



A Management Plan for the Caravelle Ranch Wildlife Management Area 2021 - 2031

Putnam and Marion 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, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

December 14, 2021

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

RE: Caravelle Ranch Wildlife Management Area (WMA) – Lease No. 4100

Dear Mr. Houston:

On **December 10, 2021**, the Acquisition and Restoration Council (ARC) recommended approval of the **Caravelle Ranch WMA** management plan. Therefore, Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves **Caravelle Ranch WMA** management plan. The next management plan update is due December 10, 2031.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to describe both short-term and long-term management goals and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period. Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the Acquisition and Restoration Council (ARC) for public notification. The Division of State Lands will approve these

Mr. Thomas Houston
Page 2
December 14, 2021

plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

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,

Deborah Burr Digitally signed by
Deborah Burr
Date: 2021.12.14
12:44:57 -05'00'

Deborah Burr
Office of Environmental Services
Division of State Lands

**A Management Plan
for the
Caravelle Ranch Wildlife Management Area**

Putnam and Marion County, Florida

Owned by the Board of Trustees of the Internal Improvement Trust Fund and St.
Johns River Water Management District
Managed by the Florida Fish and Wildlife Conservation Commission



April 2021

Approved *Melissa Tucker*
Melissa Tucker, 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: Caravelle Ranch Wildlife Management Area (CRWMA)

Location: Putnam and Marion Counties, Florida

Acreage Total: 10,470 acres

Acreage Breakdown:

<u>Land Cover Classification</u>	<u>Acres</u>	<u>Percent of Total Area</u>
Basin swamp	102.90	0.8%
Baygall	3.01	<0.1%
Blackwater stream	6.96	<0.1%
Depression marsh	104.02	0.9%
Dome swamp	121.38	1.0%
Floodplain swamp	5,066.90	41.3%
Hydric hammock	814.31	6.6%
Mesic flatwoods	1,274.14	10.4%
Mesic hammock	777.43	6.3%
Pasture – improved	1,418.92	11.6%
Pine plantation	299.32	2.4%
Restoration mesic flatwoods	26.34	0.2%
Ruderal	923.35	7.5%
Scrubby flatwoods	26.38	0.2%
Wet flatwoods	1,283.24	10.5%
Wet Prairie	21.64	0.2%
Xeric hammock	2.06	<0.1%

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

Lease/Management Agreement No.: 4100 (Appendix 12.1) and St. Johns River Water Management Agreement 91034 (Appendix 12.2)

Use: Single _____ Management Responsibilities:

Multiple X

Agency FWC

Responsibilities

LEAD, LESSEE (Wildlife Management Area, resource protection, law enforcement)

Designated Land Use: Wildlife Management Area

Sublease (s): None

Encumbrances List: Apiary Agreement (#18181), Cattle Grazing Contract (#08191-A-1), and three housing agreements (#14216, 19096, and 14217)

Type Acquisition: Conservation and Recreation Lands Program and Save Our Rivers Program

Unique Features: Natural: Natural communities including floodplain swamp and mesic flatwoods

Archaeological/Historical: Nine documented within CRWMA.

Management Needs: Habitat restoration and improvement; public access and recreational opportunities; hydrological preservation and restoration; non-native and invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.

Acquisition Needs/Acreage: 3,880 acres FWC Additions and Inholdings list; 57,849 acres remaining in the Etoniah/Cross Florida Greenway Florida Forever Project (Appendix 12.17).

Surplus Lands/Acreage: None

Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 12.3 and 12.4)

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

ARC Approval Date _____ BTIITF Approval Date: _____

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

Comments: _____

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	ii, 1
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	3-4
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	3-4; 8
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	ii; 1-4; Appendix 12.1 and 12.2
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	5-11; 104
6	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide Information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	56
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i>	18-2.021	91-94; Appendix 12.17
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	13
9	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	3
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	9-11

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	54-56
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	51-54
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	54-56
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	4; 94-95
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	51; 90; 101
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	75-97; 110

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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)	54-55; 85-88
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	54-56
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Appendix 12.19
20	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	14-16; 25-39; 46-51; 75-97
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	54-56
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	89-90
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	56

*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	14; Appendix 12.3 and 12.4

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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)	14
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	14; Appendix 12.3 and 12.4
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Appendix 12.4.1
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	Appendix 12.3 and 12.4.2
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	Appendix 12.5; 75
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	Appendix 12.5; 75
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	Appendix 12.5; 75

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	15; 25-26; Appendix 12.6
33	Insert FNAI based natural community maps when available.	ARC consensus	27-28
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	15-46
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	47-51
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	51

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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	51
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	39-49
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	45-49
40	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	46-47; 49; Appendix 12.8
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)	75-97
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.	↓	75-107
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.	↓	97-107
42-C.	The associated measurable objectives to achieve the goals.	↓	97-107
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>	↓	75-107
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.		107-109; Appendix 12.16
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	16-39
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	75-107
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
44-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
44-D.	Related activities (see requirement for #42-D).	↓	75-107
44-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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).	↓	75-107
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
45-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
45-D.	Related activities (see requirement for #42-D).	↓	75-107
45-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	24; 84-85
47	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	Appendix 12.18
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).	↓	75-107
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
48-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
48-D.	Related activities (see requirement for #42-D).	↓	75-107
48-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	13
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	47; 50
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	47; 50

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	47; 50
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).	↓	88-89
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
53-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
53-D.	Related activities (see requirement for #42-D).	↓	75-107
53-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i>	18-2.018, 18-2.021 & per DHR's request	90; 101
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	90; Appendix 12.14
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	90;101; Appendix 12.13 and 12.14
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).	↓	90
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
57-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
57-D.	Related activities (see requirement for #42-D).	↓	75-107
57-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16

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

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. <i>See footnote.</i>	253.034(5)	90-91; 104
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).	↓	90-91
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
59-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
59-D.	Related activities (see requirement for #42-D).	↓	75-107
59-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	90-91; 104
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).	↓	75-107
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	97-107
61-C.	Measurable objectives (see requirement for #42-C).	↓	97-107
61-D.	Related activities (see requirement for #42-D).	↓	75-107
61-E.	Budgets (see requirement for #42-E).		107-109; Appendix 12.16

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	iv -xi
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	57-75
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	75-107
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	253.034(5)	107-109; Appendix 12.16

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
	categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.		
67	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	107-109; Appendix 12.16
68	A statement of gross income generated, net income and expenses.	18-2.018	54; 107-109; Appendix 12.16

*** = 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.

Table of Contents

1	Introduction and General Information	1
1.1	Management Plan Purpose.....	1
1.2	Location.....	3
1.3	Acquisition	3
1.4	Management Authority	4
1.5	Management Directives.....	4
1.6	Title Interest and Encumbrances.....	4
1.7	Proximity to Other Public Conservation Lands	9
1.8	Adjacent Land Uses	13
1.9	Public Involvement	14
2	Natural and Historical Resources	14
2.1	Physiography	14
2.2	Vegetation	16
2.3	Fish and Wildlife Resources	39
2.4	Native Landscapes.....	47
2.5	Water Resources	47
2.6	Beaches and Dunes.....	50
2.7	Mineral Resources	50
2.8	Historical Resources	50
2.9	Scenic Resources	50
3	Uses of the Property	50
3.1	Previous Use and Development.....	50
3.2	Current Use of the Property	52
3.3	Single- or Multiple-use Management.....	53
3.4	Acreage Recommended for Potential Surplus Review	55
4	Accomplished Objectives from the CRWMA Management Plan 2014 – 2024	56
5	Management Activities and Intent	74
5.1	Land Management Review	74
5.2	Adaptive Management.....	75

5.3	Habitat Restoration and Improvement	76
5.4	Fish and Wildlife Management, Imperiled and Locally Important Species Habitat Maintenance, Enhancement, Restoration or Population Restoration	80
5.5	Non-native and Invasive Species Maintenance and Control	83
5.6	Public Access and Recreational Opportunities	84
5.7	Hydrological Preservation and Restoration	87
5.8	Forest Resource Management	88
5.9	Historical Resources	89
5.10	Capital Facilities and Infrastructure	89
5.11	Land Conservation and Stewardship Partnerships.....	90
5.12	Research Opportunities	93
5.13	Cooperative Management and Special Uses	93
5.14	Climate Change	94
5.15	Soil and Water Conservation.....	96
6	Resource Management Goals and Objectives – 2021-2031	96
6.1	Habitat Restoration and Improvement	96
6.2	Imperiled Species Habitat Maintenance, Enhancement, Restoration or Population Restoration	97
6.3	Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration and Population Restoration.	97
6.4	Non-native and Invasive Species Maintenance and Control	98
6.5	Public Access and Recreational Opportunities	98
6.6	Hydrological Preservation and Restoration	99
6.7	Forest Resource Management	99
6.8	Historical Resources	100
6.9	Capital Facilities and Infrastructure	100
6.10	Land Conservation and Stewardship Partnerships.....	100
6.11	Climate Change	101
6.12	Cooperative Management, Special Uses and Research Opportunities	102
7	Resource Management Challenges and Strategies	104
8	Cost Estimates and Funding Sources	106

9	Analysis of Potential for Contracting Private Vendors for Restoration and Management Activities	109
10	Compliance with Federal, State and Local Governmental Requirements	109
11	Endnotes	110
12	Appendices	113
12.1	Lease Agreement #4100.....	113
12.2	SJRWMD Lease Agreement	143
12.3	Public Hearing Notice, Advertisements, and Press Release.....	151
12.4	Public Input	160
12.5	Land Management Review	168
12.6	Soil Series Descriptions	180
12.7	Management Plan Terms	190
12.8	FNAI Element Occurrence Data Usage Letter	194
12.9	FWC Agency Strategic Plan	195
12.10	FWC Apiary Policy.....	223
12.11	Wildlife Conservation and Prioritization and Recovery Program Strategy (WCPR)	245
12.12	Recreation Master Plan	308
12.13	Management Procedures Guidelines - Management of Archaeological and Historical Resources	350
12.14	Historical Resources	352
12.15	Land Management Uniform Accounting Council Categories	354
12.16	Operation Plan Fiscal Year 2019-2020.....	361
12.17	Conservation Action Strategy.....	363
12.18	Arthropod Control Plan	377
12.19	Putnam and Marion County Letter of Compliance with Local Government Comprehensive Plan	382

Table of Figures

Figure 1. General Location of the CRWMA	5
Figure 2. Aerial Imagery	6
Figure 3. Township, Range and Section	7
Figure 4. Title Interest for the CRWMA	8
Figure 5. Conservation Lands and Florida Forever Projects near the CRWMA	11
Figure 6. Soil Types on the CRWMA	25
Figure 7. Soil Depth to Water Table (cm) on the CRWMA	26
Figure 8. Natural and Anthropogenic Communities on the CRWMA	27
Figure 9. Historic Natural Communities on the CRWMA	28
Figure 10. Florida Landscape Assessment Model	48
Figure 11. Watersheds near the CRWMA	49
Figure 12. Project and Facility Locations on the CRWMA	103

Table of Tables

Table 1. Florida Forever Projects within 10 Miles of the CRWMA	9
Table 2. Conservation Lands within 10 Miles of the CRWMA	9
Table 3. Natural and Anthropogenic Communities on the CRWMA	16
Table 4. Native Plant Species Found on the CRWMA	17
Table 5. Non-Native and Invasive Plant Species Observed on the CRWMA	24
Table 6. Imperiled Plant Species Found at the CRWMA	37
Table 7. Mammal Species Observed on the CRWMA	39
Table 8. Bird Species Observed on the CRWMA	40
Table 9. Reptiles and Amphibians Observed at the CRWMA	43
Table 10. Fish Species Observed on the CRWMA	44
Table 11. Invertebrate Species Observed on the CRWMA	45
Table 12. Non-native and Invasive Wildlife Species Observed on the CRWMA	45
Table 13. Imperiled Wildlife Species Observed on the CRWMA	46

Management Plan Acronym Key

ADA	Americans with Disabilities Act
ARC	Acquisition and Restoration Council
BEBR	Bureau of Economic and Business Research
BOT	Board of Trustees of the Internal Improvement Trust Fund
CARL	Conservation and Recreation Lands Program
CAS	Conservation Action Strategy
CLC	Florida Cooperative Land Cover Map
CLIP	Critical Lands and Waters Identification Project
DACS	Department of Agriculture and Consumer Services
DEP	Department of Environmental Protection
DHR	Florida Department of Historical Resources
DSL	Division of State Lands
FAC	Florida Administrative Code
FFS	Florida Forest Service
FLAM	Florida Landscape Assessment Model
FLEPPC	Florida Exotic Pest Plant Council
FLUE	Florida Land Use Element
FNAI	Florida Natural Areas Inventory
FS	Florida Statute(s)
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
FWHAP	FWC's Fish and Wildlife Habitat Acquisition Program
GFC	Florida Game and Freshwater Fish Commission
GIS	Geographic Information Systems
IMPP	Internal Management Policies and Procedures
IPCC	Intergovernmental Panel on Climate Change
LAP	Landowner Assistance Program
LMR	Land Management Review
LPIGD	Land Parcel Inventory of Geo-Database and Process
OBVM	Objective-Based Vegetation Management
OCPB	Optimal Conservation Planning Boundary
OFW	Outstanding Florida Waters
ORB	Optimal Resource Boundary
PUD	Planned Unit Development
RSPH	Rare Species Potential Habitat
SCHA	Strategic Habitat Conservation Areas
SJRWMD	St. Johns River Water Management District
TNC	The Nature Conservancy
WCPR	Wildlife Conservation Prioritization and Recovery

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

1 Introduction and General Information

Nestled between the Ocklawaha and St. Johns Rivers, the Caravelle Ranch Wildlife Management Area (CRWMA) is set within a much larger mosaic of public conservation lands that are interspersed with hardwood river swamps and pine flatwoods, punctuated with small depression ponds, hardwood hammocks and scattered pasture lands. These unique habitats provide floodplain, watershed and water quality protection for these rivers and the Cross-Florida Barge Canal. The CRWMA is managed by the Florida Fish and Wildlife Conservation Commission (FWC) to conserve habitat for an array of imperiled species, including gopher tortoise (*Gopherus polyphemus*), Florida sandhill crane (*Antigone canadensis pratensis*) and other native fish and wildlife species. The CRWMA provides important protection for natural and cultural resources along with providing a diverse array of fish and wildlife-based public outdoor recreational opportunities including hunting, fishing, wildlife viewing, hiking, horseback riding and bicycling.

The FWC is currently assigned lead management authority for approximately 10,470 acres of the CRWMA. This lead managed area is composed of 5,200 acres of public property owned by the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) and approximately 5,270 acres titled to the St. Johns River Water Management District (SJRWMD).

Additionally, the Department of Environmental Protection (DEP), Division of Recreation and Parks' Office of Greenways and Trails (OGT) has subleased approximately 3,000 acres to the FWC for cooperative management and has a management agreement with the FWC for cooperative management over an additional 13,027 acres. This acreage, along with approximately 374 acres added in 2008 by the SJRWMD, are also a part of the Marjorie Harris Carr Cross-Florida Greenway. Both the SJRWMD and the DEP-OGT leased lands are included within the overall Establishment Order for the CRWMA to provide outdoor recreational opportunities including hunting and fishing. Combined with the lands for which the FWC is the lead managing agency, there are a total of approximately 26,497 acres within the overall Establishment Order for the CRWMA.

However, the DEP-OGT is the lead managing agency for those portions of the CRWMA that have a cooperative management agreement and a sublease to the FWC by the DEP-OGT. Therefore, this management plan will address only the 10,470 acres of the CRWMA of which the FWC is the lead managing agency; the OGT lands are not addressed in this FWC management plan, but are covered in a management plan developed by the DEP.

1.1 Management Plan Purpose

This Management Plan serves as the basic statement of policy and direction for the management of the CRWMA. It provides information including the past usage,

conservation acquisition history and descriptions of the natural and historical resources found on the CRWMA. Furthermore, it identifies the FWC's future management intent, goals and associated short and long-term objectives, as well as identifying challenges and solutions. This Management Plan has been developed to guide each aspect of the CRWMA's resource and operational management for the next ten years.

This Management Plan is submitted for review to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees of the State of Florida through the Florida DEP's Division of State Lands (DSL), in compliance with paragraph seven of Lease No. 4100 (Appendix 12.1) and pursuant to Chapters 253 and 259, Florida Statutes (F.S.) and Chapters 18-2 and 18-4, Florida Administrative Code (FAC). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of DSL. Terms (Appendix 12.7) 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 and solicits additional input from user groups and the general public at a public hearing (Appendix 12.3 and 12.4). 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 CRWMA Management Plan (Sections 5 – 7).

Further management planning input is received through Land Management Reviews (LMR) conducted every five years, which include a review of the previous Management Plan, as well as a field review of the CRWMA. The LMR report (Section 5.1, Appendix 12.5) 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 the FWC so they may be adequately addressed in this Management Plan, and thus guide the implementation of the LMR team recommendations on the CRWMA.

Furthermore, the 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.¹ 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 the DSL and ARC for review and consideration.

1.2 Location

The FWC lead managed portion of the CRWMA is situated in Putnam County west of the St. Johns River and east of the Ocklawaha River, approximately ten miles south of Palatka, with a small portion of the SJRWMD-owned land located in northeast Marion County (Figure 1 and 2). The CRWMA lies within Putnam County, roughly bisected by State Road (SR) 19. The property begins 0.6 miles south of where SR19 crosses the Barge Canal within parts of Sections 25 – 28, 33 – 34, and 36 – 37, Township 11 South and Range 25 East, Sections 18 – 20, 28 – 32, 37 – 38 and 42 – 44 in Township 11 South and Range 26 East, as well as Sections 3 – 6 and 42 – 43 in Township 12 South and Range 26 East (Figure 3). The portion of CRWMA located in northeast Marion County is within Section 1 and 3, Township 11, and Range 25.

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

The primary purposes for acquiring lands within the CRWMA under the Conservation and Recreation Lands (CARL) Program were to expedite restoration and protection of the St. Johns and Ocklawaha River systems, protect endangered and threatened species and provide resource-based public outdoor recreational opportunities. The CRWMA is managed by the FWC for the purpose of operating a wildlife management area, providing ecological diversity, managing 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

The SJRWMD lands, that are leased to the FWC within the CRWMA, were acquired by the SJRWMD in 1989 under the Save Our Rivers Program (SOR), and subsequently leased to the FWC for management in 1991. In 1996, through the CARL program, the Board of Trustees purchased 5,103-acres to be added to the CRWMA and leased to the FWC for management. The CARL program was established for the purpose of purchasing environmentally endangered lands and other lands such as those which have potential for public recreation.

Subsequent purchases by the State, under the Preservation 2000 program and the Florida Forever program, increased the Board of Trustees owned acres on which the FWC is lead managing agency to 5,200, bringing the area to its current size of 10,470 acres.

1.4 Management Authority

The FWC is the designated lead managing agency for the CRWMA under the authority granted by Lease Number 4100 from the Board of Trustees agent, DSL and under lease contract number 91034 with the SJRWMD. Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 597 and 870 of the F.S. These constitutional provisions and laws provide the FWC the authority to protect, conserve and manage the State's fish and wildlife resources.

1.5 Management Directives

The 50-year Board of Trustees' Lease Agreement Number 4100 with the FWC directs the FWC to "manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 253.023(11), F.S...." The lease agreement further directs the FWC to "implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.018(2)(h), 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."

Additionally, the SJRWMD Lease Agreement Number 91034 with the FWC directs the FWC to maintain the hydrologic regime and to provide the public with outdoor recreational uses.

1.6 Title Interest and Encumbrances

As State-owned lands, title to 5,200 acres of land within the CRWMA is vested in the Board of Trustees (Governor and Cabinet) and 5,270 acres of land with the CRWMA is vested to the SJRWMD. In November 1991, the SJRWMD entered into Lease Agreement Number 91034 granting the FWC management authority for 5,270 acres (Figure 4 and Appendix 12.2). In November 1996, the DSL, as staff to the Board of Trustees, entered into Lease Agreement Number 4100, a 50-year lease agreement, granting the FWC management authority for the CRWMA. Additionally, in 1996, the DEP-OGT subleased approximately 3,000 acres to the FWC for cooperative management.

Currently, there is one Apiary Agreement (#18181), one Cattle Grazing Contract (#08191-A-1) and three housing agreements (#14216, 19096 and 14217) established within the boundary of the CRWMA. There are no other encumbrances within the CRWMA.

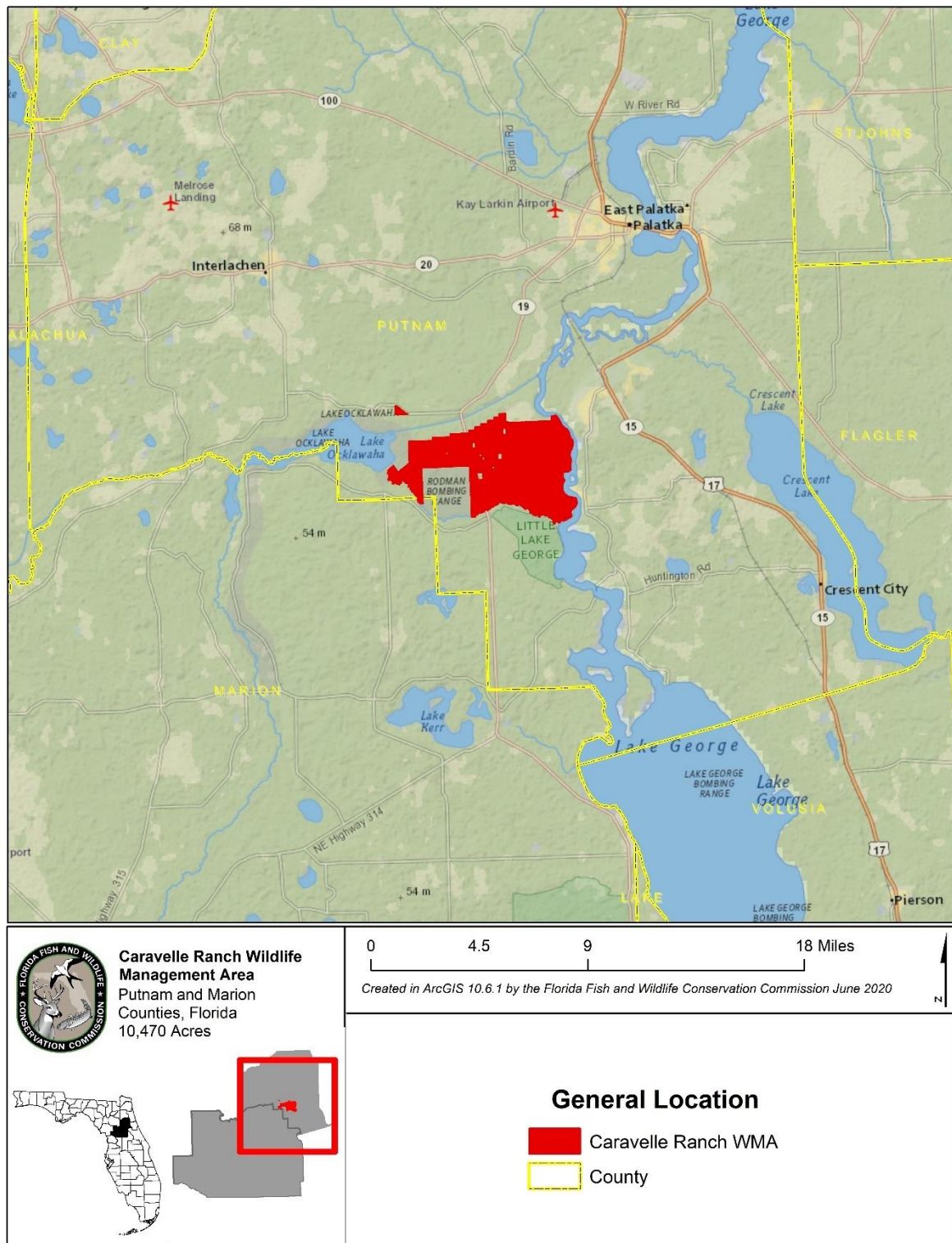


Figure 1. General Location of the CRWMA



Figure 2. Aerial Imagery

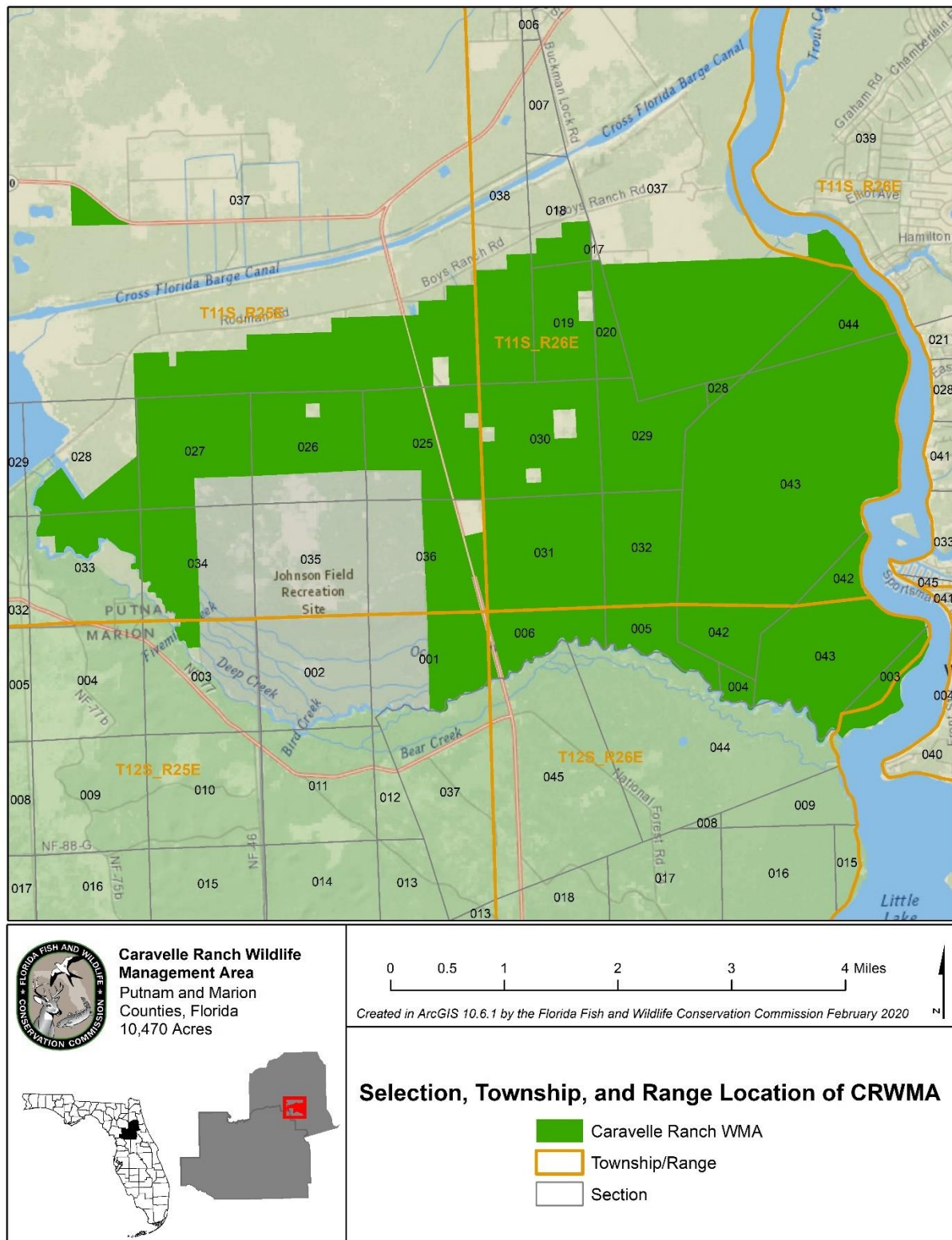


Figure 3. Township, Range and Section

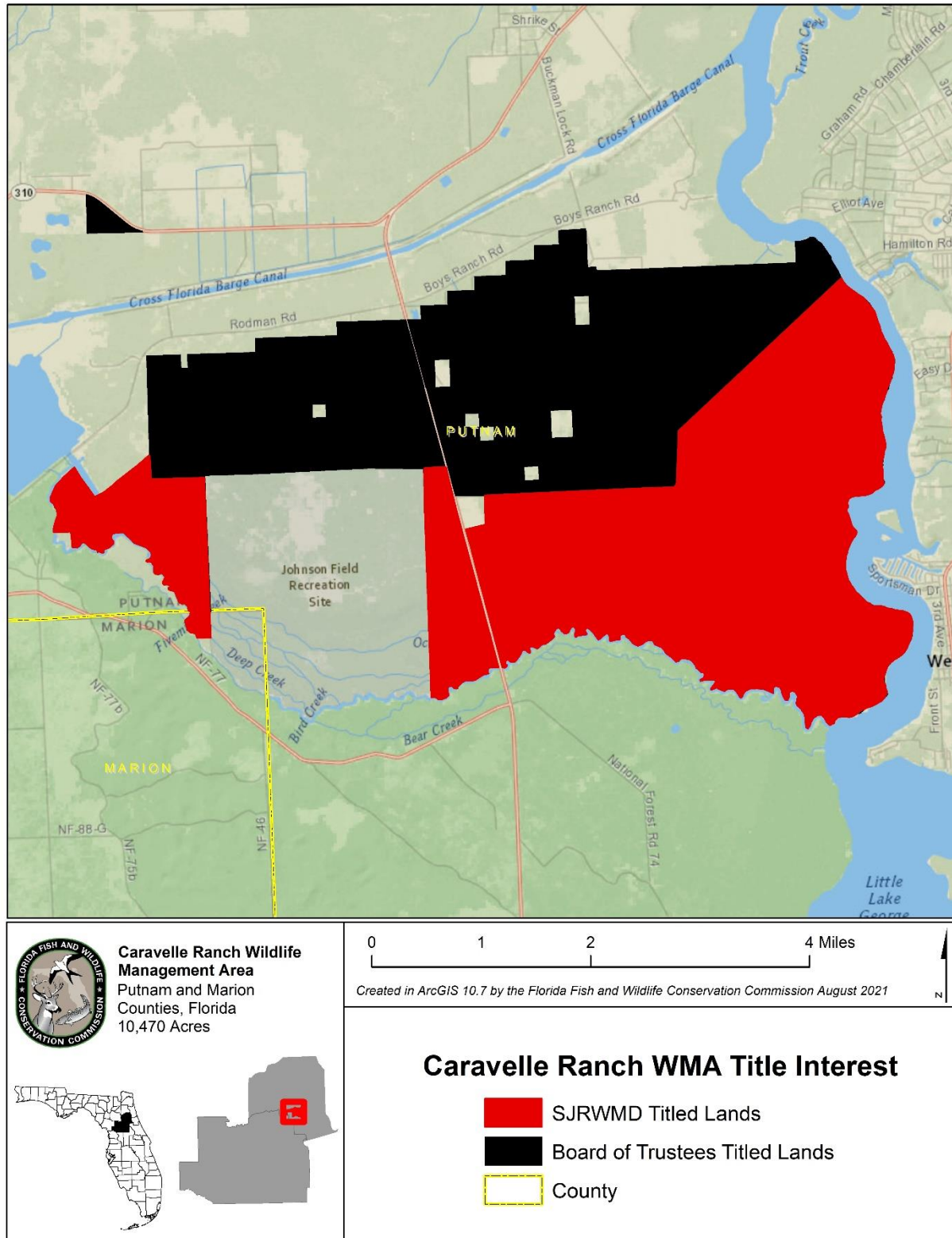


Figure 4. Title Interest for the CRWMA

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

1.7 Proximity to Other Public Conservation Lands

The CRWMA is located in the vicinity of a network of conservation lands, including lands managed by the SJRWMD and the Florida Forest Service (FFS). Several Florida Forever projects (Figure 5) are also located in the vicinity of the area.

