A Management Plan for

Joe Budd

Wildlife Management Area

2015 - 2025

Gadsden County, Florida

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

Florida Department of Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

September 1, 2015

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

RE: Joe Budd Wildlife Management Area - Lease #3949 and 4211

Dear Mr. Cochran:

On **August 21, 2015**, the Acquisition and Restoration Council recommended approval of the **Joe Budd Wildlife Management Area** management plan. Therefore, the Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Joe Budd Wildlife Management Area management plan. The next management plan update is due August 21, 2025.

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

Sincerely,

MSGengenbach

Marianne S. Gengenbach
Office of Environmental Services
Division of State Lands

A Management Plan
for
Joe Budd Wildlife Management Area

Gadsden County, Florida

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

June 2015

Approved Thomas H. Eason

Thomas Eason
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: Joe Budd Wildlife Management Area
Location: Gadsden County, Florida
Acreage Total: 4,767 acres (FWC lead and co-lead management with FFS)
Acreage Breakdown:

Community Type	Acres	Percentage of Area
Baygall	1.5	<1%
Borrow area	41.5	<1%
Bottomland forest	1,084.2	21.9%
Clearing/regeneration	333.3	6.7%
Depression marsh	21.9	<1%
Developed	18.5	<1%
Dome swamp	5.8	<1%
Floodplain marsh	5.0	<1%
Floodplain swamp	309.2	6.2%
Impoundment	15.4	<1%
Mesic flatwoods	183.6	3.7%
Pine plantation	132.0	2.7%
Restoration upland pine	135.2	2.7%
Sandhill	39.8	<1%
Successional hardwood forest	118.3	2.4%
Upland hardwood forest	948.2	19.1%
Upland pine	1,503.1	30.4%
Utility corridor	24.0	<1%
Wet flatwoods	31.7	<1%

*GIS-calculated acreage for land cover classification varies slightly from actual total acreage.
Lease/Management Agreement No.: 3949 and 4211 (Appendix 13.1)
Use: Single _____ Management Responsibilities:
Multiple X Agency FWC Responsibilities: LEAD, LESSEE Wildlife Management Area, resource protection, law enforcement
Designated Land Use: Wildlife and Management Area
Sublease (s): None
Encumbrances: Utility easement (Florida Gas Transmission Company)
Type Acquisition: Pittman Robertson; FWC Fish and Wildlife Habitat Program; Preservation 2000; Exchange; Mitigation Donation
Unique Features: Natural communities: baygall, bottomland hardwood forest, depression marsh, dome swamp, floodplain marsh, floodplain swamp, mesic flatwoods, sandhill, upland hardwood forest, upland pine, and wet flatwoods.
Archaeological/Historical: 18 sites
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: 1,518 acres FWC Additions and Inholdings list; 18,330 acres remaining in the four adjacent Florida Forever Projects (Figure 5).
Surplus Lands/Acreage: None
Public Involvement: Management Advisory Group consensus-building meeting and Public Hearing and FWC Website (Appendix 13.3)

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	6, 8
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	9
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	133
5	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	2, 87
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	64
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	90
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	10
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)	6
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	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	61
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	60, 61
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	62
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	1, 5, 9
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	85
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	130

Land Management Plan Compliance Checklist

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)	62
18	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	131
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	519
20	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	61, 64
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	62
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	106, 333
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	63

*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	16, 175

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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)	175
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)	16, 175
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	175
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)	16, 175
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	69, 180
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	180
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	180

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	16-21, 202
33	Insert FNAI based natural community maps when available.	ARC consensus	23, 25
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	23, 25
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	18, 53, 58
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	58

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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	58
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	42
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	53
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	53, 216
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)	69, 111
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.	↓	69-111, 113
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.		96-111, 127
42-C.	The associated measurable objectives to achieve the goals.		96-111
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.*		69, 96, 241
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.		127
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	18, 333
44	Sustainable Forest Management, including implementation of prescribed fire management		
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		69-111, 113
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) ↓	96-111
44-C.	Measurable objectives (see requirement for #42-C).		97
44-D.	Related activities (see requirement for #42-D).		76
44-E.	Budgets (see requirement for #42-E).		127

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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).	↓	76, 97
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		97
45-C.	Measurable objectives (see requirement for #42-C).		97
45-D.	Related activities (see requirement for #42-D).		76
45-E.	Budgets (see requirement for #42-E).		127
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	31, 79
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	506
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).	↓	79, 103
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		103
48-C.	Measurable objectives (see requirement for #42-C).		103
48-D.	Related activities (see requirement for #42-D).		79
48-E.	Budgets (see requirement for #42-E).		127

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	58
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	58-59
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	18, 25
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	58-59
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).	↓	84, 105
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		105
53-C.	Measurable objectives (see requirement for #42-C).		105
53-D.	Related activities (see requirement for #42-D).		84
53-E.	Budgets (see requirement for #42-E).		127

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	58
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	233
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	84, 106
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).	↓	85
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		106
57-C.	Measurable objectives (see requirement for #42-C).		106
57-D.	Related activities (see requirement for #42-D).		85
57-E.	Budgets (see requirement for #42-E).		127

**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)	85-87
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).	↓	85
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		107
59-C.	Measurable objectives (see requirement for #42-C).		107

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59-D.	Related activities (see requirement for #42-D).		85
59-E.	Budgets (see requirement for #42-E).		127
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	80, 275
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).	↓	80, 275
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		104
61-C.	Measurable objectives (see requirement for #42-C).		104
61-D.	Related activities (see requirement for #42-D).		80, 275
61-E.	Budgets (see requirement for #42-E).		127

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
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	64
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	69-111
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)	127
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)	127
68	A statement of gross income generated, net income and expenses.	18-2.018	127

*** = 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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1 Introduction and General Information

Perched on the rolling uplands, slopes and along the streams of the Ochlockonee River basin and along the shore of Lake Talquin, the Joe Budd Wildlife Management Area (JBWMA) is a diverse mosaic of upland and wetland natural habitats. Interspersed among these natural habitats are managed wildlife openings and seasonal dove fields that provide additional forage to wildlife, and are valued by hunters and wildlife viewers. The area conserves important habitat for a number of imperiled species including the wood stork, gopher tortoise, Florida pine snake, and alligator snapping turtle, along with a variety of other wildlife.

Forming part of a corridor of conservation lands together with the adjacent Lake Talquin State Forest and Apalachicola National Forest, JBWMA aids in the conservation and protection of the watershed and the water quality and of the Ochlockonee River and Lake Talquin. Important tributaries to the river and lake that occur on the area include the Little River and Rocky Comfort Creek. The JBWMA also protects the drainages of other streams including Richlander Creek, Monroe Creek, Mule Creek, Hunter Creek, Pole Branch, Gulley Branch, Double Branch, Midway Branch, and several smaller unnamed seepage streams.

Acquired by the State of Florida and managed by the Florida Fish and Wildlife Conservation Commission (FWC), the JBWMA is located in the southeast portion of Gadsden County, Florida (Figures 1 - 2). With its abundant wildlife populations, JBWMA provides for a wide variety of fish and wildlife-based public outdoor recreation opportunities.

Well known for providing high-quality hunting opportunities that attract hunters from throughout the state, the JBWMA is an area with an abundant, well-balanced white-tailed deer population. The JBWMA has a substantial population of gray squirrels, raccoons, and Eastern wild turkeys, a moderate population of resident mourning doves, and small populations of Northern bobwhite, eastern cottontail rabbits, and waterfowl. In addition, JBWMA remains a popular destination for wildlife viewing, horseback riding, and other forms of non-hunting recreation outside of hunting seasons. The JBWMA also hosts well-attended conservation education programs and day camps provided at the Joe Budd Youth Conservation Center (JBYCC).

On JBWMA, the FWC is assigned lead management responsibility for approximately 2,753 acres, and along with the Florida Forest Service (FFS) has undivided co-lead management responsibility on the 2,014 acre Rocky Comfort Creek tract, located in the western portion of the area (Figure 3). On the remaining portions of JBWMA (~6,366 acres), FFS has lead

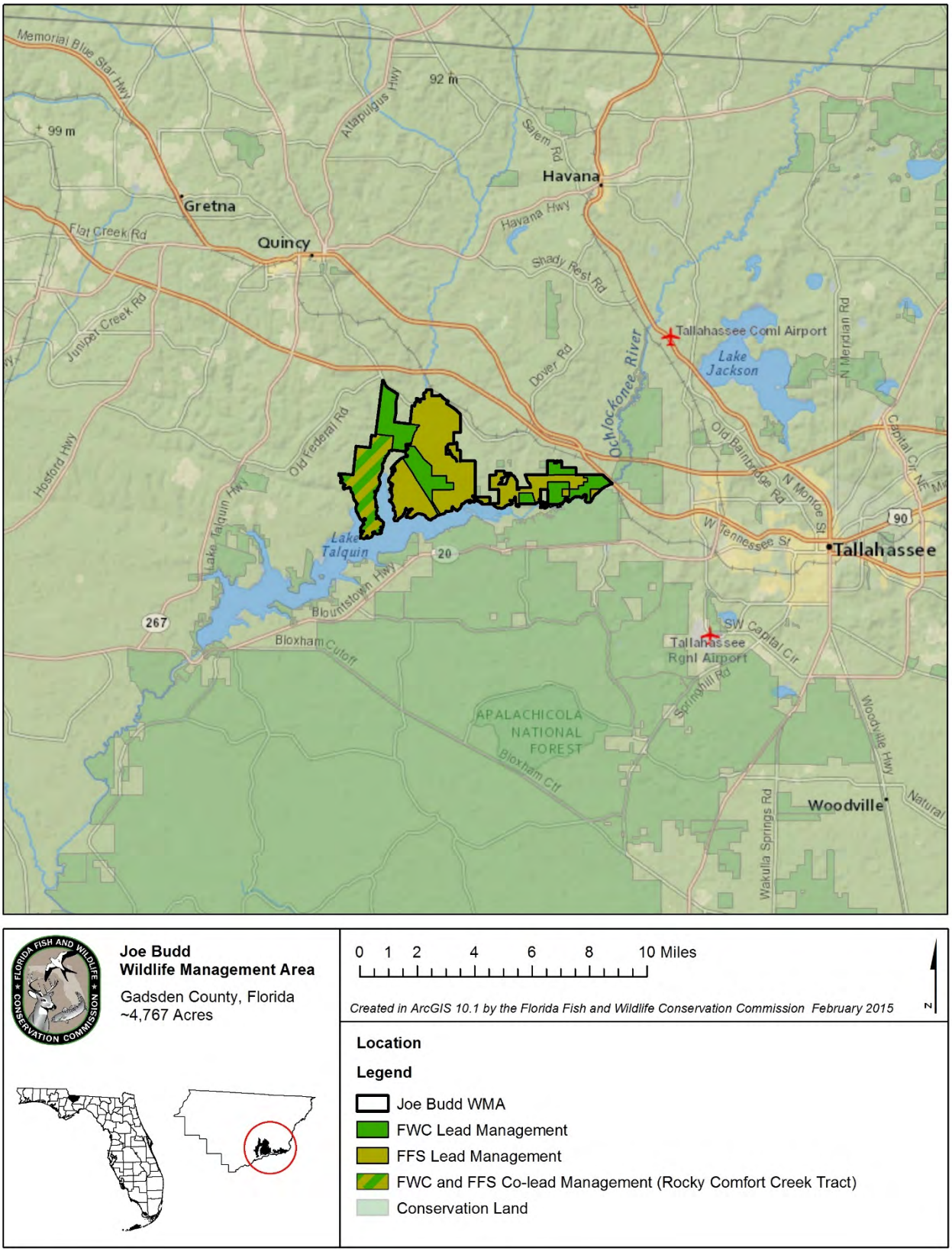


Figure 1. Location

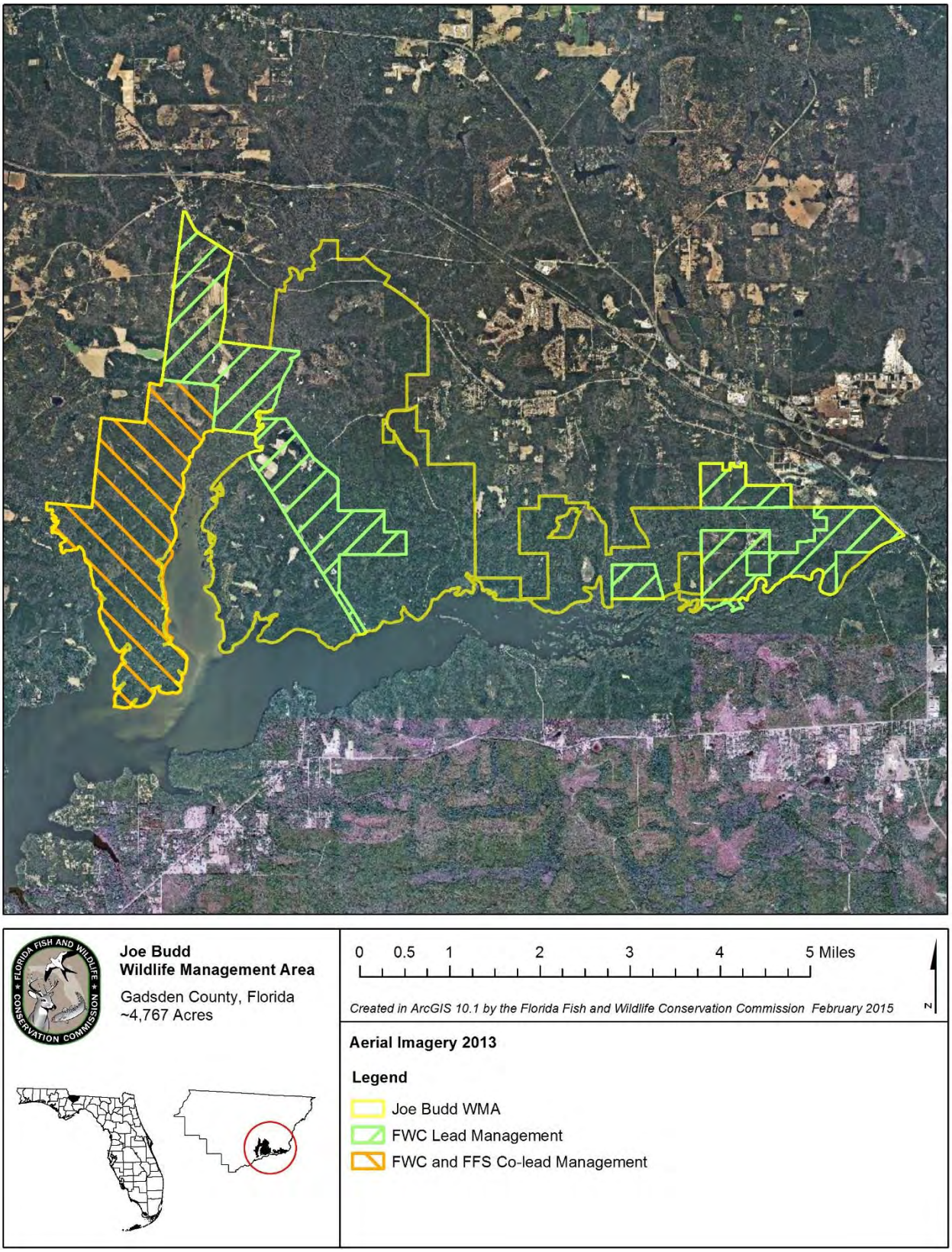


Figure 2. Aerial Imagery 2013

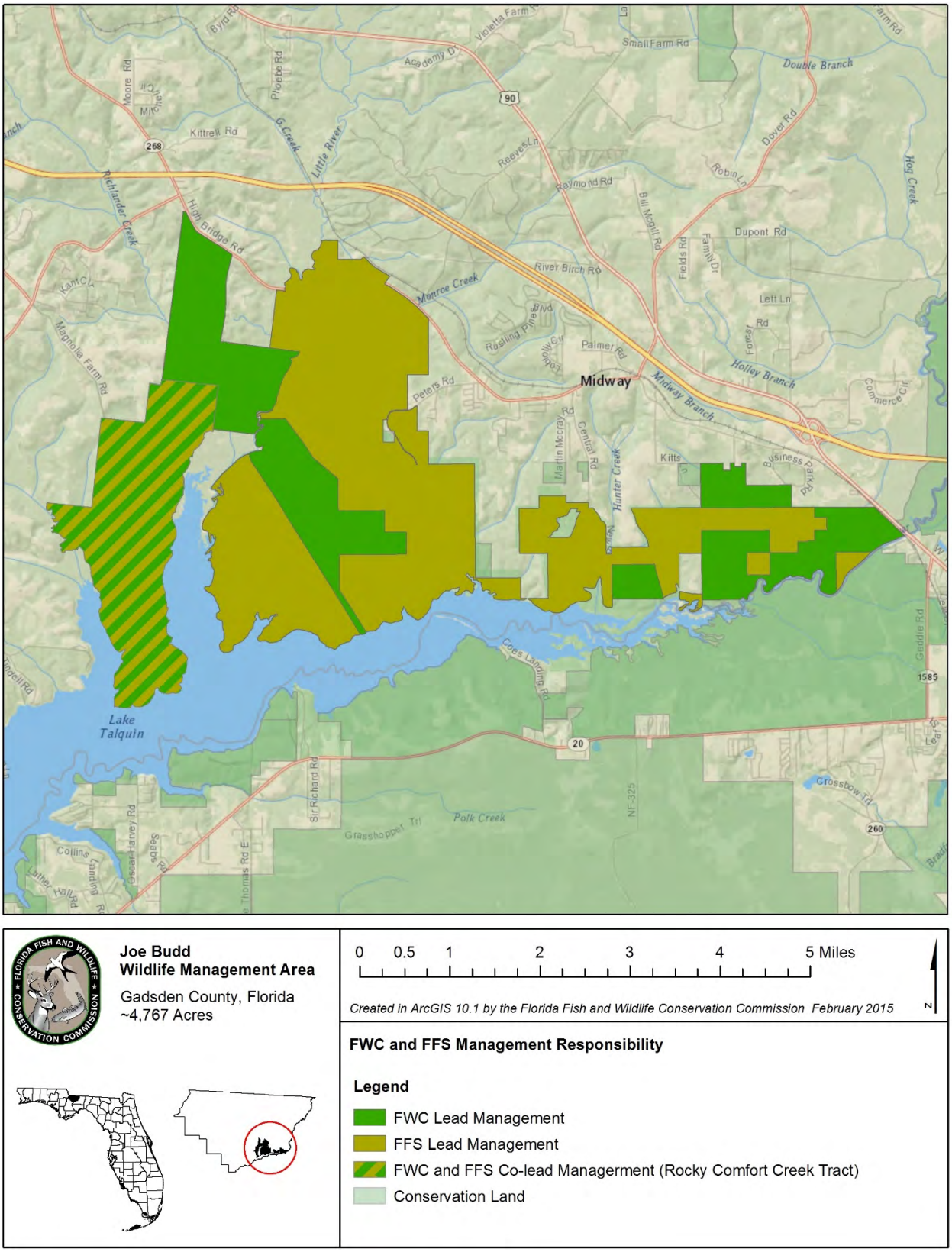


Figure 3. FWC and FFS Management Responsibility

management responsibility and FWC has a cooperator management role. These FFS-managed lands have been established by FWC as part of JBWMA to provide hunting opportunities and assistance on overall fish and wildlife management, but are also designated and managed by the FFS as part of Lake Talquin State Forest.

Where FWC is the lead and co-lead agency, JBWMA is managed by FWC, with cooperation from FFS, to conserve and restore natural wildlife habitat for an array of imperiled and other native wildlife. In addition, FWC, with cooperation from FFS, manages JBWMA to provide high-quality opportunities for hunting, wildlife viewing, and other fish and wildlife-based public outdoor recreation opportunities including fishing, horseback-riding, bicycling, and hiking.

1.1 Management Plan Purpose

This Management Plan serves as the basic statement of policy and direction for the management of JBWMA. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and cultural resources found on JBWMA. Furthermore, it identifies FWC's future management intent, goals and associated short and long-term objectives, as well as identifying challenges and solutions, and has been developed to guide each aspect of JBWMA's management for the next ten years. This management plan primarily covers the 4,767 acres of JBWMA where FWC is the designated lead and co-lead managing agency, with exceptions for road maintenance and utility improvement corridors that cross portions of FFS lead managed areas, minor facilities such as signage, kiosks and check station on the FFS lead managed portion of the area, as well as cooperative wildlife management with FFS for the overall JBWMA (see **Sections 6.5** and **6.9**).

This Management Plan is submitted for review and approval consideration to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) of the State of Florida through the Florida Department of Environmental Protection's (DEP) Division of State Lands (DSL), in compliance with paragraph seven of Lease Numbers 3949 and 4211 (Appendix 13.1) and pursuant 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 Acquisition and Restoration Council (ARC) requirements for management plans and the model plan outline provided by the staff of DSL. Terms (Appendix 13.2) 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 general 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 general public at a public hearing (Appendix 13.3). 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 JBWMA Management Plan (**Sections 5 - 8**).

Further management planning input is received through Land Management Reviews (LMR) conducted every five years, which includes a review of the previous Management Plan, as well as a field review of JBWMA. The LMR report (**Section 5.1**, Appendix 13.4) provides FWC staff with important information and guidance provided by a diverse team of land management auditors, and communicates the recommendations of the LMR team to FWC so they may be adequately addressed in this Management Plan, and thus guide the implementation of the LMR team recommendations on JBWMA.

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 for review and approval consideration.

1.2 Location

Located within the FWC's Northwest Region, the JBWMA is situated in the southeast portion of Gadsden County, Florida on the north shore of Lake Talquin. The area lies approximately six miles southeast of Quincy and seven miles west of Tallahassee. There are numerous access points to the area from CR 267A, CR 268, Peters Rd and Central Road. The JBWMA is in multiple sections of Township 1 North, Ranges 2 and 3 West, and multiple sections of Township 61 North, Range 61 East (Figure 4).

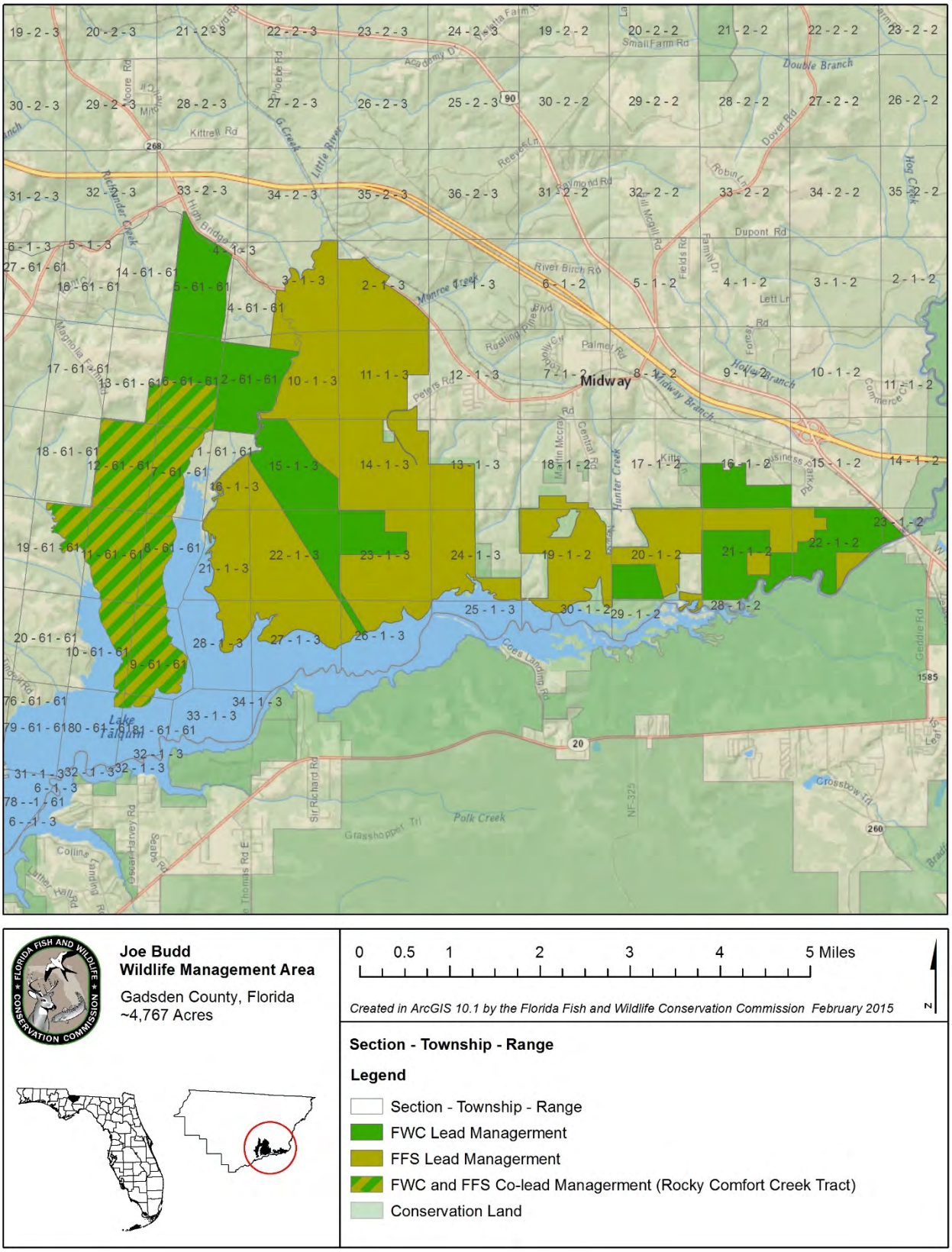


Figure 4. Section - Township - Range

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

The JBWMA was acquired through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) for the purposes of restoration, conservation and management of fish and wildlife habitat and associated natural resources, and to provide public fish and wildlife based recreational opportunities. Subsequent acquisitions occurred under the FWC Preservation-2000 (P-2000) Inholdings and Additions (I & A) Program, and through mitigation donations and exchanges. The purposes of these later acquisitions was to protect the native natural communities and associated wildlife habitat, protect the watershed and water quality of Rocky Comfort Creek and Lake Talquin, aid in the resource management of the area and provide fish and wildlife based public outdoor recreation.

The FWC-lead and co-lead portions of JBWMA, including lands titled to FWC and those titled to the Trustees, are managed for the purpose of operating a Wildlife Management Area, providing ecological diversity, providing managed habitat for both common and imperiled wildlife, and for providing the public with fish and wildlife-oriented outdoor recreational opportunities.

