 Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate.

7 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with the MBWEA 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.

7.1 Challenge: A complete boundary survey of the MBWEA is lacking.

7.1.1 Strategy: Explore the feasibility of contracting for boundary survey.

7.2 Challenge: Currently, the MBWEA is understaffed for both land management and law enforcement, with two full-time equivalent (FTE) staff responsible for management of six widely distributed areas spread across three counties, including the MBWEA.

7.2.1 Strategy: Continue to seek approval for additional funding for appropriate staffing levels.

7.2.2 Strategy: Seek approval for one FTE staff position dedicated to the MBWEA.

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

7.2.4 Strategy: Through the regional FWC volunteer coordinator, explore the feasibility of establishing additional volunteer programs on the MBWEA.

7.3 Challenge: Exotic invasive plants and animals from adjacent private lands are spreading to the MBWEA.

7.3.1 Strategy: Coordinate with FWC's Landowner Assistance Program to work with adjacent landowners to control and manage exotic invasive plants on adjacent properties.

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

7.3.3 Strategy: Coordinate with management staff at the adjacent BSFSP to control the spread of exotic invasive plants and animals.

7.4 Challenge: Long-term persistence of scrub-jays on the MBWEA is influenced by factors affecting the regional scrub-jay population.

7.4.1 Strategy: Coordinate with regional land managers and conservation partners to manage scrub-jay habitat appropriately.

7.5 Challenge: The MBWEA is not a well-known recreation destination and users may be unfamiliar with the area's rules and regulations.

7.5.1 Strategy: Cross-promote the MBWEA with other regional public conservation lands.

7.5.2 Strategy: Work with county tourism boards to promote the MBWEA as a recreation destination.

7.5.3 Strategy: Increase public outreach and education efforts, including a website and improved kiosk panels, to explain the MBWEA's purpose for acquisition, the area's management goals, and rules and regulations regarding public use of the area.

7.6 Challenge: Insufficient area exists within and around the MBWEA for long-term conservation of far-ranging species that have been documented on the MBWEA, such as eastern indigo snake and Sherman's fox squirrel.

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

8 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of the MBWEA. This cost estimate was developed using data developed by 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 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 MBWEA. Cost estimate categories are those currently recognized by FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2016-2017 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 12.12.

Moody Branch WEA Management Plan Cost Estimate

Maximum expected one year expenditure

Resource Management	Expenditure	Priority	Priority schedule:
Exotic Species Control	$88,912	(1)	(1) Immediate (annual)
Prescribed Burning	$42,490	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	$301	(1)	(3) Other (5+ years)
Timber Management	$0	(1)	
Hydrological Management	$13,348	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$61,231	(1)	
Subtotal	**$206,283**		
Administration			
General administration	**$12,934**	(1)	
Support			
Land Management Planning	$8,705	(1)	
Land Management Reviews	$0	(3)	
Training/Staff Development	$1,032	(1)	
Vehicle Purchase	$55,402	(2)	
Vehicle Operation and Maintenance	$4,062	(1)	
Other (Technical Reports, Data Management, etc.)	$1,554	(1)	
Subtotal	**$70,756**		
Capital Improvements			
New Facility Construction	$36,467	(2)	
Facility Maintenance	$7,653	(1)	
Subtotal	**$44,119**		
Visitor Services/Recreation			
Info./Education/Operations	**$2,547**	(1)	
Law Enforcement			
Resource protection	**$877**	(1)	
Total	**$337,516 ***		

* 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.

Moody Branch WEA Management Plan Cost Estimate

Ten-year projection

Resource Management	Expenditure	Priority	Priority schedule:
Exotic Species Control	$781,190	(1)	(1) Immediate (annual)
Prescribed Burning	$373,326	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	$2,642	(1)	(3) Other (5+ years)
Timber Management	$0	(1)	
Hydrological Management	$117,281	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$537,982	(1)	
Subtotal	**$1,812,421**		
Administration			
General administration	**$113,644**	(1)	
Support			
Land Management Planning	$76,486	(1)	
Land Management Reviews	$0	(3)	
Training/Staff Development	$9,072	(1)	
Vehicle Purchase	$194,961	(2)	
Vehicle Operation and Maintenance	$35,688	(1)	
Other (Technical Reports, Data Management, etc.)	$13,657	(1)	
Subtotal	**$329,864**		
Capital Improvements			
New Facility Construction	$105,333	(2)	
Facility Maintenance	$67,239	(1)	
Subtotal	**$172,572**		
Visitor Services/Recreation			
Info./Education/Operations	**$22,380**	(1)	
Law Enforcement			
Resource protection	**$7,704**	(1)	
Total	**$2,458,584 ***		

* 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 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 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			✓
• Exotic 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 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 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 MBWEA 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 FWC as described in its Agency Strategic Plan (Appendix 12.7). 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, 379, 403, 870, 373, 375, 378, 487, and 597 FS.

The FWC has developed and utilizes an Arthropod Control Plan for the MBWEA in compliance with Chapter 388.4111 F.S. (Appendix 12.13). The Arthropod Control Plan was developed in cooperation with the local Manatee County arthropod control agency. This Management Plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Manatee County, Florida, (Appendix 12.14).

11 Endnotes

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