Tables 1 and 2 list the Florida Forever projects and conservation lands within a 10-mile radius of the CRWMA, including lands managed by public and private entities that conserve cultural and natural resources within this region of Florida.

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

Table 1. Florida Forever Projects within 10 Miles of the CRWMA

Florida Forever Projects	Remaining Acres
Etoniah/Cross Florida Greenway - Caravelle Ranch	29,925.08
Etoniah/Cross Florida Greenway - Cross Florida Greenway FPL Additions	2,143.72
Etoniah/Cross Florida Greenway - Cross Florida Greenway Phase II	2,328.02
Etoniah/Cross Florida Greenway - Etoniah Creek	56,102.28
Etoniah/Cross Florida Greenway - O'Connor Tract	821.53
Matanzas to Ocala Conservation Corridor	103,075.75
Strategic Managed Area Lands List – FFS-(6)	30.99
Strategic Managed Area Lands List – FWC-(8,9,10)	46.18

Table 2. Conservation Lands within 10 Miles of the CRWMA

Federal Government	Managing Agency
Ocala National Forest	USFS
Rodman Bomb Target	USDOD
Welaka National Fish Hatchery	USFWS
Wetlands Reserve Program Easement #303	NRCS

State of Florida	Managing Agency
Alford/Clapp Conservation Easement	DEP-DSL
Carl Duval Moore State Forest and Park	DACS-FFS
Dunns Creek State Park	DEP-DRP
Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area	DEP-OGT

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

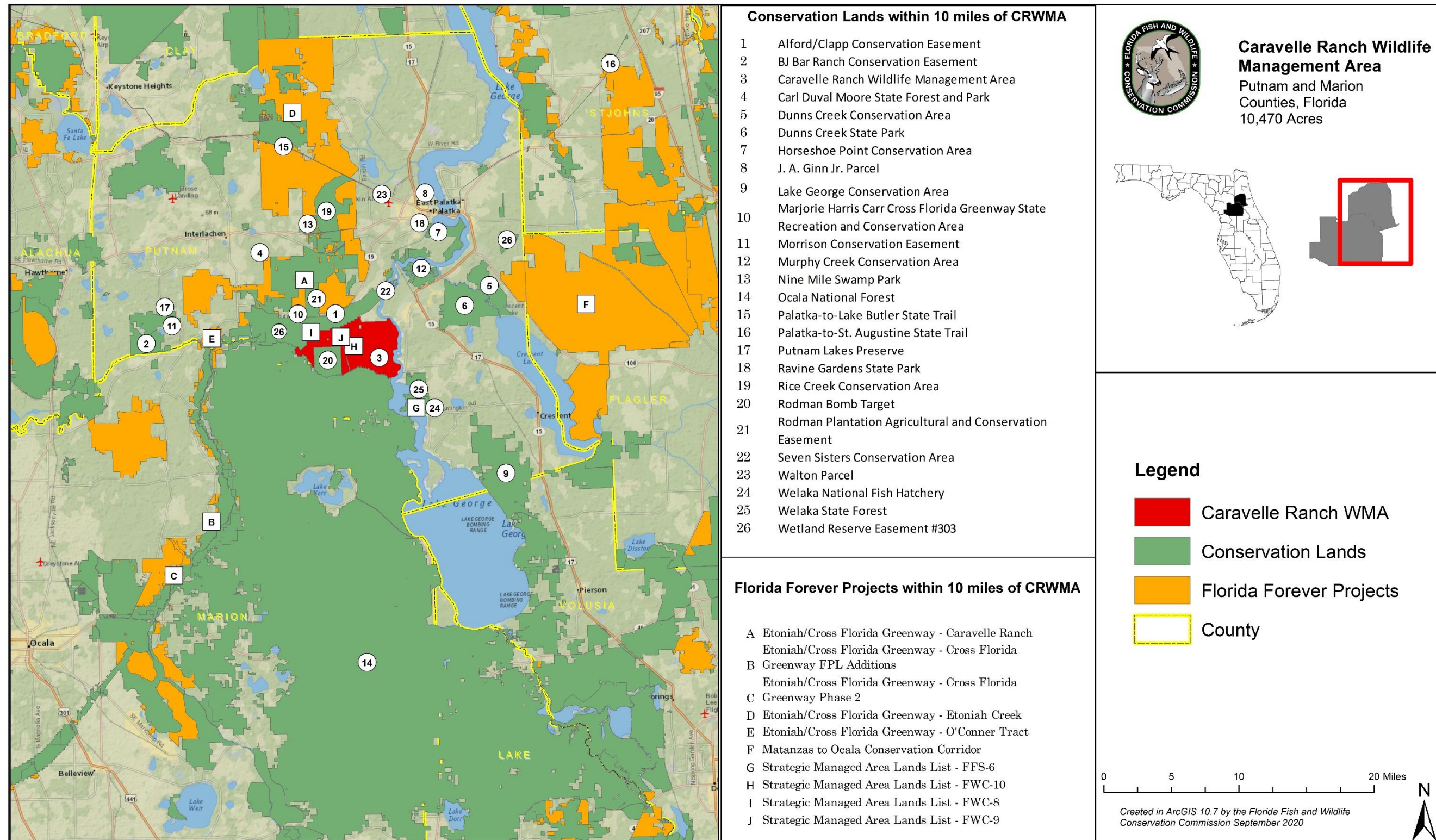
Palatka-to-Lake-Butler State Trail	DEP-DRP
Palatka-to-St. Augustine State Trail	DEP-DRP
Ravine Gardens State Park	DEP-DRP
Rodman Plantation Agricultural and Conservation Easement	DACS-FFS
Welaka State Forest	DACS-FFS

Water Management District	Managing Agency
BJ Bar Ranch Conservation Easement	SJRWMD
Dunns Creek Conservation Area	SJRWMD
Horseshoe Point Conservation Area	SJRWMD
J.A. Ginn Jr. Parcel	SJRWMD
Lake George Conservation Area	SJRWMD
Morrison Conservation Easement	SJRWMD
Murphy Creek Conservation Area	SJRWMD
Rice Creek Conservation Area	SJRWMD
Seven Sisters Conservation Area	SJRWMD
Walton Parcel	SJRWMD

Local Government	Managing Agency
Nine Mile Swamp Park	Putnam County

Private Organizations	Managing Agency
Putnam Lakes Preserve	North Florida Land Trust

Acronym Key	Agency Name
DACS-FFS	FL Department of Agricultural and Consumer Service-Florida Forest Service
DEP-DRP	FL Department of Environmental Protection-Division of Recreation and Parks
DEP-DSL	FL Department of Environmental Protection-Division of State Lands
DEP-OGT	FL Department of Environmental Protection-Office of Greenways and Trails
NRCS	Natural Resources Conservation Service
SJRWMD	St. Johns River Water Management District
USDOD	United States Department of Defense
USFWS	U.S. Fish and Wildlife Service
USFS	United States Forest Service



This Page Intentionally Blank

1.8 Adjacent Land Uses

The FWC lead portion of the CRWMA is bordered on the north by conservation land. The southern boundary is adjacent to a naval bombing facility. The majority of the area across the river to the east of the CRWMA is characterized by privately owned agricultural/silvicultural land and is currently zoned as agriculture and residential. This designation allows for residential dwelling and natural resource conservation/preservation. Residential uses are allowed with a maximum density of one dwelling unit per one acre to one dwelling per five acres. The west portion of the CRWMA borders Marion County and consists of mainly agricultural uses. This designation allows for farming and animal husbandry with accessory uses, involving substantial improvement and development; providing a rural or farm atmosphere in which single family home ownership may be combined with small parcel development and where the growing of supplemental food supplies for families will be encouraged. The nearby urban areas of Palatka, Crescent City and Gainesville are likely to continue growing in population, which may influence future development in the area. Due to the proximity of population centers in Putnam County, public use can be expected to increase as public awareness of opportunities increases.

The 2019 U.S. Census estimates that there are 73,268 people living in Putnam County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2030, there will be 73,700 people living in Putnam County. The BEBR population projections for the counties surrounding Putnam county for the year 2030 are as follows: Alachua County – 291,600; Clay – 252,500; Flagler – 138,300; Marion County – 414,800; St. Johns – 347,600; and Volusia – 595,800.

The current zoning ordinance for the CRWMA in Putnam and Marion counties is Agriculture. According to Putnam County's Comprehensive Plan, this designation allows agriculture, resource-based recreation and open spaces. According to Marion County's Comprehensive Plan, this designation allows general agriculture uses. Currently, the majority of the CRWMA has a future land use designation of Conservation. The majority of the surrounding area have a future land use designation of Agriculture and Rural Residential. Rural Residential designation is intended to provide a transition area from the agriculture to urban uses. Development is allowed within a maximum density range of 1 dwelling unit per 5 acres up to 1 dwelling unit per acre.²

The CRWMA is not located within any Area of Critical State Concern [Chapter 380.05, F.S.)] or within or adjacent to an aquatic preserve (Chapter 18-2.018 and 18-2.021 FAC).

1.9 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting in Palatka, Florida on February 26th, 2020 to obtain input from both public and private stakeholders regarding management of the CRWMA. Results of this meeting were used by the FWC to develop management goals and objectives and to identify opportunities and strategies for inclusion in this Management Plan. A summary of issues and opportunities raised by the MAG, as well as a listing of participants, is included as Appendix 12.4. Further, a public hearing, as required by Chapter 259.032(10), F.S., was held online via Abode Connect on July 8th, 2020, to solicit input and comment from the general public regarding this Management Plan. This meeting was held online due to COVID-19 travel and gathering restrictions. A management prospectus was made available to the public 30 days prior to the hearing (Appendix 12.3). The report of that hearing is also contained in Appendix 12.4. A website is also maintained for receipt of public input at <https://myfwc.com/conservation/management-plans/develop-mps/>. Further testimony and input are received at a public hearing held by the ARC. Input received from all public involvement efforts has been considered in the development of this Management Plan.

2 Natural and Historical Resources

2.1 Physiography

2.1.1 Climate

The climate of northeast Florida is humid-subtropical. Between October and May, cold fronts regularly sweep through the state which keeps conditions dry, particularly over the peninsula. In winters where an El Niño climate cycle exists, rainfall increases while temperatures are cooler statewide. Beginning in the spring, towards the end of the dry season, lightning originated wildfires become more common. There is a defined rainy season from June through September, which are also the months most at risk of tropical cyclones making landfall in the region. Easterly winds off the warm waters of the Atlantic Ocean's Gulf Stream running through the Florida Straits keep temperatures moderate across Florida's peninsula year-round.

Putnam County's winter temperatures range between 71° Fahrenheit (F) for the average high and 47° F for the average low. July temperatures range between 92° F for the average high and 74° F for the average low. Annually, Putnam County experiences an average total rainfall of approximately 51 inches with most rain occurring from June to October.

2.1.2 Topography

Putnam County lies within several physiographic districts including the Central Lake District, Eastern Flatwoods District and Atlantic Coastal. The lower lying regions of the

county are in the Central Lake District, the St. Johns River Offset and the Eastern Flatwoods District.³

The CRWMA is located within the St. John's River Offset. Elevations range from 5 to 30 feet above mean sea level. Slopes are less than 5% except along a small section of Camp Branch Creek and along the barge canal where ditching created steep spoil banks.

2.1.3 Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) data were used to identify the CRWMA soil series and soil depth to water table (Figures 6 and 7). The map units described in the soil survey of the CRWMA are distributed as shown in Figure 6. Analyses of depth to water table for map units occurring within the CRWMA are also provided in Figure 7. The NRCS defines a soil map unit as: "a collection of soil areas or non-soil areas (miscellaneous areas) delineated in a soil survey⁴." Soil map units may contain multiple soil components, which are given names that are unique identifiers. Appendix 12.6 lists the names and official map unit descriptions of areas delineated on the detailed soil maps in a soil survey or by miscellaneous areas in the survey area as determined by the NRCS. Analysis of depth to water table for map units occurring within the CRWMA are also provided in Appendix 12.6.

The surface sediments on the CRWMA are primarily undifferentiated sediments and Holocene sediments. Soils found within the CRWMA are generally Pomona Sand making up approximately 25% of the CRWMA with Terra Ceia muck making up nearly 21%, Shinks muck making up approximately 17% and Holopaw fine sand about 15%. Various other fine sands that each make up less than 10% of the area including Bluff sandy clay loam, Rivera fine sand, Electra fine sand, Palmetto fine sand and several others.

2.1.4 Geologic Conditions

Undifferentiated Quaternary Sediments - Much of Florida's surface is covered by a varying thickness of undifferentiated sediments consisting of siliciclastics, organics and freshwater carbonates. Where these sediments exceed 20 feet (6.1 meters) thick, they were mapped as discrete units. In an effort to subdivide the undifferentiated sediments, those sediments occurring in flood plains were mapped as alluvial and flood plain deposits (Qal). Sediments showing surficial expression of beach ridges and dunes were mapped separately (Qbd) as were the sediments composing Trail Ridge (Qtr). Terrace sands were not mapped (refer to Healy [1975] for a discussion of the terraces in Florida). The subdivisions of the Undifferentiated Quaternary Sediments (Qu) are not lithostratigraphic units but are utilized in order to facilitate a better understanding of the State's geology. The siliciclastics are light gray, tan, brown to black, unconsolidated to poorly consolidated, clean to clayey, silty, unfossiliferous, variably organic-bearing sands to blue green to olive green, poorly to

moderately consolidated, sandy, silty clays. Gravel is occasionally present in the panhandle. Organics occur as plant debris, roots, disseminated organic matrix and beds of peat. Freshwater carbonates, often referred to as marls in the literature, are scattered over much of the State. In southern Florida, freshwater carbonates are nearly ubiquitous in the Everglades. These sediments are buff colored to tan, unconsolidated to poorly consolidated, fossiliferous carbonate muds. Sand, silt and clay may be present in limited quantities. These carbonates often contain organics. The dominant fossils in the freshwater carbonates are mollusks.⁵

The Holocene sediments in Florida occur near the present coastline at elevations generally less than 5 feet (1.5 meters). The sediments include quartz sands, carbonate sands and muds and organics.³

2.2 Vegetation

Through the services of the Florida Natural Areas Inventory (FNAI), the FWC has mapped the current and historic natural and anthropogenic communities of the CRWMA which describes 23 natural and anthropogenic community types existing on the CRWMA, (Table 3, and Figures 8 and 9). Plant species found on the CRWMA have been recorded (Table 4). Additionally, FWC biologists have documented six rare plant species occurring on the area (Table 6) and have found 23 occurrences of non-native and invasive plant species (Table 5) on the CRWMA. The primary vegetative communities found within the CRWMA are floodplain swamp, mesic flatwoods and wet flatwoods. The St. Johns River flows along the east side of the CRWMA and attributes a great deal to the prominent natural communities and resources in the area.

Table 3. Natural and Anthropogenic Communities on the CRWMA

Community Type	GIS Acres	Percentage
Abandoned field/abandoned pasture	592.04	4.8%
Artificial pond	7.05	<0.1%
Basin swamp	102.90	0.8%
Baygall	3.01	<0.1%
Blackwater stream	6.96	<0.1%
Canal/ditch	8.37	<0.1%
Clearing	29.06	0.2%
Depression marsh	104.02	0.9%
Developed	15.99	0.1%
Dome swamp	121.38	1.0%
Floodplain swamp	5,066.90	41.3%
Hydric hammock	814.31	6.6%
Mesic flatwoods	1,274.14	10.4%
Mesic hammock	777.42	6.3%

Community Type	GIS Acres	Percentage
Pasture - improved	1,418.92	11.6%
Pine plantation	299.32	2.4%
Restoration mesic flatwoods	26.34	0.2%
Road	120.50	1.0%
Scrubby flatwoods	26.38	0.2%
Wet flatwoods	1,283.24	10.5%
Wet prairie	21.64	0.2%
Wildlife food plot	150.33	1.2%
Xeric hammock	2.06	<0.1%

Table 4. Native Plant Species Found on the CRWMA

Common name	Scientific name
American beautyberry	<i>Callicarpa americana</i>
American cupscale	<i>Sacciolepis striata</i>
American waterhorehound	<i>Lycopus americanus</i>
Aster	<i>Symphotrichum sp.</i>
Atlantic St. John's wort	<i>Hypericum tenuifolium</i>
Baldwin's flatsedge	<i>Cyperus croceus</i>
Baldwin's spikerush	<i>Eleocharis baldwinii</i>
Beaked panicum	<i>Coleataenia anceps</i>
Beaksedge	<i>Rhynchospora sp.</i>
Big carpetgrass	<i>Axonopus furcatus</i>
Blackberry	<i>Rubus trivialis</i>
Blackgum	<i>Nyssa sylvatica</i>
Blackroot	<i>Pterocaulon pycnostachyum</i>
Blue huckleberry	<i>Gaylussacia frondosa</i>
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>
Bluestem	<i>Andropogon sp.</i>
Bog white violet	<i>Viola lanceolata</i>
Bogbutton	<i>Lachnocaulon sp.</i>
Bottlebrush threeawn	<i>Aristida spiciformis</i>
Bracken fern	<i>Pteridium aquilinum</i>
Branched hedgehyssop	<i>Gratiola ramosa</i>
Broomsedge bluestem	<i>Andropogon virginicus var. virginicus</i>
Bushy bluestem	<i>Andropogon glomeratus var. hirsutior</i>
Button rattlesnakemaster	<i>Eryngium yuccifolium</i>
Cabbage palm	<i>Sabal palmetto</i>

Common name	Scientific name
Canada goldenrod	<i>Solidago canadensis</i> var. <i>scabra</i>
Canadian horseweed	<i>Conyza canadensis</i>
Carolina redroot	<i>Lachnanthes carolina</i>
Carolina yellow-eyed grass	<i>Xyris caroliniana</i>
Cat greenbrier	<i>Smilax glauca</i>
Chalky bluestem	<i>Andropogon virginicus</i> var. <i>glaucus</i>
Chapman's oak	<i>Quercus chapmanii</i>
Clasping waterhorehound	<i>Lycopus amplexans</i>
Club-moss	<i>Lycopodiella</i> sp.
Clustered bushmint	<i>Hyptis alata</i>
Clustered mille grains	<i>Edrastrima uniflora</i>
Coastalplain St. John's wort	<i>Hypericum brachyphyllum</i>
Coastalplain staggerbush	<i>Lyonia fruticosa</i>
Combleaf mermaidweed	<i>Proserpinaca pectinata</i>
Common persimmon	<i>Diospyros virginiana</i>
Common yellow woodsorrel	<i>Oxalis corniculata</i>
Crabgrass	<i>Digitaria</i> sp.
Creeping primrosewillow	<i>Ludwigia repens</i>
Crowngrass	<i>Paspalum</i> sp.
Curtiss' dropseed	<i>Sporobolus curtissii</i>
Curtiss' nutrush	<i>Scleria ciliata</i>
Cutleaf eveningprimrose	<i>Oenothera laciniata</i>
	<i>Dichanthelium ensifolium</i> var. <i>ensifolium</i>
Cypress witchgrass	
Dahoon	<i>Ilex cassine</i> var. <i>cassine</i>
Danglepod	<i>Sesbania herbacea</i>
Darrow's blueberry	<i>Vaccinium darrowii</i>
Deerberry	<i>Vaccinium stamineum</i>
Dense gayfeather	<i>Liatris spicata</i>
Dixie aster	<i>Sericocarpus tortifolius</i>
Dogfennel	<i>Eupatorium capillifolium</i>
Dogwood	<i>Cornus</i> sp.
Dwarf huckleberry	<i>Gaylussacia dumosa</i>
Dwarf live oak	<i>Quercus minima</i>
Dwarf pawpaw	<i>Asimina pygmaea</i>
Dwarf sundew	<i>Drosera brevifolia</i>
Earleaf greenbrier	<i>Smilax auriculata</i>
Early whitetop fleabane	<i>Erigeron vernus</i>

Common name	Scientific name
Eastern gamagrass	<i>Tripsacum dactyloides</i>
Eastern poison ivy	<i>Toxicodendron radicans</i>
Elliott's lovegrass	<i>Eragrostis elliottii</i>
Elliott's milkpea	<i>Galactia elliottii</i>
Elliott's yellow-eyed grass	<i>Xyris elliottii</i>
Eryngo	<i>Eryngium sp.</i>
False foxglove	<i>Agalinis sp.</i>
Fascicled beaksedge	<i>Rhynchospora fascicularis</i>
Feather-stem club-moss	<i>Lycopodiella prostrata</i>
Fetterbush	<i>Lyonia lucida</i>
Flattened pipewort	<i>Eriocaulon compressum</i>
Flax	<i>Linum sp.</i>
Forked rush	<i>Juncus dichotomus</i>
Fourpetal St. John's wort	<i>Hypericum tetrapetalum</i>
Foxtail club-moss	<i>Lycopodiella alopecuroides</i>
Fragrant spikesedge	<i>Cyperus sesquiflorus</i>
Gallberry	<i>Ilex glabra</i>
Goldenrod	<i>Solidago sp.</i>
Grassleaf rush	<i>Juncus marginatus</i>
Greenbrier	<i>Smilax sp.</i>
Groundsel tree	<i>Baccharis halimifolia</i>
Hairy chaffhead	<i>Carphephorus paniculatus</i>
Hairy laurel	<i>Kalmia hirsuta</i>
Handsome harry	<i>Rhexia virginica</i>
Haspan flatsedge	<i>Cyperus haspan</i>
Hawkweed	<i>Hieracium sp.</i>
Heartwing dock	<i>Rumex hastatulus</i>
Helmet skullcap	<i>Scutellaria integrifolia</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Hoary-pea	<i>Tephrosia sp.</i>
Indiangrass	<i>Sorghastrum sp.</i>
Jamaica swamp sawgrass	<i>Cladium jamaicense</i>
Knotroot foxtail	<i>Setaria parviflora</i>
Large gallberry	<i>Ilex coriacea</i>
Laurel greenbrier	<i>Smilax laurifolia</i>
Laurel oak	<i>Quercus hemisphaerica</i>
Leggett's pinweed	<i>Lechea pulchella var. ramosissima</i>

Common name	Scientific name
Lemon bacopa	<i>Bacopa caroliniana</i>
Licoriceweed	<i>Scoparia dulcis</i>
Live oak	<i>Quercus virginiana</i>
Lizard's tail	<i>Saururus cernuus</i>
Loblolly bay	<i>Gordonia lasianthus</i>
Loblolly pine	<i>Pinus taeda</i>
Longleaf pine	<i>Pinus palustris</i>
Longleaf woodoats	<i>Chasmanthium sessiliflorum</i>
Long's sedge	<i>Carex longii</i>
Lopsided Indiangrass	<i>Sorghastrum secundum</i>
Lovegrass	<i>Eragrostis sp.</i>
Lowland rotala	<i>Rotala ramosior</i>
Maid marian	<i>Rhexia nashii</i>
Maleberry	<i>Lyonia ligustrina var. foliosiflora</i>
Manyflower marshpennywort	<i>Hydrocotyle umbellata</i>
Manyspike flatsedge	<i>Cyperus polystachyos</i>
Marshpennywort	<i>Hydrocotyle sp.</i>
Meadowbeauty	<i>Rhexia sp.</i>
Mexican primrosewillow	<i>Ludwigia octovalvis</i>
Milkpea	<i>Galactia sp.</i>
Milkwort	<i>Polygala sp.</i>
Mohr's thoroughwort	<i>Eupatorium mohrii</i>
Mountain panic	<i>Panicum hemitomom</i>
Muscadine	<i>Vitis rotundifolia</i>
Myrtle oak	<i>Quercus myrtifolia</i>
Myrtleleaf St. John's wort	<i>Hypericum myrtifolium</i>
Narrowfruit horned beaksedge	<i>Rhynchospora inundata</i>
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>
Narrowleaf sunflower	<i>Helianthus angustifolius</i>
Needlepod rush	<i>Juncus scirpoides</i>
Nutrush	<i>Scleria sp.</i>
Nuttall's meadowbeauty	<i>Rhexia nuttallii</i>
Nuttall's thistle	<i>Cirsium nuttallii</i>
Oak	<i>Quercus sp.</i>
Pale meadowbeauty	<i>Rhexia mariana</i>
Panic grass	<i>Panicum sp.</i>
Partridgeberry	<i>Mitchella repens</i>