1.3.2 Acquisition History

In 1975, the Florida Game and Fresh Water Fish Commission (GFC, now FWC) purchased 794 acres of land, known as the Budd Ranch, from the estate of Mr. Joseph T. Budd, Jr., a prominent businessman in the shade tobacco industry of Gadsden County, Florida. The GFC became the titleholder to this property pursuant to the requirements of the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) of 1937 that provided acquisition funding for the purchase by GFC. At the time of this transaction, Mr. Budd's widow, Mrs. Florence W. Brooks, also relinquished all hunting, fishing and grazing rights held by the estate and leased them to the Florida Power Corporation (FPC). These rights were exercised on approximately 4,000 acres adjacent to the Budd Ranch. The FPC in turn granted these rights to GFC, enabling the establishment of JBWMA. This arrangement continued until 1977 when FPC deeded their lands to the Board of Trustees, with the Florida Department of Natural Resources (DNR, now DSL) designated as the controlling agent. Subsequently, the DNR issued a 10-year lease to the Florida Department of Agriculture's Division of Forestry (DOF, now FFS) for reforestation and related restoration work. The DOF in turn issued a special use permit to GFC to continue operating the area as a WMA.

In 1981, an agreement was reached between DOF and GFC to add an additional 2,000 acres of land to JBWMA. This land had been acquired from the FPC in the 1977 transaction, but had not been originally included in the JBWMA. A 300-acre portion of this addition was adjacent to the main Joe Budd tract just east of High Bluff Road. The

remaining 1,700 acres was separate from the main tract, and is located southwest of Midway.

In 1987, GFC purchased the 927-acre Pace property, now referred to as the Little River tract. This purchase was again made from the GFC Land Acquisition Trust Fund, using funds received by the GFC through the Pittman-Robertson Act, and thus requiring GFC to hold title to this property. In 1992, the FWC purchased the Davis tract (1,032 acres) using funds provided to the agency under the FWC Preservation 2000 (P-2000) Inholdings and Additions Acquisition Program (I & A).

Subsequently, in October of 1998, the Rocky Comfort Creek tract (2,014 acres) was jointly acquired by the FWC and FFS from Florida Power and Light (FP&L), again using P-2000 I & A program funds. Prior to acquisition, this property was primarily used as a private hunting reserve by FP&L employees. Since FWC and DOF cooperated to acquire this tract, it was leased jointly to the agencies, with both designated as co-lead managers.

More recently, to mitigate for the expansion of the Florida Gas Transmission Line easement that transects JBWMA, two parcels were added; the first in 2012 (25 acres) and the second in 2013 (10 acres).

1.4 Management Authority

The FWC is the designated lead managing agency for JBWMA under the authority granted by Lease Number 3949 and co-lead under Lease Number 4211 from the Board of Trustees agent, DSL. 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 FS. 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

The 50-year Board of Trustees' Lease Agreement Numbers 3949 and 4211 with FWC directs FWC to "manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 253.023(11), FS..." The lease agreement further directs FWC to "implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.018(2)(h), FAC, which have been selected, developed, or approved by lessor, lessee, or other land managing agencies for the protection and enhancement of the leased premises."

1.6 Title Interest and Encumbrances

Title to a portions of the FWC-managed land within JBWMA purchased using funds of the Pittman-Robertson Act (Budd and Little River tracts) are titled to FWC; title to the Davis and Rocky Comfort Creek tracts is held in fee-simple by the Board of Trustees. The title to the portions of Lake Talquin State Forest established as part of the JBWMA as a cooperative area is held in fee simple by the Board of Trustees and is leased to FFS for their lead management.

On December 14, 1993, the Board of Trustees granted the issuance of a non-exclusive utility easement to Florida Gas Transmission Company (FGT) that would allow ingress and egress for the construction of a natural gas pipeline through Florida as required pursuant to the federal Natural Gas Act and the Florida Natural Gas Transmission Pipeline Siting Act (Ch. 403.9401-.9425, F.S.). The FGT was granted this 50-year easement to operate and maintain the gas pipeline, for which they conveyed 10 acres to the State as part of the mitigation requirements for the taking of public conservation land.

Also, on March 9, 2010, FWC and the Board of Trustees granted the issuance of a non-exclusive utility easement to FGT for expansion of the natural gas pipeline. The FGT was granted this 50-year easement to continue to operate and maintain the gas pipeline, for which they conveyed to the State 25 acres in 2011 and 10 acres in 2013, as part of the mitigation requirements for the taking of public conservation land.

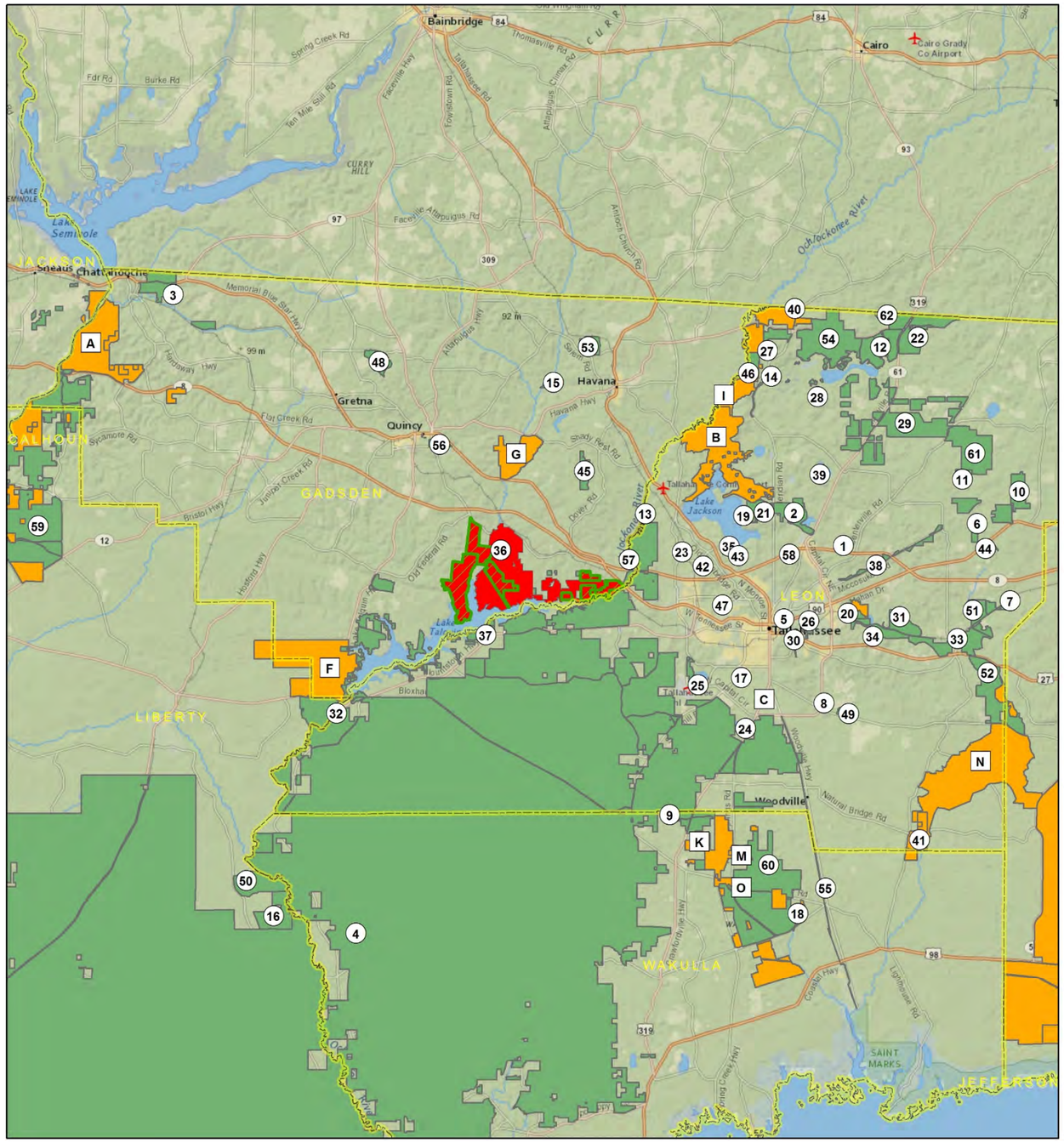
1.7 Proximity to Other Public Conservation Lands

The JBWMA is located in the vicinity of a large number of publicly owned conservation areas and several Florida Forever projects (Figure 5, Tables 1 - 2), but is not within or adjacent to an Area of Critical State Concern. These lands are managed by both public and private entities that conserve cultural and natural resources within this region of Florida.

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

1.8 Zoning and Adjacent Land Uses

The JBWMA is located outside of the incorporated Planning Area of Gadsden County. The 2013 U.S. Census estimates that there are 46,740 people living in Gadsden County. Midway's year 2013 population was estimated at 3,107. The University of Florida's Bureau of Economic and Business Research (BEBR) mid-range population projection for Gadsden County in 2025 is 50,100 people. The BEBR's mid-range population projections for the bordering Florida counties are as followed: Leon 309,400, Liberty 9,700, Jackson 51,300, and Calhoun 15,900.



Conservation Lands

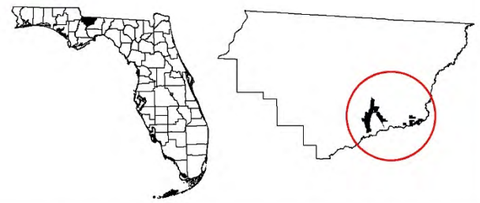
Map Symbol	Name
1	A. J. Henry Park
2	Alfred B. Maclay Gardens State Park
3	Apalachee Correctional Institution
4	Apalachicola National Forest
5	Barnette W. Allen Nature Preserve
6	Billingsley Conservation Easement
7	Blueprint 2000 Conservation Easement
8	Capital Circle Office Complex Conservation Area
9	Carlton Farms Conservation Easement
10	Chemonie Plantation Conservation Easement
11	Chemonie Trust Conservation Easement
12	Cherokee Plantation Conservation Easement
13	Coastal Forest Resources Conservation Easement
14	Conlin Island Conservation Easement
15	Davidson-Riverview Conservation Easement
16	Davidson/Hosford Conservation Easement
17	Dr. Charles Billings Greenway
18	Edward Ball Wakulla Springs State Park
19	Elinor Klapp-Phipps Park
20	Fallschase Greenway
21	Farm's Eden Conservation Easement
22	Foshalee Plantation Conservation Easement
23	Fred George Greenway
24	Gil Waters Preserve at Lake Munson
25	Golden Aster Preserve
26	Governors Park
27	Hiamonee Plantation Conservation Easement
28	Hinkle Property Conservation Easement
29	Horseshoe Plantation Conservation Easement
30	Indian Head Acres Park
31	J. R. Alford Greenway
32	Jackson Conservation Easement
33	L. Kirk Edwards Wildlife and Environmental Area
34	Lafayette Heritage Trail Park
35	Lake Jackson Mounds Archaeological State Park
36	Lake Talquin State Forest
37	Lake Talquin State Park
38	Miccosukee Canopy Road Greenway
39	Millstone Plantation Conservation Easement
40	Mistletoe Conservation Easement
41	Natural Bridge Battlefield Historic State Park
42	Northwest Park
43	Okeeheepkee Prairie
44	Pace Conservation Easement
45	RCM Farms Conservation Easement
46	River Ridge Plantation Conservation Easement
47	San Luis Mission Park
48	Shade Farm Conservation Easement
49	Shepherd's Branch Habitat Mitigation Area Conservation Easement
50	Shuler Conservation Easement
51	St. Marks Headwaters
52	St. Marks River Preserve State Park
53	Swamp Creek Preserve Conservation Easement
54	Tall Timbers Research Station and Land Conservancy
55	Tallahassee-St. Marks Historic Railroad State Trail
56	Tanyard Creek Preservation Park
57	Thompson/Gray Conservation Easement
58	Timberlane Ravine
59	Torreya State Park
60	Wakulla State Forest
61	Woodfield Springs Plantation Conservation Easement
62	Woodland Corners Conservation Easement

Florida Forever Projects

Map Symbol	Name
A	Apalachicola River
B	Ayavalla Plantation
C	Florida's First Magnitude Springs - Church Sink
D	Florida's First Magnitude Springs - River Sink Spring
E	Florida's First Magnitude Springs - St. Marks Springs
F	Hosford Chapman's Rhododendron Protection Zone
G	Little River Conservation Area
H	Millstone Plantation
I	Ochlockonee River Conservation Area
J	St. Joe Timberland - Apalachicola River
K	St. Joe Timberland - Florida's First Magnitude Springs - River Sink Spring
L	St. Joe Timberland - Florida's First Magnitude Springs - St. Marks Springs
M	St. Joe Timberland - Wakulla Springs Protection Zone
N	Upper St. Marks River Corridor
O	Wakulla Springs Protection Zone

Joe Budd Wildlife Management Area

Gadsden County, Florida
~4,767 Acres



Conservation Lands and Florida Forever Projects within 20 Miles of Joe Budd WMA

Legend

- Joe Budd WMA - FWC Lead and Rocky Comfort Tract
- Joe Budd WMA
- Conservation Land
- Florida Forever Project
- County

0 2.5 5 10 15 Miles

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Figure 5. Conservation Lands and Florida Forever Projects

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Table 1. Conservation Lands within 20 miles of JBWMA

Map Symbol	Name	Manager
1	A. J. Henry Park	City of Tallahassee
2	Alfred B. Maclay Gardens State Park	DEP-DRP
3	Apalachee Correctional Institution	PRIDE Enterprises, Inc.
4	Apalachicola National Forest	USFS
5	Barnette W. Allen Nature Preserve	City of Tallahassee
6	Billingsley Conservation Easement	NWFWMD
7	Blueprint 2000 Conservation Easement	NWFWMD
8	Capital Circle Office Complex Conservation Area	DMS
9	Carlton Farms Conservation Easement	NWFWMD
10	Chemonie Plantation Conservation Easement	Tall Timbers Research, Inc.
11	Chemonie Trust Conservation Easement	Tall Timbers Research, Inc.
12	Cherokee Plantation Conservation Easement	Tall Timbers Research, Inc.
13	Coastal Forest Resources Conservation Easement	NWFWMD
14	Conlin Island Conservation Easement	Tall Timbers Research, Inc.
15	Davidson-Riverview Conservation Easement	Tall Timbers Research, Inc.
16	Davidson/Hosford Conservation Easement	NWFWMD
17	Dr. Charles Billings Greenway	City of Tallahassee
18	Edward Ball Wakulla Springs State Park	DEP-DRP
19	Elinor Klapp-Phipps Park	City of Tallahassee
20	Fallschase Greenway	Leon County
21	Farm's Eden Conservation Easement	Tall Timbers Research, Inc.
22	Foshalee Plantation Conservation Easement	Tall Timbers Research, Inc.
23	Fred George Greenway	Leon County
24	Gil Waters Preserve at Lake Munson	Leon County
25	Golden Aster Preserve	City of Tallahassee
26	Governors Park	City of Tallahassee
27	Hiamonee Plantation Conservation Easement	Tall Timbers Research, Inc.
28	Hinkle Property Conservation Easement	Tall Timbers Research, Inc.
29	Horseshoe Plantation Conservation Easement	Tall Timbers Research, Inc.
30	Indian Head Acres Park	City of Tallahassee
31	J. R. Alford Greenway	Leon County
32	Jackson Conservation Easement	NWFWMD
33	L. Kirk Edwards Wildlife and Environmental Area	FWC
34	Lafayette Heritage Trail Park	City of Tallahassee
35	Lake Jackson Mounds Archaeological State Park	DEP-DRP

Table 1. Conservation Lands within 20 miles of JBWMA

Map Symbol	Name	Manager
36	Lake Talquin State Forest	FFS
37	Lake Talquin State Park	DEP-DRP
38	Miccosukee Canopy Road Greenway	Leon County
39	Millstone Plantation Conservation Easement	DEP-DSL
40	Mistletoe Conservation Easement	Tall Timbers Research, Inc.
41	Natural Bridge Battlefield Historic State Park	DEP-DRP
42	Northwest Park	City of Tallahassee
43	Okeeheepkee Prairie	Leon County
44	Pace Conservation Easement	NWFWMD
45	RCM Farms Conservation Easement	Tall Timbers Research, Inc.
46	River Ridge Plantation Conservation Easement	Tall Timbers Research, Inc.
47	San Luis Mission Park	City of Tallahassee
48	Shade Farm Conservation Easement	Tall Timbers Research, Inc.
49	Shepherd's Branch Habitat Mitigation Area	City of Tallahassee
50	Shuler Conservation Easement	NWFWMD
51	St. Marks Headwaters	Leon County
52	St. Marks River Preserve State Park	DEP-DRP
53	Swamp Creek Preserve Conservation Easement	Tall Timbers Research, Inc.
54	Tall Timbers Research Station and Land Conservancy	Tall Timbers Research, Inc.
55	Tallahassee-St. Marks Historic Railroad State Trail	DEP-DRP
56	Tanyard Creek Preservation Park	City of Quincy
57	Thompson/Gray Conservation Easement	NWFWMD
58	Timberlane Ravine	City of Tallahassee
59	Torreya State Park	DEP-DRP
60	Wakulla State Forest	FFS
61	Woodfield Springs Plantation Conservation Easement	Tall Timbers Research, Inc.
62	Woodland Corners Conservation Easement	Tall Timbers Research, Inc.

Acronym Key

DEP-DRP = Florida Dept. of Environmental Protection, Div. of Recreation and Parks
DEP-DSL = Florida Dept. of Environmental Protection, Div. of State Lands
DMS = Florida Dept. of Management Services
FFS = Florida Forest Service
FWC = Florida Fish and Wildlife Conservation Commission
NWFWMD = Northwest Florida Water Management District
USFS = US Forest Service

Table 2. Florida Forever Projects within 20 miles of JBWMA

Map Symbol	Name
A	Apalachicola River
B	Ayavalla Plantation
C	Florida's First Magnitude Springs - Church Sink
D	Florida's First Magnitude Springs - River Sink Spring
E	Florida's First Magnitude Springs - St. Marks Springs
F	Hosford Chapman's Rhododendron Protection Zone Florida Forever Project
G	Little River Conservation Area
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L	St. Joe Timberland - Florida's First Magnitude Springs - St. Marks Springs
M	St. Joe Timberland - Wakulla Springs Protection Zone
N	Upper St. Marks River Corridor
O	Wakulla Springs Protection Zone

The JBWMA is currently zoned Agriculture and Conservation, with future land use also designated for Agriculture and Conservation. Gadsden County land development code determines what are permitted uses for lands zoned Agriculture and Conservation. On the portions of JBWMA zoned Agriculture, the uses permitted include agriculture and silviculture. On the portions of JBWMA zoned Conservation, uses permitted include the retention of natural areas and low impact recreation. The FWC lead and co-lead management portions of JBWMA are zoned as Conservation.

The current land use designations for areas in the vicinity of the JBWMA are Agriculture, Rural Residential, and Commercial. Only a limited amount of residential development is allowed, provided that the gross density requirements are maintained. Also Recreational Vehicle Parks and campgrounds are permitted with a special exception permit in areas in close proximity to major transportation facilities. Property zoned Rural Residential is suitable for development at moderate densities. Residential development can occur if the minimum lot size is one acre. Clustering of residential units is allowed provided that the net density does not exceed one dwelling unit per acre. Commercial zoning allows for high intensity commercial activity, professional services, office uses, institutional and public

service/utility uses. Future land use on these properties include Agriculture 3, Light Industrial, Heavy Industrial, and Commercial.

The future management of JBWMA for conservation purposes faces a potential challenge due to some of the bordering property having a future land use designated as Light Industrial and Heavy Industrial. The development of property zoned as Light Industrial will likely cause little environmental impact, but the property developed as Heavy Industrial has the potential to cause environmental impacts. These impacts may interrupt breeding from animals living on JBWMA, which could then have an impact on imperiled species, as well as public hunting opportunities.

1.9 Public Involvement

The FWC conducted a MAG meeting in Quincy, Florida on February 20, 2013 to obtain input from both public and private stakeholders regarding management of JBWMA. 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 13.3. Further, a public hearing, as required by Chapter 259.032(10), FS, was held in Quincy, Florida on April 4, 2013. The report of that hearing is also contained in Appendix 13.3. A website is also maintained for receipt of public input at http://myfwc.com/conservation/terrestrial/management-plans/develop-mps/ . Further testimony and input is received at a public hearing held by the ARC when this Management Plan is considered for approval. Input received from all public involvement efforts has been considered in the development of this Management Plan.

2 Natural and Cultural Resources

2.1 Physiography

2.1.1 Climate

The climate of JBWMA is classified as subtropical. Annual mean high and low temperatures are 79.1 and 55.5 degrees Fahrenheit (F), respectively. July is typically the hottest month with mean a high temperature of 91.0 degrees F, while January is typically the coolest month with a mean high temperature of 64.0 degrees F. Mean annual rainfall is 59.9 inches.

2.1.2 Physiographic Province

The JBWMA is located within the Tallahassee Hills physiographic province. The Tallahassee Hills region, north of the Beacon Slope, stretches east from the Apalachicola River to the northern portions of the Withlacoochee River. It is approximately 100 miles

wide by 25 miles in length and is characterized by long, gentle slopes with rounded summits.

2.1.3 Topography

Bounded on the east by the Ochlockonee River, on the west by the Apalachicola River, on the southeast by Lake Talquin and on the north by the State of Georgia, Gadsden County's topography consists of forested areas and rolling hills interspersed with small creeks, lakes, and rivers. Low areas exist along the broad, flat floodplains of the Apalachicola River, Ochlockonee River and Lake Talquin, with elevations generally under 100 feet above mean sea level (MSL). Elevations range from approximately 50 feet above MSL to more than 300 feet above MSL. The elevations of the FWC lead and co-lead portions of JBWMA range from 64 feet to 222 feet above MSL (source data provided by the U.S. Geological Survey National Elevation Dataset (NED) program), with 1/9th Arc-Second grids produced by the FWC Fish & Wildlife Research Institute's Center for Spatial Analysis).

2.1.4 Geologic Conditions

Three stratigraphic units occur on JBWMA. They include the Citronelle Formation; the Hawthorn Group, Torreya Formation; and the Miccosukee Formation.

Citronelle Formation

The Citronelle Formation (Pliocene) is widespread in the Gulf Coastal Plain. The type section for the Citronelle Formation is near Citronelle, Alabama. The Citronelle Formation grades laterally, through a broad facies transition, into the Miccosukee Formation of the eastern Florida panhandle. The Citronelle Formation consists of gray to orange, often mottled, unconsolidated to poorly consolidated, very fine to very coarse, poorly sorted, clean to clayey sands. It contains significant amounts of clay, silt and gravel which may occur as beds and lenses and may vary considerably over short distances. Limonite nodules and limonite-cemented beds are common. Marine fossils are rare but fossil pollen, plant remains and occasional vertebrates are found. Much of the Citronelle Formation is highly permeable. It forms the Sand and Gravel Aquifer of the surficial aquifer system. The lithology consists of delta, sand, clay or mud, silt, and gravel.

Hawthorn Group, Torreya Formation

The Torreya Formation (Miocene) is exposed or near the surface from western Gadsden County eastward to western-most Hamilton County. It is informally subdivided into a lower carbonate unit and an upper siliciclastic unit. The majority of Torreya Formation outcrops expose the siliciclastic part of the unit. The carbonate sediments are white to light olive gray, generally poorly indurated, variably sandy and clayey, fossiliferous (molds and casts) limestone (mudstone and wackestone). The limestones often grade into calcareous-cemented sands. Phosphate is present in the carbonate sediments, particularly in the Sopchoppy Member. The siliciclastics vary from white to light olive gray, unconsolidated to

poorly indurated, slightly clayey sands with minor phosphate to light gray to bluish gray, poorly consolidated, variably silty clay (Dogtown Member). The siliciclastics are sporadically fossiliferous. The Torreya Formation overlies the Floridan aquifer and forms part of the intermediate confining unit for the system. The lithology consists of limestone, sandstone, clay or mud, and silt.

Miccosukee Formation

The Miccosukee Formation (Pliocene) is a siliciclastic unit with a limited distribution in the eastern panhandle. It occurs in the Tallahassee Hills from central Gadsden County to eastern Madison County, often capping hills. The Miccosukee Formation grades to the west, through a broad facies transition, in central Gadsden County into the Citronelle Formation. The Miccosukee Formation is a prodeltaic deposit. The Miccosukee Formation is composed of grayish orange to grayish red, mottled, poorly to moderately consolidated, interbedded clay, sand and gravel of varying coarseness and admixtures. The unit is relatively impermeable but is considered a part of the surficial aquifer system. The lithology consists of clay or mud, sand, and gravel.

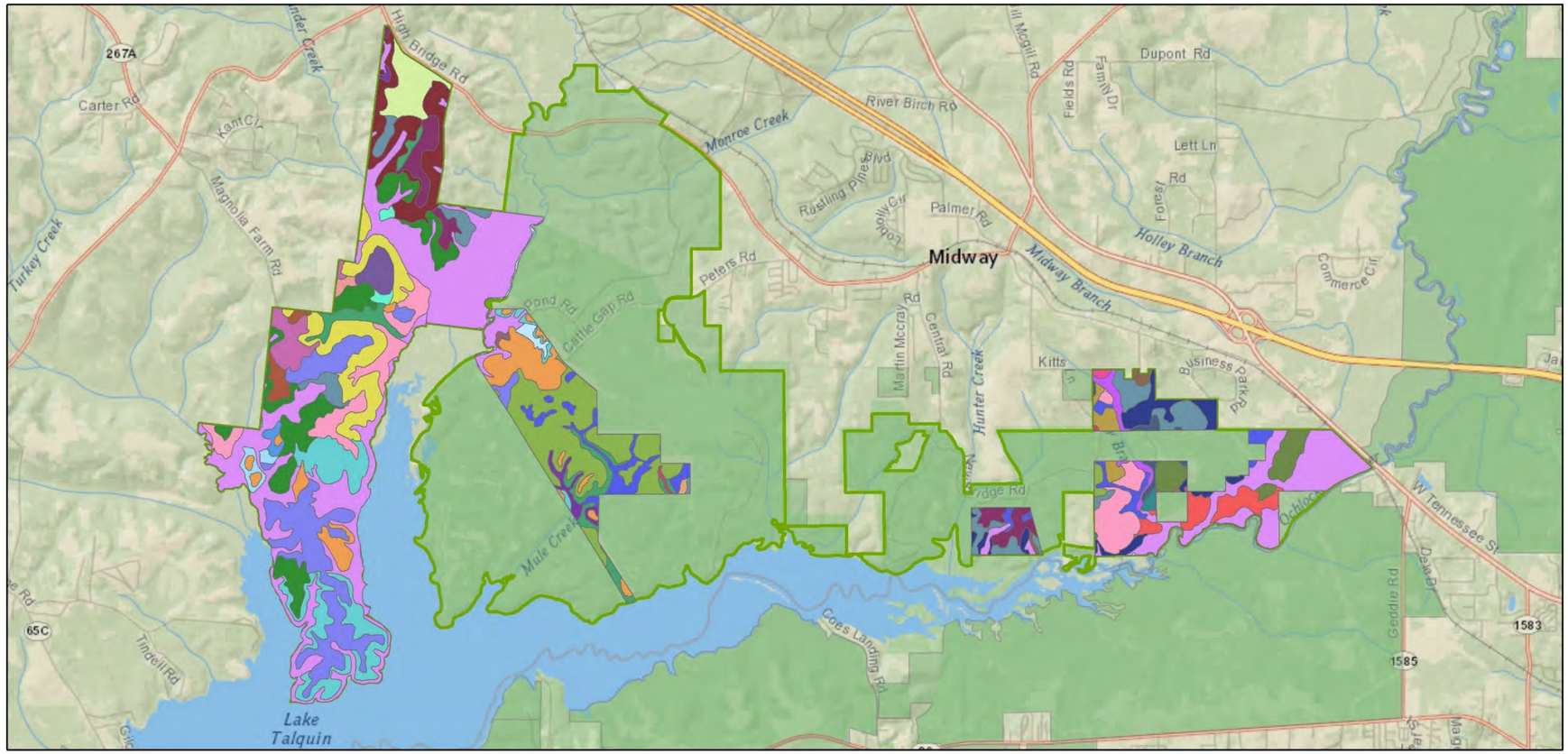
2.1.5 Soils

Soil data provided by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) indicates 35 map units (soil series) to be present on JBWMA (Figure 6; map unit descriptions Appendix 13.5), with natural drainage classifications ranging from somewhat excessively drained to very poorly drained. These data further indicate soil depth to the water table ranging from 0 to greater than 200 centimeters (Figure 7).