Common name	Scientific name
Peelbark St. John's wort	<i>Hypericum fasciculatum</i>
Peppervine	<i>Nekemias arborea</i>
Piedmont marshelder	<i>Iva microcephala</i>
Piedmont staggerbush	<i>Lyonia mariana</i>
Pinebarren aster	<i>Oclemena reticulata</i>
Pinebarren flatsedge	<i>Cyperus ovatus</i>
Pinebarren goldenrod	<i>Solidago fistulosa</i>
Pineland daisy	<i>Chaptalia tomentosa</i>
Pineland rayless goldenrod	<i>Bigelowia nudata ssp. nudata</i>
Pineywoods dropseed	<i>Sporobolus junceus</i>
Pinweed	<i>Lechea sp.</i>
Pipewort	<i>Eriocaulon sp.</i>
Plumed beaksedge	<i>Rhynchospora plumosa</i>
Pond cypress	<i>Taxodium ascendens</i>
Pond pine	<i>Pinus serotina</i>
Poorland flatsedge	<i>Cyperus compressus</i>
Primrosewillow	<i>Ludwigia sp.</i>
	<i>Andropogon glomeratus var. glaucopsis</i>
Purple bluestem	
Purple silkyscale	<i>Anthraenantia rufa</i>
Purplehead sneezeweed	<i>Helenium flexuosum</i>
Queen's delight	<i>Stillingia sylvatica</i>
Red bay	<i>Persea borbonia</i>
Red chokeberry	<i>Aronia arbutifolia</i>
Red maple	<i>Acer rubrum</i>
Rice button aster	<i>Symphotrichum dumosum</i>
Richard's yellow-eyed grass	<i>Xyris jupicai</i>
Rosegentian	<i>Sabatia sp.</i>
Rosy camphorweed	<i>Pluchea baccharis</i>
Roundleaf bluet	<i>Houstonia procumbens</i>
Roundleaf thoroughwort	<i>Eupatorium rotundifolium</i>
Roundpod St. John's wort	<i>Hypericum cistifolium</i>
Runner oak	<i>Quercus pumila</i>
Rush	<i>Juncus sp.</i>
Rustweed	<i>Polypreum procumbens</i>
Rusty staggerbush	<i>Lyonia ferruginea</i>
Saltmarsh umbrellasedge	<i>Fuirena breviseta</i>
Sand blackberry	<i>Rubus cuneifolius</i>

Common name	Scientific name
Sand live oak	<i>Quercus geminata</i>
Sand pine	<i>Pinus clausa</i>
Sandyfield hairsedge	<i>Bulbostylis stenophylla</i>
Savannah meadowbeauty	<i>Rhexia alifanus</i>
Savannah yellow-eyed grass	<i>Xyris flabelliformis</i>
Saw greenbrier	<i>Smilax bona-nox</i>
Saw palmetto	<i>Serenoa repens</i>
Sawtooth blackberry	<i>Rubus pensilvanicus</i>
Seaside goldenrod	<i>Solidago sempervirens</i>
Seaside primrosewillow	<i>Ludwigia maritima</i>
Sedge	<i>Carex sp.</i>
Sensitive pea	<i>Chamaecrista nictitans</i>
Shiny blueberry	<i>Vaccinium myrsinites</i>
Shortleaf rosegiant	<i>Sabatia brevifolia</i>
Shortleaf yellow-eyed grass	<i>Xyris brevifolia</i>
Shrubby primrosewillow	<i>Ludwigia suffruticosa</i>
Skullcap	<i>Scutellaria sp.</i>
Slash pine	<i>Pinus elliotii</i>
Slender fimbry	<i>Fimbristylis autumnalis</i>
Slender flattop goldenrod	<i>Euthamia caroliniana</i>
Slender Indiangrass	<i>Sorghastrum elliotii</i>
Slender threeseed mercury	<i>Acalypha gracilens</i>
Slender woodoats	<i>Chasmanthium laxum</i>
Slimleaf pawpaw	<i>Asimina angustifolia</i>
Smallfruit beggarticks	<i>Bidens mitis</i>
Smallfruit primrosewillow	<i>Ludwigia microcarpa</i>
Small's bogbutton	<i>Lachnocaulon minus</i>
Snowberry, Waxberry, Ghostberry	<i>Symphoricarpos sp.</i>
Southern crabgrass	<i>Digitaria ciliaris</i>
Southern cutgrass	<i>Leersia hexandra</i>
Southern umbrellasedge	<i>Fuirena scirpoidea</i>
Spadeleaf	<i>Centella asiatica</i>
Spikerush	<i>Eleocharis sp.</i>
Splitbeard bluestem	<i>Andropogon ternarius</i>
St. John's wort	<i>Hypericum sp.</i>
Starrush white-top	<i>Rhynchospora colorata</i>
Sugarcane plumegrass	<i>Saccharum giganteum</i>

Common name	Scientific name
Swamp bay	<i>Persea palustris</i>
Swamp doghobble	<i>Eubotrys racemosus</i>
Swamp laurel oak	<i>Quercus laurifolia</i>
Swamp smartweed	<i>Persicaria hydropiperoides</i>
Swamp tupelo	<i>Nyssa biflora</i>
Sweet goldenrod	<i>Solidago odora</i>
Sweetbay	<i>Magnolia virginiana</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Sweetscent	<i>Pluchea odorata</i>
Switchgrass	<i>Panicum virgatum</i>
Tall elephantsfoot	<i>Elephantopus elatus</i>
Tarflower	<i>Bejaria racemosa</i>
Tenangle pipewort	<i>Eriocaulon decangulare</i>
Thin paspalum	<i>Paspalum setaceum</i>
Thoroughwort	<i>Eupatorium sp.</i>
Threeawn	<i>Aristida sp.</i>
Tickseed	<i>Coreopsis sp.</i>
Tropical flatsedge	<i>Cyperus surinamensis</i>
Trumpet creeper	<i>Campsis radicans</i>
Turkey tangle fogfruit	<i>Phyla nodiflora</i>
Vanillaleaf	<i>Carphephorus odoratissimus</i>
Virginia buttonweed	<i>Diodia virginiana</i>
Virginia chain fern	<i>Woodwardia virginica</i>
Virginia marsh St. John's wort	<i>Hypericum virginicum</i>
Wand goldenrod	<i>Solidago stricta</i>
Warty panicgrass	<i>Kelloggloa verrucosa</i>
Water cowbane	<i>Tiedemannia filiformis</i>
Water oak	<i>Quercus nigra</i>
Waterhorehound	<i>Lycopus sp.</i>
Wax myrtle	<i>Morella cerifera</i>
Whip nutrush	<i>Scleria triglomerata</i>
Whitehead bogbutton	<i>Lachnocaulon anceps</i>
Winged sumac	<i>Rhus copallinum</i>
Wiregrass	<i>Aristida stricta</i>
Witchgrass	<i>Dichanthelium sp.</i>
Woolly witchgrass	<i>Dichanthelium scabriusculum</i>
Yellow hatpins	<i>Syngonanthus flavidulus</i>

Common name	Scientific name
Yellow jessamine	<i>Gelsemium sempervirens</i>
Yellow spikerush	<i>Eleocharis flavescens</i>
Yellow-eyed grass	<i>Xyris sp.</i>

Table 5. Non-Native and Invasive Plant Species Observed on the CRWMA

Common name	Scientific name	FLEPPC Category
Awned halfchaff sedge	<i>Cyperus aristulatus</i>	-
Bahiagrass	<i>Paspalum notatum</i>	-
Bermudagrass	<i>Cynodon dactylon</i>	-
Brazilian vervain	<i>Verbena brasiliensis</i>	-
Camphor tree	<i>Cinnamomum camphora</i>	I
Chamber bitter	<i>Phyllanthus urinaria</i>	-
Chinese tallow, Popcorn tree	<i>Triadica sebifera</i>	I
Chocolateweed	<i>Melochia corchorifolia</i>	-
Cogongrass	<i>Imperata cylindrica</i>	I
Colombian waxweed	<i>Cuphea carthagenensis</i>	-
Common dayflower	<i>Commelina diffusa</i> var. <i>diffusa</i>	-
Gambian dayflower	<i>Commelina gambiae</i>	-
Japanese clover	<i>Kummerowia striata</i>	-
Jungle rice	<i>Echinochloa colona</i>	-
Low flatsedge	<i>Cyperus pumilus</i>	-
Nakedstem dewflower	<i>Murdannia nudiflora</i>	-
Pangolagrass	<i>Digitaria eriantha</i>	-
Purple sesban	<i>Sesbania punicea</i>	II
Shortleaf spikesedge	<i>Cyperus brevifolius</i>	-
Torpedo grass	<i>Panicum repens</i>	I
Tropical Mexican clover	<i>Richardia brasiliensis</i>	-
Tropical soda apple	<i>Solanum viarum</i>	I
Vaseygrass	<i>Paspalum urvillei</i>	-

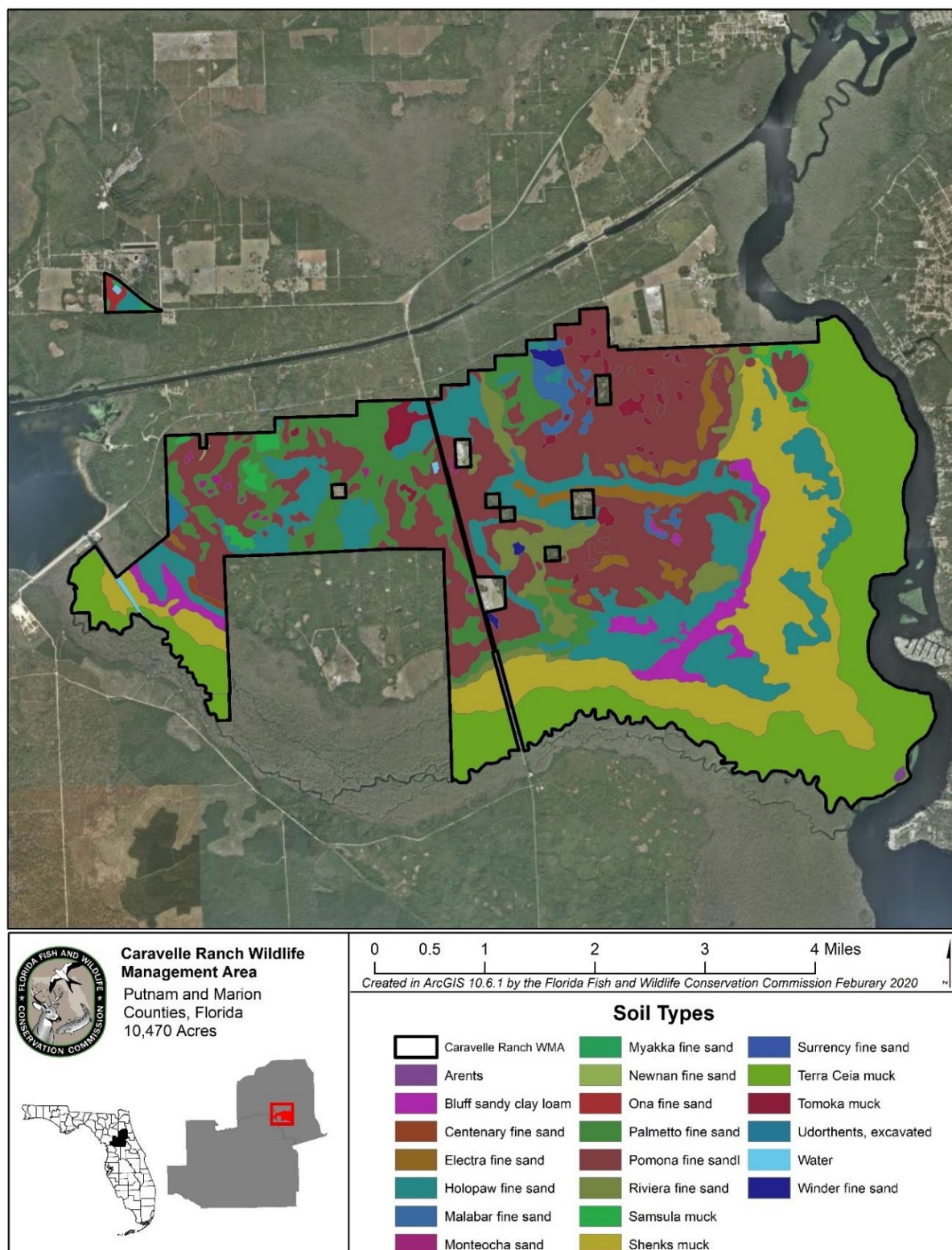


Figure 6. Soil Types on the CRWMA

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

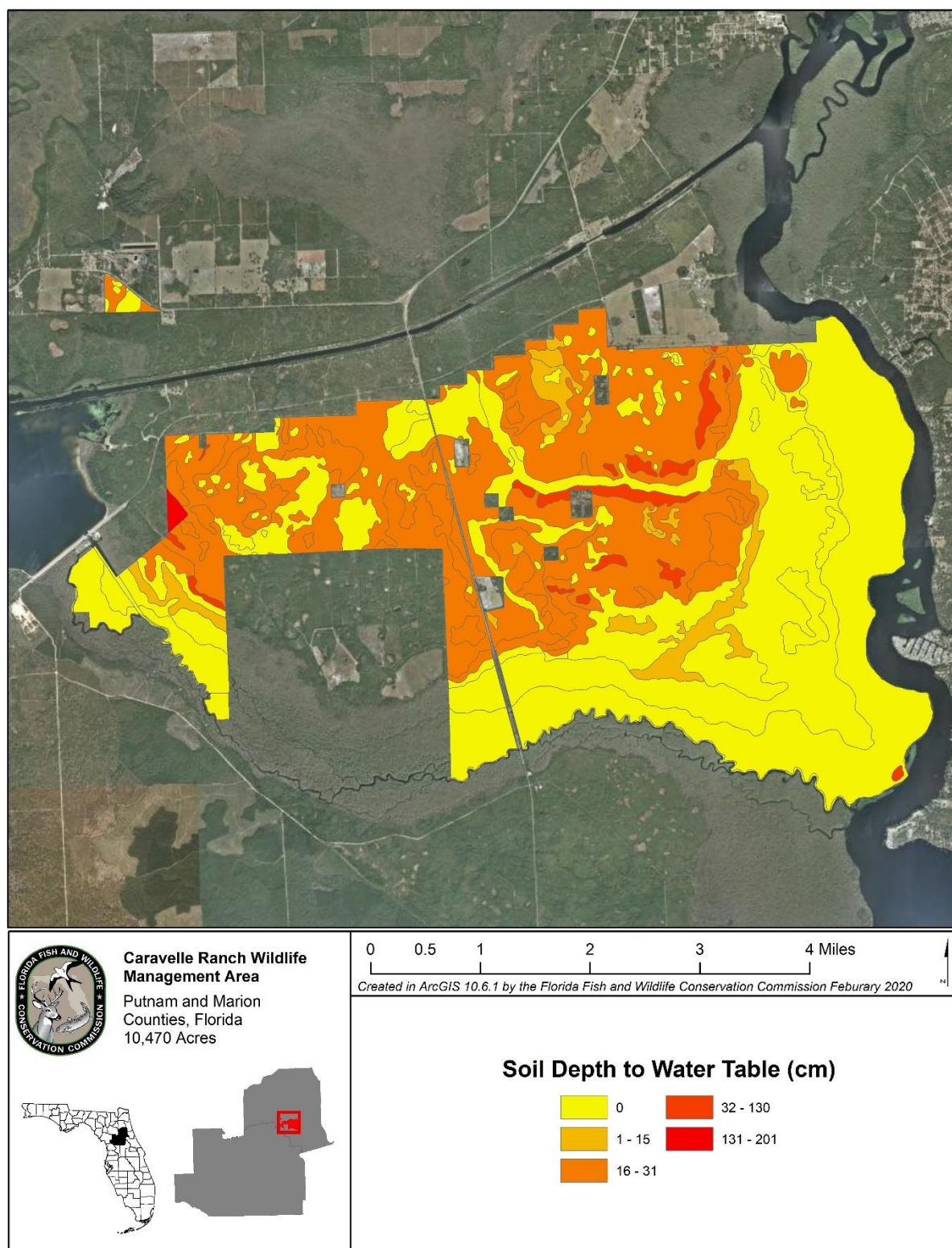


Figure 7. Soil Depth to Water Table (cm) on the CRWMA

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

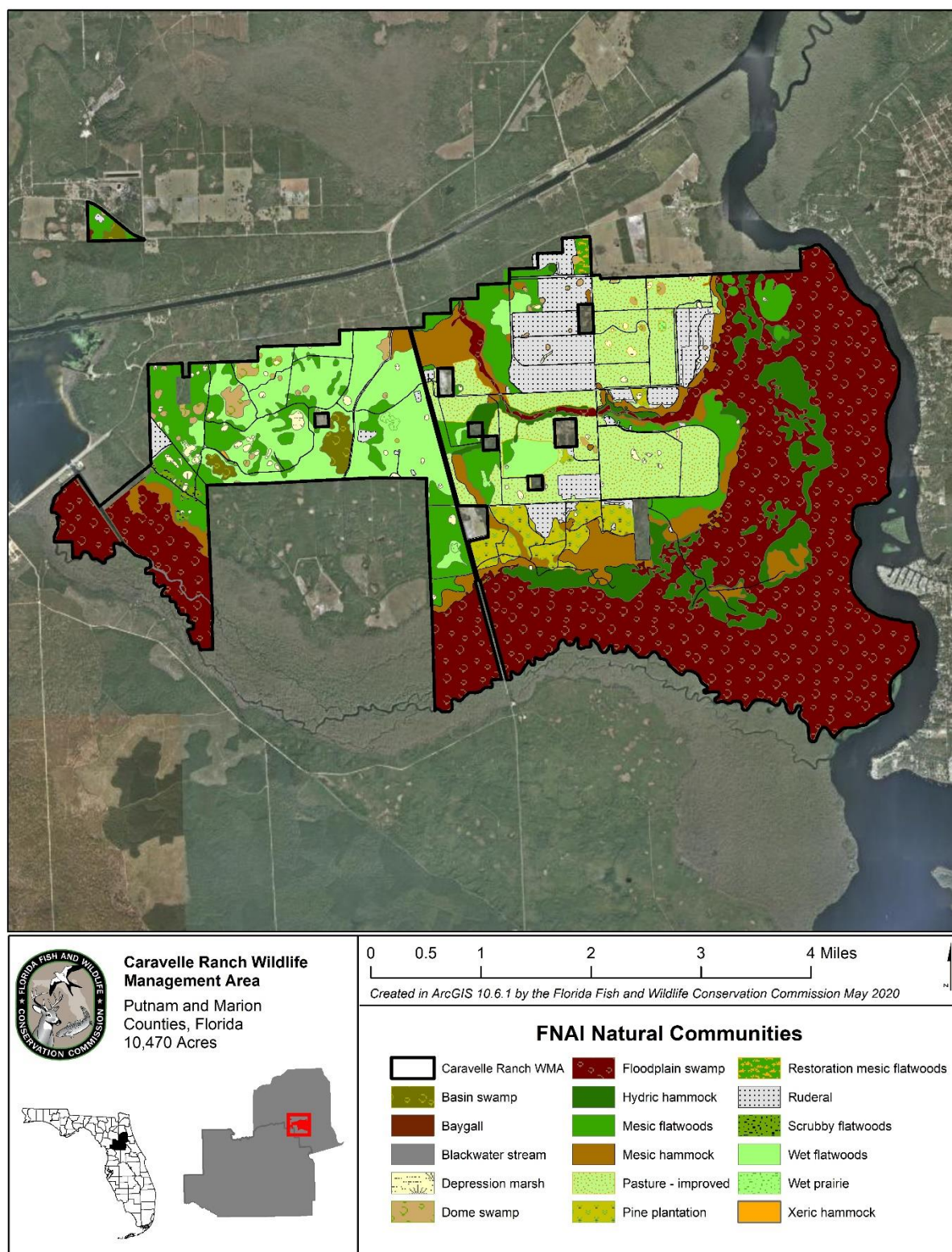


Figure 8. Natural and Anthropogenic Communities on the CRWMA

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

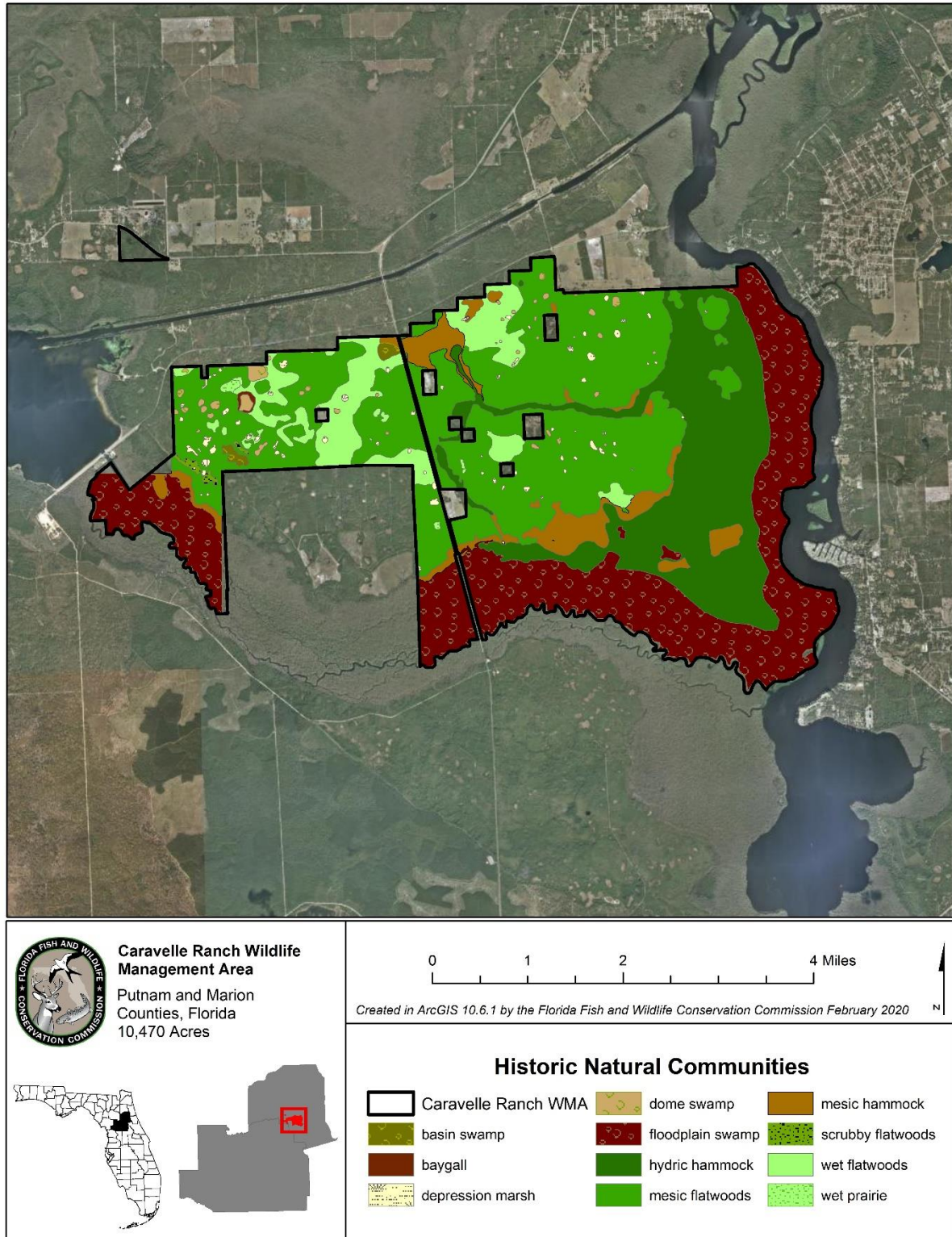


Figure 9. Historic Natural Communities on the CRWMA

2.2.1 FNAI Natural Community Descriptions

Basin Swamp (~102.90 acres)

Basin swamps are forested wetlands that occupy irregularly shaped depressions. This community occurs in the western part of the CRWMA, embedded within mesic/wet flatwoods. The mixed pine and hardwood canopy is typically dense (>75% cover). Canopy and sub-canopy tree species include blackgum, slash pine, pond cypress, loblolly bay and red maple. Shrub layers can be sparse to dense. Basin swamps observed at the CRWMA usually have hummocks of dense shiny lyonia and buttonbush, which cover 25 to 50 percent of the shrub layer. Highbush blueberry occurs occasionally here. Herbaceous vegetation is generally sparse, occurring in drier patches, or in areas under canopy gaps. Grasses, sedges and ferns dominate the herbaceous cover, including Jamaica swamp sawgrass, sedges, millet beaksedge, Virginia chain fern and lizard's tail.

Basin swamps typically contain standing water much of the year and historically may have burned only in extreme dry periods. On the CRWMA, basin swamps near the Rodman Reservoir and Canal have disrupted hydrology causing drier than normal conditions.

Baygall (~3.01 acres)

Baygall is a forested wetland community dominated by bay trees with high moisture levels maintained by seepage or high-water tables. Several baygalls occur on the edges of cypress-dominated basin swamps where the drainage has been altered by ditching which may have caused their development. Baygalls can withstand a moderate fire frequency since the bay trees resprout following fire. However, fire during a drought can kill the trees by burning into the organic soils and killing their roots.

Blackwater Stream (~6.96 acres)

Blackwater streams are characterized as perennial or intermittent seasonal watercourses originating deep in sandy lowlands where extensive wetlands with organic soils function as reservoirs, collecting rainfall and discharging it slowly to the stream. Blackwater streams are primarily found in the southwestern portion of the CRWMA.

Depression Marsh (~104.02 acres)

Depression marshes are small, ovoid wetlands embedded within flatwoods, dry prairie or sandhill landscapes. A canopy is generally absent, but may include slash pine, pond cypress or black gum. Shrub cover is generally sparse and may include wax myrtle, giant gallberry, red maple, buttonbush and shiny lyonia. Maidencane dominates the wetter portions of the marsh, usually with cover exceeding 75%. Other herbaceous species typical of the wetter, interior part of depression marshes include Virginia chain fern, pickerelweed,

arrowhead, lizard's tail, narrowfruit horned beaksedge, southern waxy sedge and floating bladderworts. The drier edges of depression marshes are floristically variable, and typically harbor small-statured forbs such as yellow-eyed grasses, bog buttons, pipewort, southern bladderwort and yellow hatpins. Grasses found along depression edges include blue maidencane, purple bluestem, chalky bluestem and sand cordgrass.

Infrequent winter burning or fire suppression encourages large accumulations of dead vegetation, as well as invasion of woody shrubs. Such accumulations crowd out the smaller forbs and grasses and allow succession of the community to a woody-dominated type, such as baygall or dome swamp.

A “variant” of depression marsh occurs on the CRWMA in areas in or near the Ocklawaha River floodplain. These small herbaceous depressions are dominated by dense Jamaica swamp sawgrass rather than maidencane. Otherwise, they are similar in aspect and floristic composition to the maidencane type.

Dome Swamp (~121.38 acres)

Dome swamps occur in relatively small, shallow depressions within flatwood landscapes. These round depressions are usually forested with pond cypress, which can form a dense, closed canopy. Swamp tupelo, loblolly bay and red maples are infrequent. In smaller, dryer dome swamps, slash pine may co-occur with cypress as a canopy dominant. Midstory and understory strata may be variable in aspect, depending on past fire history and hydrologic changes. Dome swamps at the CRWMA range from those with little midstory and grass dominated understory vegetation to those with dense shrubs and sparse understory. Typical midstory shrub species include shiny lyonia, wax myrtle, highbush blueberry, red maple, coastal sweet pepperbush, Virginia willow and button bush. In dome swamps with open canopies and periodic standing water, maidencane typically dominates the herbaceous understory, along with purple bluestem, Virginia chain fern, pickerelweed, arrowhead and southern waxy sedge. Other occasional herbaceous species include Virginia water horehound, pipeworts, primrosewillow, yellow-eyed grasses, beaksedges, blue maidencane and floating bladderworts. The “open” grassy dome swamps typically have shrub layers with < 25% cover. Conversely, dome swamps that are drier and/or have been long fire suppressed, may have shrub layers exceeding 75% cover. Shiny lyonia is typically the major shrub species, forming dense “tussocks”. Invading slash pine saplings may be present in the shrub strata. Vines are more abundant in shrubby dome swamps, including poison ivy, muscadine, and greenbrier.

Some of the CRWMA dome swamps in areas of highly altered hydrology appear to be drying out. Because the normal hydroperiod is no longer observed, pines and other upland species are encroaching into the swamps. In some cases, dense shrubs and vines can create

impenetrable thickets, crowding out the cypress and other wetland plants. When possible, dome swamps are allowed to burn along with the surrounding area.

Floodplain Swamp (~5,066.90 acres)

Floodplain swamps occur on frequently flooded terraces of river floodplains. These multi-layered forests harbor many hardwood trees and shrub species and are variable in respect to canopy and shrub dominants. Very subtle changes in micro-topography affect flooding duration, and subsequent seedling germination and survival.

On the CRWMA, floodplain swamps are part of the Ocklawaha River, St. Johns River and Camp Branch floodplains and comprise much of the southern part of the WMA. Bald cypress is the most abundant canopy species of the CRWMA floodplain swamps. Green ash is also abundant, particularly along the Ocklawaha riverfront. Other species common in the canopy and subcanopy strata are cabbage palm, American elm, red maple and sweetgum. Species common in the shrub strata include wax myrtle, alder, dahoon holly and swamp dogwood. Herbaceous vegetation varies from patchy (in drier areas) to non-existent (in flooded areas). Some common herb species include blueflag, greater bladder sedge, lizard's tail, bulrush, shortbristle horned beaksedge, redtop panicgrass, smartweeds, smallspike false nettle, marsh pennywort, waterhyssop and swamp milkweed.

Hydric Hammock (~814.31 acres)

Hydric hammock is an evergreen hardwood and/or palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils, often with limestone very near the surface. While species composition varies, the community generally has a closed canopy of oaks and palms, an open understory, and a sparse to moderate groundcover of grasses and ferns.

Hydric hammock occurs in association with floodplain swamp at CRWMA on portions of the Ocklawaha River, St. Johns River and Camp Branch floodplains. There is a nearly closed, diverse canopy of laurel oak, cabbage palm, green ash, American elm, sweet bay, bald cypress and red maple. Sweetgum and slash pine are infrequent. There is a sub-canopy of cabbage palm. The tall shrub cover is sparse to moderate (5 to 25% cover), composed of wax myrtle, dahoon holly, red bay and swamp dogwood. The short shrub layer is sparse and may include dog hobble, dwarf palmetto and highbush blueberry. Herbaceous cover is sparse to moderate (1 to 25%), and includes lizard's tail, smartweeds, smallspike false nettle, marsh pennywort, partridge berry, waterhyssop and sedges. Leaf litter covers nearly 100 percent of the ground. Woody vines are frequent and include poison ivy and Virginia creeper.

Mesic Flatwoods (~1,274.14 acres)

Mesic flatwoods typically have pine canopies ranging from 25 to 75 percent cover. The most common pine is slash pine, although a few older longleaf pines remain in some areas. Mesic flatwoods are characterized by their sparse subcanopy and dense cover of saw palmetto in the short shrub layer. Shrub abundance and cover is generally relative to past fire history. Areas that are within the recommended burn rotation tend to have more developed herbaceous ground cover and a lower shrub cover. Shrub layers include saw palmetto, shiny lyonia, shiny blueberry, deerberry and wax myrtle. Runner oaks and sparkleberry are often present in drier-phase mesic flatwoods, while loblolly bay, highbush blueberry, smallflower blueberry, swamp bay and abundant gallberry occur in slightly wetter areas.

Mesic flatwoods is one of the most widespread natural community on the CRWMA, covering large areas of flat terraces and low, broad ridges. Most of the mesic flatwoods on the CRWMA have recovering herbaceous layers that are being promoted by the mechanical reduction of midstory and shrub structure, timber harvests to achieve proper basal area and increase sunlight penetration, and the application of prescribed fire. In addition to wiregrass, these areas contain bluestem grasses, bottlebrush threeawn, narrowleaf silkgrass, witchgrass, hemlock witchgrass, Elliott's milkpea, milkworts, sprawling hoarypea, queen's-delight and meadowbeauties.

In the central and western portions of the CRWMA, mesic flatwoods are interspersed with wet flatwoods. Mesic flatwoods may be distinguished by a substantially greater coverage of saw palmetto, shiny blueberry and oak species (other than water oak). Wet flatwoods on the CRWMA are generally characterized by their lack of palmetto and abundance of gallberry.

The mesic flatwoods community on the CRWMA contains acreage that was previously typed as pine plantation on the FNAI surveys. The FWC and FNAI changed the designation to reflect the fact that these areas have the appropriate vegetative characteristics to meet the mesic flatwoods definition. There is no bedding visible, the overstory (typically slash pine) has been thinned to a basal area well below the maximum recommended range, the groundcover and shrub layers are of the correct composition, and prescribed fire is employed.

Mesic Hammock (~777.42 acres)

Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is typically closed and dominated by live oak with cabbage palm generally common in the canopy and subcanopy. The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto, American beautyberry, American holly, gallberry, sparkleberry, hog plum, persimmon, highbush blueberry, Carolina laurelcherry, yaupon, wild olive and/or wax myrtle. Mesic

hammock may occur as “islands” on high ground within basin or floodplain wetlands, as patches of oak/palm forest in dry prairie or flatwoods communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were likely restricted to naturally fire-protected areas such as islands and peninsulas of lakes. Other landscape positions that can provide protection from the spread of fire from one or more directions are thus likely places for mesic hammock development. These include edges of lakes, sinkholes, other depressional or basin wetlands and river floodplains.

Mesic hammocks occur on the CRWMA in transitional areas between mesic flatwoods and hydric hammock or in low areas within the flatwoods matrix. Live oaks form closed canopies over sparse shrub layers. Other trees present in the subcanopy and tall shrub strata include water oak, cabbage palm, sweetgum, red maple, wax myrtle and American elm. Short shrub species include saw palmetto, smallflower blueberry, persimmon and American beautyberry. Herbaceous ground cover is dominated by grass species with a few other herbaceous species present. These include partridgeberry, tall elephantsfoot, variable witchgrass, whip nutrush, millet beaksedge and bracken fern. Common vine species include poison ivy, saw greenbrier, Virginia creeper and muscadine.

Restoration Mesic Flatwoods (~26.34 acres)

Restoration mesic flatwoods is an area in which natural mesic flatwoods communities are being restored. Formerly an altered landcover type, staff is performing active restoration to return the community to its historic state. Examples of restoration activities include pine thinning, longleaf pine planting, groundcover restoration, hydrological restoration and removal of non-native and invasive plant species and other undesirable vegetation. In historically pyrogenic natural communities, restoration activities are accompanied by the application of prescribed fire. Restoration mesic flatwood sites on the CRWMA are located in the northcentral portion of the area.

Scrubby Flatwoods (~26.38 acres)

Scrubby flatwoods occur in the western portion of the CRWMA, on broad ridges of coarse, well-drained sand. The canopy in this area is unevenly distributed slash pine with large open areas due to wildfire mortality. Scrubby flatwoods are typically situated on ridgetops, upslopes of mesic flatwoods, baygalls or depression marshes. The CRWMA scrubby flatwoods are located in an area of mesic flatwoods immediately upslope of the Ocklawaha River floodplain. Shrub strata are moderately dense and contain oak species such as Chapman's oak, myrtle oak, turkey oak and runner oak. Also present at moderate densities are shiny lyonia, staggerbush, rusty lyonia, saw palmetto, sparkleberry and shiny blueberry. Herbaceous plants are common throughout the site and include wiregrass, bottlebrush threeawn, narrowleaf silkgrass, vanillaleaf, Elliott's milkpea, sandyfield beaksedge and Chapman's goldenrod. Scrubby flatwoods on lower slopes were being

encroached by hardwoods from the mesic hammock adjacent to the floodplain, but several rotations of growing season fire have begun to reverse the process.

Wet Flatwoods (~1,283.24 acres)

Wet flatwoods occur in the central and western portions of the CRWMA, usually interdigitated with mesic flatwoods. Wet flatwoods occur in slightly lower positions on the landscape, subject to higher water tables and more frequent periods of inundation. Herbaceous cover in the CRWMA wet flatwoods can be patchy due to the frequency of inundation and gallberry competition. Where the herbaceous ground cover exists, dominant species are wiregrass, blue maidencane, purple bluestem, Elliot's yellow-eyed grass, erect witchgrass, chalky bluestem, tenangle pipewort and erect centella. Other herbaceous species include sundews, southern umbrella-sedge, beaksedges, plumed beaksedge, whip nutrush, hooded pitcherplant, yellow-eyed grasses, primrosewillow, combleaf mermaidweed, rosy camphorweed, carpetgrass and shaggy hedgehyssop. Similar to mesic flatwoods, wet flatwoods usually have slash pine canopies ranging from 25 to 75 percent cover. The shrub layers are typified by dense growths of gallberry and the absence of palmetto and oaks. Other characteristic shrub species include myrtleleaf St. John's wort, swamp bay, highbush blueberry, loblolly bay, shiny lyonia and wax myrtle.

Wet Prairie (~21.64 acres)

Wet prairies are generally characterized as having no pine canopy and little or no shrub cover. The understory herbaceous layer remains relatively intact and floristically distinct. Normally, a combination of seasonal inundation and frequent fire prevents germination of woody species and encourages a diverse assemblage of grass, sedge and forb species.

Wet prairie occurs in patches in the central portion of the CRWMA, usually surrounded by wet and mesic flatwoods. The larger wet prairie areas have inclusional depression marshes and/or dome swamps. The CRWMA wet prairies generally have very sparse, short canopies of slash pines (< 5% cover). Shrub cover ranges from sparse (< 5% cover) to dense (> 50% cover), including wax myrtle, shiny lyonia, gallberry, highbush blueberry, sweetbay, slash pine, pond cypress, buttonbush and swamp bay. Often, a continuous layer of St. John's wort is present. Dominant herbs are primarily grass species, including longleaf threeawn, erect witchgrass, the wetland variety of chalky bluestem, redtop panicgrass, purple bluestem, woolly witchgrass, sugarcane plumegrass, Elliott's lovegrass, early paspalum and blue maidencane. In addition, many common, grass-like species are present, including Baldwin's nutrush, southern umbrella-sedge, bunched beaksedge, other beaksedge species, southern waxy sedge and yellow-eyed grasses. Forb species include rosy camphorweed, erect centella, Carolina redroot, Florida tickseed, pipeworts, bladderworts, justiceweed, water cowbane, bog white violet and arrowhead. Dense patches of vines may be present,

predominantly laurel greenbrier. Common fern and fern-like species include Virginia chainfern, royal fern and clubmoss.

Xeric Hammock (~2.06 acres)

Xeric hammock normally describes a low canopy oak forest with sparse midstory and understory vegetation. This community is represented on the CRWMA on only 2.1 acres that is also a state-registered archeological site. Due to the history of Native American and European use, the area today consists of large, open growth live oaks. The groundcover is maintained by frequent mowing to facilitate public use of the provided picnic area.

Altered Community Types

Abandoned Field/ Abandoned Pasture (~592.04 acres)

Abandoned fields/abandoned pastures are old fields, fallow pastures, early successional areas formerly grazed or in agriculture without recent activity to maintain the area as pasture or planted field. These areas are often dominated by weedy native and non-native species. Old pastures are generally designated when weedy cover from woody species is greater than 20 percent. There are currently approximately 592 acres classified as abandoned field. However, this includes +/- 85 acres that are planted in 15-year-old longleaf, +/- 460 acres fenced out of current cattle lease for restoration purposes and an additional +/- 45 acres undergoing additional low-intensity restoration activities.

Artificial Pond (~7.05 acres)

Artificial ponds at CRWMA are borrow pits that were excavated for fill during the construction of SR 19.

Canal/Ditch (~8.37 acres)

Canal/ditch ruderal areas are areas where the historic natural community has been altered by an artificial drainage way. Approximately 8 acres of the CRWMA fall into this category due to the presence of canals and ditches.

Clearing (~29.06 acres)

FNAI defines clearing/regeneration areas as recent or historic clearings that have significantly altered the groundcover, and/or overstory of the original natural community.

Developed (~15.99 acres)

FNAI classifies land as developed if it contains check stations, off-road vehicle (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.

Pasture-Improved (~1,418.92 acres)

Improved pasture is an unnatural community dominated by grasses that are suitable for cattle grazing. This landcover designation includes all current and former improved pasture. These lands primarily occur in areas of former mesic and wet flatwoods. Young pines are usually present, mixed with sparse to dense patches of shrubs, including wax myrtle, live oaks, water oaks and blackberry. Vines are abundant, particularly peppervine and greenbrier. The dominant grass is bahia, an exotic grass introduced for cattle forage. Other common species include carpetgrasses, Virginia buttonweed and dogfennel.

Pine Plantation (~299.32 acres)

Pine plantations are areas altered by silvicultural activities. These include lands where either 1) planted pines are having or will have an ongoing detrimental effect on native groundcover, 2) the history of planted pines has damaged ground cover to the point where further restoration beyond thinning and burning is required and/or 3) the method of planting (e.g. bedding) has severely impacted groundcover. Pine plantations in Florida are often dominated by even-aged loblolly, sand or slash pine. These plantations may be very shrubby or vine-dominated or open at ground level. The groundcover in most cases has been severely impacted by mechanical site preparation, such as roller chopping and bedding. However, while perennial grasses such as wiregrass may be greatly reduced, many components of the native groundcover persist even though the relative abundance is altered. With activities such as thinning and burning, plantations with intact native groundcover can be restored to the former natural community.

Road (~120.50 acres)

Capped or uncapped roads on the CRWMA.

Wildlife Food Plot (~150.33 acres)

Wildlife food plot clearings are significantly altered groundcover and/or overstory of the original natural community. Wildlife food plots on the CRWMA are scattered throughout the area to further attract native wildlife species.

2.2.2 Imperiled Plants

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

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

Table 6. Imperiled Plant Species Found at the CRWMA

Common name	Scientific name	Status
Blue-flowered butterwort	<i>Pinguicula caerulea</i>	ST
Cinnamon fern	<i>Osmunda cinnamomea</i>	CE
Garberia	<i>Garberia heterophylla</i>	ST
Hooded pitcher-plant	<i>Sarracenia minor</i>	ST
Royal fern	<i>Osmunda regalis</i>	CE
Yellow-flowered butterwort	<i>Pinguicula lutea</i>	ST

Acronym	Status
CE	Commercially Exploited
ST	State Threatened

While there has been no formal rare plant inventory on the CRWMA, there are six imperiled plant species known to occur on the area. Of these, four are state threatened (Table 6). The protections afforded plants that occur on conservations lands, in conjunction with management actions that include invasive plant removal and prescribed fire, will continue to maintain and enhance habitat for these and other rare plants. As such, these species should persist under planned management on the CRWMA.

In addition to the imperiled plants, two plants State listed as commercially exploited, are known to occur on the CRWMA (Table 6). The FWC will continue to monitor the known occurrences of these species and report any illegal collection to the appropriate authorities.

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

benefits to a host of species reliant upon these natural communities, imperiled species sometimes require specific attention.

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

Cinnamon Fern (*Osmunda cinnamomea*) and Royal Fern (*O. regalis*) - These ferns occur in many natural communities in Florida, both wet and dry. While these species grow in many communities that the FWC typically does not actively manage, if conducting management activities near known occurrences, staff make efforts to protect known occurrences from chemical and mechanical treatments. These species do not require fire. However, some of the natural communities in which these species occur are fire adapted, and these ferns resprout after fire. Illegal collecting and hydrological disturbances negatively affect these species; therefore, protect areas with known occurrences, and staff should maintain and restore the natural hydrology where practicable. As fronds are present year-round, these species can be identified throughout the year

Blue-Flowered Butterwort (*Pinguicula caerulea*) and Yellow-Flowered Butterwort (*P. lutea*) - These Butterworts prefer open moist to wet sandy-peaty soils of pine flatwoods, wet prairies and seepage bogs and may occupy moist to wet ditches and roadsides. However, yellow-flowered butterwort frequently occupies somewhat drier habitats than other *Pinguicula* species. These species need a fire regime that includes frequent (2-3 years) growing season fires that reduce the encroachment of woody species, and creates open areas allowing sunlight to reach the ground. Soil and hydrologic disturbances negatively affect these species; therefore, maintain and restore the natural hydrology where practicable, and avoid using heavy machinery in wetlands with known occurrences of this species. Flowering, which occurs primarily from February to April, is the best time for conducting surveys or verifying species identity.

Hooded Pitcherplant (*Sarracenia minor*) - Hooded Pitcherplant prefers sunny to lightly shaded, moist to wet, sandy, acid soil in basin swamps, depression marshes, dome swamps, dry prairies, mesic flatwoods, wet flatwoods, wet prairies, shrub bogs, seepage slopes and

edges of seepage streams. This species may occur on boggy roadsides and ditches. Hooded Pitcherplants have the widest ecological range compared to other *Sarracenia* species, and grows on both wet and dry sites, and is more shade tolerant than most species of the genus. This species needs a fire regime that includes frequent (2-3 years) growing season fires that reduce the encroachment of woody species. Fire usually top-kills pitcherplants, but they survive by resprouting from rhizomes. Pitchers are identifiable all year, and surveys for flowers can occur from late March to mid-May. Soil and hydrologic disturbances negatively affect this species; therefore, staff should maintain and restore the natural hydrology where practicable.

2.2.3 Forest Resources

Section 253.036, F.S. requires that plans for natural areas 1,000 acres or greater in size include a professional forester's assessment of the resource conservation and revenue-producing potentials of the tract's forests. The FWC utilizes forest management regimes consistent with the purposes for acquisition of this property. When silvicultural practices are necessary for restoration of wildlife habitat or ecosystem management objectives are deemed appropriate, personnel from the FFS or a professional forestry consultant will be consulted.

A Forest Management Plan was completed by The Forestry Company for the CRWMA in 2016. A copy of this forest management plan is available upon request by contacting the Land Conservation and Planning Office at (850) 487-7063. This Forest Management Plan will further inform and assist the FWC staff in managing timber resources in an economically efficient and responsible manner.

2.3 Fish and Wildlife Resources

In association with the varied assemblage of natural communities described above, a rich diversity of wildlife species is found on the CRWMA. The FWC maintains an inventory of wildlife that occurs on the CRWMA. These species include mammals (Table 7), birds (Table 8), reptiles and amphibians (Table 9), fish (Table 10) and invertebrates (Table 11). In addition to the species listed in the tables below, four non-native and invasive wildlife species have been documented on the CRWMA (Table 12). These inventories are continuously updated by FWC staff.

Table 7. Mammal Species Observed on the CRWMA

Common Name	Scientific Name
Big brown bat	<i>Eptesicus fuscus</i>
Bobcat	<i>Felis rufus</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Cotton Mouse	<i>Peromyscus gossypinus</i>

Common Name	Scientific Name
Coyote	<i>Canis latrans</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Evening bat	<i>Nycticeius humeralis</i>
Feral cat	<i>Felis catus</i>
Feral hog	<i>Sus scrofa</i>
Florida black bear	<i>Ursus americanus floridanus</i>
Manatee	<i>Trichechus manatus latirostris</i>
Marsh rabbit	<i>Sylvilagus palustris</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>
Otter	<i>Lontra canadensis</i>
Raccoon	<i>Procyon lotor</i>
Rafinesque's big-eared bat	<i>Plecotus rafinesquii</i>
Lasiurus bat	<i>Lasiurus spp.*</i>
River otter	<i>Lontra canadensis</i>
Southeastern myotis	<i>Myotis austroriparius</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Southern fox squirrel	<i>Sciurus niger niger</i>
Tricolored bat	<i>Perimyotis subflavus</i>
Virginia opossum	<i>Didelphis virginiana</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Yellow bat	<i>Lasiurus intermedius</i>

*During surveys this observation was unable to be identified to the species level.

Table 8. Bird Species Observed on the CRWMA

Common Name	Scientific Name
American bittern	<i>Botaurus lentiginosus</i>
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Spinus tristis</i>
American kestrel	<i>Falco sparverius</i>
American robin	<i>Turdus migratorius</i>
American woodcock	<i>Scolopax minor</i>
Anhinga	<i>Anhinga anhinga</i>
Bachman's sparrow	<i>Peucaea aestivalis</i>
Barred owl	<i>Strix varia</i>
Belted kingfisher	<i>Megasceryle alcyon</i>
Black vulture	<i>Coragyps atratus</i>

Common Name	Scientific Name
Black-and-white warbler	<i>Mniotilta varia</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Brown-headed nuthatch	<i>Sitta pusilla</i>
Carolina chickadee	<i>Poecile carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Cattle egret	<i>Bubulcus ibis</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Chipping sparrow	<i>Spizella passerina</i>
Chuck-will's-widow	<i>Antrostomus carolinensis</i>
Common grackle	<i>Quiscalus quiscula</i>
Common ground-dove	<i>Columbina passerina</i>
Common nighthawk	<i>Chordeiles minor</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Downy woodpecker	<i>Dryobates pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern meadowlark	<i>Sturnella magna</i>
Eastern phoebe	<i>Sayornis phoebe</i>
Eastern screech owl	<i>Megascops asio</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
Fish crow	<i>Corvus ossifragus</i>
Florida sandhill crane	<i>Antigone canadensis pratensis</i>
Grasshopper sparrow	<i>Ammodramus savannarum</i>
Gray catbird	<i>Dumetella carolinensis</i>
Great blue heron	<i>Ardea herodias</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Great horned owl	<i>Bubo virginianus</i>
Henslow's sparrow	<i>Centronyx henslowii</i>
Hermit thrush	<i>Catharus guttatus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Hooded warbler	<i>Setophaga citrina</i>
House wren	<i>Troglodytes aedon</i>
Killdeer	<i>Charadrius vociferus</i>
Limpkin	<i>Aramus guarauna</i>

Common Name	Scientific Name
Little blue heron	<i>Egretta caerulea</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning dove	<i>Zenaida macroura</i>
Northern bobwhite	<i>Colinus virginianus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern parula	<i>Setophaga americana</i>
Northern waterthrush	<i>Parkesia noveboracensis</i>
Orange-crowned warbler	<i>Oreothlypis celata</i>
Osprey	<i>Pandion haliaetus</i>
Palm warbler	<i>Setophaga palmarum</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Pine warbler	<i>Dendroica pinus</i>
Prairie warbler	<i>Setophaga discolor</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Roseate spoonbill	<i>Platalea ajaja</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Sedge wren	<i>Cistothorus platensis</i>
Song sparrow	<i>Melospiza melodia</i>
Southern bald eagle	<i>Haliaeetus leucocephalus</i>
Summer tanager	<i>Piranga rubra</i>
Swallow-tailed kite	<i>Elanoides forficatus</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Tufted titmouse	<i>Baeolophus bicolor</i>
Turkey vulture	<i>Cathartes aura</i>
Vesper sparrow	<i>Poocetes gramineus</i>
White ibis	<i>Eudocimus albus</i>
White-eyed vireo	<i>Vireo griseus</i>
Wild turkey (Florida wild turkey)	<i>Meleagris gallopavo osceola</i>
Wilson's snipe	<i>Gallinago delicata</i>
Wood duck	<i>Aix sponsa</i>

Common Name	Scientific Name
Wood stork	<i>Mycteria americana</i>
Worm-eating warbler	<i>Helmitheros vermivorum</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Yellow-throated warbler	<i>Setophaga dominica</i>

Table 9. Reptiles and Amphibians Observed at the CRWMA

Common Name	Scientific Name
American alligator	<i>Alligator mississippiensis</i>
Broad-headed skink	<i>Plestiodon laticeps</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Coral snake	<i>Micrurus fulvius</i>
Corn snake	<i>Elaphe guttata</i>
Cuban brown anole	<i>Anolis sagrei</i>
Cuban tree frog	<i>Osteopilus septentrionalis</i>
Dusky pigmy rattlesnake	<i>Sistrurus miliarius</i>
Dwarf salamander	<i>Eurycea quadridigitata</i>
Eastern box turtle	<i>Terrapene carolina</i>
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>
Eastern hognose snake	<i>Heterodon platirhinos</i>
Eastern narrowmouth toad	<i>Gastrophryne carolinensis</i>
Eastern ribbon snake	<i>Thamnophis sauritus</i>
Eastern spadefoot toad	<i>Scaphiopus holbrookii</i>
Five-lined skink	<i>Eumeces fasciatus</i>
Florida banded water snake	<i>Nerodia fasciata pictiventris</i>
Florida cottonmouth	<i>Agkistrodon piscivorus conanti</i>
Florida cricket frog	<i>Acris gryllus</i>
Florida red-bellied cooter	<i>Pseudemys nelsoni</i>
Florida softshell	<i>Apalone ferox</i>
Glass lizard	<i>Ophisaurus sp.</i>
Gopher frog	<i>Lithobates capito</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Greater siren	<i>Siren lacertina</i>
Green anole	<i>Anolis carolinensis</i>
Greenhouse frog	<i>Eleutherodactylus planirostris</i>

Common Name	Scientific Name
Ground skink	<i>Scincella lateralis</i>
Mediterranean gecko	<i>Hemidactylus turcicus</i>
Oak toad	<i>Anaxyrus quercicus</i>
Peninsula cooter	<i>Pseudemys floridana peninsularis</i>
Pine woods snake	<i>Rhadinaea flavilata</i>
Pine woods treefrog	<i>Dryophytes femoralis</i>
River frog	<i>Lithobates heckscheri</i>
Rough green snake	<i>Opheodrys aestivus</i>
Scarlet kingsnake	<i>Lampropeltis elapsoides</i>
Six-lined racerunner	<i>Cnemidophorus sexlineatus</i>
Southern black racer	<i>Coluber constrictor priapus</i>
Southern chorus frog	<i>Pseudacris nigrita</i>
Southern leopard frog	<i>Lithobates sphenocephalus</i>
Southern toad	<i>Anaxyrus terrestris</i>
Squirrel tree frog	<i>Hyla squirella</i>
Two-toed amphiuma	<i>Amphiuma means</i>
Yellow rat snake	<i>Pantherophis alleghaniensis</i>

Table 10. Fish Species Observed on the CRWMA

Common Name	Scientific Name
Banded topminnow	<i>Fundulus cingulatus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blue tilapia	<i>Oreochromis aureus</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>
Bowfin	<i>Amia calva</i>
Brown bullhead	<i>Ameiurus nebulosus</i>
Brown hoplo	<i>Hoplosternum littorale</i>
Channel catfish	<i>Ictalurus punctatus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Mosquitofish	<i>Gambusia affinis</i>
Redbreast sunfish	<i>Lepomis auritus</i>
Spotted sunfish	<i>Lepomis punctatus</i>
Warmouth	<i>Lepomis gulosus</i>
Yellow bullhead catfish	<i>Ameiurus natalis</i>

Table 11. Invertebrate Species Observed on the CRWMA

Common Name	Scientific Name
Crayfish	<i>Procambarus paeninsulanus</i>

Table 12. Non-native and Invasive Wildlife Species Observed on the CRWMA

Common Name	Scientific Name
Banded topminnow	<i>Fundulus cingulatus</i>
Blue tilapia	<i>Oreochromis aureus</i>
Brown hoplo	<i>Hoplosternum littorale</i>
Cuban brown anole	<i>Anolis sagrei</i>
Cuban tree frog	<i>Osteopilus septentrionalis</i>
Feral hog	<i>Sus scrofa</i>
Mediterranean gecko	<i>Hemidactylus turcicus</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>

2.3.1 Florida Landscape Assessment Model

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

2.3.2 Imperiled Fish and Wildlife

For the purposes of this Management Plan, the term “Imperiled Species” refers to plant and animal species that are designated as Endangered, Threatened or a Species of Special Concern by the FWC, or that are designated as Endangered or Threatened by the U.S. Fish and Wildlife Service. This designation is also commonly known as “listed species.” At its November, 2016, Commission meeting, the FWC approved Florida’s Imperiled Species Management Plan (<http://myfwc.com/wildlifehabitats/imperiled/plan/>), which

included changes to the listing status for many wildlife species. Subsequent rule changes (68A-27.003 and 68A-27.005 FAC) came into effect in January 2020. All federally listed species that occur in Florida are included in Florida’s Endangered and Threatened Species list (<https://myfwc.com/media/1945/threatend-endangered-species.pdf>) as federally-designated Endangered or federally-designated Threatened. Species that are not federally listed, but which have been identified by the FWC as being at some level of risk of extinction, are listed as state-designated Threatened. Additionally, the FWC continues to maintain a separate Species of Special Concern category. This category was reviewed as part of Florida’s Imperiled Species Management Plan, with the majority of the species previously contained within the category either being removed from Florida’s Endangered and Threatened Species list due to conservation success, or had their status changed to state-designated Threatened.