2.2 Vegetation

Geographic Information System (GIS) mapping data of vegetation for JBWMA, and their associated natural community descriptions, were originally developed by the Florida Natural Areas Inventory (FNAI) from their assessments and field reviews performed in 2003. Subsequently, FNAI revised these original GIS mapping data and descriptions in 2013. Also, FNAI mapped the probable historic natural community condition of JBWMA in 2003 (Figure 8).

In the 2013 mapping of JBWMA, 19 natural and altered communities (Figure 9, Table 3) were identified, and lists of the known native and exotic plant species for JBWMA have subsequently been compiled (Tables 4 - 5). Natural communities represent approximately 83.5% of the total land cover of JBWMA, and include baygall, bottomland hardwood forest, depression marsh, dome swamp, floodplain marsh, floodplain swamp, mesic flatwoods, sandhill, upland hardwood forest, upland pine, and wet flatwoods. The remainder of JBWMA is comprised of altered areas (11.8%) and areas undergoing upland pine restoration (2.7%). The majority of the altered areas have a land cover classification of



Soils

Legend

Soil Series

- Albany-Blanton complex, 0 to 5 percent slopes
- Albany-Garcon-Bibb complex, 0 to 5 percent slopes, occasionally flooded
- Albany-Ocilla-Chipley complex, 0 to 5 percent slopes
- Albany-Ousley-Pelham complex, 0 to 5 percent slopes, occasionally flooded
- Blanton sand, 5 to 8 percent slopes
- Bonifay-Albany-Centenary complex, 0 to 5 percent slopes
- Bonifay-Alpin complex, 0 to 5 percent slopes
- Bonifay-Fuquay complex, 0 to 5 percent slopes
- Bonifay-Leon-Chipley complex, 0 to 5 percent slopes
- Cowarts-Nankin complex, 2 to 5 percent slopes
- Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes
- Eunola, Garcon, and Ousley soils, occasionally flooded
- Foxworth-Blanton-Chipley complex, 0 to 5 percent slopes
- Foxworth-Lakeland complex, 0 to 5 percent slopes
- Foxworth-Lakeland complex, 5 to 15 percent slopes
- Fuquay-Lucy-Orangeburg complex, 0 to 5 percent slopes
- Fuquay-Orangeburg-Norfolk complex, 8 to 15 percent slopes
- Hosford and Plummer mucky sands, 2 to 12 percent slopes
- Hurricane and Chipley soils, 0 to 3 percent slopes
- Leefield-Bonifay-Dothan complex, 0 to 5 percent slopes
- Lucy-Bonifay-Orangeburg complex, 5 to 8 percent slopes
- Lucy-Orangeburg-Cowarts complex, 15 to 45 percent slopes
- Norfolk loamy fine sand, 0 to 2 percent slopes
- Orangeburg loamy sand, 2 to 5 percent slopes
- Orangeburg-Norfolk-Tifton complex, 5 to 8 percent slopes
- Pelham sand, 0 to 5 percent slopes
- Pickney, Dorovan, and Bibb soils, frequently flooded
- Plummer sand, 0 to 5 percent slopes
- Plummer-Leon-Sapelo complex
- Rains fine sandy loam
- Rutlege and Plummer soils, depressional
- Rutlege, Bibb, and Surrency soils, frequently flooded
- Troup-Bonifay-Fuquay complex, 8 to 15 percent slopes
- Troup-Lakeland-Lucy complex, 2 to 8 percent slopes
- Udorthents, reclaimed
- Water

Joe Budd
Wildlife Management Area
Gadsden County, Florida
~4,767 Acres

0 0.5 1 2 Miles

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Figure 6. Soils

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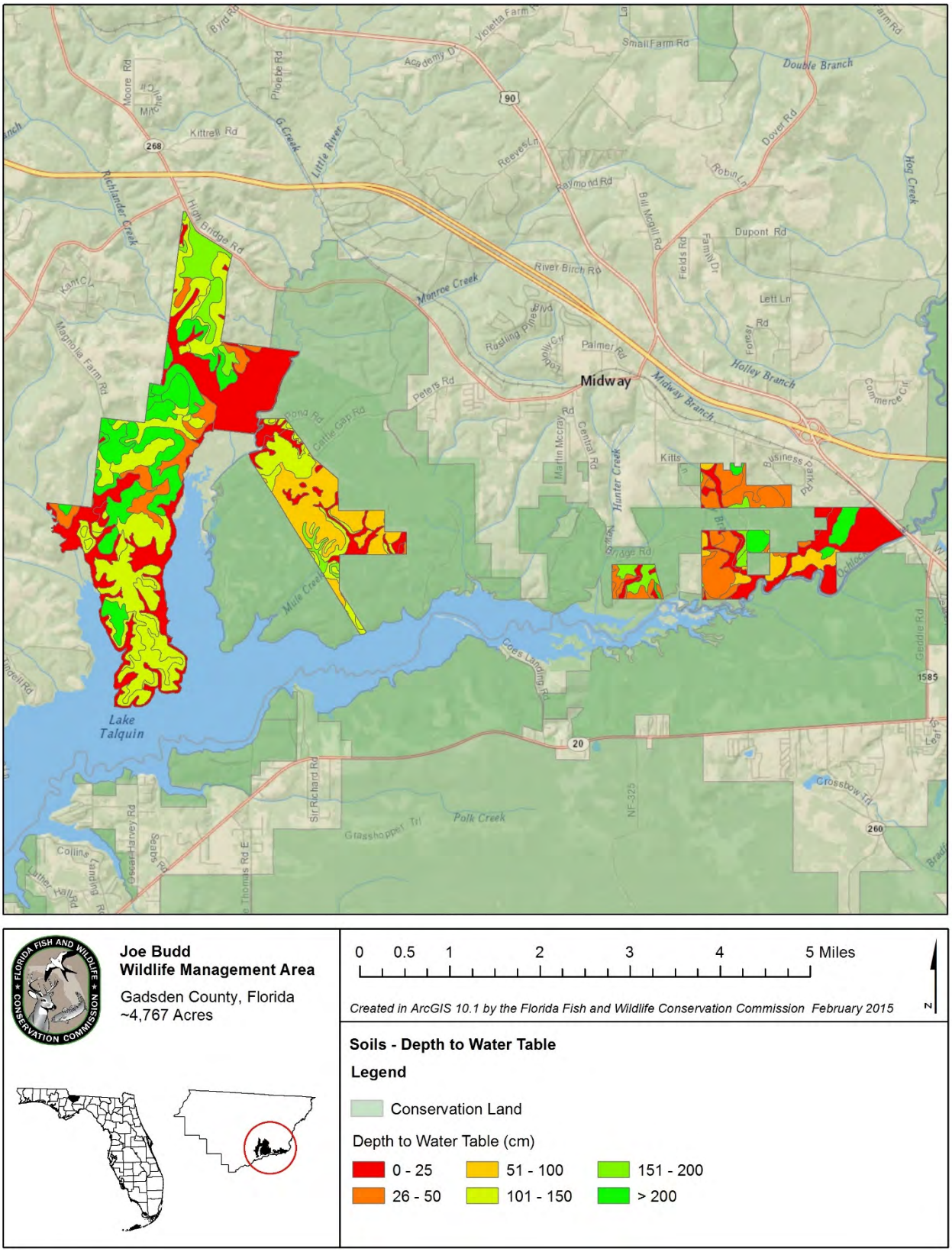

Figure 7. Soils - Depth to Water Table

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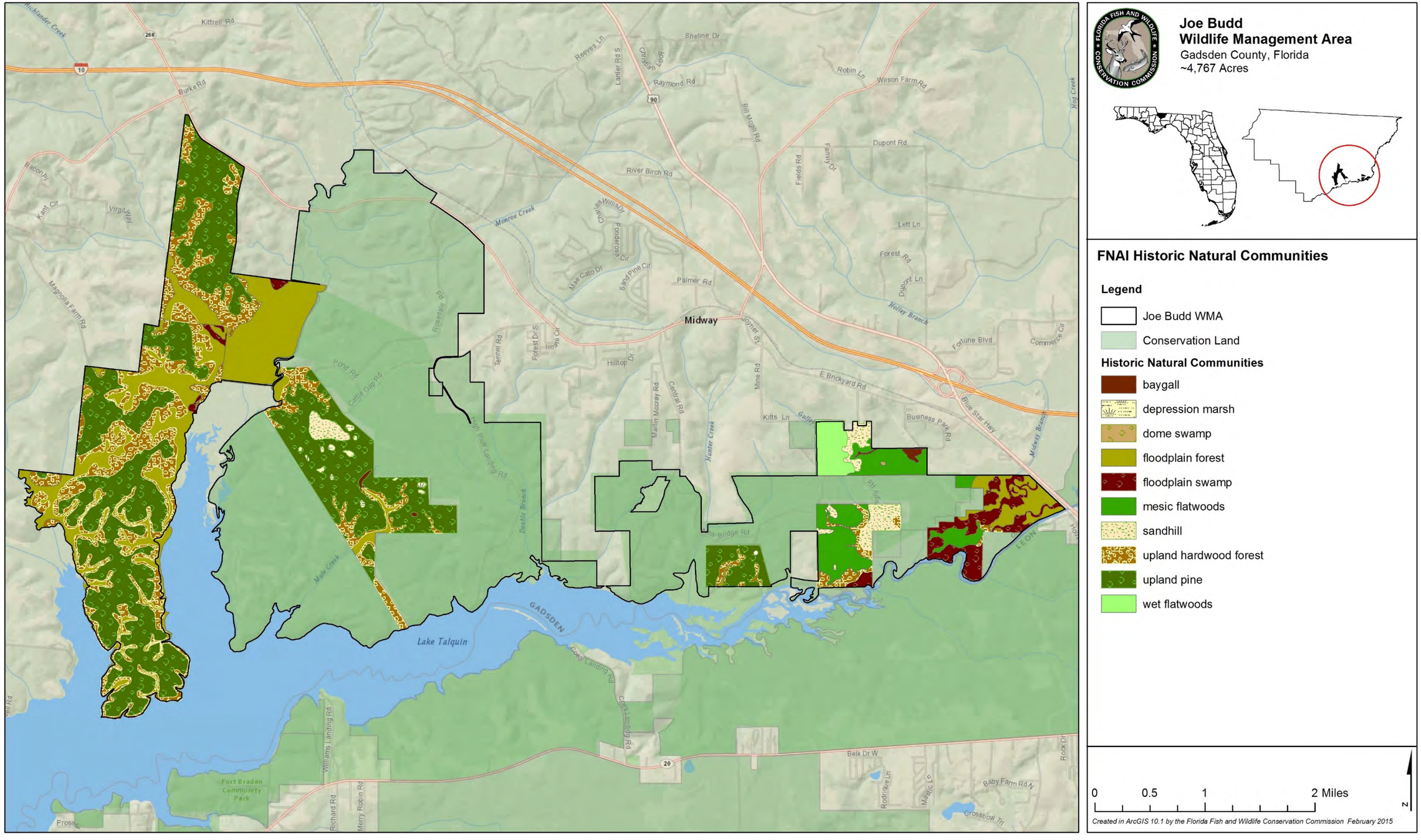

Figure 8. FNAI Historic Natural Communities

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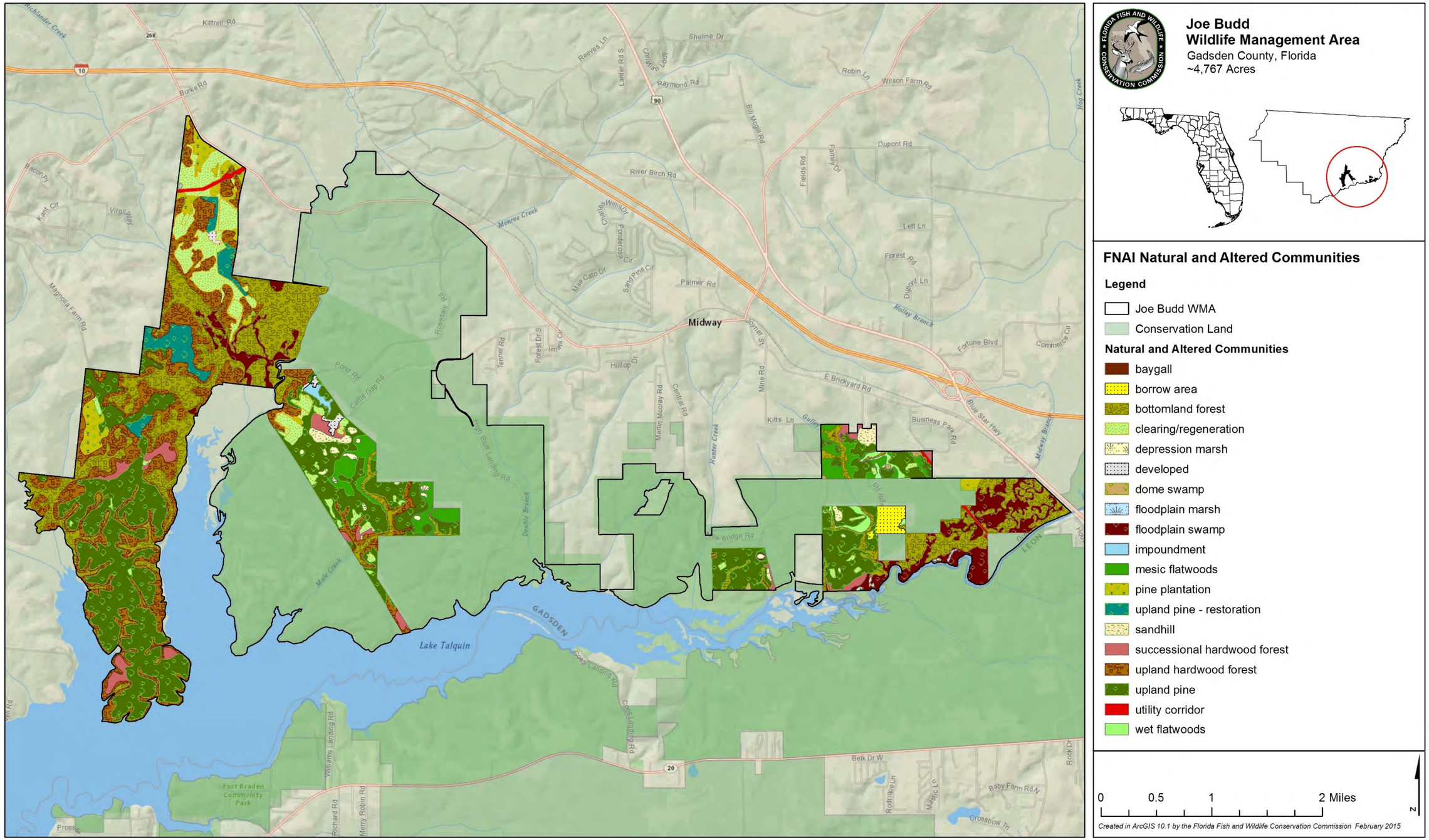

Figure 9. FNAI Natural and Altered Communities

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Table 3. Natural and Altered Communities of JBWMA

Community Type	Acres	Percentage of Area
Upland pine	1,503.1	30.4%
Bottomland forest	1,084.2	21.9%
Upland hardwood forest	948.2	19.1%
Clearing/regeneration	333.3	6.7%
Floodplain swamp	309.2	6.2%
Mesic flatwoods	183.6	3.7%
Restoration upland pine	135.2	2.7%
Pine plantation	132.0	2.7%
Successional hardwood forest	118.3	2.4%
Borrow area	41.5	<1%
Sandhill	39.8	<1%
Wet flatwoods	31.7	<1%
Utility corridor	24.0	<1%
Depression marsh	21.9	<1%
Developed	18.5	<1%
Impoundment	15.4	<1%
Dome swamp	5.8	<1%
Floodplain marsh	5.0	<1%
Baygall	1.5	<1%

Table 4. Plant Species of JBWMA

Common name	Scientific name
American beautyberry	*Callicarpa americana*
American beech	*Fagus grandifolia*
American holly	*Ilex opaca*
Arrowheads	*Sagittaria* spp.
Beakrushes	*Rhynochospora* spp.
Black cherry	*Prunus serotina*
Black titi	*Cliftonia monophylla*

Table 4. Plant Species of JBWMA

Common name	Scientific name
Blackgum	*Nyssa sylvatica*
Blackroot	*Pterocaulon pycnostachyum*
Blazing star	*Liatris gracilis*
Blueberry	*Vaccinium* spp.
Blue-jack oak	*Quercus incana*
Bluestem grass	*Andropogon* spp.
Bottlebrush threeawn	*Aristida spiciformis*
Bracken fern	*Pteridium aquilinum*
Broomsedge bluestem	*Andropogon virginicus*
Bulltongue arrowhead	*Sagittaria lancifolia*
Butterfly weed	*Asclepias tuberosa*
Buttonbush	*Cephalanthus occidentalis*
Carolina allspice	*Calycanthus floridus*
Carolina lily	*Lilium michauxii*
Cat greenbrier	*Smilax glauca*
Cinnamon fern	*Osmunda cinnamomea*
Coastal plain willow	*Salix caroliniana*
Coastal sweetpepperbush	*Clethra alnifolia*
Common gallberry	*Ilex glabra*
Cypress	*Taxodium* spp.
Dangleberry	*Gaylussacia frondosa*
Deer tongue	*Carphephorus odoratissimus*
Deerberry	*Vaccinium stamineum*
Dimpled dogtooth-violet	*Erythronium umbilicatum*
Dog fennel	*Eupatorium capillifolium*
Dogwood	*Cornus florida*
Downy milkpea	*Galactia regularis*
Dwarf live oak	*Quercus minima*
Dwarf palmetto	*Sabal minor*
Eastern milkpea	*Galactia volubilis*
Eastern poison ivy	*Toxicodendron radicans*
Elderberry	*Sambucus nigra* var. *canadensis*
Elephant's foot	*Elephantopus elatus*
False nettle	*Boehmeria cylindrica*
False wild petunia	*Dyschoriste oblongifolia*
Fetterbush	*Lyonia lucida*
Florida merrybells	*Uvularia floridana*
Flyr's nemesis	*Brickellia cordifolia*

Table 4. Plant Species of JBWMA

Common name	Scientific name
Fourpetal St. John's wort	*Hypericum tetrapetalum*
Gallberry	*Ilex* spp.
Gopher apple	*Licania michauxii*
Greenbrier	*Smilax* spp.
Hackberry	*Celtis laevigata*
Heartleaf wild ginger	*Hexastylis arifolia*
Highbush blueberry	*Vaccinium corymbosum*
Hooded pitcher plant	*Sarracenia minor*
Huckleberry	*Gaylussacia* spp.
Indiangrass	*Sorghastrum* spp.
Innocence	*Houstonia procumbens*
Laurel greenbrier	*Smilax laurifolia*
Laurel oak	*Quercus laurifolia*
Live oak	*Quercus virginiana*
Lizard's tail	*Saururus cernuus*
Loblolly bay	*Gordonia lasianthus*
Loblolly pine	*Pinus taeda*
Longleaf pine	*Pinus palustris*
Long-leaved pawpaw	*Asimina longifolia*
Lopsided Indian grass	*Sorghastrum secundum*
Maidencane	*Panicum hemitomon*
Mountain azeala	*Rhododendron canescens*
Muscadine	*Vitis rotundifolia*
Narrowleaf silkgrass	*Pityopsis graminifolia*
Needle palm	*Rhapidophyllum hystrix*
Netted chain fern	*Woodwardia areolata*
Nutrush	*Scleria ciliata*
Oakleaf hydrangea	*Hydrangea quercifolia*
Ogeechee tupelo	*Nyssa ogeche*
Panic grass	*Panicum* spp.
Peppervine	*Ampelopsis arborea*
Persimmon	*Diospyros virginiana*
Pickerelweed	*Pontederia cordata*
Piedmont staggerbush	*Lyonia mariana*
Pignut hickory	*Carya glabra*
Pipewort	*Eriocaulon decangulare*
Pond pine	*Pinus serotina*
Popash	*Fraxinus caroliniana*

Table 4. Plant Species of JBWMA

Common name	Scientific name
Pricklypear	*Opuntia humifusa*
Pyramid magnolia	*Magnolia pyramidata*
Rattan vine	*Berchemia scandens*
Red bay	*Persea borbonia*
Red buckeye	*Aesculus pavia*
Red maple	*Acer rubrum*
Resurrection fern	*Pleopeltis polypodioides*
Royal fern	*Osmunda regalis*
Runner oak	*Quercus pumila*
Rushes	*Juncus* spp.
Sand live oak	*Quercus geminata*
Sand-post oak	*Quercus margarettae*
Sassafras	*Sassafras albidum*
Saw palmetto	*Serenoa repens*
Scare-weed	*Baptisia simplicifolia*
Sedge	*Carex* spp.
Sensitive fern	*Onoclea sensibilis*
Shield ferns	*Thelypteris* spp.
Shiny blueberry	*Vaccinium myrsinites*
Silky camellia	*Stewartia malacodendron*
Slash pine	*Pinus elliottii*
Slender woodoats	*Chasmanthium laxum*
Smartweed	*Polygonum* sp.
Southern arrow-wood	*Viburnum dentatum*
Southern magnolia	*Magnolia grandiflora*
Southern red oak	*Quercus falcata*
Sparkleberry	*Vaccinium arboreum*
Sphagnum moss	*Sphagnum* sp.
St. John's wort	*Hypericum* sp.
Staggerbush	*Lyonia fruticosa*
Swamp azalea	*Rhododendron viscosum*
Swamp bay	*Persea palustris*
Swamp tupelo	*Nyssa biflora*
Sweet gallberry	*Ilex coriacea*
Sweet goldenrod	*Solidago odora*
Sweet shrub	*Calycanthus floridus*
Sweetbay	*Magnolia virginiana*
Sweetgum	*Liquidambar styraciflua*

Table 4. Plant Species of JBWMA

Common name	Scientific name
Sweetleaf	*Symplocos tinctoria*
Switchcane	*Arundinaria gigantea*
Tall meadowbeauty	*Rhexia alifanus*
Tall yelloweyed grass	*Xyris platylepis*
Titi	*Cyrilla racemiflora*
Trillium	*Trillium underwoodii*
Trumpet creeper	*Campsis radicans*
Tuliptree	*Liriodendron tulipifera*
Turkey oak	*Quercus laevis*
Violets	*Viola* spp.
Virginia chain fern	*Woodwardia virginica*
Virginia creeper	*Parthenocissus quinquefolia*
Water oak	*Quercus nigra*
Water tupelo	*Nyssa aquatica*
Wax myrtle	*Myrica cerifera*
Wild bachelors button	*Centaurea cyanus*
Wild buckwheat	*Eriogonum tomentosum*
Wild ginger	*Hexastylis arifolia*
Wild indigo	*Baptisia alba*
Willows	*Salix* spp.
Winged sumac	*Rhus copallinum*
Wiregrass	*Aristida stricta*
Witchgrass	*Dichanthelium*spp.
Yellow hatpins	*Syngonanthus flavidulus*
Yellow jessamine	*Gelsemium sempervirens*
Yellow pondlily	*Nuphar advena*
Yellow-eyed grass	*Xyris caroliniana*

Table 5. Invasive Exotic Plants of JBWMA

Common name	Scientific name
Alligatorweed	*Alternanthera philoxeroides*
Bahiagrass	*Paspalum notatum*

Table 5. Invasive Exotic Plants of JBWMA

Common name	Scientific name
Bermuda grass	*Cynodon dactylon*
Camphor tree	*Cinnamomum camphora*
Chinaberry	*Melia azedarach*
Chinese privet	*Ligustrum sinense*
Chinese tallow	*Triadica sebiferum*
Chinese wisteria	*Wisteria sinensis*
Cogongrass	*Imperata cylindrica*
Coral ardisia	*Ardisia crenata*
Japanese climbing fern	*Lygodium japonicum*
Japanese honeysuckle	*Lonicera japonica*
Kudzu	*Pueraria montana* var. *lobata*
Lantana	*Lantana camara*
Mimosa	*Albizia julibrissin*
Nandina	*Nandina domestica*
Tree-of-Heaven	*Ailanthus altissima*

clearing/regeneration (6.7%), pine plantation (2.7%), and successional hardwood forest (2.4%).

2.2.1 FNAI Natural and Altered Community Descriptions

The following natural and altered community descriptions include generic natural community description excerpts from the FNAI Guide to the Natural Communities of Florida 2010 Edition, and have been modified by FWC for the purposes of this Management Plan. As noted above, natural community descriptions specific to JBWMA were developed by FNAI in 2003 and updated in 2013. They too have been modified by FWC for the purposes of this Management Plan.

Natural Communities

Baygall (1.5 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.

Baygall occurs where seepage is at or near the soil surface. Seepage is generally the result of percolating water hitting a restrictive soil layer (e.g. clay or organic pan) and then generally moving laterally and eventually emerging along a slope. Baygalls are generally associated with sandy upland communities (flatwoods and sandhills) and seepage streams. The canopy, if present, typically contains sweetbay, loblolly bay, or red bay; laurel oak, tuliptree, and sweetgum may also be present. The tall shrub layer is generally dense and composed of titi and sweet gallberry. Short shrub cover is also dense and often dominated by fetterbush; other shrubs include sweet pepperbush, black titi, swamp azalea, and mountain azalea. In well-developed baygalls, where woody vegetation is dense, the herbaceous layer is sparse due to lack of sunlight. Herb cover, if present, is typically represented by cinnamon fern and sensitive fern. Sphagnum moss is usually present and may be abundant.

Bottomland forest (692.2 acres)

Bottomland forests occur within floodplain forests 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. Bottomland forest is a closed-canopy forest found on terraces and levees within riverine floodplains and in shallow depressions. Bottomland 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.

Bottomland forests are hardwood forests that occur on drier soils within river floodplains and occur on slightly higher elevations than the commonly adjacent floodplain swamp community. This community also receives flooding inputs seasonally. Fire is infrequent to nonexistent in bottomland forests, occurring only during times of extreme drought. This community should be considered as a natural fire-break that may experience limited burning at its margins.