Table 13. Imperiled Wildlife Species Observed on the CRWMA

Common Name	Scientific Name	Status
American alligator	<i>Alligator mississippiensis</i>	FT(S/A)
Florida sandhill crane	<i>Grus canadensis pratensis</i>	ST
Gopher tortoise	<i>Gopherus polyphemus</i>	ST
Little blue heron	<i>Egretta caerulea</i>	ST
Roseate spoonbill	<i>Platalea ajaja</i>	ST
Wood stork	<i>Mycteria americana</i>	FT

Acronym	Status
FT(S/A)	Federally Threatened due to Similarity of Appearance
FT	Federally Threatened
ST	State Threatened

2.3.3 FNAI Element Occurrences

A diversity of wildlife species is found on the CRWMA. The FNAI element occurrence records include four occurrences of gopher tortoise in the vicinity of the CRWMA, as well as several occurrences of bald eagles, gopher frog, limpkin, snowy egret and others. As defined by the FNAI, an “element” is any exemplary or rare component of the natural environment, such as a species, natural community, bird colony, spring, sinkhole, cave or other ecological feature. An element occurrence is a single extant habitat which sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element. The FNAI assigns a rank to each “element” occurrence. This ranking system was developed by The Nature Conservancy and the Natural Heritage Program Network based on the element’s global rank (element’s worldwide status) or state rank (status of element in Florida). The FNAI ranking system and definitions are located on the

following website: www.fnai.org/ranks.cfm. Appendix 12.8 contains a letter from the FNAI authorizing the FWC to utilize their database for the purpose of displaying known plant and animal resources.

2.4 Native Landscapes

The CRWMA has a diverse assemblage of native landscapes exemplified by a broad swath of intact floodplain marshes, swamps and forests along the St. Johns and Ocklawaha Rivers to its upland pine forest. These are but some of the native landscapes found in the CRWMA's natural communities that are fully described in the vegetation Section 2.2.1.

2.5 Water Resources

The CRWMA lies within the drainage basins of Camp Branch Creek, the Ocklawaha River and the St. Johns River (Figure 11). The CRWMA is bordered by the St. Johns River to the east and its largest tributary, the Ocklawaha River, to the west and south. The CRWMA provides floodplain, watershed and water quality protection for these rivers and the Cross-Florida Barge Canal, located north of the FWC-managed portion of the CRWMA. The Cross Florida Barge Canal bisects OGT lands and connects the St. Johns River to the Rodman reservoir. Currently, a structure with a flap gate located on the south bank of the Barge Canal regulates the flow of Camp Branch Creek into the CRWMA. This creek flows south and east through the CRWMA before draining into the St. Johns River. Restoration work at Camp Branch Creek to return water to the creek channel was completed in February 2011.

All surface waters of the State are classified by the DEP according to designated uses as described in Chapter 62-302.44 FAC. The surface waters of the CRWMA 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 the DEP to afford the highest protection to Outstanding Florida Waters (OFW) and Outstanding National Resource Waters (Chapter 62-302.700 FAC). Portions of the CRWMA are designated as OFW (Figure 11). 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.

Three primary aquifer systems underlay Putnam County: the surficial aquifer, the secondary artesian aquifer and the Floridian aquifer. Parts of CRWMA provide recharge to the Floridian Aquifer at a rate of 0-4 inches per year.²

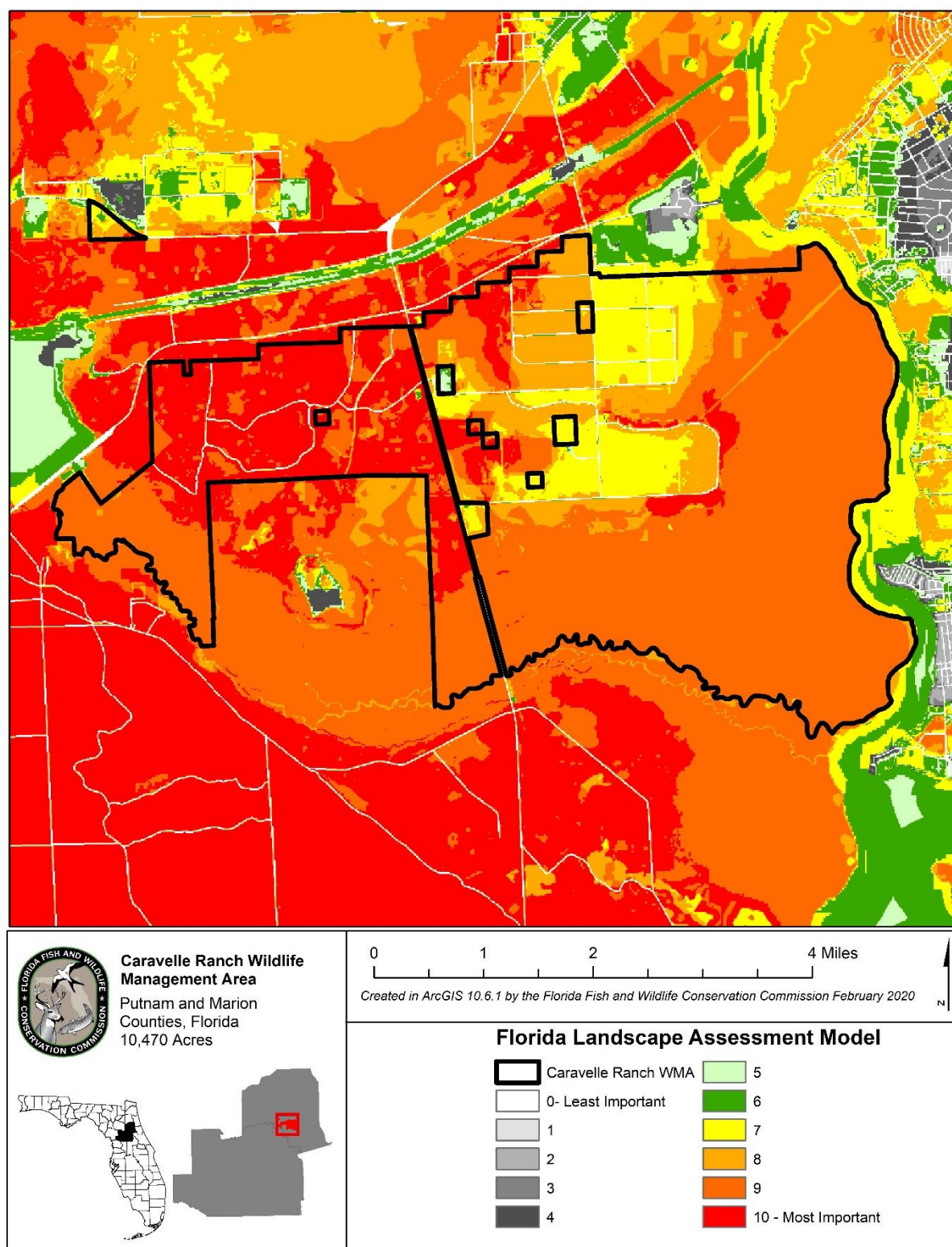


Figure 10. Florida Landscape Assessment Model

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan



Figure 11. Watersheds near the CRWMA

2.6 Beaches and Dunes

There are no beaches or dunes within the CRWMA.

2.7 Mineral Resources

There are no known mineral resources within the CRWMA.

2.8 Historical Resources

Procedures outlined by the Florida Department of State's Division of Historical Resources (DHR) will be followed to preserve historical resources. The FWC will continue to consult with the DHR to locate and preserve any historical or archaeological features on the area. As necessary, the FWC will also contact professionals from the DHR for assistance prior to any ground-disturbing activity on the area.

A review of the Florida Master Site File by the DHR, revealed nine historical sites. Amongst these include five prehistoric middens, a prehistoric camp and a Turpentine camp. As a part of this management plan, the FWC will ensure that management staff receive Archaeological Resource Management (ARM) training. Furthermore, the FWC will ensure all known sites are recorded in the DHR Master Site File.

2.9 Scenic Resources

The most extensive natural communities on CRWMA are floodplain swamp, mesic flatwoods, and wet flatwoods. Wildlife viewing opportunities include the chance to see Florida black bears near the river swamps and sandhill cranes along marshes where they nest. The CRWMA is part of a network of sites along the Great Florida Birding Trail, which includes areas across the state selected for their excellent bird watching, wildlife viewing or educational opportunities.

Rodman Reservoir is a good spot for seeing bald eagles, waterfowl and wading birds. Horseback riding, hiking and biking are best in the fall and spring. A network of well-maintained and marked roads provides ample opportunities for hiking, wildlife viewing, biking and horseback riding to view these resources. Complete descriptions of the natural communities found on the CRWMA are fully described in the vegetation Section 2.2.1.

3 Uses of the Property

3.1 Previous Use and Development

Prior to European settlement, the landscape of Florida, including this area of the peninsula, 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 16th century. Along with more advanced agricultural practices, the Spanish and other settlers brought livestock, primarily cattle and hogs, 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 through much of the central Florida peninsula throughout most of the European settlement era from the 16th through the 20th century. Use of these agricultural practices began an era of increased alteration of the natural landscape. However, it wasn't until the 19th and 20th century that major settlement and more extensive alteration of the landscape in the area began, with the widespread use of agriculture and associated development.

Historical development associated with the early settlement of the CRWMA is similar to other early settlements in central Florida. Exploitation of timber resources and agricultural development were the main factors that opened the area to settlers. Early in the 20th century, lumbering and naval stores industries followed the railroad south. At first, large stands of pine were used for turpentine, then the larger saw timber was cut, and finally the pulpwood was removed.

During the 1930s, the State of Florida Canal Authority managed the lands within the CRWMA that are part of the Marjorie Harris Carr Cross Florida Greenway. The lead managing agency of these acres would later become the DEP-OGT. The Canal Authority was authorized to create and maintain the Cross Florida Barge Canal in 1933. Ground was breaking for the canal in 1935 and again in 1963. This canal currently bisects the OGT portion of the CRWMA and connects the St. Johns River to the Rodman Reservoir to the west. A structure with a flap gate located on the south bank of the barge canal regulates the flow of water into the Camp Branch Creek. This creek flows south and east through the FWC lead portion before draining into the St. Johns River. Water levels in the creek are heavily affected by water levels in the canal.

Bald cypress was harvested from hardwood river swamps during the 1930s and 1940s. During the late 1980s, the property was held by the Federal Deposit Insurance Corporation, and several other timber harvests occurred. The roads that lead into the hardwood river swamp (areas now owned by the SJRWMD) were built during this time to permit access for logging. The portion of the CRWMA under management by the SJRWMD has been open to public hunting and other passive recreational activities since being established as a WMA in 1991.

In the late 1960s and early 1970s, trees were removed from portions of the CRWMA east of SR 19 to create pastures for cattle. This area was previously known as Rodman Ranch. The Caravelle Land and Cattle Company of Palatka managed a cattle company at the time. Acreage east of SR19 was ditched to remove standing water from pastures to improve forage and crop production. Additional water control structures were installed to retain water for cattle. In the mid-1980s the area to the west of Rodman Ranch, now part of the CRWMA, was used as a hunting preserve. Managers reported high populations of turkey, quail, deer and dove. At some point, land managers released feral hogs to supplement the existing population. Previous landowners managed the pine flatwoods west of SR19 and south of Rodman Road for timber production, hunting and some cattle grazing. A subsequent lack of prescribed fire created conditions with extensive shrub cover and little herbaceous groundcover in the years before State ownership.

3.2 Current Use of the Property

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

The CRWMA is being managed as a multiple-use conservation land. Multiple-use management strategies incorporate uses related to wildlife, fisheries, forest management and natural resource-based public outdoor recreation. Wildlife-based public outdoor educational and recreational opportunities are provided that are compatible with the original purposes for acquisition of the CRWMA. Current and anticipated resource uses of the property are diverse. Hunting continues to be a popular recreational activity on the CRWMA. The area also offers excellent opportunities for bird watching, especially for wading birds. 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.

Due to the proximity of population centers in Putnam County, public use can be expected to increase as public awareness of opportunities increases. Annual use of the CRWMA is estimated to be 365 user-days for all activities combined. The FWC administers hunts in the fall and spring for various game species including small game, deer, turkey and feral hogs, which account for a little more than half of the user-days.

Additionally, as stated previously, currently there is one Apiary Agreement (#18181), one Cattle Grazing Contract (#08191-A-1) and three housing agreements (#14216, 19096 and 14217) established within the boundary of the CRWMA.

3.2.1 Visitation and Economic Benefits

Visitation and public use of the area for fish and wildlife-based public outdoor recreational opportunities is the primary source of economic benefits from the CRWMA and contribute to the overall economy for the Northeast region of Florida. In Fiscal Year 2019-20, an estimated 28,401 people visited the CRWMA. Primarily, as a result of this visitation and use of the area, the FWC economic analysis estimates indicate that the CRWMA generated an estimated annual economic impact of \$5,549,270 for the State and the Northeast Florida region. This estimated annual economic impact has aided in the support or creation of an estimated 56 jobs.

Additional revenue is generated from the cattle grazing contract that is currently in place on the area, timber thinning and an existing apiary contract. Revenues from the cattle grazing contract vary year-to-year based on the number of cattle present on the area.

Further revenue generating potential of the CRWMA will depend upon future uses described in this Management Plan. Additional revenue from environmental lands such as the CRWMA 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.

3.3 Single- or Multiple-use Management

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

3.3.1 Analysis of Multiple-use Potential

The following actions or activities have been considered under the multiple-use concept as possible uses to be allowed on the CRWMA. Uses classified as “Approved” are considered to be in accordance with the purposes for acquisition, as well as with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals and objectives as expressed in the Agency Strategic Plan (Appendix 12.9). Uses classified as "Conditional"

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

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

3.3.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on the CRWMA are made in accordance with the requirements of Section 253.034(10) F.S., and other applicable Florida constitution, statute, rule and policy requirements, as well as other provisions governing applications for proposed incompatible uses or linear facilities on state-owned conservation lands. Upon approval and implementation of this management plan, any proposed future uses that have been classified herein as Rejected, or other proposed future uses that are determined to be incompatible with the purposes of acquisition or other management authorizations and guidance, will be forwarded for review and approval consideration to the DEP-DSL, the ARC and the Board of Trustees prior to any incompatible use or linear facility being authorized on the CRWMA.

3.3.3 Assessment of Impact of Planned Uses of the Property

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

3.4 Acreage Recommended for Potential Surplus Review

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

The evaluation of the CRWMA by the FWC has determined that all portions of the area are being managed and operated for the original purposes of acquisition and remain integral to the continued conservation of important fish and wildlife resources and continue to provide good fish and wildlife resource-based public outdoor recreational opportunities. Therefore, no portion of the CRWMA is recommended for potential surplus review.

4 Accomplished Objectives from the CRWMA Management Plan 2014 – 2024

This section is dedicated to reporting the extent to which the Objectives described in the CRWMA Management Plan 2014 – 2024 were successfully completed. Accomplishments for the CRWMA during the 2014 – 2024 planning timeframe are further discussed in more comprehensive detail throughout **Section 5 Management Activities and Intent** of this Management Plan. Additionally, goals and objective for the 2021 – 2031 planning period are outlined in **Section 6 Resource Management Goals and Objectives – 2021 – 2031**.

The following resource management goals and objectives from the 2014 – 2024 CRWMA Management Plan describe the planned activities for the CRWMA during the 2014 – 2024 planning 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.

Goals and Objectives	Percent Accomplished
Habitat Restoration and Improvement Goal 1: Improve extant habitat and restore disturbed areas.	
Short-Term (August 2014 - August 2016)	
Objective 1: Prescribe burn 2,075 acres of designated pyrogenic communities on the area per year. <i>Comment: FWC staff takes advantage of available burn days on the CRWMA.</i>	100%
Objective 2: Maintain 6,289 acres (100%) of designated pyrogenic communities on the area) within 3 - 4-year target fire return interval. <i>Comment: FWC staff take advantage of all available burn days on the CRWMA. Some units on the area have specific weather requirements due to the proximity of roadways, private in-holdings, Rodeheaver Boy's Ranch and the NAS Jax Rodman Bomb target.</i>	70%
Objective 3: Implement the prescribed burn plan. <i>Comment: FWC staff adhere to a general burn plan for the area.</i>	100%
Objective 4: Initiate habitat/natural community improvement through timber thinning on approximately 1,375 acres of mesic and wet flatwoods. <i>Comment: Approximately 1,273 acres of timber thinning was completed on the CRWMA. This acreage was the total recommend acreage from the Forest Management Plan completed during this planning period.</i>	93%

Objective 5: Continue to implement OBVM. <i>Comment: The Objective Based Vegetative Monitoring (OBVM) continues on the area in order to achieve desired future conditions.</i>	100%
Objective 6: Continue to evaluate the need to utilize cattle grazing as a fuel management technique. <i>Comment: The CRWMA continues to administer an active cattle lease.</i>	100%
Objective 7: To enhance pollination of native vegetative communities, initiate procedure for leasing privately operated apiary operations. <i>Comment: The CRWMA continues to administer an active apiary lease.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 8: Prescribe burn 2,075 acres per year of designated pyrogenic communities on the area. <i>Comment: FWC staff takes advantage of available burn days on the CRWMA.</i>	100%
Objective 9: Maintain 6,289 acres (100%) of designated pyrogenic communities on the area) within 3 - 4-year target fire return interval. <i>Comment: FWC staff take advantage of all available burn days on the CRWMA. Some units on the area have specific weather requirements due to the proximity of roadways, private in-holdings, Rodeheaver Boy's Ranch and the NAS Jax Rodman Bomb target.</i>	70%
Objective 10: Continue to implement OBVM. <i>Comment: The OBVM continues on the area in order to achieve desired future conditions.</i>	100%
Objective 11: Continue to roller-chop and mow as needed for habitat maintenance/ fuel management. <i>Comment: The CRWMA continues to use mechanical treatment as necessary for pre-burn fuel treatment as well as boundary line reinforcement.</i>	100%
Objective 12: Initiate habitat/natural community restoration activities including site preparations, tree planting, seed collection, seeding on at least 80 acres east of Dove Field Two East and Tyler Pasture. <i>Comment: Dove field acreage on the CRWMA is in maintenance condition. However, it has been determined that Tyler pasture is not feasible at this time.</i>	50%
Objective 13: In conjunction with OBVM and the Forest Management plan, continue to convert mesic and wet flatwoods communities to a desired future condition of uneven-aged forest. <i>Comment: The FWC has continued to implement OBVM and the forest management plan recommendations on the area, including completing a timber thinning project during the previous planning period.</i>	100%

Objective 14: Continue to evaluate the need to utilize cattle grazing as a fuel management technique. <i>Comment: The CRWMA continues to administer an active cattle lease.</i>	100%
Objective 15: To enhance pollination of native vegetative communities, continue to issue leases for privately operated apiary operations. <i>Comment: The CRWMA continues to administer an active apiary lease.</i>	100%
Imperiled Species Habitat Maintenance, Enhancement, Restoration or Population Restoration Goal 2: Maintain, improve or restore imperiled species populations and habitats.	
Short-Term (August 2014 - August 2016)	
Objective 1: Continue to implement WCPR strategy by managing identified natural communities for focal wildlife species. <i>Comment: FWC staff continue to implement management strategies in the Wildlife Conservation Prioritization and Recovery (WCPR) plan as necessary and appropriate.</i>	100%
Objective 2: As described in the WCPR strategy, monitor gopher frog, striped newt, gopher tortoise, Bachman's sparrow, brown-headed nuthatch, Northern bobwhite and Southeastern American kestrel. <i>Comment: FWC staff continue to monitor imperiled and locally important species on the CRWMA in accordance with the WCPR strategy.</i>	100%
Objective 3: As described in the WCPR strategy, continue to maintain and monitor use of American kestrel nest boxes and the bat house by Rafinesque big-eared bat. <i>Comment: FWC staff continue to maintain and monitor all kestrel boxes and the bat house on the area.</i>	100%
Objective 4: Conduct dip-net survey by 2015 to determine the baseline distribution of breeding ponds for gopher frog on FWC lead areas. <i>Comment: An opportunistic dipnet survey was conducted on the CRWMA in 2015. Further herpetofaunal surveys are scheduled to be completed by 2024, and a dipnet survey will be considered, if deemed appropriate.</i>	100%
Objective 5: Conduct annual call counts to determine relative abundance and distribution of gopher frog. <i>Comment: FWC staff have conducted opportunistic call counts. A gopher frog call survey was completed in 2015 and the species was detected.</i>	100%

Objective 6: Conduct burrow-scoping survey by 2014 on FWC lead areas to determine the baseline abundance and distribution of gopher tortoise. <i>Comment: Burrow surveys have been conducted on the area. However, burrow-scoping was determined unnecessary on the area.</i>	0%
Objective 7: Conduct spring call-back counts annually to track population distribution of Bachman's sparrow. <i>Comment: FWC staff continue to conduct annual surveys for Bachman's sparrow.</i>	100%
Objective 8: Conduct spring call-back counts annually to track population distribution of brown-headed nuthatch. <i>Comment: FWC staff continue to conduct annual brown-headed nuthatch surveys.</i>	100%
Objective 9: Continue to collect opportunistic wildlife species occurrence data. <i>Comment: FWC staff continue to collect opportunistic species occurrence data.</i>	100%
Objective 10: Continue periodic aerial surveys for bald eagle nesting activity. <i>Comment: Bald eagle surveys are conducted every 3 years as part of a larger state-wide program.</i>	100%
Objective 11: As guided by the Florida Black Bear Management Plan continue to cooperate with research and monitoring efforts for the Ocala National Forest/St. Johns population. <i>Comment: FWC staff continue to cooperate as needed with black bear research and monitoring efforts.</i>	100%
Objective 12: Continue to monitor for imperiled plant species utilizing CRWMA staff, FWC Fish and Wildlife Research Institute (FWRI) and OBVM. <i>Comment: The FWC continues to monitor and record known populations of imperiled plant species.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 13: Continue to implement WCPR strategy by managing identified natural communities for focal wildlife species. <i>Comment: FWC staff continue to implement management strategies in the WCPR plan as necessary and appropriate.</i>	100%

Objective 14: As described in the WCPR strategy, monitor gopher frog, striped newt, gopher tortoise, Bachman's sparrow, brown-headed nuthatch, Northern bobwhite and Southeastern American kestrel. <i>Comment: FWC staff continue to monitor imperiled and locally important species on the CRWMA in accordance with the WCPR strategy.</i>	100%
Objective 15: As described in the WCPR strategy, continue to maintain and monitor use of American kestrel nest boxes and the bat house by Rafinesque big-eared bat. <i>Comment: FWC staff continue to maintain and monitor all kestrel boxes and the bat house on the area.</i>	100%
Objective 16: Conduct call counts for gopher frog every three years with sufficient rainfall to determine relative abundance and distribution. <i>Comment: FWC staff have conducted opportunistic call counts. A gopher frog call survey was completed in 2015. However, call surveys have now been discontinued. It is recommended dip net surveys now be performed.</i>	100%
Objective 17: Conduct dip-net survey by 2020 to determine the presence of striped newt and flatwoods salamander on FWC lead areas. <i>Comment: An opportunistic dipnet survey was conducted on the CRWMA in 2015. Further herpetofaunal surveys are scheduled to be completed by 2024, and a dipnet survey will be considered, if deemed appropriate.</i>	100%
Objective 18: Continue to conduct dip-net survey for striped newt and flatwoods salamander in years with sufficient rainfall. <i>Comment: An opportunistic dipnet survey was conducted on the CRWMA in 2015. Further herpetofaunal surveys are scheduled to be completed by 2024, and a dipnet survey will be considered, if deemed appropriate.</i>	100%
Objective 19: Continue to conduct spring call-back counts annually for Bachman's sparrow. <i>Comment: FWC staff continue to conduct annual Bachman's sparrow surveys.</i>	100%
Objective 20: Continue to conduct spring call-back counts annually for brown-headed nuthatch. <i>Comment: FWC staff continue to conduct annual brown-headed nuthatch surveys.</i>	100%
Objective 21: Repeat gopher tortoise burrow-scoping survey every five years to track changes in population distribution. <i>Comment: Burrow surveys have been conducted on the area. However, burrow-scoping was determined not to be needed or necessary.</i>	0%

Objective 22: Continue to collect opportunistic wildlife species occurrence data. <i>Comment: FWC staff continue to collect opportunistic species occurrence data.</i>	100%
Objective 23: Continue periodic aerial surveys for bald eagle nesting activity. <i>Comment: Bald eagle surveys are conducted every 3 years as part of a larger state-wide program.</i>	100%
Objective 24: By 2021, revise and update WCPR strategy. <i>Comment: Currently, FWC staff have the WCPR strategy scheduled to be completed by the end of 2022.</i>	100%
Objective 25: As guided by the Florida Black Bear Management Plan continue to cooperate with research and monitoring efforts for the Ocala National Forest/St. Johns population. <i>Comment: FWC staff continue to cooperate, as needed, with black bear research and monitoring efforts.</i>	100%
Objective 26: Continue to monitor for imperiled plant species utilizing the CRWMA staff, FWC FWRI and OBVM. <i>Comment: The FWC continue to monitor and record known populations of imperiled plant species.</i>	100%
<p align="center">Other Game and Non-game Wildlife Habitat Maintenance, Enhancement, Restoration or Population Restoration.</p> <p align="center">Goal 3: Maintain, improve or restore game and non-game species populations and habitats.</p>	
<p align="center">Short-Term (August 2014 - August 2016)</p>	
Objective 1: Continue to conduct annual spotlight monitoring surveys for white-tailed deer. <i>Comment: FWC staff continues to conduct annual spotlight monitoring surveys for white-tailed deer.</i>	100%
Objective 2: Continue to collect biological harvest data at check station. <i>Comment: FWC staff continues to collect biological harvest data at the check station.</i>	100%
Objective 3: Continue to collect opportunistic wildlife occurrence data. <i>Comment: FWC staff continues to collect opportunistic species occurrence data.</i>	100%
Objective 4: Continue to maintain ~125 acres of dove fields. <i>Comment: FWC staff continues to maintain all dove fields on the area.</i>	100%
Objective 5: Continue to maintain ~50 acres of wildlife food plots. <i>Comment: FWC staff continues to maintain approximately 50 acres of wildlife food plots on the area.</i>	100%

Objective 6: Continue to maintain 12 bluebird boxes. <i>Comment: FWC staff continues to maintain and monitor all bluebird boxes on the area.</i>	100%
Objective 7: Continue to maintain 10 wood duck boxes. <i>Comment: FWC staff continues to maintain and monitor 10 wood duck boxes on the area.</i>	100%
Objective 8: Conduct spring whistle counts annually for Northern bobwhite to track trends in population size for harvest. <i>Comment: FWC staff continues to conduct annual northern bobwhite quail call surveys.</i>	100%
Objective 9: Maintain Southeastern American kestrel and Rafinesque big-eared bat houses annually. <i>Comment: FWC staff continues to annually maintain and monitor kestrel boxes and the main bat house on the area.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 10: Continue to conduct annual spotlight monitoring surveys for white-tailed deer. <i>Comment: FWC staff continues to conduct annual spotlight monitoring surveys for white-tailed deer.</i>	100%
Objective 11: Continue to collect biological harvest data at check station. <i>Comment: FWC staff continues to collect biological harvest data at the check station.</i>	100%
Objective 12: Continue to collect opportunistic wildlife occurrence data. <i>Comment: The FWC continues to collect and record opportunistic wildlife observations on the area.</i>	100%
Objective 13: Continue to maintain ~125 acres of dove fields. <i>Comment: FWC staff continues to maintain all dove fields on the area.</i>	100%
Objective 14: Continue to maintain ~50 acres of wildlife food plots. <i>Comment: FWC staff continues to maintain approximately 50 acres of wildlife food plots on the area.</i>	100%
Objective 15: Continue to maintain 12 bluebird boxes. <i>Comment: FWC staff continues to maintain and monitor all bluebird boxes on the area and has increased the bluebird boxes to 15.</i>	100%
Objective 16: Continue to maintain 10 wood duck boxes. <i>Comment: FWC staff continues to maintain and monitor 10 wood duck boxes on the area.</i>	100%