On JBWMA, bottomland forest is primarily associated with the Ochlockonee River and its smaller tributaries. Bottomland forest commonly occurs between the lowest slope of the

ravine upland hardwood forest community and the clear water seepage stream commonly found in ravine bottoms. This community has a closed canopy of tall, mature, and straight trees, including both pines and hardwoods, with a subcanopy of younger canopy species. The dense canopy maintains relatively high humidity levels, thus fires are rare. The open understory is characterized by a wide array of shrub species that are relatively sparse with a ground cover of ferns, herbs, and grasses. Within the bottomland forest community are often floodplain swamp and upland hardwood forest inclusions. Bottomland forest is highly variable in species composition, dependent on floodplain gradient, included seepage stream size, and local edaphic conditions.

The commonly closed canopy of the bottomland hardwood forest community included red maple, loblolly pine, water oak, swamp tupelo, pignut hickory, sweetgum, tuliptree, Ogeechee tupelo, laurel oak, and live oak. The subcanopy layer often included younger representative canopy species in addition to American holly, sweetbay, and swamp bay. The shrub strata were typically sparse and included American beautyberry, titi, St John's wort, wax myrtle, dwarf palmetto, sweet gallberry, and fetterbush. The herbaceous layer for the bottomland hardwood forest community was dominated by slender woodoats. Other herbaceous associates included cinnamon fern, sphagnum moss, netted chain fern, Virginia chain fern, and switchcane. Vines were sparse, but commonly present and included peppervine, rattan vine, trumpet creeper, eastern poison ivy, and muscadine.

Depression marsh (21.9 acres)

Depression marsh, an 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. On JBWMA, shrub encroachment occurs within many depression marshes; they may also have a sparse canopy of slash pine or water oak. Tall and short shrub layers are high in coverage, ranging from 25-100%. Dominant shrub species include titi, fetterbush, blueberries, black titi, red maple, wax myrtle, and common gallberry. Herbaceous cover is often very sparse, but may occasionally include Virginia chain fern, cinnamon fern and sphagnum moss.

Dome swamp (5.8 acres)

Dome swamp is an isolated, forested, depression wetland occurring within a fire-maintained community such as mesic flatwoods or sandhill. These swamps are generally small, but may also be large and shallow. The characteristic dome shape is created by smaller trees that grow in the shallower waters of the outer edge, while taller trees grow in the deeper water in the interior of the swamp. Dome swamps are most often found on flat terraces, where they develop when the overlying sand has slumped into a depression in the underlying limestone, creating a rounded depression connected to a shallow water table. In uplands with clay soils, dome swamps may occupy depressions over a perched water table. Soils in dome swamps are variable, but are most often composed of a layer of peat, which may be thin or absent at the periphery, becoming thicker toward the center of the dome.

On JBWMA, dome swamp occurs at only a few limited locations. The majority of the swamp communities found at this site are associated with and/or within the stream and river floodplains. This site contains a moderately dense canopy of swamp tupelo. The ecotone of this community includes a dense shrub perimeter of wax myrtle, fetterbush, and titi. Herbaceous groundcover is sparse and limited to the center of the dome where patches of sedges and panic grasses are dominant.

Floodplain marsh (5.0 acres)

Floodplain marsh is a wetland community occurring in river floodplains and dominated by herbaceous vegetation and/or shrubs. The highest part of the marsh is often a drier, wet prairie-like zone with a large diversity of graminoids and forbs. Broadleaf emergents and floating plants occupy the deepest and most frequently flooded portions of the community. While the progression from high to low marsh occurs generally from the upland edge to the river edge, these vegetation patches may also be scattered throughout the marsh, which provides a diversity of habitats beneficial to wildlife. Other than occasional thickets, woody vegetation is generally sparse, although some shrubby species may be present. Occasionally, flood tolerant trees may be found scattered in floodplain marsh, becoming more concentrated in the ecotone to adjacent hydric hammocks. Most floodplain marshes are freshwater (salinity less than 0.5 parts per thousand); however, saltwater may influence marshes near the mouths of rivers (freshwater tidal marsh variant) and in areas where there is upwelling groundwater that is partly saline.

Floodplain marshes are found along rivers and streams from just below the headwaters to the freshwater portions of tidally influenced river mouths. They also occur in river overflow channels and lakes with both input and output of river flow. Floodplain marshes are directly influenced by river flooding on an annual or semi-annual basis where most of the marsh is inundated from approximately 120 to 350 days per year. Soils are typically sand or a thin to thick organic layer over sand and may be saturated for most of the year. Floodplain marsh may burn periodically depending on dominant vegetation.

On JBWMA, floodplain marsh occurs within the Ochlockonee River floodplain and typically forms a varied mosaic with the commonly adjacent floodplain swamp. Shrubs are typically sparse and are limited by water depth. Coastal plain willow and immature cypress are common shrubs found in the floodplain marsh community. Herbs are most commonly represented by broad-leaved emergents such as pickerelweed, bulltongue arrowhead, and yellow pondlily.

Floodplain swamp (445.8 acres)

Floodplain swamps are deciduous hydric forests occurring along streams and rivers that restrict the establishment of only the most flood tolerant tree species, such as cypress. Floodplain swamp is located within floodplains of permanently moving stream or river. It ranges from narrow strips of cypress along primary and secondary streams to expansive stands along large rivers to tidally influenced freshwater swamps near river mouths. Often, floodplain swamps immediately border the stream or river channel. In many cases, however, floodplain swamps are isolated from the main channel by riverbank levees and restricted to oxbows, overflow channels, old stream beds, and expansive flats commonly called backswamps. Soils are variable mixtures of alluvial and organic materials, sometimes with layers of sand in the subsoil. Inundation is seasonal and usually prolonged, restricting the growth of most shrubs and herbs and leaving most of the ground surface open or thinly mantled with leaf litter.

On JBWMA, this community receives floodwater inputs from the adjacent Ochlockonee River. Floodplain swamps occur in low-lying areas along stream and river channels and are inundated for most, if not all, of the year. Canopy coverage is generally high (50-100%), with cypress and tupelo being the dominant species. Shrub layers are usually sparse, but occasionally include willows, titi, wax myrtle, buttonbush, and sweetgum. Herbaceous vegetation is sparse (<25%) and typically includes sedges, panic grasses, lizard's tail, and royal fern. Several of the floodplain swamps on JBWMA have included floodplain marshes, which lack a canopy and are dominated by herbaceous vegetation such as yellow pondlily, pickerelweed, and arrowheads.

Mesic flatwoods (183.6 acres)

Mesic flatwoods is the most widespread natural community in Florida, covering the flat sandy terraces left behind by former high sea levels. Mesic flatwoods is 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.

On JBWMA, the mesic flatwoods of occur on broad flatlands that are poorly drained, usually as a result of a clay or organic layer that restricts water percolation. Typically there is a sparse canopy of longleaf pine and slash pine. The tall shrub layer is represented by a few scattered red bay, wax myrtle, or encroaching oak species. The short shrub layer is generally a dense cover of saw palmetto and gallberry. Other common shrubs include fetterbush, shiny blueberry, huckleberry, wax myrtle, and dwarf live oak. Herbaceous cover within the mesic flatwoods is sparse to moderate (1-25%) and usually includes wiregrass, bottlebrush threeawn, bluestem grasses, blackroot, yellow-eyed grass, wild bachelor's button, yellow hatpins, and witchgrasses. Some areas of mesic flatwoods at JBWMA were formerly planted in rows of pines. If these areas have had pines thinned, retain substantial native groundcover, and are being managed with prescribed fire they are classified as mesic flatwoods.

Sandhill (39.8 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.

Sandhill is characterized by a canopy of widely spaced pine trees, a sparse midstory of deciduous oaks, and a moderate to dense groundcover of grasses, herbs, and low shrubs occurring over a rolling topography with deep, well drained sands. The canopy consists of scattered older mature longleaf pine over sand live oak, blue-jack oak, sand-post oak, and turkey oak. The open shrub strata includes sparkleberry, deerberry, gopher apple, and scattered clumps of saw palmetto. The ground cover is often sparse to moderately dense and contains wiregrass, bluestem grass, panic grass, wild buckwheat, eastern milkpea, bracken fern, and lopsided Indian grass. Sandhill in this region of the state is often found intermixed with upland pine and the separation of these two communities is often based on the presence of turkey oak and a suite of forbs characteristic of the sandhill community.

Seepage stream (not displayed in Figure 9)

Seepage streams typically form as a result of shallow ground water percolating through sandy upland soils. On JBWMA, seepage streams are mapped by FNAI as secondary natural communities and occur within upland hardwood forest and bottomland forest; as small narrow fingers, seepage streams wind through upland ravines and associated downstream bottomland forests. These seepage streams grade into blackwater streams as sediment and tannins are accumulated downstream. Canopy and subcanopy species bordering these seepage streams include slash pine, sweet bay, red maple, sweet gum, water oak, and laurel oak. Tall and short shrub layers along the banks of these streams are generally sparse (1-5% cover), and include black titi, titi, fetterbush, sweet pepperbush, American holly, and occasionally saw palmetto. Herbaceous vegetation along these seepage streams is mainly dominated by graminoids, such as switchcane, wild oats, and ferns such as cinnamon fern and sensitive fern, with coverage ranging from 25-50%.

Upland hardwood forest (950.5 acres)

Upland hardwood forest occurs on rolling mesic hills, slopes above river floodplains, in smaller areas on the sides of sinkholes, and occasionally on rises within floodplains. Limestone or phosphatic rock may be near the surface. Soils are generally sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils have higher nutrient levels than the sandy soils prevalent in most of Florida. The moisture retention properties of clays and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community.

Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. It typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover. The moisture retention properties of these richer soils and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community. Upland hardwood forest is found in association with bottomland forest and upland pine, typically situated between the two on isolated ravine slopes.

On JBWMA, canopy cover in upland hardwood forest is high, usually ranging from 50-100%. Typical canopy and subcanopy species include laurel oak, American beech, loblolly pine, tuliptree, southern magnolia, pignut hickory, sweetgum, red maple, hackberry, black cherry and dogwood. Both tall and short shrub coverage is variable, ranging from 1-50% depending on degree of canopy closure. Species typically include young canopy species, as well as sassafras, wax myrtle, sweetleaf, needle palm, American holly, blueberries, southern arrow-wood, persimmon, American beautyberry, and red buckeye. The

herbaceous layer is variable as well, but typically in the 10-30% range. Species include sedges, slender woodoats, panic grasses, trillium, violets, Virginia chain fern, cinnamon fern, resurrection fern, and shield ferns. Vines such as greenbrier, muscadine, Virginia creeper, pepper-vine, yellow jessamine and eastern poison ivy, are common in upland hardwood forests.

This community also contains numerous FNAI-tracked plant species due its geographic location and high quality habitat conditions. Rare plants found on the area within the upland hardwood community include Flyr's Nemesis, Carolina allspice, wild ginger, silky camellia, Carolina lily, pyramid magnolia, oak leaved hydrangea, dimples dogtooth-violet, and Florida merrybells.

Upland pine (1,713.9 acres)

Upland pine is a woodland of widely spaced pines with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. Soils are generally higher in loam or clay than soils of similar sandhills. The canopy is usually dominated by longleaf pine over an intermittent subcanopy layer of smaller pines and hardwoods, often including southern red oak. Though typically present as low shrubs and occasional midstory trees, these species can form a dense midstory in areas that have experienced a lack of fire for many years. Shrub cover can vary from sparse to dense, and includes low-growing species such as dwarf huckleberry, running oak, gallberry, and Darrow's blueberry. Wiregrass is often dominant, but a high diversity of grasses and forbs may be present.

Upland pine forest is characterized as a woodland occurring of rolling hills with widely spaced pines, with few understory shrubs and a dense ground cover of grasses and herbs. Upland pine occur on moderately well drained soils that typically have a clay component. Canopy and shrub covers are sparse and low enough to allow ample light to penetrate the forest floor and thus support herbaceous ground cover.

On JBWMA, the canopy of the upland pine community is dominated by a mixed age class of longleaf pine with a sparse subcanopy (1-25% coverage) of younger pines, along with southern red oak. In most areas of the forest, the canopy is classified as older mature (50-70 years), and in two areas, old growth, flat-topped longleaf pines were noted. Shrub species diversity in upland pine is usually very high. The shrub layer is variable in coverage (10-75%) with the following shrub species present: shiny blueberry, dangleberry, runner oak, dwarf live oak, gallberry, staggerbush, wax myrtle, long-leaved pawpaw, winged sumac, persimmon, and saw palmetto. The herbaceous layer is also variable in coverage (5-75%), and includes wiregrass, wild indigo, yellow-eyed grass, elephant's foot, sweet goldenrod, panic grasses, bracken fern, broomsedge, blazing star, deer tongue,

innocence, false wild petunia, nutrush, eastern milkpea, butterfly weed, and tall meadowbeauty.

The majority of the upland pine community on JBWMA have been managed with frequent (2-5 year interval) prescribed fire applications and are generally in good ecological condition. Despite past disturbances, including logging, clearing for food plots, and the addition of firebreaks, these communities remain in a relatively natural condition.

Upland pine community on the Rocky Comfort Creek tract of JBWMA contains predominately planted pines in various densities. Some of these habitats can best be described as pine plantation currently where groundcover has been lost and pine densities are extremely high. Pine thinning and prescribed fire has created numerous stands at this site that contain enough characteristics to be classified as upland pine.

Wet flatwoods (31.7 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 generally 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 are flat, poorly drained woodlands of scattered, well-spaced pine trees with a diverse understory of hydrophytic herbs and shrubs.

On JBWMA, wet flatwoods occur in broad, flat areas within a larger mesic flatwoods matrix and along the upper reaches of drainages that lead into the upland hardwood and bottomland forests ravines. The canopy layer within the wet flatwoods at JBWMA is dominated by one or more pine species depending on location. These include slash pine, pond pine, and loblolly pine. Several hardwood species also may be present, these include sweetgum, tuliptree, sweetbay and water oak. This community lacks a true subcanopy. The shrub layer for the wet flatwoods community includes mountain azalea, coastal sweetpepperbush, titi, gallberry, fetterbush, Piedmont staggerbush, wax myrtle, fourpetal St. John's wort, sparkleberry, and highbush blueberry. Vines found in the wet flatwoods community included muscadine, cat greenbrier, and laurel greenbrier. The sparse to moderately dense herbaceous layer for the wet flatwoods community includes broomsedge bluestem, switchcane, false nettle, cinnamon fern, maidencane, Virginia chain fern, and tall yelloweyed grass.

Altered Communities

Borrow area (41.5 acres)

The borrow area found on JBWMA consists of an abandoned sand mine located in the eastern portion of the area. Currently, natural regeneration of pine and other tree species is occurring on this site.

Clearing / regeneration (333.3 acres)

Clearing/regeneration areas are defined as dove fields, wildlife food plots, or clearings that have significantly altered the groundcover. On JBWMA, clearing/regeneration most commonly refer to wildlife food plots that are being managed to provide supplemental game animal forage. These areas frequently are planted with non-native forage species to supplement wildlife with an additional food source.

Developed (18.5 acres)

Developed areas are defined as check stations, ORV use areas, parking lots, buildings, maintained lawns (as part of recreational, business, or residential areas), botanical or ornamental gardens, campgrounds, recreational, industrial, and residential areas. The maintenance yard, offices, and JBYCC are the only areas classified as developed on the property.

Impoundment (15.4 acres)

Two small impoundments exist on JBWMA. The first is Joe Budd Pond, and is utilized by the JBYCC for youth fishing and conservation education, including FWC's summer "Fish Camp" program. Fish Camp provides valuable information regarding fish and their habitat, teaches various fishing techniques, and helps cultivate a new crop of responsible anglers. The second impoundment is located in the northwest portion of JBWMA and is a small (<1 acre) stormwater retention pond. This pond was likely developed in association with the construction of the FGT natural gas pipeline.

Pine plantation (132.0 acres)

Pine plantation is an anthropogenic community characterized by pines planted in rows. Pines are often densely planted and negatively impact herbaceous layer cover and the species diversity of the groundcover. On JBWMA, pine plantation occurs on historic upland pine, flatwoods and sandhill sites. These sites contain pine stands of various ages planted in rows. The density of pines reduces light penetration to the groundcover stratum and negatively impact groundcover species. Pines stands are typically slash and loblolly pine dominated with a few scattered oaks found in canopy layer. The shrub and herbaceous layers are often sparse due to high pine densities.

Restoration upland pine (135.2 acres)

Upland pine is characterized as a woodland occurring of rolling hills with widely spaced pines, with few understory shrubs and a dense ground cover of grasses and herbs. Upland pine occurs on moderately well drained soils that typically have a clay component. Canopy and shrub covers are sparse and low enough to allow ample light to penetrate the ground layer to support herbaceous ground cover. Restoration upland pine is historic upland pine that is undergoing management with the end goal of restoring the natural upland pine structure, composition, and function.

Successional hardwood forest (118.3 acres)

Successional hardwood forest are closed-canopied forest dominated by fast growing hardwoods such as laurel oak, water oak, and/or sweetgum, often with remnant pines. On JBWMA, these forests may have succeeded from old fields or fire suppressed communities. The subcanopy and shrub layers of these areas are often dense and dominated by smaller individuals of the canopy species. Species such as American beautyberry, muscadine, and sparkleberry are common.

Utility corridor (24.0 acres)

Utility corridors at JBWMA are defined as clearings or disturbed lands that house electric, gas, telephone lines and associated right-of-way buffers. These areas often contain remnant groundcover species as a result of canopy and mid-story removal and vegetation mowing. Weedy species such as broomsedges and dog fennel are commonly the dominant species present. Canopy, subcanopy, and shrubs are typically not a significant component of this landcover type.

2.2.2 Forest Resources

Forest resources found on JBWMA include mature pine stands within the natural communities of upland pine, mesic flatwoods, wet flatwoods, and sandhill. Further forest resources occur in bottomland forest and upland hardwood forest. A small portion of JBWMA is in pine plantation, and is currently undergoing thinning and restoration efforts. For more information on FWC's management of the JBWMA forest resources please see Section 5.8.

2.3 Fish and Wildlife Resources

The area's diverse vegetative communities provide the resources necessary to sustain a diversity of wildlife assemblages (Tables 6 - 11). Common wildlife species include white-tailed deer, eastern wild turkey, northern bobwhite, gray squirrel, resident and migratory birds, and wading birds. Several wildlife species inhabiting JBWMA are considered imperiled (endangered, threatened, or species of special concern), and rare species,

including gopher tortoise, Florida pine snake, wood stork, fox squirrel, and southern bald eagle. Additionally, Florida black bears are known to occur on JBWMA. The diversity of fish species present on JBWMA is high due to the variety of aquatic habitats including the area's rivers, seepage streams, Joe Budd Pond, and the adjacent Lake Talquin. This rich assemblage of freshwater fish species offers the potential for recreational fishing opportunities.

Table 6. Mammal Species Observed on the JBWMA

Common name	Scientific name
Beaver	*Castor canadensis*
Big brown bat	*Eptesicus fuscus*
Bobcat	*Lynx rufus*
Brazilian free-tailed bat	*Tadarida brasiliensis*
Cotton mouse	*Peromyscus gossypinus*
Eastern cottontail	*Sylvilagus floridanus*
Eastern gray squirrel	*Sciurus carolinensis*
Eastern mole	*Scalopus aquaticus*
Eastern pipistrelle	*Perimyotis subflavus subflavus*
Eastern woodrat	*Neotoma floridana smalli*
Evening bat	*Nycticeius humeralis*
Florida black bear	*Ursus americanus floridanus*
Fox squirrel	*Sciurus niger*
Golden mouse	*Ochrotomys nuttalli*
Gray fox	*Urocyon cinereoargenteus*
Hispid cotton rat	*Sigmodon hispidus*
Hoary bat	*Lasiurus cinereus*
Least shrew	*Cryptotis parva*
Little brown bat	*Myotis lucifugus*
Marsh rabbit	*Sylvilagus palustris*
Northern yellow bat	*Lasiurus intermedius*
Oldfield mouse	*Peromyscus polionotus*
Opossum	*Didelphis virginiana*
Pine vole	*Microtus pinetorum*
Raccoon	*Procyon lotor*
Rafinesque's big-eared bat	*Corynorhinus rafinesquii rafinesquii*
Red bat	*Lasiurus borealis*
River otter	*Lontra canadensis*

Table 6. Mammal Species Observed on the JBWMA

Common name	Scientific name
Southeastern bat	*Myotis austroriparius*
Southeastern pocket gopher	*Geomys pinetis*
Southern flying squirrel	*Glaucomys volans*
Southern short-tailed shrew	*Blarina carolinensis shermani*
Striped skunk	*Mephitis mephitis*
White-tailed deer	*Odocoileus virginianus*

Table 7. Bird Species Observed on JBWMA

Common name	Scientific name
Acadian flycatcher	*Empidonax virescens*
American bittern	*Botaurus lentiginosus*
American coot	*Fulica americana*
American crow	*Corvus brachyrhynchos*
American goldfinch	*Carduelis tristis*
American kestrel	*Falco sparverius*
American redstart	*Setophaga ruticilla*
American robin	*Turdus migratorius*
American woodcock	*Scolopax minor*
Anhinga	*Anhinga anhinga*
Bachman's sparrow	*Aimophila aestivalis*
Bald eagle	*Haliaeetus leucocephalus*
Barn owl	*Tyto alba*
Barn swallow	*Hirundo rustica*
Barred owl	*Strix varia*
Belted kingfisher	*Megaceryle alcyon*
Black vulture	*Coragyps atratus*
Black-and-white warbler	*Mniotilta varia*
Black-throated blue warbler	*Setophaga caerulescens*
Blue grosbeak	*Passerina caerulea*
Blue jay	*Cyanocitta cristata*
Blue-gray gnatcatcher	*Polioptila caerulea*

Table 7. Bird Species Observed on JBWMA

Common name	Scientific name
Blue-winged teal	*Anas discors*
Boat-tailed grackle	*Quiscalus major*
Bobolink	*Dolichonyx oryzivorus*
Brown thrasher	*Toxostoma rufum*
Brown-headed cowbird	*Molothrus ater*
Brown-headed nuthatch	*Sitta pusilla*
Bufflehead	*Bucephala albeola*
Carolina chickadee	*Poecile carolinensis*
Carolina wren	*Thryothorus ludovicianus*
Cattle egret	*Bubulcus ibis*
Cedar waxwing	*Bombycilla cedrorum*
Chimney swift	*Chaetura pelagica*
Chipping sparrow	*Spizella passerina*
Chuck-will's widow	*Caprimulgus carolinensis*
Common ground-dove	*Columbina passerina*
Common moorhen	*Gallinula chloropus*
Common nighthawk	*Chordeiles minor*
Common snipe	*Gallinago gallinago*
Common yellowthroat	*Geothlypis trichas*
Coopers hawk	*Accipiter cooperii*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Eastern bluebird	*Sialia sialis*
Eastern kingbird	*Tyrannus tyrannus*
Eastern meadowlark	*Sturnella magna*
Eastern phoebe	*Sayornis phoebe*
Eastern screech owl	*Megascops asio*
Eastern towhee	*Pipilo erythrophthalmus*
Eastern wood-pewee	*Contopus virens*
Fish crow	*Corvus ossifragus*
Gray catbird	*Dumetella carolinensis*
Great crested flycatcher	*Myiarchus crinitus*
Great egret	*Ardea alba egretta*
Great horned owl	*Bubo virginianus*
Green heron	*Butorides virescens*
Green-winged teal	*Anas crecca*
Hairy woodpecker	*Picoides villosus*
Hermit thrush	*Catharus guttatus*

Table 7. Bird Species Observed on JBWMA

Common name	Scientific name
Hooded merganser	*Lophodytes cucullatus*
Hooded warbler	*Setophaga citrina*
Indigo bunting	*Passerina cyanea*
Kentucky warbler	*Geothlypis formosa*
Killdeer	*Charadrius vociferus*
Least bittern	*Ixobrychus exilis*
Lesser scaup	*Aythya affinis*
Limpkin	*Aramus guarauna*
Little blue heron	*Egretta caerulea*
Loggerhead shrike	*Lanius ludovicianus*
Louisiana waterthrush	*Parkesia motacilla*
Mississippi kite	*Ictinia mississippiensis*
Mourning dove	*Zenaida macroura*
Northern bobwhite	*Colinus virginianus*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Northern harrier	*Circus cyaneus*
Northern mockingbird	*Mimus polyglottos*
Northern parula	*Setophaga americana*
Orchard oriole	*Icterus spurius*
Osprey	*Pandion haliaetus*
Palm warbler	*Setophaga palmarum*
Pied-billed grebe	*Podilymbus podiceps*
Pileated woodpecker	*Dryocopus pileatus*
Pine warbler	*Setophaga pinus*
Prothonotary warbler	*Protonotaria citrea*
Purple gallinule	*Porphyrio martinica*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-breasted merganser	*Mergus serrator*
Red-eyed vireo	*Vireo olivaceus*
Redhead	*Aythya americana*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-necked duck	*Aythya collaris*
Ruby-crowned kinglet	*Regulus calendula*
Ruby-throated hummingbird	*Archilochus colubris*

Table 7. Bird Species Observed on JBWMA

Common name	Scientific name
Ruddy duck	*Oxyura jamaicensis*
Rusty blackbird	*Euphagus carolinus*
Scarlet tanager	*Piranga olivacea*
Sharp-shinned hawk	*Accipiter striatus*
Snowy egret	*Egretta thula*
Solitary sandpiper	*Tringa solitaria*
Solitary vireo	*Vireo solitarius*
Song sparrow	*Melospiza melodia*
Summer tanager	*Piranga rubra*
Swainson's warbler	*Limnothlypis swainsonii*
Swallow-tailed kite	*Elanoides forficatus*
Swamp sparrow	*Melospiza georgiana*
Tree swallow	*Tachycineta bicolor*
Tri-colored heron	*Egretta tricolor*
Tufted titmouse	*Baeolophus bicolor*
Turkey vulture	*Cathartes aura*
Veery	*Catharus fuscescens*
Whip-poor-will	*Caprimulgus vociferus*
White ibis	*Eudocimus albus*
White-eyed vireo	*Vireo griseus*
White-throated sparrow	*Zonotrichia albicollis*
Wild turkey	*Meleagris gallopavo*
Wood duck	*Aix sponsa*
Wood stork	*Mycteria americana*
Wood thrush	*Hylocichla mustelina*
Worm-eating warbler	*Helmitheros vermivorum*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-billed cuckoo	*Coccyzus americanus*
Yellow-throated vireo	*Vireo flavifrons*
Yellow-throated warbler	*Setophaga dominica*

Table 8. Amphibian Species Observed on JBWMA

Common name	Scientific name
American Bull frog	*Lithobates catesbeianus*
Apalachicola dusky salamander	*Desmognathus apalachicolae*
Bird-voiced treefrog	*Hyla avivoca*
Bronze frog	*Lithobates clamitans clamitans*
Dwarf salamander	*Eurycea quadridigitata*
Eastern narrowmouth toad	*Gastrophryne carolinensis*
Eastern newt	*Notophthalmus viridescens*
Eastern spadefoot toad	*Scaphiopus holbrookii*
Four-toed salamander	*Hemidactylium scutatum*
Greater siren	*Siren lacertina*
Green treefrog	*Hyla cinerea*
Lesser siren	*Siren intermedia*
Marbled salamander	*Ambystoma opacum*
Mole salamander	*Ambystoma talpoideum*
Mud salamander	*Pseudotriton montanus*
Northern cricket frog	*Acris crepitans*
Oak toad	*Anaxyrus quercicus*
Pig frog	*Lithobates grylio*
Pinewoods treefrog	*Hyla femoralis*
River frog	*Lithobates heckscheri*
Slimy salamander	*Plethodon glutinosus*
Southern cricket frog	*Acris gryllus*
Southern leopard frog	*Lithobates sphenocephalus utricularius*
Southern spring peeper	*Pseudacris crucifer bartramiana*
Southern toad	*Anaxyrus terrestris*
Southern two-lined salamander	*Eurycea cirrigera*
Squirrel treefrog	*Hyla squirella*
Three-lined salamander	*Eurycea guttolineata*
Two-toed amphiuma	*Amphiuma means*

Table 9. Reptile Species Observed on JBWMA

Common name	Scientific name
Alligator snapping turtle	*Macrochelys temminckii*
American alligator	*Alligator mississippiensis*
Black racer	*Coluber constrictor*
Broad-headed skink	*Eumeces laticeps*
Chicken turtle	*Deirochelys reticularia*
Common slider	*Trachemys scripta*
Common snapping turtle	*Chelydra serpentina*
Corn snake	*Elaphe guttata*
Cottonmouth	*Agkistrodon piscivorus*
Dusky pigmy rattlesnake	*Sistrurus miliarius barbouri*
Eastern coachwhip	*Masticophis flagellum flagellum*
Eastern coral snake	*Micrurus fulvius*
Eastern diamondback rattlesnake	*Crotalus adamanteus*
Eastern glass lizard	*Ophisaurus ventralis*
Eastern hog-nosed snake	*Heterodon platyrhinos*
Eastern indigo snake	*Drymarchon corais couperi*
Eastern kingsnake	*Lampropeltis getula getula*
Eastern mud snake	*Farancia abacura abacura*
Eastern mud turtle	*Kinosternon subrubrum*
Eastern ribbon snake	*Thamnophis sauritus sauritus*
Eastern six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*
Eastern smooth earth snake	*Virginia valeriae valeriae*
Florida cooter	*Pseudemys concinna floridana*
Florida pine snake	*Pituophis melanoleucus mugitus*
Florida softshell turtle	*Apalone ferox*
Garter snake	*Thamnophis sauritus*
Glossy crawfish snake	*Regina rigida*
Gopher tortoise	*Gopherus polyphemus*
Gray rat snake	*Elaphe spiloides*
Green anole	*Anolis carolinensis*
Ground skink	*Scincella lateralis*
Gulf coast box turtle	*Terrapene carolina major*
Loggerhead musk turtle	*Sternotherus minor*
Mole skink	*Eumeces egregius*
Redbelly water snake	*Nerodia erythrogaster erythrogaster*
Ringneck snake	*Diadophis punctatus*

Table 9. Reptile Species Observed on JBWMA

Common name	Scientific name
Scarlet snake	*Cemophora coccinea*
Southeastern five-lined skink	*Eumeces inexpectatus*
Southern fence lizard	*Sceloporus undulatus*
Southern water snake	*Nerodia fasciata*
Stinkpot	*Sternotherus odoratus*
Suwannee cooter	*Pseudemys suwanniensis*

Table 10. Fish Species Observed on JBWMA

Common name	Scientific name
Banded pygmy sunfish	*Elassoma zonatum*
Bannerfin shiner	*Cyprinella leedsi*
Black crappie	*Pomoxis nigromaculatus*
Blackbanded darter	*Percina nigrofasciata*
Blacktail shiner	*Cyprinella venusta*
Bluegill	*Lepomis macrochirus*
Bluespotted sunfish	*Enneacanthus gloriosus*
Bowfin	*Amia calva*
Brook silverside	*Labidesthes sicculus*
Brown bullhead	*Ameiurus nebulosus*
Chain pickerel	*Esox niger*
Channel catfish	*Ictalurus punctatus*
Clear chub	*Hybopsis winchelli*
Coastal shiner	*Notropis petersoni*
Dollar sunfish	*Lepomis marginatus*
Everglades pygmy sunfish	*Elassoma evergladei*
Flier	*Centrarchus macropterus*
Florida gar	*Lepisosteus platyrhincus*
Gizzard shad	*Dorosoma cepedianum*
Golden shiner	*Notemigonus crysoleucas*

Table 10. Fish Species Observed on JBWMA

Common name	Scientific name
Green sunfish	*Lepomis cyanellus*
Gulf darter	*Etheostoma swaini*
Lake chubsucker	*Erimyzon sucetta*
Largemouth bass	*Micropterus salmoides*
Least killifish	*Heterandria formosa*
Lined topminnow	*Fundulus lineolatus*
Longnose gar	*Lepisosteus osseus*
Mosquitofish	*Gambusia affinis*
Mud sunfish	*Acantharchus pomotis*
Pirate perch	*Aphredoderus sayanus*
Pugnose minnow	*Opsopoeodus emiliae*
Redbreast sunfish	*Lepomis auritus*
Redear sunfish	*Lepomis microlophus*
Redfin pickerel	*Esox americanus*
Seminole Killifish	*Fundulus seminolis*
Southern brook lamprey	*Ichthyomyzon gagei*
Speckled madtom	*Noturus leptacanthus*
Spotted bullhead	*Ameiurus serracanthus*
Spotted sucker	*Minytrema melanops*
Spotted sunfish	*Lepomis punctatus*
Striped bass	*Morone saxatilis*
Swamp darter	*Etheostoma fusiforme*
Tadpole madtom	*Noturus gyrinus*
Taillight shiner	*Notropis maculatus*
Threadfin shad	*Dorosoma petenense*
Warmouth	*Lepomis gulosus*
Weed shiner	*Notropis texanus*
White bass	*Morone chrysops*
White catfish	*Ameiurus catus*
Yellow bullhead	*Ameiurus natalis*

Table 11. Invasive Exotic Animal Species Observed or Likely Occurring on JBWMA

Common name	Scientific name
Mammals	
Coyote*	*Canis latrans*
Feral hog	*Sus scrofa*
Nine-banded armadillo*	*Dasypus novemcinctus*
Birds	
Eurasian collared-dove	*Streptopelia decaocto*
European starling	*Sturnus vulgaris*
House sparrow	*Passer domesticus*
Rock pigeon	*Columba livia*
Amphibians & Reptiles	
Brown anole	*Anolis sagrei*
Greenhouse frog	*Eleutherodactylus planirostris*
Fish	
Common carp	*Cyprinus carpio*
Flathead catfish*	*Pylodictis olivaris*
Grass carp	*Ctenopharyngodon idella*

* Native to North America

2.3.1 Integrated Wildlife Habitat Ranking System

The FWC has developed the Integrated Wildlife Habitat Ranking System (IWHRS) as a 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 FWC lead and Rocky Comfort Creek tract portions of JBWMA has a moderately high mean wildlife value of 6.7 (Figure 10).

2.3.2 Imperiled Species

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 (Tables 12 - 13). 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.

2.3.3 FWC Wildlife Observations and FNAI Element Occurrences

Geographic information system data maintained by FWC (Wildlife Observations) and FNAI (Element Occurrences; data usage agreement Appendix 13.6) indicate that JBWMA has numerous documented occurrences of wildlife and a diverse assemblage of animal species (Figure 11).

2.4 Native Landscapes and Scenic Resources

The principle native landscapes and scenic resources of JBWMA are the area's upland habitats and maintained wildlife openings, as well as shoreline views of Lake Talquin. These native landscapes include the predominant natural communities of upland pine, upland hardwood forest, and mesic flatwoods. Complete descriptions of the natural communities found on JBWMA may be found in **Section 2.2.1** of this Management Plan.

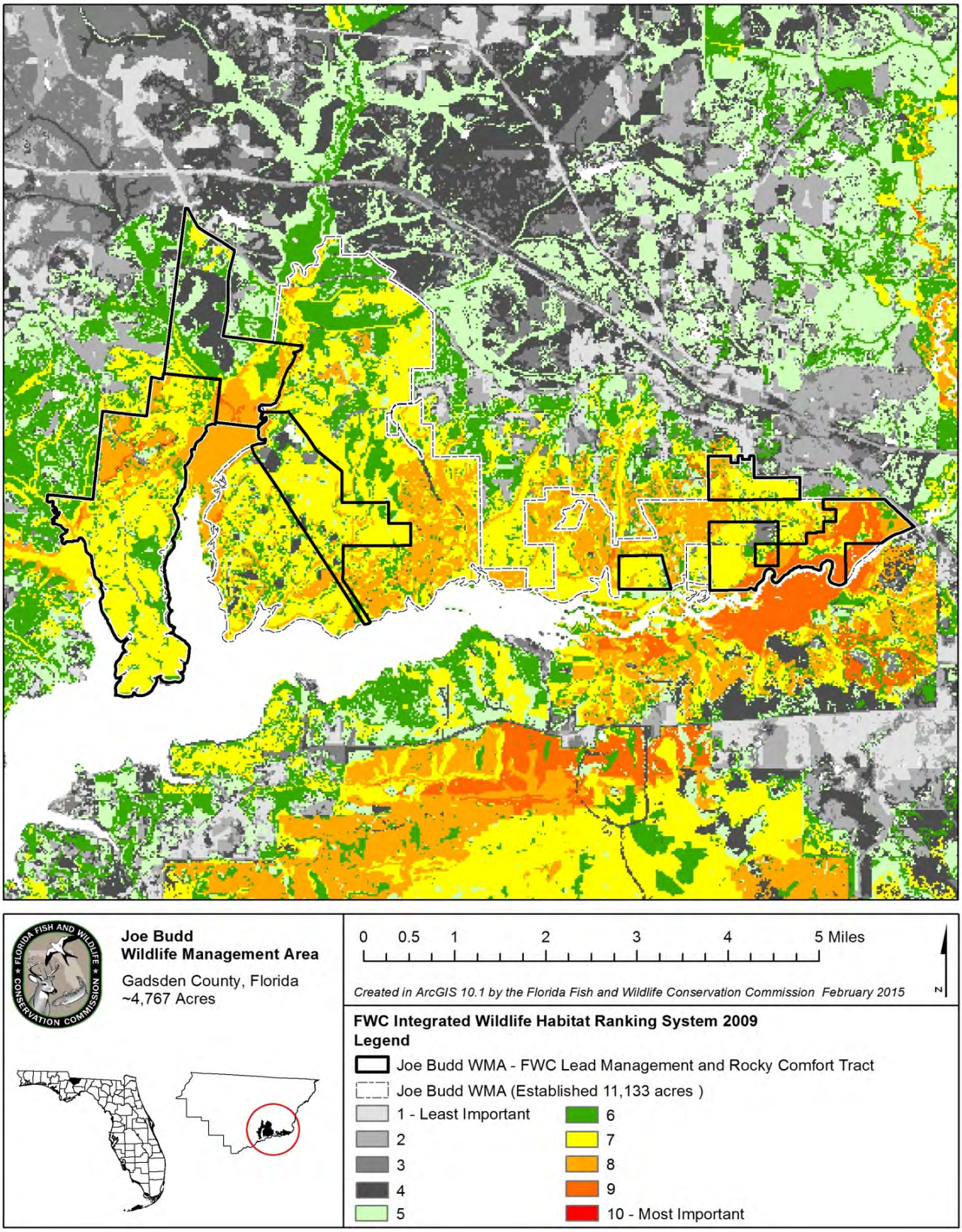


Figure 10. FWC Integrated Wildlife Habitat Ranking System 2009

Table 12. Imperiled Wildlife Species Occurring on or in the Vicinity of JBWMA

Common name	Scientific name	Status
Alligator snapping turtle	*Macrochelys temminckii*	SSC
American alligator	*Alligator mississippiensis*	FT(S/A)
Barbour's map turtle	*Graptemys barbouri*	SSC
Eastern indigo snake	*Drymarchon corais couperi*	FT
Florida pine snake	*Pituophis melanoleucus mugitus*	SSC
Gopher tortoise	*Gopherus polyphemus*	ST
Limpkin	*Aramus guarauna*	SSC
Little blue heron	*Egretta caerulea*	SSC
Ochlockonee moccasinshell (mussel)	*Medionidus simpsonianus*	FE
Oval pigtoe (mussel)	*Pleurobema pyriforme*	FE
Shinyrayed pocketbook (mussel)	*Lampsilis subangulata*	FE
Snowy egret	*Egretta thula*	SSC
Suwannee cooter	*Pseudemys suwanniensis*	SSC
Tri-colored heron	*Egretta tricolor*	SSC
White ibis	*Eudocimus albus*	SSC
Wood stork	*Mycteria americana*	FE

Acronym Key: Listed by the State of Florida as Federally-designated Endangered (FE), Federally-designated Threatened (FT), Federally-designated Threatened because of similarity of appearance [(FT(S/A)],State-designated Threatened (ST), or State-designated Species of Special Concern (SSC).

Table 13. Imperiled Plants of JBWMA

Common name	Scientific name	Status
Carolina allspice	*Calycanthus floridus*	E
Carolina lily	*Lilium michauxii*	E
Dimpled dogtooth-violet	*Erythronium umbilicatum*	E
Florida merrybells	*Uvularia floridana*	E
Flyr's nemesis	*Brickellia cordifolia*	E
Heartleaf wild ginger	*Hexastylis arifolia*	T
Hooded pitcher plant	*Sarracenia minor*	T
Pyramid magnolia	*Magnolia pyramidata*	E
Scare-weed	*Baptisia simplicifolia*	T
Silky camellia	*Stewartia malacodendron*	E

Acronym Key
E = Endangered
T = Threatened

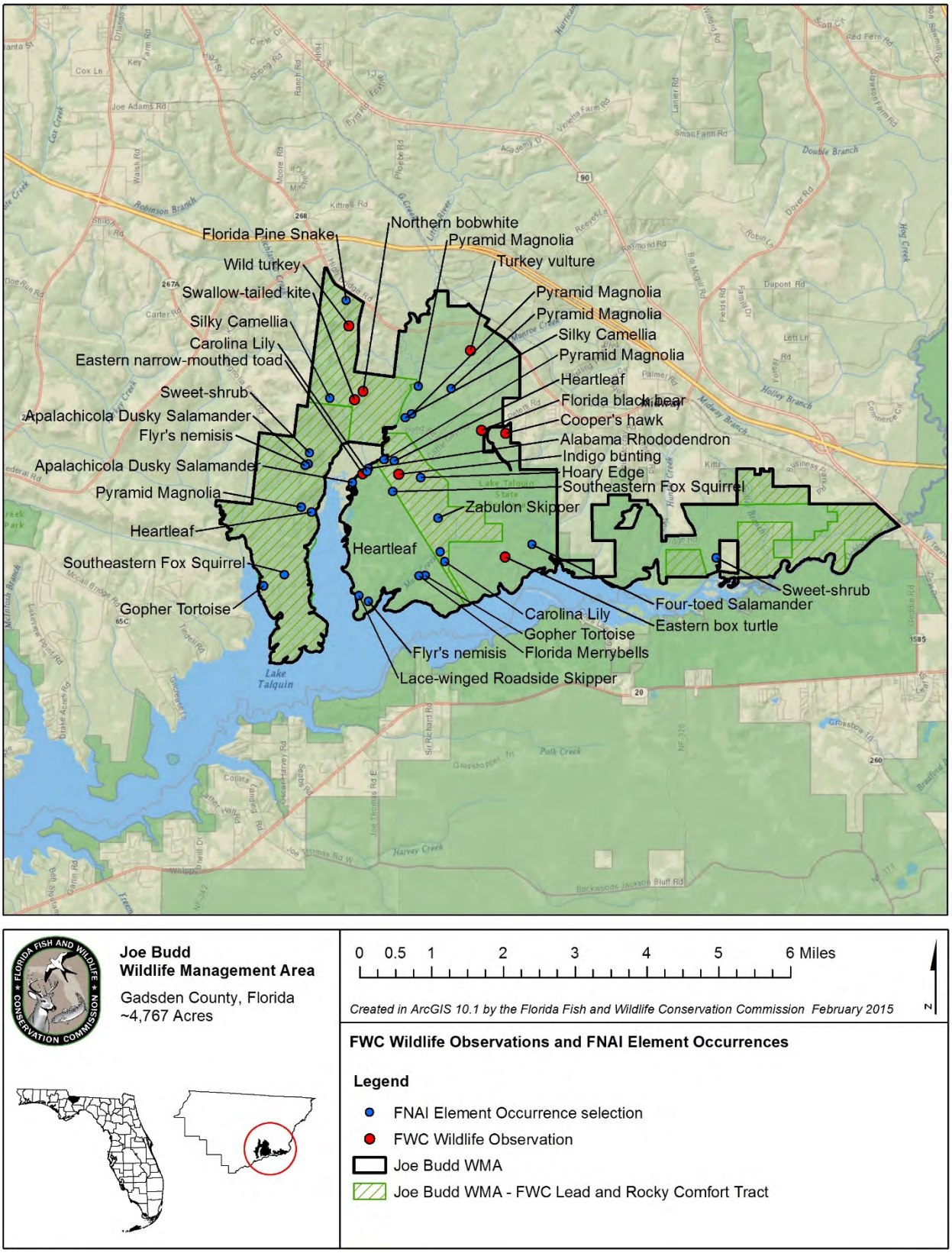


Figure 11. FWC Wildlife Observations and FNAI Element Occurrences

2.5 Water Resources

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 JBWMA 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). Portions of JBWMA, primarily floodplains associated with Lake Talquin, are designated as OFW (Figure 12). 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.

The JBWMA has numerous water resources that include the drainages of Ochlockonee River, Little River, Rocky Comfort Creek, Richlander Creek, Monroe Creek, Mule Creek, Hunter Creek, Pole Branch, Gulley Branch, Double Branch, Midway Branch, and several smaller unnamed seepage streams (Figure 12). Joe Budd Pond and Lake Talquin are the open water bodies associated with JBWMA. The JBWMA is not within or adjacent to an aquatic preserve.

2.6 Beaches and Dunes

There are no beaches or dunes located on JBWMA.

2.7 Mineral Resources

The mineral resources of JBWMA are described under **Geologic Conditions** (**Section 2.1.3**) of this Management Plan. In addition, an abandoned sand mine (borrow area) is located in the eastern portion of the area (Figure 9).

2.8 Historical Resources

The Master Site File GIS data (Appendix 13.7) maintained by the Florida Department of State's Division of Historical Resources (DHR) indicates there are seven known historical sites (GD00007, GD00106, GD00114, GD00310, GD00405, GD00875, GD00876) on the portion of JBWMA where FWC has lead management responsibility, and include prehistoric habitation and campsites, lithic scatters and a former homestead. Nine field surveys have been conducted on this portion of JBMWA. On the Rocky Comfort Creek tract of JBWMA, where FWC and FFS have co-lead management responsibility, the Master Site File GIS data maintained by DHR indicates 11 known historical sites (GD00125, GD00303, GD00701, GD00702, GD00703, GD00704, GD00705, GD00706, GD00707, GD00708, GD00710), and include low density artifact scatters, a prehistoric campsite, and building remains. Two field surveys have been conducted on this portion of JBMWA. In addition, one resource group (LE05209) touches the eastern boundary of JBWMA.

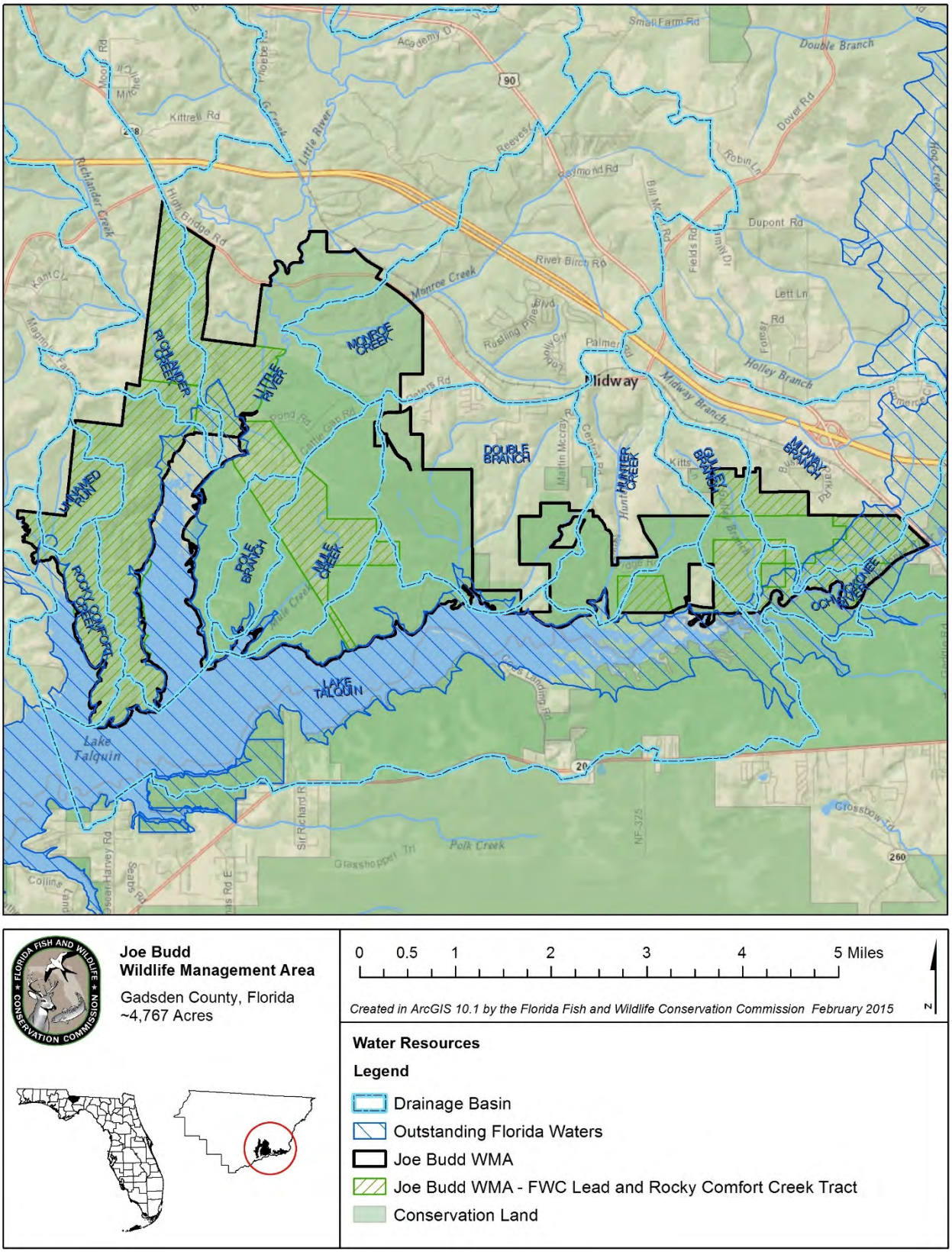


Figure 12. Water Resources

3 Uses of the Property

3.1 Previous Use and Development

Over 1,500 years ago, Native Americans built mound and village complexes throughout northwest Florida. The rivers of northwest Florida linked local Native American tribes with other tribes to the north and facilitated the sharing of ideas and culture, as well as trade goods. The remains of one of these villages, known as the Pace site, is located on JBWMA. Referred to as Weeden Island by modern archeologists, this culture was likely characterized by elaborate burial rituals, entailing lighting of sacred fires, feasting, brewing and drinking of special teas, and offerings of shell cups, ceramic vessels, wolf and panther teeth, and other sacred items. These peoples were not farmers, but rather relied on the collection of wild foods. As human populations grew, and pressure on natural resources increased, these villages either split into new, smaller villages, or were abandoned.

Consequently, prior to European settlement, the landscape of Florida, including this area of the panhandle, was settled and used by a variety of aboriginal peoples whose culture relied mainly on hunting, fishing, and subsistence agriculture. Though some land alteration occurred, 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.

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 the 20th centuries. Use of these agricultural practices began an era of increased alteration of the natural landscape. However, it wasn't 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 agriculture and associated development.

Around the turn of the 19th century, like much of Florida, this landscape was subjected to heavy silvicultural and agricultural conversion. Much of the upland plant communities of the JBWMA were historically an upland pine community with a somewhat more open and grassy aspect than they have today.

As noted above under **Acquisition History** (**Section 1.3.2**), more recent uses by private landowners prior to State acquisition were various. These included hunting, mineral (sand) extraction, agricultural and silvicultural operations.

3.2 Current Use of the Property

The JBWMA is being managed as a multiple-use wildlife management area. Multiple-use management strategies incorporate concerns related to wildlife, fisheries, and forest management. On JBWMA, where FWC is lead and co-lead, the area is managed in conformance with the original purposes for acquisition in order to provide a diversity of recreational opportunities that are fish and wildlife oriented, and that do not adversely impact the long-term well-being of fish and wildlife habitats and their associated wildlife populations. Provisions have been made for fish and wildlife-based public outdoor educational and recreational opportunities that are compatible with the original purposes for acquiring the JBWMA.

Because JBWMA 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 each year including: 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 historic resources monitoring and protection; and research related activities.

The current and anticipated resource uses of the property are diverse. Hunting continues to be a popular recreational activity on JBWMA. The FWC administers hunts in the fall and spring for various game species including small game, deer, turkey, and wild hogs, which account for a little more than half of the user-days.

The area also offers excellent opportunities for bird watching, especially for wading birds and seasonal migratory species. 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, biking, sightseeing, and horseback riding.

3.3 Visitation and Economic Benefits

Due to the proximity of population centers in Gadsden County, public use can be expected to increase as public awareness of opportunities increases. For fiscal year 2012-2013, annual use of JBWMA was estimated to be 43,063 user-days for all activities combined.

Visitation and public use of the area for fish and wildlife based public outdoor recreational opportunities is the primary source of economic benefits from JBWMA, and contribute to the overall economy for north-west region of Florida. Primarily as a result of this visitation and use of the area, an FWC economic analysis indicates that the JBWMA generated an estimated annual retail sales economic benefit of $4,919,948 for the State and the north-west Florida region. This estimated annual economic benefit has aided in the creation and support or of an estimated 86 private sector jobs.

Further revenue generating potential of the JBWMA will depend upon future uses described in this Management Plan. Additional revenue from environmental lands such as the JBWMA might include sales of various permits and 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.