Objective 17: Continue annual spring call count Northern bobwhite quail surveys. <i>Comment: FWC staff continues to conduct annual northern bobwhite quail call surveys.</i>	100%
Objective 18: Maintain Southeastern American kestrel and Rafinesque big-eared bat houses annually. <i>Comment: FWC staff continues to annually maintain and monitor kestrel boxes and the main bat house on the area.</i>	100%
Exotic and Invasive Species Maintenance and Control	
Goal 4: Remove exotic and invasive plants and animals and conduct needed maintenance and control.	
Short-Term (August 2014 - August 2016)	
Objective 1: Annually treat at least five acres of EPPC Category I and Category II invasive exotic plant species, including tropical soda apple, camphor tree, cogon grass, Chinese tallow, Japanese climbing fern, air potato, natal grass and torpedo grass. <i>Comment: FWC staff continues to annually treat EPPC Category I and II invasive and exotic plant species.</i>	100%
Objective 2: Continue to implement control measures (hunting) on two exotic animal species (wild hog and nine-banded armadillo). <i>Comment: FWC staff continues to use public hunting as a control measure for hog and armadillo populations.</i>	100%
Objective 3: Continue to monitor for occurrences of exotic animals, including armored catfish and greenhouse frog. <i>Comment: FWC staff continues to opportunistically monitor for exotic species on the area.</i>	100%
Objective 4: Evaluate the need to conduct a survey and mapping for exotic and invasive plants on the SJRWMD-owned portion of the CRWMA. <i>Comment: FWC staff continue to monitor known locations of exotic plants on the SJRWMD property. No survey deemed necessary at this time.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 5: Annually treat at least five acres of EPPC Category I and Category II invasive exotic plant species, including tropical soda apple, camphor tree, cogon grass, Chinese tallow, Japanese climbing fern, air potato, natal grass and torpedo grass. <i>Comment: FWC staff continues to monitor and treat FLEPCC Category I and II invasive and exotic plants as needed.</i>	100%
Objective 6: Continue to implement control measures (hunting) on two exotic animal species (wild hog and nine-banded armadillo). <i>Comment: FWC staff continues to use public hunting as a control measure for hog and armadillo populations.</i>	100%

Objective 7: Continue to monitor for occurrences of exotic animals, including armored catfish and greenhouse frog. <i>Comment: FWC staff continues to opportunistically monitor for exotic species on the area.</i>	100%
Public Access and Recreational Opportunities	
Goal 5: Provide public access and recreational opportunities.	
Short-Term (August 2014 - August 2016)	
Objective 1: Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 568 visitors per day. <i>Comment: FWC staff continue to maintain public access and recreational opportunities to support the area's carrying capacity.</i>	100%
Objective 2: Develop additional public access and recreational opportunities to allow for a carrying capacity of 653 visitors/day. <i>Comment: FWC staff has expanded the marked multi-use trail system by 4 miles which has increased the area's carrying capacity to 653 visitors/day.</i>	100%
Objective 3: Continue to provide website, two two-panel kiosks, trail brochure, bird list and SJRWMD recreation guide for interpretation and education. <i>Comment: FWC staff continues to provide interpretive and educational support.</i>	100%
Objective 4: Develop an FWC Recreation Guide. <i>Comment: A Recreation guide for the CRWMA has been completed.</i>	100%
Objective 5: Continue to maintain 5.5 miles of multi-use trails. <i>Comment: FWC staff continues to maintain all multi-use trails on the area.</i>	100%
Objective 6: Design/develop four miles of trails. <i>Comment: FWC staff has established and marked an additional 4 miles of multi-use trails on the area.</i>	100%
Objective 7: Implement recommendations from Recreation Master Plan. <i>Comment: The FWC have continued to implement recommendations from the Recreation Master Plan as feasible and appropriate.</i>	100%
Objective 8: Monitor trails for visitor impacts biannually. <i>Comment: The FWC continues to monitor trails regularly for visitor impacts.</i>	100%
Objective 9: Continue to provide hunting opportunities during archery, special-opportunity dove, supervised small game, muzzle loading, general gun, small game, youth spring turkey, spring turkey and migratory bird hunting seasons.	100%

<i>Comment: FWC staff continues to provide hunting opportunities on the area.</i>	
Objective 10: Continue to provide recreational opportunities including fishing, frogging, hiking, wildlife viewing, horseback riding, bicycling and primitive camping. <i>Comment: FWC staff continues to provide all listed recreational opportunities.</i>	100%
Long-Term (August 2014 – August 2024)	
Objective 11: Continue to monitor trails biannually for visitor impacts. <i>Comment: The FWC continues to monitor trails regularly for visitor impacts.</i>	100%
Objective 12: Continue to maintain 9.5 miles of trails. <i>Comment: FWC staff continues to maintain all multi-use trails on the area.</i>	100%
Objective 13: Continue to provide website, two two-panel kiosks, trail brochure, bird list, SJRWMD recreation guide and FWC recreation guide for interpretation and education. <i>Comment: FWC staff continues to provide interpretive and educational materials for the CRWMA.</i>	100%
Objective 14: Reassess recreational opportunities every three years. <i>Comment: The FWC continues to reassess recreational opportunities regularly on the area, as part of the Recreation Master Plan.</i>	100%
Objective 15: Continue to provide hunting opportunities during archery, special-opportunity dove, supervised small game, muzzle loading, general gun, small game, youth spring turkey, spring turkey and migratory bird hunting seasons. <i>Comment: FWC staff continues to provide hunting opportunities on the area. However, dove hunts are no longer special opportunity and are now regular quota permit.</i>	100%
Objective 16: Continue to provide recreational opportunities including fishing, frogging, hiking, wildlife viewing, horseback riding, bicycling and primitive camping. <i>Comment: FWC staff continues to provide all the listed recreational opportunities.</i>	100%
Objective 17: Cooperate with other agencies, County, stakeholders and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas. <i>Comment: The FWC will continue to cooperate with adjacent public lands on any potential regional recreational opportunities.</i>	100%

Objective 18: Continue to identify partnerships that could provide for environmental educational programs and outreach. <i>Comment: The FWC continues to identify partnerships for potential environmental education and outreach.</i>	100%
Objective 19: To assist with promotion and marketing of the CRWMA, continue to cooperate with County Tourism Development Councils, Chamber of Commerce and other related tourism organizations; link FWC recreation web site resources to appropriate local and regional tourism web sites. <i>Comment: The FWC continues to evaluate promotional and marketing opportunities of the CRWMA. FWC staff have continued to cooperate with County Tourism, Development Councils, Chamber of Commerce and other related tourism organizations.</i>	100%
Hydrological Preservation and Restoration	
Goal 6: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.	
Short-Term (August 2014 - August 2016)	
Objective 1: To maintain and enhance natural hydrological functions, install and maintain low-water crossings and culverts as appropriate. <i>Comment: The FWC continues to maintain and replace low water crossings and culverts as necessary.</i>	100%
Objective 2: Continue to cooperate with the SJRWMD and DEP for the monitoring of surface and ground water quality and quantity. <i>Comment: The FWC conducts monthly surface water monitoring. However, the SJRWMD has discontinued ground water monitoring on the area.</i>	100%
Objective 3: Continue to maintain five water control structures. <i>Comment: FWC staff continues to maintain all water control structures as needed.</i>	100%
Long-Term (August 2014 – August 2024)	
Objective 4: Conduct or obtain a site Hydrology Assessment and Restoration Plan to identify potential hydrology restoration needs by 2019. <i>Comment: The FWC is currently in process of conducting a hydrology assessment of the area.</i>	100%
Objective 5: As recommended by the Hydrology Assessment and Restoration Plan, install and maintain low-water crossings and culverts as appropriate to maintain and enhance natural hydrological functions. <i>Comment: The FWC is currently in process of conducting a hydrology assessment of the area. Once completed, the FWC will work towards implementing recommendations made by the assessment, as feasible and appropriate.</i>	0%

Objective 6: Implement additional restoration activities recommended by the Hydrology Assessment and Restoration Plan where appropriate and feasible. <i>Comment: The FWC is currently in process of conducting a hydrology assessment of the area. Once completed, the FWC will work towards implementing recommendations made by the assessment, as feasible and appropriate.</i>	0%
Objective 7: Continue to maintain five water control structures. <i>Comment: FWC staff continue to maintain all water control structures as needed.</i>	100%
Forest Resource Management	
Goal 7: Manage timber resources to improve or restore natural communities for the benefit of wildlife.	
Short-Term (August 2014 - August 2016)	
Objective 1: Cooperate with the FFS to complete a Timber Assessment by 2015. <i>Comment: Timber assessment, inventory and a management plan have been completed on the area.</i>	100%
Objective 2: Continue contract with The Forestry Company regarding forest management activities and develop a Forest Management Plan by 2015. <i>Comment: Thinning contract and timber management plan have been completed on the area.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 3: Implement the Forest Management Plan including reforestation and harvesting, to meet the restoration and maintenance needs of the natural communities and other goals established for management of the CRWMA. <i>Comment: FWC staff continues to implement the timber management plan as appropriate to meet area goals for natural communities.</i>	100%
Objective 4: Continue contract with the FFS or a professional forestry consultant regarding forest management activities. <i>Comment: FWC staff continues to contract as needed regarding forest management activities.</i>	100%
Cultural and Historical Resources	
Goal 8: Protect, preserve and maintain the cultural resources of the CRWMA.	
Short-Term (August 2014 - August 2016)	
Objective 1: Ensure all known sites are recorded in the Department of Historical Resources (DHR) Master Site file. <i>Comment: The FWC continues to cooperate with the DHR in the management of historical resources found at the CRWMA.</i>	100%

Objective 2: As recommended by the DHR, continue to annually monitor, protect and preserve seven identified sites as necessary. <i>Comment: FWC staff continue to annually monitor all sites recorded on the area.</i>	100%
Objective 3: Coordinate with the DHR to assess the need for conducting a cultural resource survey and to reevaluate the need to continue to monitor select cultural sites. <i>Comment: The FWC coordinates with DHR on all cultural resource needs. A previous survey has been completed on the CRWMA and is deemed satisfactory.</i>	100%
Objective 4: Continue to cooperate with the DHR or utilize trained FWC Staff in designing site plans for development of infrastructure. <i>Comment: The FWC cooperates with DHR in development of infrastructure and/or any other ground disturbing activities as needed and appropriate.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 5: Continue to ensure all known sites are recorded in the DHR Master Site file. <i>Comment: The FWC continues to cooperate with the DHR in the management of historical resources found at the CRWMA.</i>	100%
Objective 6: As recommended by the DHR, continue to annually monitor, protect and preserve seven identified sites as necessary. <i>Comment: FWC staff continues to annually monitor all sites recorded on the area.</i>	100%
Objective 7: As necessary, coordinate with the DHR for FWC staff to receive Archeological Resource Management (ARM) training. <i>Comment: Multiple FWC staff members are ARM trained and continue to take refresher courses as needed.</i>	100%
Objective 8: Continue to cooperate with the DHR or utilize trained FWC Staff in designing site plans for development of infrastructure. <i>Comment: The FWC cooperates with DHR in development of infrastructure and/or any other ground disturbing activities as needed and appropriate.</i>	100%
Capital Facilities and Infrastructure	
Goal 9: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.	
Short-Term (August 2014 – August 2016)	
Objective 1: Continue to maintain 20 facilities (e.g., check station, pole barn). <i>Comment: FWC staff continues to maintain all facilities on the CRWMA.</i>	100%

Objective 2: Continue to maintain 22.2 miles of roads. <i>Comment: FWC staff continues to maintain 27 miles of roads.</i>	100%
Objective 3: Continue to maintain 5.5 miles of trails existing on site. <i>Comment: FWC staff continues to maintain all multi-use trails on the area.</i>	100%
Objective 4: Design/develop 4 miles of trails. <i>Comment: FWC staff expanded the marked multi-use trail system by 4 miles on the CRWMA.</i>	100%
Objective 5: Improve walk-in entrance east of State Road (SR)19 with picnic tables, improved signage and kiosk reorientation. <i>Comment: FWC staff have made several improvements to the walk-in entrance east of SR19, including relocating the existing kiosk, adding new interpretive panels, replacing the secondary entrance sign and adding a picnic table.</i>	100%
Objective 6: Assess the condition of the CRWMA buildings and structures (e.g., equipment shed at the terminus of Shop Road, check stations, administrative buildings, staff residences). <i>Comment: All buildings and structures continue to be assessed as needed. The shop building has been replaced during this planning period and office space and residences have been repaired and improved as needed and appropriate.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 7: Monitor trails and infrastructure biannually for visitor impacts. <i>Comment: The FWC continues to monitor trails for visitor impacts.</i>	100%
Objective 8: Construct parking facility west of SR19. <i>Comment: FWC staff have completed the planning and design stage for the proposed parking area. However, the bids obtained for the project exceeded all budget estimates. Project is currently being re-budgeted and will be re-bid in 2020/21.</i>	0%
Objective 9: Continue to maintain 20 facilities. <i>Comment: FWC staff continues to maintain all facilities on the CRWMA.</i>	100%
Objective 10: Continue to maintain 22.2 miles of roads. <i>Comment: FWC staff continues to maintain 27 miles of roads.</i>	100%
Objective 11: Continue to maintain 9.5 miles of trails existing on site. <i>Comment: FWC staff continues to maintain 9.5 miles of multi-use trails.</i>	100%
Objective 12: Improve or repair five facilities (two picnic, outhouse hammock, main entrance, walk-in entrance) by 2019. <i>Comment: FWC staff have completed several improvements to the main and walk-in (trail head) entrances. Additionally, outhouse hammock was cleaned and several picnic tables have been replaced.</i>	100%

Objective 13: Based on results of the assessment of the CRWMA buildings and structures, improve, repair or construct and replace as necessary and feasible. <i>Comment: After an assessment was completed for the area, the shop building was replaced. Additionally, office space and residences have had electrical and structural updates based on results of inspections.</i>	100%
Land Conservation and Stewardship Partnerships: Goal 10: Enhance wildlife conservation, resource and operational management through development of an optimal boundary. Short-Term (August 2014 - August 2016)	
Objective 1: Identify 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. <i>Comment: During the development of the CRWMA Management Plan, the FWC developed an Optimal Conservation Planning Boundary (OCPB) for the area to determine potential habitat and resource needs in order to further enhance the area.</i>	100%
Objective 2: Develop a Conservation Action Strategy. <i>Comment: The FWC has developed a Conservation Action Strategy for the CRWMA.</i>	100%
Objective 3: Contact and inform adjoining landowners about the FWC LAP to pursue non-acquisition conservation stewardship, partnerships and potential conservation easements. <i>Comment: FWC staff regularly discusses the voluntary Landowner's Assistance Program with multiple adjoining landowners.</i>	100%
Objective 4: Identify and recommend parcels for addition to the FWC acquisition list. <i>Comment: FWC staff developed an OCPB for the CRWMA, and the FWC has identified nominations to the FWC Additions and Inholdings list that will be completed before the end of this planning period and included in the updated management plan.</i>	100%
Objective 5: Identify potential non-governmental organization partnerships and grant program opportunities. <i>Comment: The FWC continues to work towards identifying partnerships and grant opportunities as needed and appropriate.</i>	100%
Objective 6: Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop. <i>Comment: The FWC assessed the need and feasibility of a landowner's assistance/conservation stewardship partnership workshop and determine it unnecessary at this time.</i>	100%
Objective 7: Obtain an updated digitized survey and GIS shapefile of the CRWMA boundary.	100%

<i>Comment: FWC staff completed a refinement/correction of boundary shapefile as a needed update due to a property acquisition.</i>	
Objective 8: Apply for a lease from DEP's Division of State Lands for the sovereign submerged lands adjacent to the CRWMA's survey boundary and the St. Johns River. <i>Comment: The FWC continues to work with the DEP and SJRWMD to rectify the boundary of the CRWMA due to adjacent sovereign submerged lands.</i>	0%
Objective 9: Evaluate and determine if any portions of the CRWMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands. <i>Comment: The FWC continues to evaluate lands and their role in promoting conservation and maintaining the area's habitat. At this time there are no lands on the CRWMA that have been assessed to be designated as surplus lands.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 10: To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed optimal conservation planning boundary for the CRWMA as deemed necessary. <i>Comment: During the development of the CRWMA Management Plan, the FWC developed an OCPB for the area to determine potential habitat and resource needs in order to further enhance the area and continues to maintain and revises this boundary as necessary.</i>	100%
Objective 11: Continue to identify and recommend parcels for addition to the FWC acquisition list. <i>Comment: FWC staff developed an OCPB for the CRWMA, and the FWC has identified nominations to the FWC Additions and Inholdings list that will be included in the updated management plan.</i>	100%
Objective 12: Pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow. <i>Comment: FWC staff developed an OCPB for the CRWMA and have identified nominations to the FWC Additions and Inholdings list. As necessary and feasible, the FWC, with assistance from DEP, continue to work towards acquiring additions and inholdings for the CRWMA.</i>	100%
Objective 13: Coordinate landowner assistance/ conservation stewardship partnership workshop as deemed appropriate. <i>Comment: The FWC assessed the need and feasibility of a landowner's assistance/conservation stewardship partnership workshop and determine it to be unnecessary at this time.</i>	100%
Objective 14: Periodically (at least every three to five years) continue to contact and meet with adjacent landowners for willingness to participate in the Conservation Action Strategy. <i>Comment: FWC staff regularly interacts with multiple adjoining landowners and talk with them about the voluntary Landowners</i>	100%

Assistance Program and the Conservation Action Strategy for this area.	
<p style="text-align: center;">Climate Change</p> <p style="text-align: center;">Goal 11: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on natural resources, including fish and wildlife, and the operational management of the CRWMA.</p>	
Long-Term (August 2014 - August 2024)	
Objective 1: Coordinate with FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the CRWMA. <i>Comment: The FWC staff continues to implement this ongoing objective.</i>	100%
Objective 2: Incorporate appropriate climate change monitoring protocols and management strategies into the OBVM program for the CRWMA. <i>Comment: The FWC continues to implement this ongoing objective.</i>	100%
Objective 3: Incorporate appropriate climate change adaptation strategies into the WCPR for the CRWMA. <i>Comment: The FWC continues to implement this ongoing objective.</i>	100%
Objective 4: As appropriate, update the CRWMA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of the CRWMA's fire-adapted habitats. <i>Comment: The FWC continues to implement this ongoing objective.</i>	100%
Objective 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 Recreation Master Plan. <i>Comment: The FWC continues to implement this ongoing objective.</i>	100%
<p style="text-align: center;">Research and Educational Opportunities</p> <p style="text-align: center;">Goal 12: Explore and pursue cooperative research and educational opportunities.</p>	
Short-Term (August 2014 - August 2016)	
Objective 1: Continue to utilize the cattle grazing vegetation research and monitoring efforts to determine the affects of cattle grazing on natural communities <i>Comment: The cattle grazing impact study has been discontinued by Fish and Wildlife Research Institute (FWRI) staff and is no longer occurring on the area.</i>	0%
Objective 2: Continue to monitor adaptive management research plots through the FWC FWRI.	50%

<i>Comment: The monitoring of adaptive management research plots has occurred on the CRWMA, however now have been discontinued by FWRI staff.</i>	
Objective 3: Continue to cooperate with researchers, universities and others as appropriate. <i>Comment: The FWC continues to cooperate and evaluate all potential researchers and organizations that may want to utilize the area, as appropriate.</i>	100%
Objective 4: Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate. <i>Comment: The FWC continues to evaluate the need to pursue further partnerships in order to enhance the management of the area.</i>	100%
Objective 5: Continue to cooperate with University of Florida to provide a student internship program and access to the CRWMA for academic field classes. <i>Comment: Due to housing requirements, the University of Florida (UF) student intern program was discontinued during this time. However, FWC staff continued to conduct field days for UF wildlife students as requested.</i>	100%
Long-Term (August 2014 - August 2024)	
Objective 6: Continue to monitor adaptive management research plots through the FWC FWRI. <i>Comment: The monitoring of adaptive management research plots has occurred on the CRWMA, however now have been discontinued by FWRI staff.</i>	50%
Objective 7: Explore and pursue cooperative research opportunities through universities, FWRI, etc. <i>Comment: The FWC continues to cooperate and evaluate all potential researchers and organizations that may want to utilize the area, as appropriate.</i>	100%
Objective 8: Continue to cooperate with researchers, universities, and others as appropriate. <i>Comment: FWC staff continues to cooperate with researchers and universities as appropriate.</i>	100%
Objective 9: Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate. <i>Comment: FWC staff continues to assess and pursue research and environmental education partnership opportunities as appropriate.</i>	100%
Objective 10: Continue to utilize the cattle grazing vegetation research and monitoring efforts to determine the effects of cattle grazing on natural communities. <i>Comment: The cattle grazing impact study has been discontinued by FWRI staff.</i>	0%

Objective 11: Continue to cooperate with University of Florida to provide a student internship program and access to the CRWMA for academic field classes. <i>Comment: The FWC continues to cooperate with the UF to provide student internship positions on the CRWMA and looks to continue this ongoing objective in the future.</i>	100%
---	------

5 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve or otherwise use fragile natural resources and nonrenewable historical resources. In general, the FWC management intent for the CRWMA 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 the FWC's intent to provide quality fish and wildlife resource-based public outdoor recreational opportunities on the CRWMA. 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

On-site reviews of conservation and recreation lands that exceed 1,000 acres and are titled in the name of the Board of Trustees are required every five years by section 259.036, F.S. These reviews determine whether the lands are being managed for the purposes for which they were acquired and whether they are being managed in accordance with their land management plan adopted pursuant to section 259.032, F.S. According to statute, the review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

A land management review of the CRWMA was conducted in April of 2019, and the results of that review and the FWC responses to recommendations are included as Appendix 12.5. It was determined that the CRWMA is being managed in accordance with the purposes for acquisition and that management practices, including public access, are in compliance with the management plan.

5.2 Adaptive Management

Adaptive management is "learning by doing";⁶ 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.^{6, 7} 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.^{6, 7} 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.^{6, 7}

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

5.2.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of the CRWMA. 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.⁶

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 locally important fish and wildlife species, monitoring protocols are established through the FWC's Wildlife Conservation Prioritization and Recovery (WCPR, Section 5.4.2) program. FWC staff may monitor additional fish and wildlife species when deemed appropriate. Non-native and invasive plant and animal species (Section 5.5) are also monitored as

needed and appropriate. Recreational uses are monitored through the FWC's Public Access Services Office (PASO) program, and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 5.6.3). Historical resources (Section 5.9) are monitored with guidance from the Florida 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 CRWMA Management Plan serves as the guiding framework to implement this adaptive management process. It serves as the underpinning for the integration of management programs (OBVM, WCPR, PASO, Recreation Master Plans, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of the CRWMA and resolve conservation threats to fish and wildlife and the habitats they occupy. Based on evaluations of project results, the conservation actions are revised as necessary, and the adaptive management process is repeated.

5.3 Habitat Restoration and Improvement

On the CRWMA, the 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 CRWMA has high-quality native communities including floodplain swamp and mesic flatwoods that the FWC will continue to manage and protect. On disturbed upland sites, the FWC intends to continue natural community restoration.

FNAI has conducted surveys and mapped the current vegetative communities and historic vegetation communities on the CRWMA. 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 the CRWMA. 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 management.

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

After natural communities have been mapped, FWC land managers will identify those natural communities that will influence and guide management decisions, known as the actively managed natural communities. Through OBVM monitoring, the FWC collects data on a number of specific vegetation attributes that provide insight about the condition of the natural community. Because the 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. The FWC collaborated with FNAI to identify 'reference sites' for each actively managed natural community and applied the OBVM monitoring methodology at these reference sites to determine what attribute values occur in a high-quality community (<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 provide FWC staff with baseline data indicating natural community structure, distribution and condition on the area. Comparing the subsequent monitoring results to desired future conditions, provides important operational information on a natural community's vegetation structural status at a given point in time and trend over time. Using this information, managers can evaluate, adjust and modify their management practices to meet the stated objectives. By comparing natural community mapping products through the years, managers can track progress in moving altered communities to functioning natural communities.

5.3.2 Prescribed Fire and Fire Management

Periodic spring and summer fires occurred in fire-adapted communities under natural conditions. Plant species composition reflects the frequency and intensity of these fires. In the absence of fire, fallow fields on former longleaf sites follow a successional pattern through mixed pine-hardwood forests to an exclusively hardwood community rather than to the original plant community. The plant species composition may differ slightly on poorer soils of the slash pine flatwoods, but the dominant role of fire in controlling hardwoods is equally important in either ecosystem.

Timber removal, site preparation, 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 CRWMA 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 landscape will have characteristics of both frequently and infrequently burned area, benefitting the greatest suite of flora and fauna.

On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. 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. 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 1-3 years, preferably during the spring and early summer months.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan has been developed and implemented for the CRWMA. During this planning period, the Prescribed Fire Plan is planned to be updated. This plan includes, but is not limited to, delineation of burn management units, detailed descriptions of prescribed fire methodology and safety and smoke management guidelines.

During the previous planning period, 90% of the area's fire adapted communities have been treated with prescribed fire. The FWC plans to continue prescribed burning on 100% of the area's fire adapted communities. Achieving this goal requires burning approximately 33% of the area per year to maintain recommended fire return intervals in these communities. Currently, approximately 75% of the fire managed communities are within return intervals. Some challenges to achieving the set burning goals include availability of favorable weather conditions and water levels, smoke management considerations and adjacent private and federal lands. The continuing benefits of prescribed fire on the area's wildlife habitats, along with other ongoing habitat restoration activities that are being implemented on CRWMA, are discussed in more detail below.

5.3.3 Habitat Restoration

Significant habitat management activities have taken place within many of the natural communities within the CRWMA over the course of the previous management period. Since 2014 most of the management units with fire-adapted natural communities have been treated with prescribed fire, some on a repeated basis as established within the management plan. This has aided in the restoration of native ground cover and improved wildlife habitat throughout the CRWMA. In addition to conducting prescribed burning, roller chopping, mowing or mulching has been conducted on 3,375 acres to either treat fuels prior to burning, perform as stand-alone treatments or activities associated with range and dove field management. Some areas, not in native communities, associated with the active cattle lease are difficult or impossible to manage with fire due to low fuel loads, and mowing or mulching is necessary to set back the successional stage of the habitat. Timber thinning was completed on 1,273 acres to improve natural community structure and habitat value across the area. Established groundcover restoration areas have been maintained as needed and a hydrological assessment being completed for the area will help determine feasibility of further restoration efforts on the altered areas east of SR19.

In addition to prescribed burning activities, and OBVM, natural communities on the CRWMA that may undergo some level of habitat restoration include mesic, wet and scrubby flatwoods. Continuing habitat management activities on the CRWMA will focus on enhancing natural communities, maintaining recommended fire return intervals for fire adapted communities, treating and removing non-native and invasive plant species and controlling vegetation through mowing and roller chopping as needed. Invasive species control is more extensively discussed in Section 5.5, below. Further specific habitat management and improvement objectives planned for CRWMA are described in Section 6 below.

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

5.4.1 Fish and Wildlife

Due to the variety of natural communities, a diversity of associated wildlife, including rare, imperiled, common game and non-game species, can be found on the CRWMA. In managing for wildlife species, an emphasis will be placed on conservation, protection and management of natural communities. As noted above, natural communities important to wildlife include mesic flatwoods, mesic hammock, floodplain swamp, hydric hammock and wet flatwoods. Natural communities that are less represented on the CRWMA include baygall, basin swamp, depression marsh and scrubby flatwoods.