3.4 Single- or Multiple-use Management

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

3.4.1 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 JBWMA. 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 13.8). 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		✓	
Fishing		✓	
Geocaching		✓	
Hiking		✓	
Horseback riding		✓	
Hunting		✓	
Linear facilities		✓	
Military training		✓	
Paddling	✓		
Preservation of cultural sites	✓		
Preservation of historical sites	✓		
Primitive camping		✓	
Protection of imperiled species	✓		
Off-road vehicle use			✓
Shooting sports park		✓	
Soil and water conservation	✓		
Timber harvest	✓		
Research	✓		
Wildlife observation	✓		

3.4.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on JBWMA are made in accordance with the requirements of 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 JBWMA.

3.4.3 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 JBWMA (**Sections 5 - 8**). A detailed assessment of the benefits and potential impacts of planned uses and activities on natural and cultural resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.5 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 FS), 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 JBWMA 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 JBWMA is recommended for potential surplus review.

4 Accomplished Objectives from the JBWMA Management Plan 2002 - 2012

This section is dedicated to reporting the extent to which the Objectives described in the JBWMA Management Plan 2002 - 2012 were successfully completed. Accomplishments for JBWMA 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 2002 - 2012 JBWMA Management Plan describe the planned activities for JBWMA during this period. The degree to which FWC was able to accomplish the planned activities during this period is reflected as percent accomplished for each associated objective.

Resource Management Goals and Objectives	Percent Accomplished
<u>Goal 1: Protect, maintain and enhance fish and wildlife populations and their habitats.</u>	
Objective 1: Maintain a deer density index on the main tract, as indicated by counts, of 40-70 tracks per mile (ongoing). *Comment: FWC responded to population decline by limiting doe harvest.*	80%
Objective 2: In order to minimize wildlife and habitat disturbance, restrict trail development to existing roads and firebreaks (ongoing). *Comment: FWC constructed and erected nine gates to control vehicular traffic on closed roads.*	100%
Objective 3: Using prescribed burning, agricultural plantings, mowing, disking, and chemical treatments, maintain at least 255 acres of wildlife openings, and develop additional openings on appropriate disturbed areas where desirable (ongoing). *Comment: FWC created nine new fields and enlarged five additional openings for an increase of 20 acres totaling 283 acres.*	100%
Objective 4: Continue to maintain and protect existing high-quality natural communities such as slope forest and old growth Mesic Flatwoods (ongoing).	100%
Objective 5: Continue to locate and eradicate exotic plant species (e.g., Chinaberry, Japanese climbing fern, kudzu, and Chinese wisteria) using the most appropriate means including chemical and mechanical treatments (ongoing). *Comment: In 2009 FWC conducted a complete inventory of the property. FWC contracted spraying in 2002, 2006, 2008, 2011, and conducted in house spraying during intermittent years.*	100%
Objective 6: Maintain a sustainable population of catfish, bass, bream and Sunshine bass in the Joe Budd Pond through habitat management, stocking and regulations (ongoing).	100%
Objective 7: To increase hunter satisfaction, continue to pursue measures designed to improve the age structure of the male segment of the deer herd (ongoing). *Comment: FWC established a three point on one side antler rule in 2006 to conserve the 1.5 age class.*	100%
Objective 8: Continue controlling feral hog populations via public hunting programs (ongoing). *Comment: FWC permitted the taking of hogs during the small game season in 2002 and instituted special opportunity summer hog hunts in 2010.*	100%

Resource Management Goals and Objectives	Percent Accomplished
Objective 9: Inventory and map plant community types according to FNAI standards by 2004. *Comment: FNAI has inventoried and mapped historic and existing natural communities, with an update performed in 2012.*	100%
Objective 10: By 2005, obtain a professional forester's assessment of the resource conservation and revenue-producing potentials of forested FWC-managed lands within JBWMA. *Comment: FWC acquired a timber inventory.*	100%
Objective 11: Delineate management units and develop quantifiable vegetation management objectives for these management units by 2003 (this objective addresses checklist finding #1 of the 1999 DSL Land Management Review of JBWMA). *Comment: FWC conducted a OBVM workshop and desired future conditions have been defined.*	100%
Goal 2: Balance public uses to provide quality hunting opportunities and healthy wildlife populations.	
Objective 1: In order to minimize disturbance of wildlife species and habitats, restrict recreational trail development to existing roads (ongoing).	100%
Objective 2: Using prescribed burning, agricultural plantings, mowing, disking, and chemical treatments, maintain at least 255 acres of wildlife openings, and develop additional openings on appropriate disturbed areas where desirable (ongoing).	100%
Objective 3: Continue the diverse mix of hunting opportunities, including the small game, archery, archery/muzzleloading gun, and spring turkey hunting seasons (ongoing). *Comment: FWC implemented a youth turkey hunt beginning in 2012 for an increase in hunting opportunity with no reductions of any other opportunity.*	100%
Objective 4: Continue to utilize Budd Pond as an intensively managed Fish Management Area (FMA) for education and recreational purposes (ongoing).	100%
Objective 5: Continue to maintain fishing and boating access at High Bluff Landing (ongoing).	100%
Objective 6: Continue to consider and integrate regional nature-based recreational opportunities when designing additional recreational facilities for JBWMA (ongoing).	100%

Resource Management Goals and Objectives	Percent Accomplished
Objective 7: Utilizing the resources of FWC, Office of Informational Services, FWC Division of Fisheries (JBAEC), FWC Nature-based Recreation Program, and other assistance, continue to develop and improve educational programs, wildlife viewing enhancements, signage, kiosks and informational literature (ongoing). *Comment: FWC added two locations of the Great Florida Birding Trail within JBWMA, added a new kiosk and other entrance enhancements (2005), new entrance signs (2004-2005), and replaced secondary entrance signs (2012).*	100%
Objective 8: To increase hunter satisfaction, continue to pursue measures designed to improve the age structure of the male segment of the deer herd (ongoing).	100%
Objective 9: Explore alternative procedures for obtaining daily spring turkey hunt permits by 2002. *Comment: FWC instituted a system utilizing priority service tickets to facilitate the turkey hunter check-in process in the same order hunters arrive at the gate.*	100%
Objective 10: By 2003, implement a strategy to determine levels of use for all nature-based recreation activities to supplement existing data on hunting and fishing activities. *Comment: FWC began utilizing traffic counters at all major access points in 2009.*	100%
Objective 11: In order to provide all-weather access to Budd Pond, coordinate with DOF to complete the upgrade of Cattle Gap, Rosedale and Budd Pond roads by 2003. *Comment: Road improvement work was performed primarily by FWC staff, with assistance from FFS. Included additional lime rock road base material and installing two culverts.*	100%
Objective 12: By 2004, in cooperation with DOF, establish a wildlife observation site at High Bluff Landing as a component of the Great Florida Birding Trail.	100%
Goal 3: Maintain equipment and infrastructure necessary to adequately support management, resource protection, and recreational uses on the area.	

Resource Management Goals and Objectives	Percent Accomplished
Objective 1: By 2003, replace aging equipment. *Comment: Replaced brush truck, two tractors, bulldozer, one folding disk, and MIG Welder in 2002. Replaced 15 foot bush hog in 2003. Replaced grader in 2004. Replaced trucks in 2005 and 2010. Replaced 16 foot trailer in 2005. Replaced three ATV's, dump truck, trailer, sod roller, grasslander, and flail vac in 2006. Replaced 200 gallon agricultural sprayer in 2010. Replaced air compressor in 2011.*	100%
Objective 2: By 2003, increase the law enforcement patrol effort during established hunts (this objective addresses checklist finding #3 of the 1999 DSL Land Management Review of JBWMA). *Comment: FWC continues to coordinate and maintain appropriate law enforcement patrols among its Division of Law Enforcement and local agencies.*	100%
Objective 3: To provide an additional level of safety and control during prescribed fires, request a brush/pumper truck by 2003. *Comment: A brush truck was acquired in 2002.*	100%
Objective 4: Upgrade the existing well at the JBAEC to provide a potable water supply by 2006. *Comment: Delayed due to funding constraints; FWC is now proposing to extend existing potable water pipeline from the check station to JBYCC.*	0%
Goal 4: Manage and Protect Cultural Resources of the JBWMA.	
Objective 1: Continue to cooperate with the DHR to identify additional cultural resources on the area (ongoing). *Comment: FWC requested a comprehensive survey from DHR in 2010. FWC staff identified and nominated a new cemetery on the area in 2011. FWC staff performs annual monitoring of sites on the area.*	100%
Objective 2: Post signs advising the public of protection provided to cultural resources by Chapter 267, F. S. by 2003. *Comment: For site protection reasons, signs are not posted that would reveal site locations.*	100%
Goal 5: Establish an optimum boundary by continuing to identify and pursue acquisition needs.	
Objective 1: Continue to maintain a GIS shapefile, acreage, and other necessary data to facilitate nominations for the I & A acquisition program (ongoing).	100%

5 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve or otherwise use fragile natural resources and nonrenewable cultural resources. In general, the FWC management intent for JBWMA 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 JBWMA. 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

The 2014 Land Management Review Report for JBWMA (Appendix 13.4) found that FWC was managing the area in accordance with the purpose(s) of acquisition. The recommendations the Land Management Review were considered and addressed in the development of this Management Plan, including development of management intent language, goals and objectives, identification of management challenges and development of solution strategies (**Sections 5 - 8**).

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. FWC will monitor conservation actions, species, habitats, and major threats to the conservation of the natural and cultural resources of JBWMA.

5.2.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of JBWMA. 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 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 5.6.4**). Cultural and historical resources (**Section 5.9**) are monitored with guidance from the 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 JBWMA 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 JBWMA, 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 JBWMA, 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 JBWMA has high-quality native communities including baygall, bottomland forest, depression marsh, dome swamp, floodplain marsh, floodplain swamp, mesic flatwoods, sandhill, successional hardwood forest, upland hardwood forest, upland pine, and wet flatwoods that FWC will continue to manage and protect. On disturbed upland sites, FWC intends to initiate ground cover and natural community restoration with the likely exception being for those areas of JBWMA that are currently managed as wildlife openings.

As described above (**Section 2.2.1**), FNAI has conducted surveys and mapped the current vegetative communities and historic vegetation communities on JBWMA. 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, management units are delineated. Delineating management units takes into account the distribution and extent of the current and/or historic mapped natural communities, existing and proposed infrastructure, and

other management considerations. FWC land managers then identify the predominant current or historic natural community within each management unit that guides the type and frequency of management activities that should be applied.

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' are established for each actively managed natural community. Desired future conditions are the acceptable range of values for quantifiable vegetation attributes, such as basal area, shrub height and cover, and ground cover. 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 desired future conditions for natural communities.

Vegetation monitoring samples the selected attributes with the results being compared to the established desired future conditions. 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 on JBWMA and other FWC areas 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 on JBWMA and on other FWC areas 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, drainage, 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, reforestation, and restoration of natural water regimes 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 JBWMA 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. Therefore, its application 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, vegetative management objectives will likely dictate a fire return interval that averages 1 - 4 years, preferably during the spring and early summer months.

Once fuel loads are reduced and an open appearance returned, vegetative management objectives on JBWMA include a fire return interval of 1 - 4 years in the sandhill and upland pine forest natural communities. An emphasis is placed on burning during the spring and early summer months. To continue focus on restoring form and function of the pyrogenic communities, emphasis will be placed on increasing the lightning season burn acreage as viable.

Since 2004, approximately 398 acres of fire adapted communities were burned per year on the FWC lead management portion of JBWMA. Currently, 100% of the fire adapted communities within the FWC lead management portion of the area are within the target fire return of 1 - 4 years.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan has been developed and implemented for JBWMA (Appendix 13.9). This plan includes, but not be limited to, delineation of burn management units, detailed descriptions of prescribed fire methodology, safety, and smoke management guidelines.

5.3.3 Habitat Restoration

Approximately 42 acres of former pine plantation that was historically upland pine has been clearcut and replanted with historic groundcover species in 2008. These areas are in the early stages of restoration and germination, and establishment has been successful thus far. Fifteen acres of this restoration project were planted in longleaf pine in 2011. Repeated applications of prescribed fire will be utilized to ensure the continued restoration success of this project. The FWC intends to continue similar incremental groundcover and longleaf pine restoration efforts on the FWC lead management portions of JBWMA.

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

5.4.1 Fish and Wildlife

As noted above, the principal natural communities important to wildlife on JBWMA include bottomland forest, upland pine, and upland hardwood forest. Natural communities that are less represented on JBWMA include baygall, depression marsh, dome swamp, floodplain marsh, floodplain swamp, mesic flatwoods, sandhill, successional hardwood forest, and wet flatwoods.

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 JBWMA. In managing for wildlife species, an emphasis will be placed on conservation, protection and management of natural communities.

The size and natural community diversity of JBWMA 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, JBWMA provides resources critical to many migratory birds including waterfowl, passerines, raptors, and other avian species. Habitats important to both resident and migratory species will be protected, maintained or enhanced.

The FWC intends to manage game populations on a sustained-yield basis to assure healthy game populations and a high-quality recreational experience. In general, game wildlife populations will be managed to provide continued recreational sport hunting and wildlife viewing opportunities. However, due to the limited size of the area, some of the hunting opportunities may be regulated through a limited entry hunt program to ensure the persistence of viable game species populations, as well as hunter safety and satisfaction. The potential for conflicts among recreational activities and user groups will also be considered and continually monitored.

Wildlife management 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 fish and wildlife species. Monitoring of wildlife species will continue as 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 (PVA), 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. Staff combines these assessments with area-specific management considerations to develop a wildlife 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 establishes 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 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 JBWMA. 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.

5.4.3 Focal Species Selection and Management

For comprehensive information regarding monitoring and specific management actions for focal species, please refer to the JBWMA WCPR Species Management Strategy (Appendix 13.10) completed in June, 2014. Where applicable, measurable objectives contained within the JBWMA WCPR Species Management Strategy are included in **Section 6** of this Management Plan.

The following are excerpts from FWC's WCPR Strategy for JBWMA:

The FWC's management approach focuses on maintaining and restoring the ecological form and function of natural communities. However, in some instances, it is important to consider the needs of specific wildlife species and to monitor the influences of natural community management on these species. To achieve a science-informed approach to species management, the FWC uses the focal species concept embraced by the Wildlife Habitat Conservation Needs in Florida (WHCNiFL) project. This concept allows area staff to identify the needs of wildlife collectively by strategically focusing on a subset of wildlife species. The subset of species selected includes umbrella species, keystone species, habitat specialist species, and indicator species.

The Public Lands Conservation Planning (PLCP) project, an expansion of the WHCNiFL project, added a few species and provided potential habitat modeling on public lands. For the PLCP, the FWC selected 60 focal species (including 1 group of species, the wading birds) for which statewide potential habitat maps were generated using each species' potential habitat model.

The FWC's 2003 landcover data served as the base layer for all potential habitat models, and staff selected additional layers considering the particular natural history of each species (e.g., species' range, known occurrence records); as such, each model is species-specific. Once statewide potential habitat maps were completed, a PVA was conducted for each focal species.

The statewide landcover-based habitat models identified 15 of the 60 focal species to have potential habitat on JBWMA (Table 14). For all focal species modeled to have potential habitat on JBWMA, staff created area-specific potential habitat maps by using the same statewide models but replacing the landcover data with area-specific natural community data. The resulting area-specific potential habitat maps were then refined based on the input of local managers and species experts.

Table 14. Focal Species Identified as Having Potential Habitat on JBWMA

Bachman's sparrow
Brown-headed nuthatch
Cooper's hawk
Florida black bear
Florida pine snake
Fox squirrel
Gopher frog
Gopher tortoise
Louisiana waterthrush
Northern bobwhite
Red-cockaded woodpecker
Southeastern myotis
Southern bald eagle
Swallow-tailed kite
Wading birds (multiple species)

Florida black bear

Due to the improving condition of the statewide population, the Florida black bear was removed from Florida's Endangered and Threatened Species List on August 23, 2012 after approval by FWC's Commissioners at the June 2012, Commission meeting. A Florida Black Bear Management Plan[5] was also approved at this meeting.

Located within the East Panhandle Bear Management Unit, JBWMA is within the secondary range of the Apalachicola subpopulation and falls just outside this subpopulation's primary range boundary. If observations of females with cubs become more

frequent, JBWMA may be included within the primary range of this subpopulation in the future. From a regional perspective, JBWMA is part of a large complex of conservation areas that provide habitat and dispersal corridors for this species. Black bears occurring on JBWMA will be managed in accordance with the FWC Florida Black Bear Management Plan, and as more specifically described in the JBWMA WCPR Species Management Strategy.

5.5 Exotic and Invasive Species Maintenance and Control

The FWC will continue efforts to control the establishment and spread of Florida Exotic Pest Plant Council (FLEPPC) Category I or II plants on JBWMA. 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 JBWMA and treated annually by the FWC include alligatorweed, bahiagrass, Bermuda grass, camphor tree, Chinaberry, Chinese privet, Chinese tallow, Chinese wisteria, cogongrass, coral ardisia, Japanese climbing fern, Japanese honeysuckle, kudzu, lantana, mimosa, nandina, and tree-of-heaven. Exotic and invasive plant species have been identified as occurring at varying densities on approximately 60 acres of the JBWMA. 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, on JBWMA the FWC will continue efforts to control the introduction of exotic and invasive species, as well as pests and pathogens, 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 JBWMA 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. Hog populations are controlled by hunts during the archery, small game, general gun, muzzleloading gun, and archery/muzzleloading gun seasons. Wild hog-dog hunts and the special JBWMA May Hog Still Hunt have been discontinued since June 2014 due to low hunter participation and associated low harvest of feral hogs. Therefore, trapping is another measure that may be implemented to augment ongoing feral hog control efforts, and to further reduce the natural community damage and degradation caused by this species.

5.6 Public Access and Recreational Opportunities

5.6.1 General Information

The JBWMA will be managed under the low intensity, multiple-use concept that includes providing areas for fish and wildlife-based public outdoor recreation. The recreational activities offered on JBWMA include hunting, fishing, wildlife viewing, bird watching, nature study, hiking, bicycling, horseback riding, picnicking, and geocaching (placement of caches are by permit only). Authorized recreational uses are managed consistent with the purposes for acquiring JBWMA that includes ensuring the conservation and ecological integrity of the area while managing for low intensity, multiple-uses, and providing recreational opportunities for Florida's citizens and visitors.

5.6.2 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 cultural or historic sites, 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.

5.6.3 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 JBWMA. To accomplish this, FWC has worked with recreational stakeholders and the general public to develop a Recreation Master Plan (RMP) for JBWMA that will be used to further design and develop appropriate infrastructure that will support the recreational use of the area by the general public (Appendix 13.11). In the course of implementing the RMP, FWC will reassess recreational opportunities every three years.

5.6.4 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 recreational opportunities, and the anticipated proportional visitation levels of the various user groups, FWC has determined that the JBWMA can currently support 357 non-hunting visitors per day on the portions of the area FWC has lead and co-lead management responsibility, including 107 dispersed visitors, and 250 of these visitors utilizing the JBYCC on a scheduled program basis. Additionally, due to popularity of the overall JBWMA (FWC lead managed, co-lead managed, and FFS lead managed portions) with hunters, this carrying capacity may periodically be exceeded during hunting seasons.

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 cultural resources on JBWMA 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 RMP implementation process.

5.6.5 Wildlife Viewing

The JBWMA provides a wide variety of native wildlife species, both resident and seasonally migratory, that are available for visitors' enjoyment for observation and photography. The

quality of habitat found on the JBWMA attracts a suite of species including various birds, mammals, reptiles, and amphibians throughout the JBWMA. The area's outstanding wildlife habitats, including managed wildlife openings and food plots, support significant populations of both rare and common wildlife. Additionally, JBWMA is part of the Great Florida Birding Trail (GFBT).

5.6.6 Hunting

The JBWMA currently offers limited entry hunting opportunities for deer, turkey, small game, dove, waterfowl, and wild hogs. Special youth hunting opportunities are also offered. An evaluation of the hunting opportunities offered on the JBWMA is performed periodically by FWC.

5.6.7 Fishing

Fishing opportunities on JBWMA are found at the JBYCC's Joe Budd Fish Management Area (JBFMA) fish pond, and the Little River. Game species include largemouth bass, catfish, striped bass, and bream. Numerous creeks and tributaries to Lake Talquin flow through the property, offering recreational potential for anglers. Lake Talquin shoreline fishing opportunities are also available.

5.6.8 Trails and Hiking

Currently, 0.8 miles of nature trails are maintained in association with the JBYCC. In addition, approximately 33 miles of non-motorized service roads are maintained by mowing, and provide visitors an interconnected network of trails throughout much of the area. The FWC will continue to evaluate the potential for additional trails, as well as trail connectivity opportunities to other conservation areas, and will monitor existing and new trails biannually for user impacts to natural communities.

5.6.9 Bicycling

Currently, bicycle riding is allowed throughout JBWMA. Additional maintained multi-use trails will be contemplated as part of the JBWMA RMP development process. Enhancement of bicycle riding opportunities will be reassessed every three years.

5.6.10 Horseback Riding

Currently, horseback riding is allowed throughout JBWMA. Additional maintained multi-use trails will be contemplated as part of the JBWMA RMP development process. Enhancement of horseback riding opportunities will be reassessed every three years.

5.6.11 Scenic Driving

Approximately 42 miles of designated travel roads pass through a variety of natural communities on JBWMA, and offer the exploring driver opportunities to observe wildlife, as well as the overall natural aesthetics of JBWMA.

5.6.12 Camping

Camping is currently prohibited on the FWC lead and co-lead managed portions of JBWMA. Camping is allowed by permit on the FFS lead management portion of JBWMA at the High Bluff Road campground. Permits are available at a self-service pay station located at the campground; a nominal fee is required. Sites are available on a first-come, first-served basis (maximum of 14 nights in a 30-day period). For additional information, contact the FFS at 850-488-1871.

5.6.13 Geocaching

Geocaching, also known as Global Positioning System (GPS) Stash Hunt and GeoStash, is a contemporary combination of orienteering and scavenger hunting generally 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.

The FWC's policy allows for the 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 .

5.6.14 Interpretation

Interpretive kiosks, describing JBWMA's natural communities, restoration efforts, wildlife, and ongoing management actions such as prescribed fire, are located at the main entrance check station and the entrance to the Rocky Comfort Creek tract. These kiosks also provide area regulations, interpretive and recreational brochures.

5.6.15 Conservation Education Programs - Joe Budd Youth Conservation Center

The JBYCC is part of the Florida Youth Conservation Centers Network (FYCCN), FWC's youth initiative that is leading the effort to reconnect Florida's youth with traditional outdoor activities. The FYCCN is a statewide network of sustainable places where youth and their families can participate in outdoor activities and safely share experiences that inspire lifelong support for fish and wildlife conservation. The JBYCC is considered a "Wild Outdoors" center that serves as a deep woods experience for area youth and other FYCCN

partners. A large number of youth visit the area to participate in conservation education activities annually.

The FWC intends to improve the infrastructure and facilities at the JBYCC by developing a potable water pipeline to the facility, and constructing an event pavilion. If feasible, the FWC may also upgrade the JBYCC by adding bunk houses, a dining hall, kitchen, five-station hunter safety education shooting stand, and additional educational facilities.

As part of the JBWMA RMP implementation process, development of additional facilities and improvement of existing facilities will be completed to enhance conservation education on the area. At the JBYCC, FWC will continue to develop and conduct periodic conservation education and outreach programs. The FWC will continue to assess the need for additional conservation education program opportunities as appropriate. The FWC will continue to identify partnerships that could provide for additional conservation education programs and outreach opportunities.

5.7 Hydrological Preservation and Restoration

5.7.1 Hydrological Assessment, Restoration, and Management

The FWC will conduct or obtain an onsite hydrological and risk assessment to identify potential hydrology restoration needs. To maintain and enhance natural hydrological functions, FWC will maintain and install low-water crossings and culverts as appropriate.

5.7.2 Water Resource Monitoring

Currently, FWC cooperates with the Northwest Florida Water Management District (NWFWMD) for ground water monitoring, including maintaining and sampling from a ground water monitoring well. In addition, the FWC will continue to cooperate with the NWFWMD and DEP to develop and implement any necessary surface water quality and quantity monitoring protocols for JBWMA. In this capacity, FWC will primarily rely on the expertise of the NWFWMD and DEP to facilitate these monitoring activities. As necessary FWC may independently conduct or contract for water resource monitoring, as guided by DEP and the NWFWMD.

5.8 Forest Resource Management

A Timber Assessment, including a complete inventory of pine stands on the FWC-lead management portions of JBWMA, was conducted by The Forest Company in May, 2014 (Appendix 13.12). The management of timber resources will be considered in the context of this Timber Assessment, a Forest Resource Management Plan currently in development (May 2015), and the overall land management goals and activities.

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. Upland pine forest planted with off-site pines will be reforested with longleaf pine or other 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 management goals, FWC will continue to manage timber resources for wildlife benefits and natural community restoration.

On JBWMA, timber resources include some pine plantations in need of thinning for habitat improvement. The primary management techniques for reforestation on JBWMA involves either regeneration harvests of off-site slash and loblolly pines once they reach merchantable pulpwood size and then replanting with longleaf pine or through a series of thinning operations gradually reduce pine basal area to 30-40 sq. ft./acre and under-plant sites with longleaf pine to increase the uneven-aged character of the stands, overstory structure and species diversity. The forested wetlands of JBWMA are managed for stands with old growth characteristics. Snags will be protected to benefit cavity-nesting species.

5.9 Cultural and Historical Resources

Procedures outlined by DHR will be followed to preserve the cultural and historic sites of JBWMA. The FWC will consult with DHR in an attempt to locate any additional cultural and historic 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 JBWMA.

To date, the DHR Master Site File indicates seven known cultural sites on the FWC-lead managed portion of JBWMA, with an additional 11 sites on the Rocky Comfort Creek tract co-managed by FWC and FFS. The FWC will submit subsequently located cultural sites on JBWMA to DHR for inclusion in their Master Site File. In cooperation with DHR, 15 of the overall known cultural sites on JBWMA have been identified as meeting the DHR's special criteria for annual monitoring and reporting; FWC will continue to monitor and report on these sites annually. Additionally, FWC will also continue to monitor the remaining three sites that are located on the area on a rotating, regular basis.