The size and natural community diversity of the CRWMA creates a habitat mosaic for a wide variety of wildlife species. Resident wildlife will be managed for optimum richness, diversity and abundance. In addition to resident wildlife, the CRWMA provides resources critical to many migratory birds including waterfowl, passerines, raptors and others. Habitats important to 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 are 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 monitoring emphasis is placed on documenting the occurrence and abundance of rare, imperiled and locally important 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 Locally-Important Species: Wildlife Conservation Prioritization and Recovery

The FWC has identified the need to: 1) demonstrate optimal wildlife habitat conservation on FWC-managed lands; 2) develop science-based performance measures to evaluate management; 3) recover imperiled species; and 4) prevent future imperilment of declining wildlife species. To help meet these needs, the FWC uses a comprehensive resource management approach to 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 the 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 locally-important species and the recovery of imperiled species. The WCPR program objectives include prioritizing what the FWC does for imperiled and locally important species on the 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 the FWC take a proactive, science-based approach to species management on the FWC-managed lands, 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 locally-important species which are the focus of the WCPR program. Staff combines these assessments with area-specific management considerations to develop a Species Management Strategy for the area. Each Strategy contains area-specific measurable objectives for managing priority species and their habitat, prescribes management actions to achieve these objectives and identifies monitoring protocols to verify progress towards meeting the objectives. By providing the FWC managers with information on actions they should undertake, the FWC intends for the Strategy to assure the presence and persistence of Florida's endangered and threatened fish and wildlife species (see <https://myfwc.com/media/1945/threatend-endangered-species.pdf>), as well as select WCPR locally important species found on the area.

In summary, for the FWC-managed areas, the WCPR program helps assess imperiled and locally-important wildlife species needs and opportunities, prioritize what the FWC does for imperiled and locally-important 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, the FWC will facilitate fulfilling the needs of locally important and imperiled wildlife species on the CRWMA. In the long-term, by implementing these strategies on FWC-managed lands and continuing to assess wildlife species' needs, the FWC will continue to play an integral role in aiding the recovery of imperiled species and preventing the future imperilment of declining wildlife species.

During the previous planning period, surveys were conducted for the following species during the implementation of the Strategy: gopher frog, striped newt, Bachman's sparrow, brown-headed nuthatch and northern bobwhite. In addition, surveys were conducted annually for white-tailed deer and a stationary and a mobile acoustic survey was conducted for bat species. The FWC monitored all existing nest boxes including three Southeastern

American kestrel nest boxes, 15 eastern bluebird nest boxes, ten wood duck nest boxes and five bat houses, including a concrete column bat house which has been occupied by Rafinesque's big-eared bats. In addition to implementing the Strategy during the next planning period, inventory-style monitoring of terrestrial taxa groups will be implemented over a 10-year period in an effort to develop a comprehensive species list for the area.

5.5 Non-native 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 and II plants on the CRWMA. 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.

Non-native and invasive plant species known to occur on the CRWMA and treated annually by the FWC include awned halfchaff sedge, bahiagrass, Bermudagrass, Brazilian vervain, camphor tree, chamber bitter, Chinese tallow/popcorn tree, chocolateweed, cogongrass, Colombian waxweed, common dayflower, gambian dayflower, Japanese clover, jungle rice, low flatsedge, nakedstem dewflower, pangolagrass, purple sesban, shortleaf spikesedge, torpedo grass, tropical Mexican clover, tropical soda apple and vaseygrass (Table 5). Non-native and invasive plant species have been identified as occurring at varying densities on the CRWMA. However, the FWC's methodology for determining the number of acres "infested" with invasive and non-native plants only represents a cumulative acreage and does not reflect the degree of the invasive occurrence. The degree of infestation among areas identified with invasive and non-native 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 and non-native plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring.

Additionally, the FWC will continue efforts to control the introduction of non-native and invasive species, as well as pests and pathogens, on the CRWMA 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, the FWC implements a proactive approach to controlling the introduction of non-native pests and pathogens to the area.

An non-native animal species of concern on the CRWMA is the feral hog. These animals have high reproductive rates, and when populations reach high densities, feral hogs can significantly degrade natural communities through foraging activity (rooting). The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate feral hog control measures as necessary. Feral hog populations are controlled by hunts during archery, small game, general gun and muzzleloading gun. Feral hog populations may also be controlled by trapping, as necessary and appropriate, to aid in minimizing the negative impacts caused by feral hog populations on the area.

Currently, maintenance and control of invasive and non-native plant species (Table 5) continues to be a management challenge at the CRWMA. During the previous 10-year planning period, the FWC continued to implement extensive non-native and invasive species control and maintenance activities throughout the CRWMA. These included non-native plant species treatments on a total of 325 acres within areas classified as infested, however this area is now considered in maintenance condition. An estimated 1,500 acres of the CRWMA remains classified in an infested condition. This area currently has an active cattle lease so will not be treated at this time. The FWC will continue to focus control and maintenance activities on areas identified as having invasive and non-native plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring activities. Ongoing invasive plant species objectives and challenges for the CRWMA are further detailed in Sections 6 – 7 below.

5.6 Public Access and Recreational Opportunities

To facilitate wildlife viewing recreational opportunities on the area, the FWC has continued to establish and maintain multi-use trails, kiosks, picnic areas and several other recreational and interpretative opportunities for the public. During the previous 10-year planning period, the FWC completed several public access, recreational and facility improvements on the CRWMA, including expanding the multi-use trail system by adding four miles of trails on the area, completing a new recreation guide, adding new interpretive panels, relocating an existing kiosk, replacing the secondary entrance sign and adding a picnic table at the walk-in entrance east of SR19. Further planned public access facility improvements are detailed in Section 6 below. Ongoing public access and recreational opportunity management challenges are addressed in Section 7 below. In addition, the FWC will continue to implement public access, recreational and educational opportunities on the area in accordance with the CRWMA Recreation Master Plan.

5.6.1 Americans with Disabilities Act

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

where the law allows reasonable exceptions. Recreation facilities in semi-primitive or primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA⁹ where:

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

5.6.2 Recreation Master Plan

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife resource-based public outdoor recreational opportunities for the CRWMA. To accomplish this, the FWC have worked with recreational stakeholders and the general public to develop a Recreation Master Plan for the CRWMA. The Recreation Master Plan was completed in November 2013 and will be used to further design and develop appropriate infrastructure that will support the recreational use of the area by the general public. This Recreation Master Plan includes planning for parking, trail design and area resource interpretation.

5.6.3 Public Access Carrying Capacity

Baseline carrying capacities for users on the 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 the FWC-managed areas desire. Carrying capacities are just a first step, management of recreational use requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing and fish and wildlife resource-based public outdoor recreation opportunities. Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, the FWC has determined that the CRWMA can currently support 653 visitors per day. It is important to note that public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the

respective area in order to protect the natural and historical resources on the CRWMA and to ensure that visitors will have a high-quality visitor experience. The public access carrying capacity will be periodically reevaluated, and additional capacity may be contemplated as part of the Recreation Master Plan development and implementation process.

5.6.4 Wildlife Viewing

The CRWMA affords a wide variety of native wildlife species, both resident and seasonally migratory, that are available for visitors' enjoyment for observation and photography. The quality and diversity of habitats found on the CRWMA attract an equally diverse suite of wildlife species including waterfowl and wading bird species in the wetlands, passerine bird species in the uplands, and various mammalian, reptilian and amphibian wildlife throughout the CRWMA. The CRWMA is part of the Great Florida Birding Trail, a network of 515 sites throughout Florida selected for their excellent bird watching, wildlife viewing or educational opportunities.

5.6.5 Hunting

The CRWMA currently offers several hunting opportunities, including archery, dove, supervised small game, muzzleloading gun, general gun, small game, youth spring turkey, spring turkey and migratory bird hunting seasons. An evaluation of the hunting opportunities offered on the CRWMA is performed by the FWC periodically.

5.6.6 Fishing

Fishing is available at all water bodies within the CRWMA. Shoreline fishing for bass, catfish and panfish is available on Camp Branch Creek and large concrete culverts provide a stable place to fish. There is no boating access on the WMA but there are boat ramps at the nearby Rodman Reservoir and the Ocklawaha River.

5.6.7 Boating

There are no boating or paddling opportunities on the CRWMA but there is excellent paddling on the St. Johns River along the eastern boundary and Ocklawaha River along the western and southern boundary. There are boat ramps at the nearby Rodman Reservoir and on the Ocklawaha River.

5.6.8 Trails

Currently, the CRWMA offers over 9.5 miles of multi-use trails available for its users. Some trails are accessed from the walk-in entrance on the east side of SR19, while others are accessed on the west side of SR19 across from the main entrance. These trails to the east of SR19 are well-shaded and traverse the hammocks along the Ocklawaha River floodplain. There are two picnic shelters located on the trails. Trails west of SR19 go through wet flatwoods, mesic flatwoods, xeric hammock and a small number of scrubby flatwoods. An adjacent trail resource is the congressionally designated Florida National

Scenic Trail, located on the CRWMA and the OGT-lead managed portion of the CRWMA north of the FWC lead-managed area.

5.6.8.1 Bicycling

Bicycling is permitted year-round on the CRWMA.

5.6.8.2 Equestrian

Horseback riding continues to be a popular activity on the CRWMA. The FWC will continue to work with outfitters and horse trail ride operations.

5.6.9 Camping

Currently, primitive camping on the CRWMA is permitted at the designated location on SR19 at the main entrance. Camping is allowed at the site for no more than 14 days within a 30-day period. This primitive camping area will continue to be monitored for user impacts and maintained appropriately. Additional full service and primitive camping opportunities exist at the Rodman Campground on the Marjorie Harris Carr Cross-Florida Greenway adjacent to the CRWMA.

5.6.10 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.

It is the policy of the FWC to allow placement of geocaches only in those locations that do not present the potential for resource damage, user conflicts, or threats to the safety of the activity participants. The placement of geocaches on the FWC-managed lands is governed by specific guidelines. These guidelines may be found on the following the FWC website: <https://myfwc.com/license/public-land-use/geocaching/guidelines/>.

5.7 Hydrological Preservation and Restoration

5.7.1 Hydrological Assessment, Restoration and Management

In cooperation with the SJRWMD, a Hydrology Assessment and Restoration Plan will be completed during the fiscal year of 2020-2021. Pursuant to the recommendations of the Hydrology Assessment and Restoration Plan, the FWC will implement hydrological restoration as feasible and appropriate. Part of this assessment will address the possibility of negative impacts on private property within the area due to any restoration activities that will significantly alter current hydrology. These potential impacts may be the

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

determining factor in deciding what, if any, restoration projects are pursued. Additionally, some of these artificially created areas are now themselves considered functioning wetlands and will require mitigation if they are negatively altered. Any projects that involve the filling or plugging of ditches have to be weighed against possible damage to infrastructure, in particular roads, during periods of heavy rain and high water.

A hydrological restoration project involving Camp Branch Creek was completed in February 2011. A 5,000-foot portion of the creek ran through a ditch created in the late 1960s that lies just north of the historic creek bed. During periods of normal water flows, this ditch would hold the entire creek flow as it moved toward the St. Johns River. The restoration project returned water to the historic creek channel by filling the ditch.

The State of Florida Canal Authority managed the DEP-OGT portion of the CRWMA during the 1930s. The canal authority was authorized to construct and maintain the barge canal in 1935. The barge canal bisects the DEP-OGT property and connects the St. Johns River to the Rodman reservoir. Currently, a structure with a flap gate, located on the south bank of the barge canal, regulates the flow of Camp Branch Creek into the CRWMA. The amount of water flowing through Camp Branch Creek is affected by the water level in the barge canal and the position of the gate, restricting natural hydrology to the CRWMA. When levels in the canal are high, water levels in the creek also stay high. During drawdowns, the structure is exposed, and the creek is cut off from its headwaters. The FWC will continue to work with the DEP to resolve functioning of this structure to improve hydrological function of Camp Branch.

The FWC will continue to maintain five water control structures as an alternative to filling ditches pending the hydrological assessment of offsite impacts. These structures allow the FWC to retain some water on the property while still being able to release it during significant weather events that may damage state or private infrastructure.

To maintain acceptable access to the area for visitors and staff during all weather conditions, the FWC will continue to install, repair and maintain low-water crossings and culverts as appropriate.

The Coastal Plains Institute and the University of Florida, Gulf Coast Research and Education Center conducted an inventory and restoration assessment and published a report titled, "Inventory, Assessment, and Restoration Potential of Ephemeral Wetlands on FWC Wildlife Management Areas." The project serves to assist land managers by identifying, inventorying and assessing the restoration need of ephemeral wetlands on the CRWMA.

5.8 Forest Resource Management

A Forest Management Plan for the CRWMA was conducted by The Forestry Company in August 2016. The management of timber resources will be considered in the context of the

Forest Management Plan and the overall land management goals and activities. A copy of this forest management plan is available upon request by contacting the Land Conservation and Planning office at (850) 487-7063.

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, the FWC will continue to manage timber resources for wildlife benefits and natural community quality. Management activities including the use of timber thinning and harvesting may be utilized. When natural pine regeneration is less than desired, management actions can be undertaken, and seasonally timed, that will maximize pine seed catch, promote seedling establishment, and maximize seedling survival. However, where natural regeneration is unlikely, supplemental plantings of pine seedlings may be necessary. Planting trees on these sites is used to better ensure successful restoration. Snags will also be protected to benefit cavity-nesting species.

5.9 Historical Resources

Procedures outlined by the DHR will be followed to preserve the historical sites of the CRWMA. The FWC will consult with the DHR in an attempt to locate any additional historical features on the area. In addition, the FWC will ensure management staff has the DHR Archaeological Resources Monitoring training. The FWC will refer to and follow the 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, the FWC will contact professionals from the DHR for assistance prior to any ground-disturbing activity on the CRWMA.

To date, the DHR Master Site File indicates nine known historic sites on the CRWMA (Appendix 12.14). The FWC will submit subsequently located historic sites on the CRWMA to the DHR for inclusion in their Master Site File. Additionally, the FWC will continue to monitor the currently known nine sites that are located on the area on an annual basis.

5.10 Capital Facilities and Infrastructure

The FWC's land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure necessary to effectively conduct operational and resource management activities and provide ample opportunities for fish and wildlife resource-based public outdoor recreation.

For these reasons, planned capital facilities and infrastructure will focus on improving access, recreational potential, hydrology or other resource and operational management objectives.

Current capital facilities and infrastructure on the CRWMA include:

- One trail footbridge
- Two trail shelters
- Camping area
- Equipment Compound (shed, two pole barns)
- Office Area
- Small residence/pump house
- Sign shop
- Large residence with pump house
- Main residence with a carport and shed
- Entrance (kiosk, check station and pump house)
- Outhouse Hammock (old pitcher pump structure)
- 11 Parking Areas
- 9.5 miles of designated trails
- 27 miles of roads

As described in Section 2.4.1 of this Management Plan, for any public facilities that are developed on areas managed by the FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336). Additionally, for any proposed new facilities outlined in Section 6.9, the FWC will coordinate with all appropriate partners and agencies, including DHR and Florida Department of Transportation (FDOT), in the development of new projects.

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

The OCPB provides the basis for development of a broader CAS for the CRWMA. The OCPB developed for the CRWMA can be found in Appendix 12.17. 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 (Appendix 12.17) is the third tier and implements the results of the ORB and OCPB tiers. This element of the process incorporates the conservation planning recommendations into an action strategy that prioritizes conservation needs. The CAS is integral to the development of conservation stewardship partnerships and also implements the current approved process for establishing the FWC Florida Forever Inholdings and Additions acquisition list.

Primary components of the CAS may include:

- FWC Landowner Assistance Program
- FWC conservation planning

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

The FWC Additions and Inholdings Acquisition list identifies lands within or adjacent to FWC-managed areas that are important for the conservation of fish and wildlife, serve as a link or corridor to other publicly owned property, enhance the protection or management of the property, would create a more manageable boundary configuration, have a high resource value that would otherwise be unprotected or that could be acquired at substantially less than fair market value. Parcels on the list have been ranked high, medium or low priority based on a score generated by a GIS-based resource evaluation model, along with technical input from FWC staff.

The order of acquisition priority may be changed as necessary based on factors including available funding necessary to complete a particular acquisition project, changing development pressures, landowner willingness, funding partnerships, and unique acquisition opportunities like bargain sales (less than 80% of appraised value), and donations.

The FWC Additions and Inholdings list is updated through time, thus staying up-to-date for land ownerships, County parcel records, land conservation opportunities and evolving

management challenges. The FWC continually analyzes, evaluates and prioritizes its recommended conservation actions in a systematic, comprehensive, and consistent manner over time. Participation in any of these FWC acquisition efforts is entirely voluntary and at the sole choice of willing landowners.

Currently, the FWC has identified 3,890 acres of potential additions or privately held inholdings for the CRWMA. In addition, 54,367 acres of the Etoniah/Cross Florida Greenway Florida Forever project remain to be acquired, and several parcels with the Strategic Managed Area Lands Florida Forever Project. More information is found within the CRWMA CAS in Appendix 12.17, and additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended.

5.12 Research Opportunities

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

5.13 Cooperative Management and Special Uses

5.13.1 Cooperative Management

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

5.13.2 First Responder and Military Training

First-responder (public governmental police department or agency, fire and emergency medical service personnel) training and military training are conditionally allowed on the CRWMA. Such activities are considered allowable uses only when undertaken intermittently for short periods of time, and in a manner that does not impede the management and public use of the CRWMA and causes no measurable long-term impact to

the natural resources of the area. Additionally, FWC staff must be notified and approve the training through issuance of a permit prior to any such training taking place on the CRWMA. Any first-responder or military training that is not low-impact, intermittent and occasional would require an amendment to this management plan, and therefore will be submitted by the FWC to the DSL and ARC for approval consideration prior to authorization.

5.13.3 Cattle Grazing

Cattle grazing is also utilized as a management tool on a portion of the CRWMA and there is currently one cattle grazing agreement that is active on the area. Approximately 1,687 acres of the CRWMA is under a cattle grazing agreement (Contract #15200). This cattle grazing agreement was executed in 2016 and this cattle grazing lease will go through a re-bid process in 2021. Cattle grazing agreements are utilized as management tools to facilitate the wildlife and habitat management of the CRWMA, and they are subject to cattle grazing plans that delineate best practices for grazing activity on the area. As previously discussed, these cattle grazing agreements generate revenues for the State of Florida (Section 3.2.1).

The cattle grazing agreement is subject to Prescribed Grazing Plans which ensure that cattle grazing is used as a tool to assist in the management of wildlife habitat and allows for grazing to be adjusted in order to address management and resource concerns. These Prescribed Grazing Plans set forth cattle stocking rates and grazing systems in order to manage wildlife habitat and maintain stable and desired plant communities.

5.13.4 Apiaries

Currently, there is one apiary agreement (Contract# 18181) operating on the CRWMA. Use of apiaries is conditionally approved for the CRWMA, and is deemed to be consistent with purposes for acquisition, is in compliance with the Conceptual State Lands Management Plan, and is consistent with the FWC agency mission, goals and objectives as expressed in the Agency Strategic Plan and priorities document (Appendix 12.9). Location, management and administration of apiaries on the CRWMA will be guided by the FWC Apiary Policy (Appendix 12.10).

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.¹¹

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;^{12, 13,} ¹⁴ more frequent invasions and outbreaks of invasive species;¹³ and loss of habitat in coastal areas due to sea level rise.¹⁵ 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.¹⁶ 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, the 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 non-native and invasive species. Currently, the 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 the FWC can take are to work with partners to gather the best scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive management strategies to enhance the resiliency of natural communities to adapt to climate change and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a species. To this end, when appropriate, the FWC will participate in organizations such as the Peninsular Florida Land Conservation Cooperative or similar organizations so that the FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, the 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.

To address the potential impacts of climate change on the CRWMA, Goals and Objectives have been developed as a component of this Management Plan (Section 6.11). Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the CRWMA 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 – 2021-2031

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted during this planning period in order to achieve an overall desired future outcome for the CRWMA. 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 (2021-2023) or long-term (2021-2031) timelines for completion.

6.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Short-term (TWO YEARS)

- 6.1.1 Update prescribed burn plan.
- 6.1.2 Utilize OBVM monitoring to evaluate the actively managed natural communities and adjust management activities as needed.

Long-term (UP TO 10 YEARS)

- 6.1.3 Utilize OBVM monitoring to evaluate actively managed natural communities and adjust management efforts to meet desired future conditions.
- 6.1.4 Continue to implement prescribed burn plan.
- 6.1.5 Continue to conduct habitat/natural community improvement as necessary.
- 6.1.6 Continue to conduct habitat/natural community restoration activities as necessary.
- 6.1.7 Contract recertification of current natural community mapping.

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

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

Short-term

- 6.2.1 Update and implement WCPR strategy by 2022

Long-term

- 6.2.2 Continue to implement WCPR strategy by managing identified habitats and monitoring imperiled and locally important species.
- 6.2.3 Continue to collect and record opportunistic wildlife species occurrence data.
- 6.2.4 Contract for a rare plant survey.

6.3 Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration and Population Restoration.

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

Long-term

- 6.3.1 Continue to monitor locally important wildlife species, as identified in the WCPR strategy.
- 6.3.2 Continue to collect biological harvest data at check station.
- 6.3.3 Continue to collect and record opportunistic wildlife species occurrence data.
- 6.3.4 Continue to maintain wildlife openings, dove fields and/or food plots.
- 6.3.5 Conduct inventory-style surveys and monitoring efforts for various taxa groups as needed and appropriate.

6.4 Non-native and Invasive Species Maintenance and Control

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

Long-term

- 6.4.1 Monitor the CRWMA for the level of infestation of FLEPPC Category I and Category II invasive and non-native plant species and treat as needed and appropriate.
- 6.4.2 Contract to conduct survey and mapping of invasive and non-native plant species.
- 6.4.3 Continue to explore additional control measures on non-native and nuisance animal species.

6.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term

- 6.5.1 Develop a Recreation Assessment.

Long-term

- 6.5.2 Continue to implement the Recreation Master Plan.
- 6.5.3 Update Recreation Master Plan if warranted by new acquisitions or other factors.
- 6.5.4 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 653 visitors per day.

- 6.5.5 Continue to provide signage, resource interpretation materials, trail guides and area regulation information for interpretation and education.
- 6.5.6 Continue to maintain 9.5 miles of designated trails.
- 6.5.7 Monitor trails annually for visitor impacts.
- 6.5.8 Continue to provide hunting opportunities for game species.
- 6.5.9 Continue to provide fishing opportunities on appropriate water bodies.
- 6.5.10 Continue to offer primitive camping opportunities.
- 6.5.11 Cooperate with other agencies, County, stakeholders and regional landowners to investigate potential regional recreational opportunities including linking hiking and multi-use trail systems between adjacent public areas.

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 Complete hydrological assessment.

Long-term

- 6.6.2 To maintain and enhance natural hydrological functions, continue to install and maintain low-water crossings and culverts as appropriate.
- 6.6.3 Implement hydrological restoration plan as feasible and appropriate.
- 6.6.4 As funding, logistics and assessments allow, complete replacement on Camp Branch Creek control structure at the Cross Florida Barge Canal pending next drawdown of Rodman Reservoir.

6.7 Forest Resource Management

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

Long-term

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

6.7.2 Continue to implement the forest management plan.

6.8 Historical Resources

Goal: Protect, preserve and maintain historical resources.

Long-term

- 6.8.1 Ensure all known sites are recorded in the Florida DHR Master Site file.
- 6.8.2 Cooperate with DHR in designing site plans for development of infrastructure.
- 6.8.3 Cooperate with DHR to manage and maintain known existing historical resources.
- 6.8.4 Continue to monitor, protect and preserve as necessary nine identified sites.
- 6.8.5 Coordinate with DHR to send staff to ARM training.
- 6.8.6 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.

Long-term

- 6.9.1 Monitor trails and infrastructure annually for visitor impacts.
- 6.9.2 Continue to maintain, improve and repair 12 facilities.
- 6.9.3 Continue to maintain 27 miles of roads.
- 6.9.4 Continue to maintain 9.5 miles of trails existing on site.
- 6.9.5 Develop parking area/kiosk west of SR19 if determined feasible.
- 6.9.6 Assess trail shelters on the area and remove/renovate/replace as appropriate.

6.10 Land Conservation and Stewardship Partnerships

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

Long-term

- 6.10.1 Continue to identify and evaluate potential important wildlife habitat, landscape-scale linkages, wildlife corridors and operational management needs and update the OCPB for the CRWMA as appropriate and necessary.
- 6.10.2 If landscape scale linkages, wildlife corridors, or wildlife crossings are identified, work with appropriate agencies and partners on potential projects, including the FDOT.
- 6.10.3 Continue to contact and inform adjoining private landowners about the FWC Landowners Assistance Program and coordinate with public entities to pursue conservation stewardship partnerships.
- 6.10.4 Continue to evaluate and identify FWC inholding and addition priority parcels for potential conservation acquisition and pursue acquisitions as funding allows.
- 6.10.5 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations within the FWC OCPB for the FWC landowner assistance and conservation acquisition programs.
- 6.10.6 Continue to update the FWC CAS for the CRWMA as necessary.
- 6.10.7 Continue to identify potential non-governmental land stewardship organization partnerships and grant program opportunities.
- 6.10.8 Determine the efficacy of conducting a landowner assistance/conservation stewardship partnership workshop(s) and pursue as necessary and appropriate.
- 6.10.9 Continue to evaluate and determine if any portions of the CRWMA are no longer needed for conservation purposes and therefore may be designated as surplus lands.

6.11 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 CRWMA.

Long-term

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

6.11.2 As appropriate, update the CRWMA Prescribed Fire Plan, WCPR Strategy and Recreation Master Plan to incorporate new scientific information regarding projected climate change.

6.11.3 As science, technology and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document and address potential climate change.

6.12 Cooperative Management, Special Uses and Research Opportunities

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

Long-term

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

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

6.12.3 Coordinate to cooperate with USDOD military branches to allow for training opportunities for military personnel and other initiatives as appropriate and compatible with the conservation of the CRWMA.

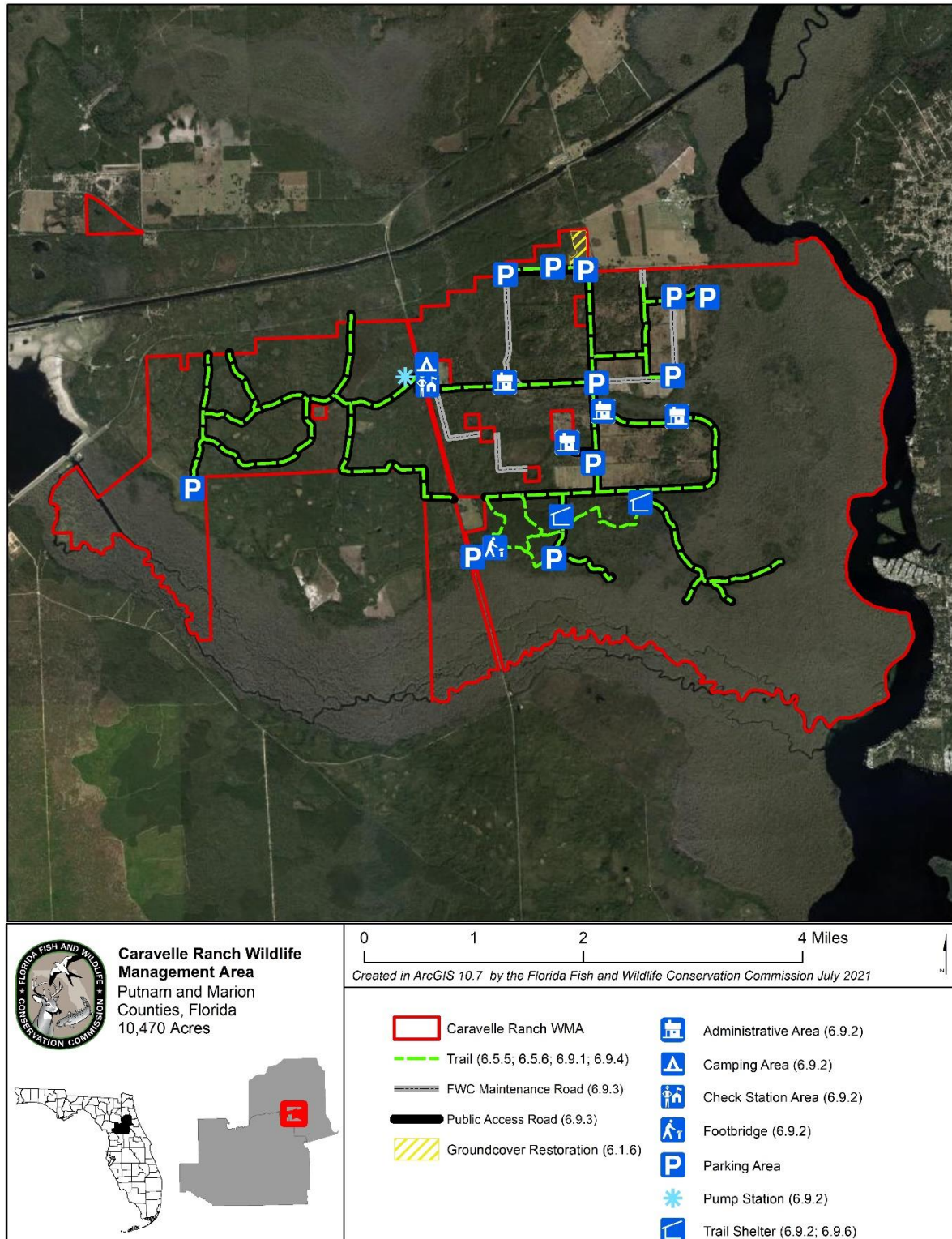


Figure 12. Project and Facility Locations on the CRWMA

7 Resource Management Challenges and Strategies

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

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

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

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

Strategy: Explore potential volunteer resources for assisting with management.