5.10 Capital Facilities and Infrastructure

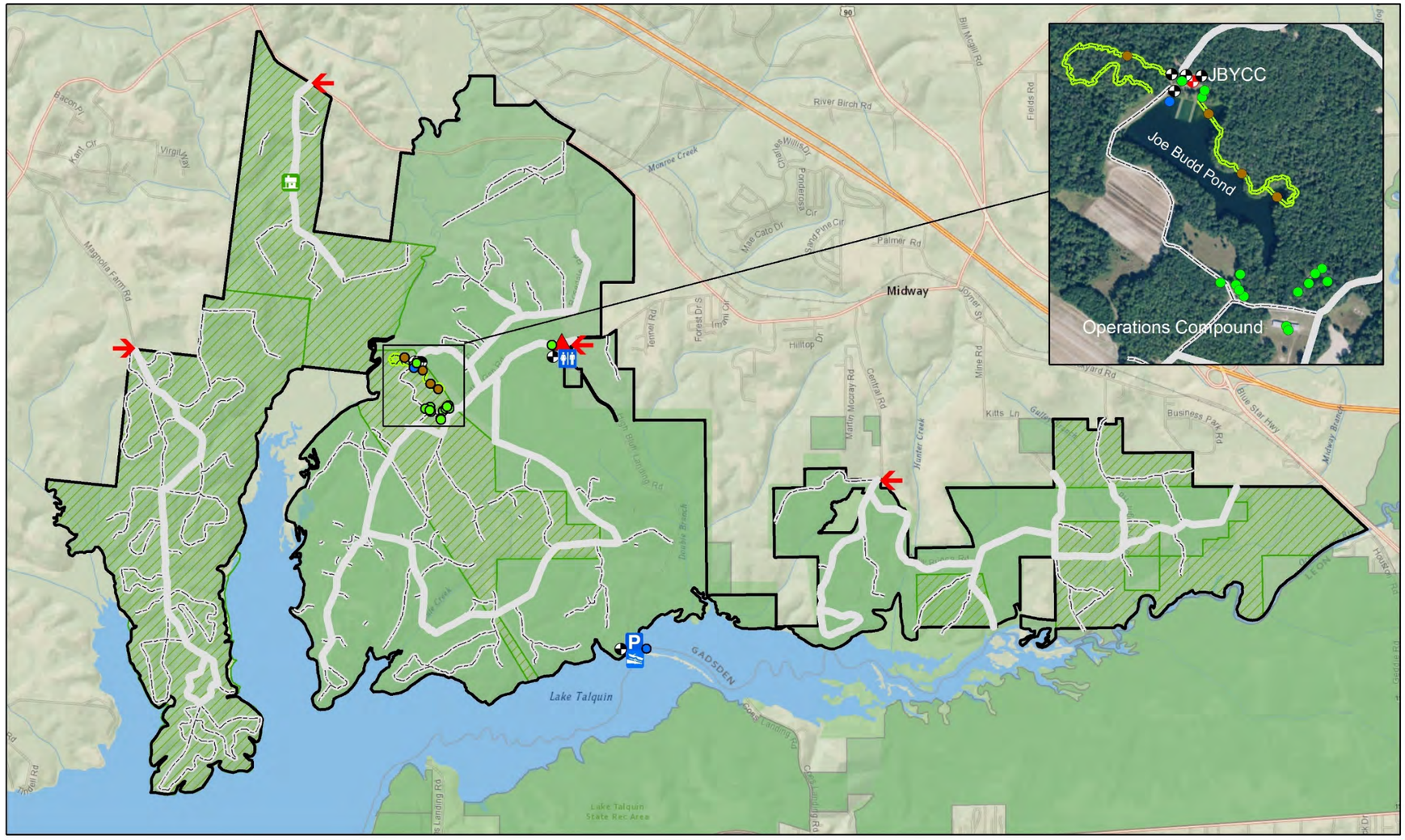
The FWC's land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure

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.

Currently, the infrastructure of JBWMA includes 41.5 miles of maintained roads, 0.8 miles of nature trail located at the JBYCC, as well as 33.2 miles of mowed service roads that also serve as an interconnected network of trails (Figure 13). Seven facilities and associated amenities are located on JBWMA including:

- Field office compound 1 (seven structures)
- JBYCC 1 (three structures)
- Operations compound 1 (twelve structures)
- Game check station 1
- Public toilet 1
- Fishing structures 2
- Boardwalk/footbridge 4
- Kiosks 5
- Picnic tables 14

As described in **Section 5.6.2** 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).



Facilities and Infrastructure

Legend

- Joe Budd WMA
- Joe Budd WMA - FWC Lead and Rocky Comfort Creek Tract
- Conservation Land
- Designated Road
- Service Road
- Trail

Structures

- Administrative Facility
- Administrative/Operations Structure
- Boardwalk/Footbridge
- Fishing Structure
- Kiosk
- Shelter

Use Areas

- Check Station
- Entrance
- Parking
- Boat Launch
- Public Toilet

Joe Budd
Wildlife Management Area
Gadsden County, Florida
~4,767 Acres

0 0.5 1 2 Miles

N

Created in ArcGIS 10.1 by the Florida Fish and Wildlife Conservation Commission February 2015

Figure 13. Facilities and Infrastructure

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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.

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-like area on a landscape scale within which an FWC managed area is contained while eliminating urban areas or lands that have already been conserved or protected.

5.11.2 Optimal Conservation Planning Boundary

The second tier is known as the OCPB (Figure 14). 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 cultural resources.

The OCPB provides the basis for development of a broader CAS for JBWMA. 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

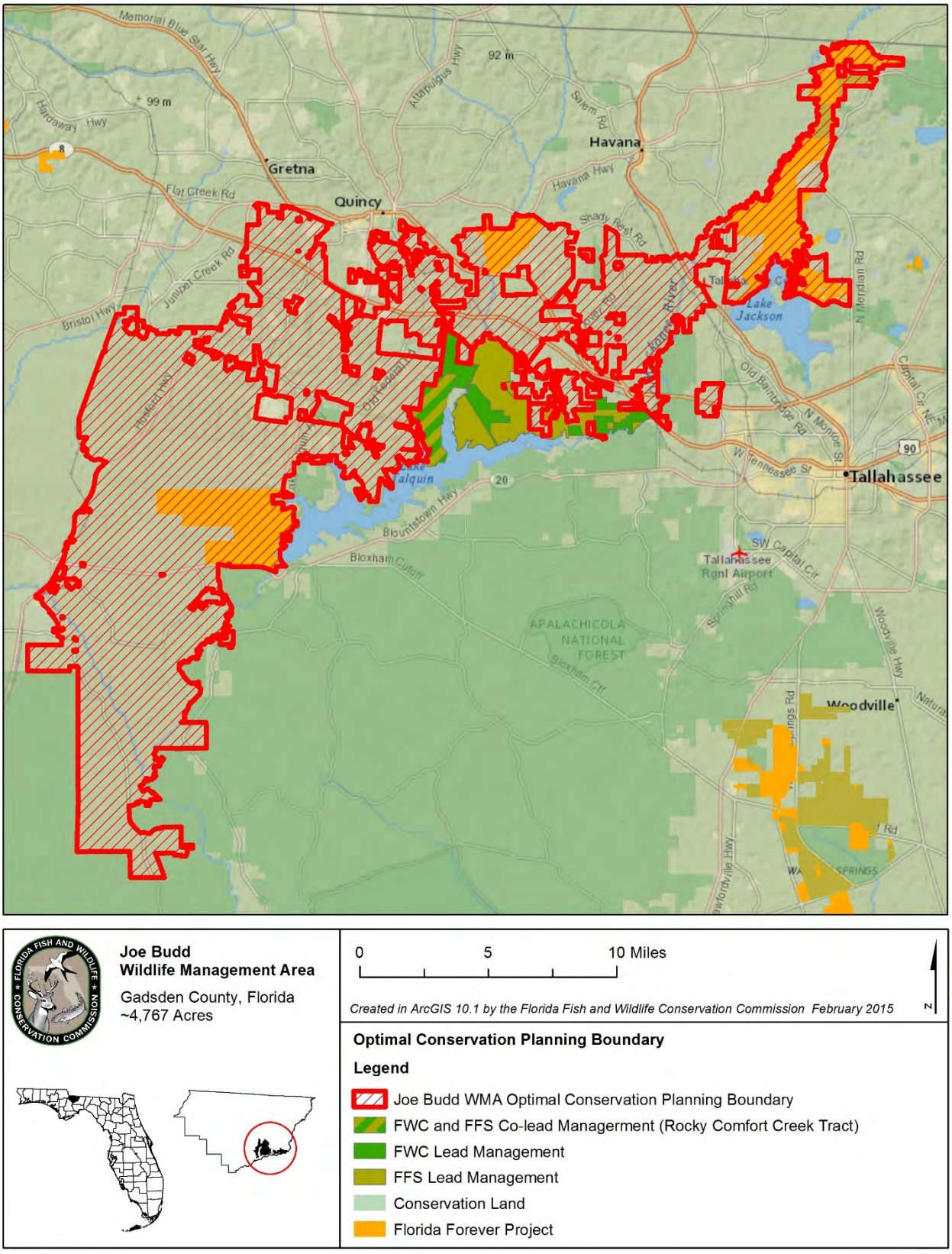

Figure 14. Optimal Conservation Planning Boundary

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
- 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 identified 15 parcels totaling 1,518 acres of potential additions or privately held inholdings for JBWMA. In addition, portions of the Ayavalla Plantation (6,081 acres), Hosford Chapman's Rhododendron Protection Zone (6,923 acres), Little River Conservation Area (2,057 acres), and the Ochlockonee River Conservation Area (3,269 acres) Florida Forever projects remain to be acquired. 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 JBWMA, 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 JBWMA 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 JBWMA as set forth in the lease agreements with the Board of Trustees. In keeping with the lease agreements, and in order to conduct its management operations in the most effective and efficient manner, the FWC cooperates with other agencies to achieve management goals and objectives described in this management plan. These include cooperating with DHR to ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 13.7) are followed with regard to any ground-disturbing activities. In addition, the FFS is a designated cooperating agency, and assists FWC by providing technical assistance on forest resource management. Also, FWC cooperates and consults with the NWFWMD and DEP for the monitoring and management of both ground and surface water resources and the overall management of JBWMA.

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 JBWMA. 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 JBWMA, 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 JBWMA. 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.

Additionally, the Gulf Regional Air Space Initiative (GRASI) is a continuation of ongoing, mutually beneficial cooperation among the Department of Defense (DOD) and its military branches, including the United States Air Force (USAF), State and regional agencies, on issues related to military readiness and conservation. The GRASI was initiated to prepare for the addition to the regional airspace (Northwest Florida) of the Joint Strike Fighter (F-35), as well as additional training needs of air and ground units of the military. The GRASI's primary purpose for FWC-managed lands is to allow important military ground training activities on areas where related ground-support air activities can also be safely conducted, and thereby relieve congestion in other restricted airspaces.

The FWC participates in GRASI along with a consortium of military, state and regional agencies (FWC, DEP, NWFWMD, the Florida Department of Agriculture and Consumer Services, The Nature Conservancy, the Florida Department of Economic Opportunity, the United States Forest Service, the National Park Service, the United States Department of Defense, and The United States Air Force). The GRASI consortium of agencies have worked to assess and recognize mutually compatible areas for training that minimize adverse impacts to natural resources and public recreational opportunities. As a result of this effort, FWC has identified and provided to the military a list of FWC-managed lands with potential for GRASI training areas. To further determine the suitability of the recommended FWC-managed areas, FWC and military personnel will coordinate site visits for areas of interest.

In addition, a GRASI Memorandum of Agreement (MOA; Appendix 13.13) between FWC and the USAF was developed and signed by FWC. Similar MOAs between other GRASI consortium entities and the USAF have also been developed and enacted. In general, the FWC GRASI MOA outlines management responsibilities and activities of the participating entities that are considered compatible among all parties and that are not expected to unreasonably impact the managed lands. The GRASI MOA further calls for FWC and USAF personnel to work cooperatively to develop an "Annual Operations Plan."

To advance our shared national and State interests, FWC will continue to coordinate and cooperate with the USAF, other branches of the military, and other GRASI consortium members to achieve the goals of GRASI, and fulfill the commitments established in the FWC GRASI MOA. As with first-responder and other training described above, GRASI-related military training activities that are 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 and the Board of Trustees for approval consideration and prior to authorization.

5.13.3 Apiaries

Currently, there are no apiaries operating on JBWMA. However, use of apiaries is conditionally approved for JBWMA, 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 13.8). Location, management, and administration of apiaries on JBWMA will be guided by the FWC Apiary Policy (Appendix 12.5). The FWC Apiary Policy (Appendix 13.14) will be followed with regards to site location, management, and administration of apiaries.

Currently, one apiary site has been established on the FFS lead portion of JBWMA. Other locations on the FWC lead and co-lead managed portions of JBWMA were evaluated using

the criteria established in the FWC Apiary policy, but were determined not to meet the minimum requirements of apiary site locations.

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.[6]

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; [7, 8, 9] more frequent invasions and outbreaks of exotic invasive species;[10] and loss of habitat in coastal areas due to sea level rise.[11] 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.[12] 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.

Elements of climate change that may potentially affect JBWMA include more frequent and more potent storm events, alteration of vegetation reproductive cycles, and changes in the fire regime. While not likely to affect JBWMA, the results of a Sea Level Affecting Marsh Model for conservation lands along the Florida Gulf Coast indicates habitats may potentially be impacted. 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.[13, 14, 15, 16] Recently, the effects of sea level rise have been observed on the Big Bend WMA where 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.[17, 18] 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 JBWMA, Goals and Objectives have been developed as a component of this Management Plan (**Section 6.12**). 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 JBWMA Management Plan in the future.

5.15 Soil and Water Conservation

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

6 Resource Management Goals and Objectives

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted in order to achieve an overall desired future outcome for JBWMA. 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 On average, conduct prescribed burning on 424 acres of fire-adapted communities per year.

6.1.2 Maintain 1,272 acres (100%) of fire-adapted natural communities within 1 - 4 year fire return interval.

6.1.3 Conduct habitat/natural community improvement and restoration activities on 25 acres, including gyro-trac, mowing, herbicide, and other viable vegetation enhancement techniques (Figure 15).

6.1.4 Update and implement a Prescribed Fire Plan for the area.

6.1.5 Continue to implement OBVM.

Long-term

6.1.6 On average, continue to conduct prescribed burning on 424 acres of fire-adapted communities per year.

6.1.7 Continue to maintain 1,272 acres (100%) of fire-adapted natural communities within a 1 - 4 year fire return interval.

6.1.8 Conduct habitat/natural community improvement and restoration activities on 35 acres of the area (additional restoration of improved pasture on the eastern side of Zone G) including gyro-trac, mowing, herbicide, and other viable vegetation enhancement techniques (Figures 15-16).

6.1.9 For the purposes of habitat restoration, continue to conduct timber harvests on 124 acres (thinning of Loblolly on North end of Zone G and ten acres of dense Longleaf WHIP planting at 2 acre field) (Figures 15-16).

6.1.10 Continue to implement OBVM.

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 JBWMA WCPR Species Management Strategy by managing identified habitats and monitoring identified species.

6.2.2 As described in the JBWMA WCPR Species Management Strategy, conduct a baseline survey to determine an estimate of the gopher tortoise population by 2016.

6.2.3 As described in the JBWMA WCPR Species Management Strategy, conduct an initial survey for Bachman's sparrows and brown-headed nuthatches in all suitable habitat by spring 2015, and repeat every 3 years.

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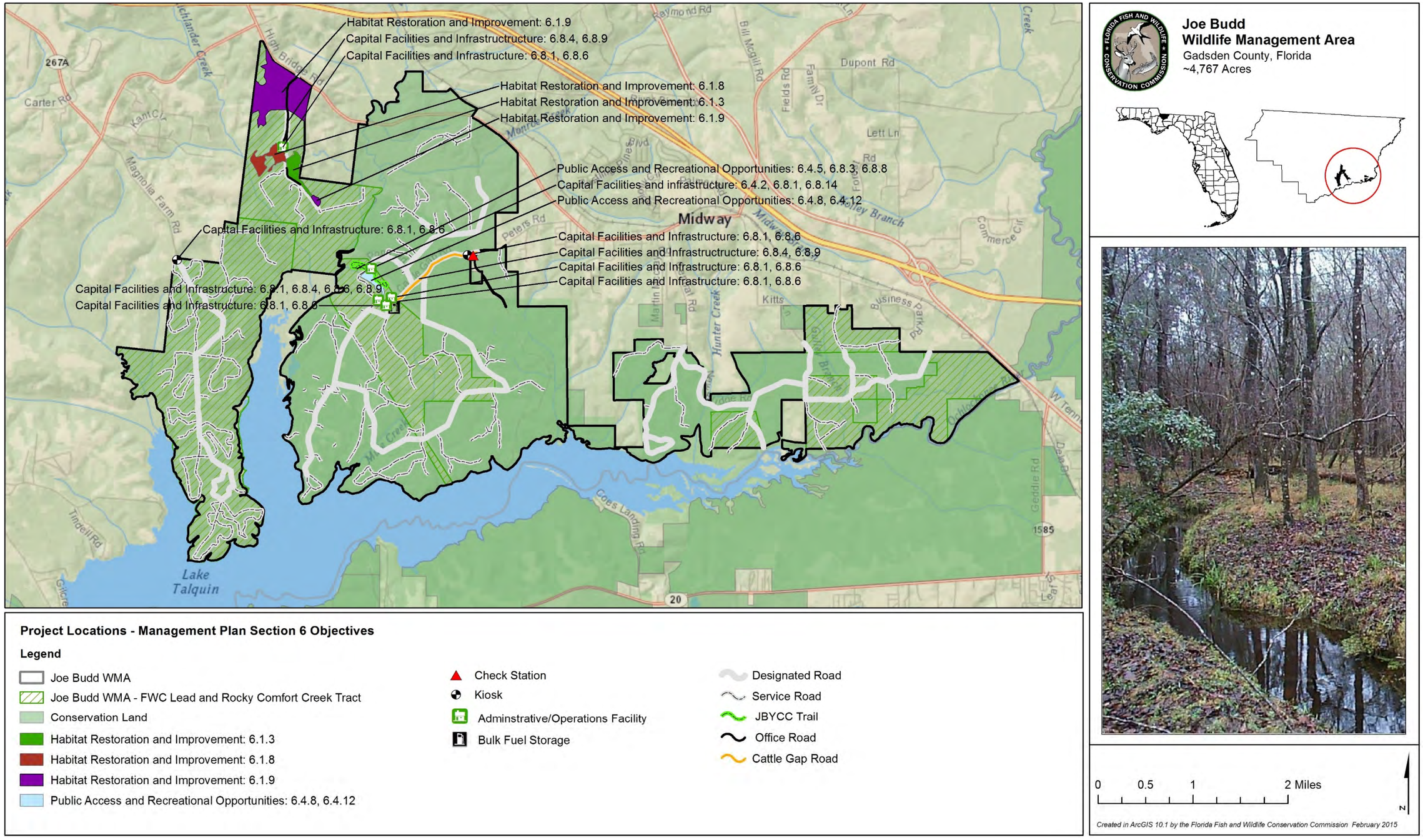

Figure 15. Project Locations - Management Plan Section 6 Objectives

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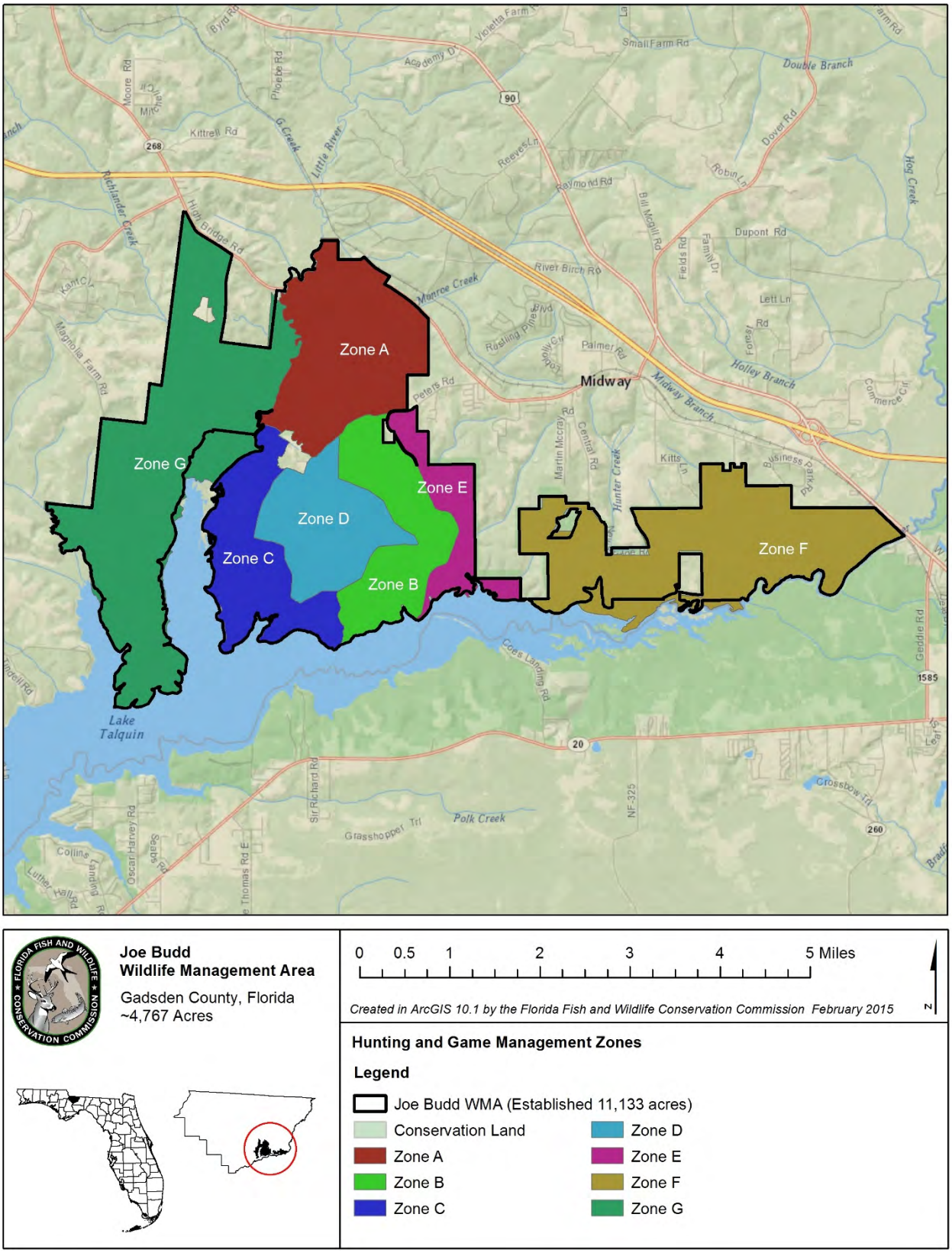

Figure 16. Hunting and Game Management Zones

6.2.4 As described in the JBWMA WCPR Species Management Strategy, conduct an initial aerial survey for southern bald eagle nests by 2015, and repeat the survey at least every 3 years.

6.2.5 Continue to collect opportunistic wildlife species occurrence data for species identified in the WCPR Species Management Strategy.

6.2.6 Continue to monitor for imperiled plant species utilizing JBWMA staff, FWC Fish and Wildlife Research Institute (FWRI), OBVM, and FNAI.

Long-term

6.2.7 Continue to implement a WCPR Species Management Strategy by managing identified habitats and monitoring identified species.

6.2.8 As described in the JBWMA WCPR Species Management Strategy, continue to conduct surveys for Bachman's sparrows and brown-headed nuthatches in all suitable habitat every 3 years.

6.2.9 As described in the JBWMA WCPR Species Management Strategy, continue to conduct surveys for southern bald eagle nests at least every 3 years.

6.2.10 Continue to collect opportunistic wildlife species occurrence data for species identified in the WCPR Species Management Strategy.

6.2.11 Continue to monitor for imperiled plant species utilizing JBWMA staff, FWC Fish and Wildlife Research Institute (FWRI), OBVM, and FNAI.

6.2.12 By 2025, revise and update the JBWMA WCPR Species Management 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 conduct annual fall pre-season track count surveys for white-tailed deer.

6.3.2 As indicated by track counts, maintain a white-tailed deer density index within Zones A - D of 40 - 70 tracks per mile (Figure 16).

6.3.3 Continue to assist with mourning dove banding as part of the statewide cooperative effort.

6.3.4 Continue to collect hunter participation, game harvest, and biological data at the check station.

6.3.5 Continue to collect opportunistic wildlife occurrence data.

6.3.6 Continue to manage JBFMA pond by enhancing aquatic habitat, and supplementing game fish (catfish, bream, and bass) populations through stocking.

Long-term

6.3.7 Continue to conduct annual fall pre-season track count surveys for white-tailed deer.

6.3.8 As indicated by track counts, continue to maintain a white-tailed deer density index within Zones A - D of 40 - 70 tracks per mile (Figure 16).

6.3.9 Continue to assist with mourning dove banding as part of the statewide cooperative effort.

6.3.10 Continue to collect hunter participation, game harvest, and biological data at check station.

6.3.11 Continue to collect opportunistic wildlife occurrence data.

6.3.12 Continue to manage JBPFMA by enhancing aquatic habitat and supplementing game fish (catfish, bream, and bass) populations through stocking.

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 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g. alligator weed, bahiagrass, Bermuda grass, camphor tree, Chinaberry, Chinese privet, Chinese tallow, Chinese wisteria, cogongrass, coral ardisia**,** Japanese climbing fern, Japanese honeysuckle, kudzu, lantana, mimosa, nandina, and Tree-of-Heaven); treat additional acreage as needed if contractual funds become available.

6.4.2 Continue to implement control measures on one exotic and nuisance animal species (feral hog).

Long-term

6.4.3 Continue to annually treat at least 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g., alligator weed, bahiagrass, Bermuda grass, camphor tree, Chinaberry, Chinese privet, Chinese tallow, Chinese wisteria, cogongrass, coral ardisia, Japanese climbing fern, Japanese honeysuckle, kudzu, lantana, mimosa, nandina, and Tree-of-Heaven); treat additional acreage as needed if contractual funds become available.

6.4.4 Continue to identify and map invasive exotic plant species.

6.4.5 Continue to implement control measures on one exotic and nuisance animal species (feral hog).

6.4.6 Continue to work with Apalachicola Regional Stewardship Alliance (ARSA) Cooperative Invasive Species Management Areas (CISMA) to identify and control Early Detection and Rapid Response (EDRR) species that might occur on JBWMA**.**

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 on the FWC lead and co-lead portions of the area.

6.5.2 In addition, at the JBYCC, maintain public access and recreational opportunities to allow for a recreational carrying capacity of 250 visitors per day (Figure 15).

6.5.3 Implement the RMP.

6.5.4 For interpretation and education, continue to provide a website, a two panel kiosk, a bird list, and JBYCC education programs.

6.5.5 Maintain 0.8 miles of trails (Figure 15).

6.5.6 Monitor the area's trails biannually for visitor impacts.

6.5.7 Continue to provide quality hunting opportunities for dove, deer, turkey, small game, and wild hogs.

6.5.8 Continue to provide fishing opportunities on JBFMA pond and the adjacent Little River (Figure 15).

Long-term

6.5.9 Continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 107 visitors per day on the FWC lead and co-lead portions of the area.

6.5.10 As part of the RMP implementation process, increase the recreational carrying capacity to 214 visitors per day on the FWC lead and co-lead portions of the area by developing facilities and infrastructure to accommodate an additional 107 visitors per day.

6.5.11 In addition, at the JBYCC, continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 250 visitors per day (Figure 15).

6.5.12 Continue to monitor trails annually for visitor impacts.

6.5.13 Continue to reassess recreational opportunities every three years.

6.5.14 Continue to provide quality hunting opportunities for deer, dove, turkey, small game, and wild hogs.

6.5.15 Continue to provide fishing opportunities on JBFMA pond and the adjacent Little River (Figure 15).

6.5.16 Cooperate with other agencies, Gadsden County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking to off-site hiking trails 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.

6.6 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 Conduct or obtain a hydrological and risk assessment of the area to identify potential hydrology restoration needs.

6.6.2 Continue to cooperate with the NWFWMD and DEP for the monitoring of surface and ground water quality and quantity.

Long-term

6.6.3 To enhance natural hydrological functions, continue to install and maintain low-water crossings and culverts as appropriate.

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

6.6.5 Develop and implement, as feasible, a hydrological restoration plan for the area.

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

6.7.2 Prepare and implement a Forest Resource Management Plan including reforestation, harvesting, and prescribed burning activities based on restoration and maintenance needs of the natural communities and other goals established for management of JBWMA.

Long-term

6.7.3 As described in the Forest Resource Management Plan, continue longleaf pine reforestation as appropriate.

6.7.4 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 historic resources.

Short-term

6.8.1 Ensure all known sites on the area are recorded in the DHR Master Site File.

6.8.2 Continue to annually monitor, protect, and preserve 18 sites identified by DHR.

6.8.3 Continue to maintain all cultural resource sites in "good" or better condition; if conditions deteriorate on any site implement protection measures to reduce site degradation and potentially improve the site to "good" condition.

6.8.4 Coordinate with DHR to assess the need for conducting a cultural resource survey.

6.8.5 Continue to cooperate with DHR in designing site plans for development of infrastructure.

6.8.6 Ensure management staff has DHR Archaeological Resources Monitoring training.

6.8.7 Follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (Appendix 13.7) for the management of cultural and historic resources.

Long-term

6.8.8 If determined to be necessary by the DHR, contract for a cultural and archaeological resources survey.

6.8.9 Continue to cooperate with DHR to manage and maintain known existing cultural resources.

6.8.10 Continue to annually monitor, protect, and preserve 18 sites identified by DHR.

6.8.11 Continue to maintain all cultural resource sites in "good" or better condition; if conditions deteriorate on any site implement protection measures to reduce site degradation and potentially improve the site to "good" condition.

6.8.12 Continue to cooperate with DHR in designing site plans for development of infrastructure.

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

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 maintain seven facilities (Joe Budd Office Complex, GFBT kiosk, check station entrance complex, bulk fuel tank/roof/containment facility, shop area complex, Joe Budd staff residence complex, and JBYCC facility) (Figure 15).

6.9.2 Maintain 41.5 miles of designated roads and 33.2 miles of service roads (Figure 15).

6.9.3 Maintain 0.8 miles of existing trails (Figure 15).

6.9.4 Improve or repair one facility (staff residence), 1.75 miles of roads (recap Office & Cattle Gap roads) (Figure 15).

6.9.5 Improve the JBYCC by developing a potable water pipeline to the facility, and constructing an event pavilion.

Long-term

6.9.6 Continue to monitor trails and infrastructure for visitor impacts.

6.9.7 Continue to maintain seven facilities (Joe Budd Office Complex, GFBT kiosk, check station entrance complex, bulk fuel tank/roof/containment facility, shop area complex, Joe Budd staff residence complex, and JBYCC facility) (Figure 15).

6.9.8 Continue to maintain 41.5 miles of designated roads and 33.2 miles of service roads (Figure 15).

6.9.9 Maintain 0.8 miles of existing trails (Figure 15).

6.9.10 Continue to improve or repair one facility (staff residence), 0.75 miles of roads (Office Road) (Figure 15).

6.9.11 Install standard FWC entrance facility (kiosk and parking area) (Figure 15).

6.9.12 In cooperation with FFS, and guided by the JBWMA RMP, develop public wildlife viewing facilities on the Rocky Comfort Creek tract (Figure 15).

6.9.13 Expand the JBYCC facility by adding bunk houses, dining hall, kitchen, five-station hunter safety education shooting stand, and additional educational facilities (Figure 15).

6.9.14 As necessary, develop utilities to support the expanded JBYCC facilities.

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 resources, habitat, landscape-scale linkages, and wildlife corridors for operational/resource management that may be important to the continued viability of fish and wildlife populations in the region.

6.10.2 Develop a CAS.

6.10.3 Contact and inform adjoining landowners about the FWC LAP to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements.

6.10.4 Identify and pursue conservation acquisition needs; recommend parcels for addition to the FWC acquisition list.

6.10.5 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.

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

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

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

6.10.9 Identify potential conservation easements donations.

6.10.10 Evaluate and determine if any portions of JBWMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

Long-term

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

6.10.12 Continue to identify and develop conservation stewardship partnerships.

6.10.13 Continue to identify and pursue conservation acquisition needs and recommend parcels for addition to the FWC acquisition list.

6.10.14 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.

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

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

6.10.17 As feasible, continue to periodically (every three to five years) contact and meet with adjacent landowners to determine their willingness to participate in the JBWMA CAS.

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

6.10.19 Continue to identify potential conservation easements donations.

6.10.20 Continue to evaluate and determine if any portions of JBWMA are recommended for, for a surplus review and potential surplus designation.

6.11 Cooperative Management and Special Uses

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

Short-term

6.11.1 Continue to cooperate with FFS, DEP, and the NWFWMD and others as appropriate in the operation and natural resource management of JBWMA.

6.11.2 As appropriate and compatible with the conservation of JBWMA, coordinate and cooperate with first responders and DOD military branches to allow for training opportunities for personnel through programs such as GRASI and other initiatives.

Long-term

6.11.3 As appropriate and compatible with the conservation of JBWMA, continue to coordinate and cooperate with first responders and DOD military branches to allow for training opportunities for personnel through programs such as GRASI and other initiatives.

6.11.4 Continue to cooperate with FFS, DEP, and the NWFWMD and others as appropriate in the operation and natural resource management of JBWMA.

6.12 Research Opportunities

Goal: Explore and pursue cooperative research opportunities.

Short-term

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

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

Long-term

6.12.3 Explore and pursue cooperative research opportunities through universities, FWC's FWRI, and the North Florida Research and Education Center.

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

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

6.13 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 JBWMA.

Short-term

6.13.1 Coordinate with FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBWMA.

6.13.2 Incorporate appropriate climate change adaptation strategies into the WCPR strategy for the JBWMA.

Long-term

6.13.3 Continue to coordinate with FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBWMA.

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

6.13.5 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 the update of the JBWMA RMP, and the curriculum of the JBYCC.

6.13.6 Incorporate appropriate climate change monitoring protocols and management strategies into the OBVM program for the JBWMA.

6.13.7 Incorporate appropriate climate change adaptation strategies into the WCPR for JBWMA.

7 Schedule: Timelines for Completion of Resource Management Goals and Objectives

The following section presents the short- and long-term goals and objectives for the management of JBWMA graphically in a timeline format. These timelines directly reflect the short- and long-term goals and objectives presented above in **Section 6**.

Habitat Restoration and Improvement
Goal: Improve extant habitat and restore disturbed areas.
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.1.1 On average, conduct prescribed burning on 424 acres of fire-adapted communities per year.
6.1.2 Maintain 1,272 acres (100%) of fire-adapted natural communities within 1 - 4 year fire return interval.
6.1.3 Conduct habitat/natural community improvement and restoration activities on 25 acres, including gyro-trac, mowing, herbicide, and other viable vegetation enhancement techniques (Figure 15).
6.1.4 Update and implement a Prescribed Fire Plan for the area.
6.1.5 Continue to implement OBVM.
6.1.6 On average, continue to conduct prescribed burning on 424 acres of fire-adapted communities per year.
6.1.7 Continue to maintain 1,272 acres (100%) of fire-adapted natural communities within a 1 - 4 year fire return interval.
6.1.8 Conduct habitat/natural community improvement and restoration activities on 35 acres of the area (additional restoration of improved pasture on the eastern side of Zone G) including gyro-trac, mowing, herbicide, and other viable vegetation enhancement techniques (Figures 15-16).
6.1.9 For the purposes of habitat restoration, continue to conduct timber harvests on 124 acres (thinning of Loblolly on North end of Zone G and ten acres of dense Longleaf WHIP planting at 2 acre field) (Figures 15-16).
6.1.10 Continue to implement OBVM.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration
Goal: Maintain, improve, or restore imperiled species populations and habitats.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.2.1 Continue to implement the JBWMA WCPR Species Management Strategy by managing identified habitats and monitoring identified species.
6.2.2 As described in the JBWMA WCPR Species Management Strategy, conduct a baseline survey to determine an estimate of the gopher tortoise population by 2018.
6.2.3 As described in the JBWMA WCPR Species Management Strategy, conduct an initial survey for Bachman's sparrows and brown-headed nuthatches in all suitable habitat by spring 2015, and repeat every 3 years.
6.2.4 As described in the JBWMA WCPR Species Management Strategy, conduct an initial aerial survey for southern bald eagle nests by 2015, and repeat the survey at least every 3 years.
6.2.5 Continue to collect opportunistic wildlife species occurrence data for species identified in the WCPR Species Management Strategy.
6.2.6 Continue to monitor for imperiled plant species utilizing JBWMA staff, FWC Fish and Wildlife Research Institute (FWRI), OBVM, and FNAI.
6.2.7 Continue to implement a WCPR Species Management Strategy by managing identified habitats and monitoring identified species.
6.2.8 As described in the JBWMA WCPR Species Management Strategy, continue to conduct surveys for Bachman's sparrows and brown-headed nuthatches in all suitable habitat every 3 years.
6.2.9 As described in the JBWMA WCPR Species Management Strategy, continue to conduct surveys for southern bald eagle nests at least every 3 years.
6.2.10 Continue to collect opportunistic wildlife species occurrence data for species identified in the WCPR Species Management Strategy.
6.2.11 Continue to monitor for imperiled plant species utilizing JBWMA staff, FWC Fish and Wildlife Research Institute (FWRI), OBVM, and FNAI.
6.2.12 By 2025, revise and update the JBWMA WCPR Species Management Strategy.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration, or Population Restoration
Goal: Maintain, improve, or restore game and non-game populations and habitats.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.3.1 Continue to conduct annual fall pre-season track count surveys for white-tailed deer.
6.3.2 As indicated by track counts, maintain a white-tailed deer density index within Zones A - D of 40 - 70 tracks per mile (Figure 16).
6.3.3 Continue to assist with mourning dove banding as part of the statewide cooperative effort.
6.3.4 Continue to collect hunter participation, game harvest, and biological data at the check station.
6.3.5 Continue to collect opportunistic wildlife occurrence data.
6.3.6 Continue to manage JBFMA pond by enhancing aquatic habitat, and supplementing game fish (catfish, bream, and bass) populations through stocking.
6.3.7 Continue to conduct annual fall pre-season track count surveys for white-tailed deer.
6.3.8 As indicated by track counts, continue to maintain a white-tailed deer density index within Zones A - D of 40 - 70 tracks per mile (Figure 16).
6.3.9 Continue to assist with mourning dove banding as part of the statewide cooperative effort.
6.3.10 Continue to collect hunter participation, game harvest, and biological data at check station.
6.3.11 Continue to collect opportunistic wildlife occurrence data.
6.3.12 Continue to manage JBFMA by enhancing aquatic habitat and supplementing game fish (catfish, bream, and bass) populations through stocking.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Exotic and Invasive Species Maintenance and Control
Goal: Remove exotic and invasive plants and animals and conduct needed maintenance - control.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.4.1 Annually treat at least 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g. alligatorweed, bahiagrass, Bermuda grass, camphor tree, Chinaberry, Chinese privet, Chinese tallow, Chinese wisteria, cogongrass, coral ardisia, Japanese climbing fern, Japanese honeysuckle, kudzu, lantana, mimosa, nandina, and Tree-of-Heaven); treat additional acreage as needed if contractual funds become available.
6.4.2 Continue to implement control measures on one exotic and nuisance animal species (feral hog).
6.4.3 Continue to annually treat at least 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g., alligator weed, bahiagrass, Bermuda grass, camphor tree, Chinaberry, Chinese privet, Chinese tallow, Chinese wisteria, cogongrass, coral ardisia, Japanese climbing fern, Japanese honeysuckle, kudzu, lantana, mimosa, nandina, and Tree-of-Heaven); treat additional acreage as needed if contractual funds become available.
6.4.4 Continue to identify and map invasive exotic plant species.
6.4.5 Continue to implement control measures on one exotic and nuisance animal species (feral hog).
6.4.6 Continue to work with Apalachicola Regional Stewardship Alliance (ARSA) Cooperative Invasive Species Management Areas (CISMA) to identify and control Early Detection and Rapid Response (EDRR) species that might occur on JBWMA.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Public Access and Recreational Opportunities
Goal: Provide public access and recreational opportunities.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
B.5.1 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 107 visitors per day on the FWC lead and co-lead portions of the area.
B.5.2 In addition, at the JBYCC, maintain public access and recreational opportunities to allow for a recreational carrying capacity of 250 visitors per day (Figure 15).
B.5.3 Implement the RMP.
B.5.4 For interpretation and education, continue to provide a website, a two panel kiosk, a bird list, and JBYCC education programs.
B.5.5 Maintain 0.8 miles of trails (Figure 15).
B.5.6 Monitor the area's trails biannually for visitor impacts.
B.5.7 Continue to provide quality hunting opportunities for dove, deer, turkey, small game, and wild hogs.
B.5.8 Continue to provide fishing opportunities on JBFMA pond and the adjacent Little River (Figure 15).
B.5.9 Continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 107 visitors per day on the FWC lead and co-lead portions of the area.
B.5.10 As part of the RMP implementation process, increase the recreational carrying capacity to 214 visitors per day on the FWC lead and co-lead portions of the area by developing facilities and infrastructure to accommodate an additional 107 visitors per day.
B.5.11 In addition, at the JBYCC, continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 250 visitors per day (Figure 15).
B.5.12 Continue to monitor trails annually for visitor impacts.
B.5.13 Continue to reassess recreational opportunities every three years.
B.5.14 Continue to provide quality hunting opportunities for deer, dove, turkey, small game, and wild hogs.
B.5.15 Continue to provide fishing opportunities on JBFMA pond and the adjacent Little River (Figure 15).
B.5.16 Cooperate with other agencies, Gadsden County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking to off-site hiking trails and multi-use trail systems between adjacent public areas.
B.5.17 Continue to identify partnerships that could provide for environmental educational programs and outreach.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Hydrological Preservation and Restoration
Goal: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.6.1 Conduct or obtain a hydrological and risk assessment of the area to identify potential hydrology restoration needs.
6.6.2 Continue to cooperate with the NWFWMD and DEP for the monitoring of surface and ground water quality and quantity.
6.6.3 To enhance natural hydrological functions, continue to install and maintain low-water crossings and culverts as appropriate.
6.6.4 Continue to cooperate with the NWFWMD and DEP for the monitoring of surface and ground water quality and quantity.
6.6.5 Develop and implement, as feasible, a hydrological restoration plan for the area.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Forest Resource Management
Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.7.1 Consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.
6.7.2 Prepare and implement a Forest Resource Management Plan including reforestation, harvesting, and prescribed burning activities based on restoration and maintenance needs of the natural communities and other goals established for management of JBWMA.
6.7.3 As described in the Forest Resource Management Plan, continue longleaf pine reforestation as appropriate.
6.7.4 Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Cultural and Historical Resources
Goal: Protect, preserve and maintain cultural and historic resources.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.8.1 Ensure all known sites on the area are recorded in the DHR Master Site File.
6.8.2 Continue to annually monitor, protect, and preserve 15 sites identified by DHR; monitor an additional three sites on a rotating, regular basis.
6.8.3 Continue to maintain all cultural resource sites in "good" or better condition; if conditions deteriorate on any site implement protection measures to reduce site degradation and potentially improve the site to "good" condition.
6.8.4 Coordinate with DHR to assess the need for conducting a cultural resource survey.
6.8.5 Continue to cooperate with DHR in designing site plans for development of infrastructure.
6.8.6 Ensure management staff has DHR Archaeological Resources Monitoring training.
6.8.7 Follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (Appendix 13.7) for the management of cultural and historic resources.
6.8.8 If determined to be necessary by the DHR, contract for a cultural and archaeological resources survey.
6.8.9 Continue to cooperate with DHR to manage and maintain known existing cultural resources.
6.8.10 Continue to annually monitor, protect, and preserve 15 sites identified by DHR; monitor an additional three sites on a rotating, regular basis.
6.8.11 Continue to maintain all cultural resource sites in "good" or better condition; if conditions deteriorate on any site implement protection measures to reduce site degradation and potentially improve the site to "good" condition.
6.8.12 Continue to cooperate with DHR in designing site plans for development of infrastructure.
6.8.13 Continue to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Capital Facilities and Infrastructure
Goal: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.9.1 Continue to maintain seven facilities (Joe Budd Office Complex, GFBT kiosk, check station entrance complex, bulk fuel tank/roof/containment facility, shop area complex, Joe Budd staff residence complex, and JBYCC facility) (Figure 15).
6.9.2 Maintain 41.5 miles of designated roads and 33.2 miles of service roads (Figure 15).
6.9.3 Maintain 0.8 miles of existing trails (Figure 15).
6.9.4 Improve or repair one facility (staff residence), 1.75 miles of roads (recap Office & Cattle Gap roads) (Figure 15).
6.9.5 Improve the JBYCC by developing a potable water pipeline to the facility, and constructing an event pavilion.
6.9.6 Continue to monitor trails and infrastructure for visitor impacts.
6.9.7 Continue to maintain seven facilities (Joe Budd Office Complex, GFBT kiosk, check station entrance complex, bulk fuel tank/roof/containment facility, shop area complex, Joe Budd staff residence complex, and JBYCC facility) (Figure 15).
6.9.8 Continue to maintain 41.5 miles of designated roads and 33.2 miles of service roads (Figure 15).
6.9.9 Maintain 0.8 miles of existing trails (Figure 15).
6.9.10 Continue to improve or repair one facility (staff residence), 0.75 miles of roads (Office Road) (Figure 15).
6.9.11 Install standard FWC entrance facility (kiosk and parking area) (Figure 15).
6.9.12 In cooperation with FFS, and guided by the JBWMA RMP, develop public wildlife viewing facilities on the Rocky Comfort Creek tract (Figure 15).
6.9.13 Expand the JBYCC facility by adding bunk houses, dining hall, kitchen, five-station hunter safety education shooting stand, and additional educational facilities (Figure 15).
6.9.14 As necessary, develop utilities to support the expanded JBYCC facilities.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Land Conservation and Stewardship Partnerships
Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.10.1 Identify potential important wildlife resources, habitat, landscape-scale linkages, and wildlife corridors for operational/resource management that may be important to the continued viability of fish and wildlife populations in the region.
6.10.2 Develop a CAS.
6.10.3 Contact and inform adjoining landowners about the FWC LAP to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements.
6.10.4 Identify and pursue conservation acquisition needs; recommend parcels for addition to the FWC acquisition list.
6.10.5 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.
6.10.6 Identify potential non-governmental organization partnerships and grant program opportunities.
6.10.7 Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop.
6.10.8 Determine which parcels should be added to the FWC acquisition list.
6.10.9 Identify potential conservation easements donations.
6.10.10 Evaluate and determine if any portions of JBWMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.
6.10.11 To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed OCPB for JBWMA as appropriate and necessary.
6.10.12 Continue to identify and develop conservation stewardship partnerships.
6.10.13 Continue to identify and pursue conservation acquisition needs and recommend parcels for addition to the FWC acquisition list.
6.10.14 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.
6.10.15 Continue to propose nominations of selected properties as additions to the FWC acquisition list.
6.10.16 Continue to pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow.
6.10.17 As feasible, continue to periodically (every three to five years) contact and meet with adjacent landowners to determine their willingness to participate in the JBWMA CAS.
6.10.18 Coordinate and conduct landowner assistance/conservation stewardship partnership workshop(s) as necessary and appropriate.
6.10.19 Continue to identify potential conservation easements donations.
6.10.20 Continue to evaluate and determine if any portions of JBWMA are recommended for, for a surplus review and potential surplus designation.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Cooperative Management and Special Uses
Goal: Provide access and use of JBWMA to current cooperative managers and continue collaborative management efforts.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.11.1 Continue to cooperate with FFS, DEP, and the NWFWMD and others as appropriate in the operation and natural resource management of JBWMA.
6.11.2 As appropriate and compatible with the conservation of JBWMA, coordinate and cooperate with first responders and DOD military branches to allow for training opportunities for personnel through programs such as GRASI and other initiatives.
6.11.3 As appropriate and compatible with the conservation of JBWMA, continue to coordinate and cooperate with first responders and DOD military branches to allow for training opportunities for personnel through programs such as GRASI and other initiatives.
6.11.4 Continue to cooperate with FFS, DEP, and the NWFWMD and others as appropriate in the operation and natural resource management of JBWMA.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

Research Opportunities
Goal: Explore and pursue cooperative research opportunities.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.12.1 Continue to cooperate with researchers, universities, and others as appropriate.
6.12.2 Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate.
6.12.5 Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate.
6.12.3 Explore and pursue cooperative research opportunities through universities, FWC's FWRI, and the North Florida Research and Education Center.
6.12.4 Continue to cooperate with researchers, universities, and others as appropriate.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

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 JBWMA
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.13.1 Coordinate with FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBWMA.
6.13.2 Incorporate appropriate climate change adaptation strategies into the WCPR strategy for the JBWMA.
6.13.3 Continue to coordinate with FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the JBWMA.
6.13.4 As appropriate, update the JBWMA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of JBWMA's fire-adapted habitats.
6.13.5 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 the update of the JBWMA RMP, and the curriculum of the JBYCC.
6.13.6 Incorporate appropriate climate change monitoring protocols and management strategies into the OBVM program for the JBWMA.
6.13.7 Incorporate appropriate climate change adaptation strategies into the WCPR for JBWMA.
Short-term
Long-term
Joe Budd Wildlife Management Area
Management Plan - Goals and Objectives - Timelines for Completion

8 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with JBWMA and provide solution strategies that will address these challenges. These specific challenges are provided to supplement the broader management intent, and goals and objectives sections of this management plan found above (**Sections 5 - 7**).

8.1 Challenge: Declining white-tailed deer density, as evidenced by lower fall preseason track counts, hunter satisfaction and success, and impacts to wildlife plantings, indicate that the deer population has declined to below optimal levels.

8.1.1 Strategy: Pursuant to FWC rules and regulations approved by FWC Commissioners, continue restricting doe harvest until white-tailed deer density achieves the desired range.

8.1.2 Strategy: Investigate and identify reasons for declining white-tailed deer density so that appropriate responses can be initiated.

8.1.3 Strategy: Continue conducting annual fall pre-season track counts and monitoring of harvest, hunt pressure and success, and biological parameters so that response of the population to corrective measures can be ascertained.

8.2 Challenge 2: Continuing illegal activities on portions of JBWMA, including poaching and dumping, are contributing to management and security issues.

8.2.1 Strategy: Continue to coordinate and cooperate with FWC's Division of Law Enforcement and local law enforcement to maintain an adequate law enforcement presence on JBWMA.

8.3 Challenge 3: The management responsibilities of FWC and FFS on the Rocky Comfort Creek tract are not well delineated.

8.3.1 Strategy: Coordinate and cooperate with FFS to develop a consensus framework for management, and delineate management responsibilities and activities on the Rocky Comfort Creek tract.

8.4 Challenge: A complete boundary survey of JBWMA is lacking.

8.4.1 Strategy: Explore the feasibility of contracting for a comprehensive boundary survey.

9 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of JBWMA. 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 mitigation, may be sought to supplement existing funding.

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 JBWMA. 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 2014 - 2015 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 15.

Joe Budd WMA Management Plan Cost Estimate

Maximum expected one year expenditure

Resource Management	Expenditure	Priority
Exotic Species Control	$69,684	(1)
Prescribed Burning	$15,219	(1)
Cultural Resource Management	$1,297	(1)
Timber Management	$16,618	(1)
Hydrological Management	$3,636	(1)
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$134,601	(1)
Subtotal	**$241,055**	
Administration		
General administration	**$18,953**	(1)
Support		
Land Management Planning	$16,384	(1)
Land Management Reviews	$0	(3)
Training/Staff Development	$11,891	(1)
Vehicle Purchase	$0	(2)
Vehicle Operation and Maintenance	$74,909	(1)
Other (Technical Reports, Data Management, etc.)	$13,599	(1)
Subtotal	**$116,784**	
Capital Improvements		
New Facility Construction	$1,620,125	(2)
Facility Maintenance	$71,397	(1)
Subtotal	**$1,691,522**	
Visitor Services/Recreation		
Info./Education/Operations	**$119,823**	(1)
Law Enforcement		
Resource protection	**$2,185**	(1)
Total	**$2,190,322**	*

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

Priority schedule:
Normal: (1) Immediate (annual)
Bold: (2) Intermediate (3-4 years)
Italic: (3) Other (5+ years)

Joe Budd WMA Management Plan Cost Estimate
Ten-year projection

Resource Management	Expenditure	Priority
Exotic Species Control	$709,765	(1)
Prescribed Burning	$155,015	(1)
Cultural Resource Management	$13,209	(1)
Timber Management	$169,267	(1)
Hydrological Management	$37,033	(1)
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$1,370,977	(1)
Subtotal	**$2,455,266**	
Administration		
General administration	**$193,043**	(1)
Support		
Land Management Planning	$166,878	(1)
Land Management Reviews	$14,927	(3)
Training/Staff Development	$121,120	(1)
Vehicle Purchase	$456,371	(2)
Vehicle Operation and Maintenance	$762,990	(1)
Other (Technical Reports, Data Management, etc.)	$138,517	(1)
Subtotal	**$1,660,804**	
Capital Improvements		
New Facility Construction	$3,059,586	(2)
Facility Maintenance	$727,213	(1)
Subtotal	**$3,786,799**	
Visitor Services/Recreation		
Info./Education/Operations	**$1,220,459**	(1)
Law Enforcement		
Resource protection	**$22,253**	(1)
Total	**$9,338,624**	*

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

Priority schedule:
Normal: (1) Immediate (annual)
Bold: (2) Intermediate (3-4 years)
Italic: (3) Other (5+ years)

10 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			✓

11 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 JBWMA 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 13.8). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 379, 253, 259, 327, 370, 403, 870, 373, 375, 378, 487, and 597 FS.

The FWC has developed and utilizes an Arthropod Control Plan for JBWMA in compliance with Chapter 388.4111 FS (Appendix 13.16). This plan was developed in cooperation with the local Gadsden County arthropod control agency. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Gadsden County, Florida, (Appendix 13.17).

12 Endnotes

[1] Aldridge, C. L., M. S. Boyce and R. K. Baydack. 2004. Adaptive management of prairie grouse: how do we get there? Wildlife Society Bulletin 32:92-103.

[2] Wilhere, G. F. 2002. Adaptive management in Habitat Conservation Plans. Conservation Biology 16:20-29.

[3] Walters, C. J. and R. Hilborn. 1978. Ecological optimization and adaptive management. Annual Review of Ecology and Systematics 9:157–188.

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