7.2 Challenge: Off-site water control structure on the Cross Florida Barge Canal restricts natural hydrology to the CRWMA.

Strategy: Continue to work with DEP to resolve functioning of the off-site water control structure to improve hydrological function of Camp Branch as feasible.

Strategy: Explore other opportunities as recommended in the hydrologic assessment.

7.3 Challenge: St. Johns River and Ocklawaha River swamp is important natural feature on the CRWMA but is largely inaccessible.

Strategy: Through publications and signage, interpret the swamp communities and direct visitors to opportunities to view the community from the Ocklawaha River.

7.4 Challenge: The CRWMA is not a well-known public outdoor recreation destination.

Strategy: Work with local and Putnam and Marion County tourism boards to promote the CRWMA.

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

Strategy: Work with Putnam and Marion County, as well as FDOT, to install directional signage along area roads.

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

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

Strategy: Coordinate with the FDOT on all future transportation projects that have the potential to occur nearby or directly affect the CRWMA.

7.6 Challenge: There are inholdings within the CRWMA that can cause management challenges.

Strategy: Explore conservation strategies for the inholdings, including, but not limited to, fee-simple or less-than-fee acquisition to ensure long term conservation of the site.

Strategy: Maintain inholdings within the OCPB.

Strategy: Coordinate with existing landowners regarding management activities including treatment of invasive plant species, prescribed burning and hydrological restoration.

7.7 Challenge: The CRWMA's proximity to major roadways and residential areas presents smoke management challenges during prescribed burning.

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

7.8 Challenge: Non-native and invasive plants and animals from road material and cattle coming on the area are spreading to the CRWMA.

Strategy: Continue to treat with chemical or mechanical treatments areas where road material has been placed to ensure suppression of non-native and invasive plant species.

Strategy: Continue to routinely monitor the grazed area for non-native and invasive plants to try to implement control measures before area becomes infested.

7.9 Challenge: While currently at minimal levels, unauthorized access and unauthorized off-road vehicle (ORV) use may pose an increased threat in the future.

Strategy: Continue to provide area-wide security through FWC law enforcement patrols and cooperation with local and other law enforcement agencies.

7.10 Challenge: Currently, related to potential Ocklawaha River restoration, there is uncertain future of Ocklawaha River, Rodman Reservoir, Cross Florida Barge Canal, and CRWMA hydrologic conditions.

Strategy: Coordinate with DEP - OGT on all future Ocklawaha River, Rodman Reservoir, and Cross Florida Barge Canal projects that have the potential to occur nearby or directly affect the CRWMA.

8 Cost Estimates and Funding Sources

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

The cost estimate below, although exceeding what the FWC typically receives through the appropriations process, is estimated to be what is necessary for optimal management and is consistent with the current and planned resource management and operation of the CRWMA. Cost estimate categories are those currently recognized by the FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2019-2020 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 12.16.

Caravelle Ranch WMA Management

Plan Cost Estimate

Maximum expected one-year expenditure

<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>
Exotic Species Control	\$68,376	(1)
Prescribed Burning	\$61,674	(1)
Cultural Resource Management	\$314	(1)
Timber Management	\$12,271	(1)
Hydrological Management	\$302,069	(1)
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	\$137,762	(1)
Subtotal	\$582,465	
<u>Administration</u>		
General administration	\$25,875	(1)
<u>Support</u>		
Land Management Planning	\$53,457	(1)
Land Management Reviews	\$10,219	(3)
Training/Staff Development	\$35,286	(1)
Vehicle Purchase	\$44,104	(2)
Vehicle Operation and Maintenance	\$157,714	(1)
Other (Technical Reports, Data Management, etc.)	\$26,454	(1)
Subtotal	\$327,235	
<u>Capital Improvements</u>		
New Facility Construction	\$57,358	(2)
Facility Maintenance	\$156,799	(1)
Subtotal	\$214,157	
<u>Visitor Services/Recreation</u>		
Info./Education/Operations	\$20,694	(1)
<u>Law Enforcement</u>		
Resource protection	\$9,562	(1)
<u>Total</u>	\$1,179,989	

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

Caravelle Ranch WMA Management
Plan Cost Estimate
Ten-year projection

<u>Resource</u>	<u>Expenditure</u>	<u>Priority</u>	Priority schedule:
<u>Management</u>			
Exotic Species Control	\$600,758	(1)	(1) Immediate (annual)
Prescribed Burning	\$541,877	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	\$2,756	(1)	(3) Other (5+ years)
Timber Management	\$107,811	(1)	
Hydrological Management	\$2,654,014	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	\$1,210,388	(1)	
Subtotal	\$5,117,604		
<u>Administration</u>			
General administration	\$227,338	(1)	
<u>Support</u>			
Land Management Planning	\$469,680	(1)	
Land Management Reviews	\$29,254	(3)	
Training/Staff Development	\$310,029	(1)	
Vehicle Purchase	\$155,205	(2)	
Vehicle Operation and Maintenance	\$1,385,694	(1)	
Other (Technical Reports, Data Management, etc.)	\$232,430	(1)	
Subtotal	\$2,582,292		
<u>Capital Improvements</u>			
New Facility Construction	\$165,678	(2)	
Facility Maintenance	\$1,377,654	(1)	
Subtotal	\$1,543,331		
<u>Visitor Services/Recreation</u>			
Info./Education/Operations	\$181,820	(1)	
<u>Law Enforcement</u>			
Resource protection	\$84,016	(1)	
<u>Total</u>	\$9,736,401		

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

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

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

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

10 Compliance with Federal, State and Local Governmental Requirements

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

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

impractical or where providing such access would change the fundamental character of the facility being provided).

Uses planned for the CRWMA are in compliance with the Conceptual State Lands Management Plan and its requirement for “balanced public utilization,” and are in compliance with the mission of the FWC as described in its Agency Strategic Plan (Appendix 12.9). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters, 253, 259, 327, 370, 379, 403, 870, 373, 375, 378, 487 and 597 F.S.

The FWC has developed and utilizes an Arthropod Control Plan for the CRWMA in compliance with Chapter 388.4111 F.S. (Appendix 12.18). This plan was developed in cooperation with the local Putnam County arthropod control agency. Currently, Marion County does not have a Mosquito or Arthropod Control District in place, so there are no expected Arthropod Control activities to take place in the portion of the CRWMA located within Marion County. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Putnam and Marion Counties, Florida, (Appendix 12.19).

11 Endnotes

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

² *The Putnam County Comprehensive Plan*. 2015. Putnam County, FL: The County.

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

⁴ Horton, J.D., 2017, The State Geologic Map Compilation (SGMC) geodatabase of the conterminous United States (ver. 1.1, August 2017): U.S. Geological Survey data release, <https://doi.org/10.5066/F7WH2N65>.

⁵ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online. Accessed [2019].

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

- ⁷ Wilhere, G. F. 2002. Adaptive management in Habitat Conservation Plans. *Conservation Biology* 16:20-29.
- ⁸ Walters, C. J. and R. Hilborn. 1978. Ecological optimization and adaptive management. *Annual Review of Ecology and Systematics* 9:157–188.
- ⁹ Architectural and Transportation Barriers Compliance Board on Final Accessibility Guidelines for Outdoor Developed Areas, Final Report (2013).
- ¹⁰ Karl, T. R., J. M. Melillo, and T. C. Peterson (Eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press. New York, NY.
- ¹¹ McCarty, J. P. 2001. Ecological consequences of recent climate change. *Conservation Biology* 15:320-331.
- ¹² Walther, G. R., E. Post, P. Convey, A. Menzel, C. Parmesan, T. J. . Beebee, J. M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein. 2002. Ecological responses to recent climate change. *Nature* 416:389–395.
- ¹³ Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology, Evolution, and Systematics* 37:637-669.
- ¹⁴ Logan, J. A., and J. A. Powell. 2009. Ecological consequences of climate change altered forest insect disturbance regimes. In *Climate Warming in Western North America: Evidence and Environmental Effects* (F. H. Wagner, Ed.). University of Utah Press, Salt Lake City, UT.
- ¹⁵ Stevenson, J. C., M. S. Kearney, and E. W. Koch. 2002. Impacts of sea level rise on tidal wetlands and shallow water habitats: A case study from Chesapeake Bay. *American Fisheries Society Symposium* 32:23-36.
- ¹⁶ IPCC. 2007b. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK.
- ¹⁷ Emanuel, K.A. 1987. The Dependence of Hurricane Intensity on Climate. *Nature* 326: 483-485.
- ¹⁸ Emanuel, K.A. 2005. Increasing Destructiveness of Tropical Cyclones Over the Past 30 Years.
- ¹⁹ Webster et al. 2005; Webster, P. J., et al. 2005. Changes in Tropical Cyclone Number, Duration, and Intensity, in a Warming Environment. *Science* 309: 1844–1846.

- ²⁰ Mann, M.E. and K.A. Emanuel. 2006. Atlantic Hurricane Trends Linked to Climate Change. *Eos Trans. AGU* 87: 233-244.
- ²¹ Stanton, E.A. and F. Ackerman. 2007. Florida and Climate Change: The Costs of Inaction. Tufts University Global Development and Environment Institute and Stockholm Environment Institute–US Center, Tufts University, Medford, MA.
- ²² Clough, J.S. 2008. Application of the Sea-Level Affecting Marshes Model (SLAMM 5.0) to Crystal River NWR. Warren Pinnacle Consulting, Inc. for U.S. Fish and Wildlife Service. 46 pp.

12 Appendices

12.1 Lease Agreement #4100

5103.65AC

SAL3

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

LEASE AGREEMENT

CARAVELLE RANCH WILDLIFE MANAGEMENT AREA

Lease Number 4100

This lease is made and entered into this 14th day of
NOVEMBER 1996, between the BOARD OF TRUSTEES OF THE
INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA,
hereinafter referred to as "LESSOR", and the FLORIDA GAME AND
FRESH WATER FISH COMMISSION, hereinafter referred to as "LESSEE".

WITNESSETH:

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

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

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

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities
and obligations herein shall be exercised by the Division of
State Lands, Department of Environmental Protection.
2. DESCRIPTION OF PREMISES: The property subject to this
lease, is situated in the County of Putnam, State of Florida and
is more particularly described in Exhibit "A" attached hereto and
hereinafter called the "leased premises".

3. TERM: The term of this lease shall be for a period of fifty years, commencing on NOVEMBER 20, 1996 and ending on NOVEMBER 19, 2046, unless sooner terminated pursuant to the provisions of this lease.

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

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

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

7. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises, in accordance with Section 253.034, Florida Statutes, and Chapters 18-2 and 18-4, Florida Administrative Code, within twelve months of the effective date of this lease. The Management Plan shall be submitted to LESSOR for approval through the Division of State Lands. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. The Management Plan shall emphasize the original management concept as approved by LESSOR at the time of acquisition which established the primary public purpose for which the leased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and

Page 2 of 18
Lease No. 4100

shall be reviewed jointly by LESSEE and LESSOR at least every five years. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

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

9. INSURANCE REQUIREMENTS: LESSEE shall procure and maintain adequate fire and extended risk insurance coverage for any improvements or structures located on the leased premises in amounts not less than the full insurable replacement value of such improvements by preparing and delivering to the Division of Risk Management, Department of Insurance, a completed Florida Fire Insurance Trust Fund Coverage Request Form immediately upon erection of any structures as allowed by paragraph 4 of this lease. A copy of said form and immediate notification in writing of any erection or removal of structures or other improvements on the leased premises and any changes affecting the value of the improvements shall be submitted to the following: Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399.

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

Page 3 of 18
Lease No. 4100

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

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

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

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

Page 4 of 18
Lease No. 4100

including both physical structures and modifications to the leased premises, shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the leased premises, a representative of the Division of State Lands shall perform an on-site inspection and the keys to any buildings on the leased premises shall be turned over to the Division. If the leased premises and improvements located thereon do not meet all conditions set forth in paragraphs 17 and 20 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

15. BEST MANAGEMENT PRACTICES: LESSEE shall implement applicable Best Management Practices for all activities conducted under this lease in compliance with paragraph 18-2.004(1)(d), Florida Administrative Code, which have been selected, developed, or approved by LESSOR, LESSEE or other land managing agencies for the protection and enhancement of the leased premises.

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

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

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

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

20. MAINTENANCE OF IMPROVEMENTS: LESSEE shall maintain the real property contained within the leased premises and any improvements located thereon, in a state of good condition, working order and repair including, but not limited to, keeping the leased premises free of trash or litter, maintaining all planned improvements as set forth in the approved Management Plan, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers and the like in as good condition as the same may be at the date of this lease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the leased premises and with the approved Management Plan.

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

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

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

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

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

26. DAMAGE TO THE PREMISES: (A) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (B) LESSEE shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403 Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE's failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE's such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged

Page 8 of 18
Lease No. 4100

property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE's obligations set forth in this paragraph shall survive the termination or expiration of this lease. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE's activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting periods of the applicable governmental agencies.

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

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

29. NON-DISCRIMINATION: LESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status

Page 9 of 18
Lease No. 4100

with respect to any activity occurring within the leased premises or upon lands adjacent to and used as an adjunct of the leased premises.

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

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

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

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

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

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

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

Kelly Servedio
Witness

Kelly Servedio
Print/Type Witness Name

Jenna Bridges
Witness

Jenna Bridges
Print/Type Witness Name

By: Daniel T. Crabb (SEAL)

DANIEL T. CRABB, CHIEF,
BUREAU OF LAND MANAGEMENT
SERVICES, DIVISION OF STATE
LANDS, DEPARTMENT OF
ENVIRONMENTAL PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this
27th day of November, 1996, by Daniel T. Crabb, as Chief,
Bureau of Land Management Services, Division of State Lands,
Florida Department of Environmental Protection, acting as agent
on behalf of the Board of Trustees of the Internal Improvement
Trust Fund of the State of Florida. He is personally known to
me.

Patricia Toloday
Notary Public, State of Florida

(SEAL)

Print/Type Notary

Commission Number

Commission Expires



Approved as to Form and Legality

By: Sally H. Hain
DEP Attorney

FLORIDA GAME AND FRESH WATER
FISH COMMISSION

Rosemary Mara
Witness
Rosemary Mara
Print/Type Witness Name
Bm Wright
Witness
Bm Wright
Print/Type Witness Name

By: Victor J. Heller (SEAL)
Victor J. Heller
Print/Type Name
Title: Assist. Exec. Director

"LESSEE"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this
22nd day of October, 1996, by Victor J. Heller
as Assistant Executive Director, Florida Game and Fresh
Water Fish Commission. He/~~she~~ is personally known to me or
produced _____ as identification.

(SEAL)

Jimmie C. Bevis
Notary Public, State of Florida

Jimmie C. Bevis
Print/Type Notary Name

Commission Number:

Commission Expires



Victor J. Heller
Print/Type Name

FL 216700 B 631 P 1570
CO:PUTNAM ST:FL

2. That certain 60 foot Non-Exclusive Easement for ingress and egress in favor of ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, as recorded in Quit-Claim Deed filed 6/31/89 in O.R. Book 0545, Page 0754, of the Public records of Putnam County, Florida. (As to lands in Sections 25, 26 and 27, Township 11 South, Range 25 East, Putnam County, Florida.)
3. That certain easement described as Parcel 4 in warranty Deed recorded in O.R. Book 228, Page 320, of the Public records of Putnam County, Florida. (As to lands in Section 27, Township 11 South, Range 25 East, Putnam County, Florida.)
4. That certain 66.0 feet road and utility easement in favor of Big A Auto Parts, Inc., and recorded in Warranty Deed filed in O.R. Book 408, Page 394, of the Public Records of Putnam County, Florida. (As to lands in Sections 29 and 30, Township 11 South, Range 26 East, Putnam County, Florida.)
5. Rights of the United States Government and/or the State of Florida arising under the United States Government control over Navigable waters and the Inalienable rights of the State of Florida in the Lands or Waters of similar character as to any part of the premises herein described in Schedule A which may be artificially filled in lands in what was formerly Navigable Waters and any accretions thereto.

Together with all the tenements, hereditaments and appurtenances thereto belonging or in any way otherwise appertaining.

TO HAVE AND TO HOLD the same in fee simple forever.

And the Grantor does hereby covenant with the said Grantee that, except as above noted, that at the time of the delivery of this deed the premises were free from all encumbrances made by Grantor and that Grantor will warrant and defend the same against the lawful claims and demands of all persons claiming by, through or under Grantor but against none other.

Other than as specifically enumerated hereunder, no other covenants or warranties, express or implied, are entered into or given by this Special Warranty Deed.

S:\LEGALRE\ALICE\CARAVELLE.DEE
07/15/93

FL 216700 B 631 P 1571
CO:PUTNAM ST:FL

NO. 4100
EXHIBIT A
PAGE 14 OF 18

IN WITNESS WHEREOF, the Grantor has hereunto set its hand and seal the day and year first above written.

Signed in the presence of:

FEDERAL DEPOSIT INSURANCE CORPORATION, in its corporate capacity as successor in interest to Park Bank of Florida

Stewart Bloom
Name: Stewart Bloom
Marita Hernandez
Name: Marita Hernandez

By: John A. O'Donnell
Name: John A. O'Donnell
Its: Attorney-In-Fact Pursuant to Power of Attorney recorded in Official Records Book 0587, Page 1638, Public Records of Putnam County, Florida 5950 Hazeltine National Dr. Suite 150 Orlando, Florida 32822

FL 216700 B 631 P 1572
CO:PUTNAM ST:FL

STATE OF FLORIDA
COUNTY OF ORANGE

The foregoing instrument was acknowledged before me this 24th day of August, 1993 by John A. O'Donnell, as attorney-in-fact who is personally known to me or who has produced Personal Known as identification, on behalf of Federal Deposit Insurance Corporation, in its corporate capacity as successor in interest to Park Bank of Florida.



R. S. GRUPINSKI
My Comm Exp. 6/07/96
Bonded By Service Ins
No. CC206659
[1] Personal Known [1] Other I.D.

R. S. Grupinski
Notary Public
Name:
My Commission Expires:

WITNESS my signature and official seal at Orlando, Florida in the County of Orange.



R. S. GRUPINSKI
My Comm Exp. 6/07/96
Bonded By Service Ins
No. CC206659
[1] Personal Known [1] Other I.D.

R. S. Grupinski
Print Name:
Notary Public
My Commission Expires:
[Notarial Seal]

S:\LEGALRE\ALICE\CARAVELLE.DEE
07/15/93

NO. 4100
EXHIBIT A
PAGE 15 OF 18

E X H I B I T A

THE W 1/2 OF THE SW 1/4 OF THE NE 1/4 OF THE SW 1/4; AND THE SE 1/4 OF THE NE 1/4 OF THE SW 1/4; AND THE S 1/2 OF THE NW 1/4 OF THE SW 1/4; AND THE SW 1/4 OF THE SW 1/4; AND THE E 1/2 OF THE SE 1/4 OF THE SW 1/4; AND THE S 1/2 OF THE NE 1/4 OF THE SE 1/4; AND THE SE 1/4 OF THE NW 1/4 OF THE SE 1/4; AND THE S 1/2 OF THE SE 1/4, ALL IN SECTION 22.

AND
THE S 1/2 OF THE SE 1/4 OF THE NE 1/4; AND THE SW 1/4; AND THE N 1/2 OF THE SE 1/4; AND THE NW 1/4 OF THE SW 1/4 OF THE SE 1/4; AND THE E 1/2 OF THE SW 1/4 OF THE SE 1/4; AND THE SE 1/4 OF THE SE 1/4; ALL IN SECTION 23.

AND
ALL OF THE S 1/2 OF THE SE 1/4 OF THE NW 1/4 LYING WESTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19; AND THE S 1/2 OF THE SW 1/4 OF THE NW 1/4; AND ALL OF THE S 1/2 OF SECTION LYING WESTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19, ALL IN SECTION 24.

AND
ALL OF SECTION LYING WESTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19, EXCEPT THE S 1/2 OF THE SW 1/4; AND EXCEPT THE S 1/2 OF THE SE 1/4 LYING WESTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19, ALL IN SECTION 25.

AND
THE N 3/4 OF SECTION, EXCEPT THE SW 1/4 OF THE NW 1/4 OF THE NE 1/4, ALL IN SECTION 26.

AND
THE N 3/4 OF SECTION 27.

AND
THE S 1/2 OF THE NE 1/4 OF THE NE 1/4, AND THE S 1/2 OF THE NE 1/4, AND ALL OF THE S 1/2 OF THE SE 1/4 OF THE NW 1/4 LYING EASTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19; AND ALL OF THE S 1/2 OF SECTION LYING EASTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19, EXCEPT THE E 1/2 OF THE SW 1/4 OF THE SE 1/4, ALL IN SECTION 24.

AND
ALL OF SECTION LYING EASTERLY OF THE RIGHT-OF-WAY LINE OF STATE HIGHWAY NO. 19, EXCEPT THE NE 1/4 OF THE SE 1/4 OF THE NE 1/4, ALL IN SECTION 25.

ALL BEING IN TOWNSHIP 11 SOUTH, RANGE 25 EAST, PUTNAM COUNTY, FLORIDA.

AND
THE S 1/2 OF THE SE 1/4 OF THE SW 1/4,

AND
GOVERNMENT LOT 5 LESS THE NORTH 10 CHAINS, AND
GOVERNMENT LOTS 8 and 7, ALL IN SECTION 18.

AND
ALL OF SECTION, EXCEPT THE E 1/2 OF THE SE 1/4 OF THE NE 1/4, ALL IN SECTION 19.

AND
ALL OF FRACTIONAL SECTION 20.

AND
ALL OF FRACTIONAL SECTION 28, WEST OF RIVER.

AND
ALL OF FRACTIONAL SECTION 29.

AND
ALL OF SECTION, EXCEPT THE E 1/2 OF THE SW 1/4 OF THE NE 1/4, AND EXCEPT THE W 1/2 OF THE W 1/2 OF THE SE 1/4 OF THE NE 1/4, AND EXCEPT THE SW 1/4 OF THE SW 1/4 OF THE NW 1/4; AND EXCEPT THE NE 1/4 OF THE SE 1/4 OF THE SW 1/4, ALL IN SECTION 30.

ALL BEING IN TOWNSHIP 11 SOUTH, RANGE 26 EAST, PUTNAM COUNTY, FLORIDA.

AND
ALL OF THE JOSEPH M. HERNANDEZ GRANT ON THE WEST SIDE OF THE ST. JOHNS RIVER, EXCEPT A TRACT AS DESCRIBED IN DEEDS RECORDED IN DEED BOOK 197, PAGE 317, AND DEED BOOK 219, PAGE 63, PUBLIC RECORDS OF PUTNAM COUNTY, FLORIDA; ALSO EXCEPT ALL THAT PART OF SAID GRANT LYING NORTHERLY OF THE SOUTHERLY LINE OF THE LANDS OF THE SHIP CANAL AUTHORITY OF THE STATE OF FLORIDA, AS CONVEYED BY DEED RECORDED IN DEED BOOK 129, PAGE 324, SAID PUBLIC RECORDS.

AND
SO MUCH AND SUCH PART OF THOSE LANDS DESCRIBED IN THAT DEED GIVEN BY HOMER RODEHEAVER TO RODEHEAVER BOYS' RANCH DATED 05/20/54, AND RECORDED AT DEED BOOK BOOK 219, Page 61, THAT LIES EASTERLY OF THE THREAD OF CAMP BRANCH, ALL IN JOSEPH M. HERNANDEZ GRANT ALSO KNOWN AS SECTION 37, TOWNSHIP 11 SOUTH, RANGE 26 EAST, PUTNAM COUNTY, FLORIDA.

(Continued)

NO. 4100
EXHIBIT A
PAGE 16 OF 18

FL 216700 B 631 P 1574
CO:PUTNAM ST:FL

E X H I B I T A

* The Sections 22, 23, 24, 25, 26, and 27 referred to are as shown on the plat of the New South Farm and Home Company's Subdivision of record in Map Book 2, on Pages 15 and 16 thereof, Public Records of Putnam County, Florida, AND said Sections 25, 26 and 27 are also the same areas which are correctly described as Fractional Sections 25, 26 and 27, respectively, according to Official Government Township Plat.

* The Sections 18, 19 and 30 referred to are as shown on the plat of the New South Farm and Home Company's Subdivision of record in Map Book 2, on Pages 15 and 16 thereof of the Public Records of Putnam County, Florida. AND said Sections 18, 19 and 30 are also the same areas which are correctly described as Fractional Sections 18, 19 and 30 respectively, according to Official Government Township plats.

The Sections 20, 28, 29, 36 are as shown on Official Government Township plats.

The remainder of the above lands are as shown on the Official Government Township Plats, Putnam County, Florida.

NO. 4100
EXHIBIT A
PAGE 17 OF 18

EXHIBIT "B"

FL 216700 B 631 P 1575
CO:PUTNAM ST:FL

Tax Parcel No.	Parcel
24-11-25-0000-0030-0000	1
25-11-25-0000-0010-0000	2
18-11-26-0000-0020-0000	4 & 5
19-11-26-0000-0010-0000	6
20-11-26-0000-0010-0000	7
28-11-26-0000-0040-0000	8
29-11-26-0000-0010-0000	9
30-11-26-0000-0040-0000	10
37-11-26-0000-0090-0000	13 & 14
22-11-25-0000-0050-0000	Part in Sec. 22
23-11-25-0000-0020-0000	Part in Sec. 23
24-11-25-0000-0040-0000	Part in Sec. 24
25-11-25-0000-0040-0000	Part in Sec. 25
26-11-25-0000-0010-0000	Part in Sec. 26
27-11-25-0000-0010-0000	Part in Sec. 27

Homestead exemptions: NONE;

FILED AND RECORDED
DATE 08/20/93 TIME 12:45

ED BROOKS
CO:PUTNAM

CLERK
ST:FL



NO. 4100
EXHIBIT A
PAGE 18 OF 18

ATL1

10.0 Acres

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT

TRUST FUND

AMENDMENT NUMBER 1 TO LEASE NUMBER 4100

CARAVELLE RANCH WILDLIFE MANAGEMENT AREA

THIS LEASE AMENDMENT is entered into this 17 day of Feb, 1998, by and between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR" and the STATE OF FLORIDA GAME AND FRESH WATER FISH COMMISSION, hereinafter referred to as "LESSEE";

W I T N E S S E T H

WHEREAS, LESSOR, by virtue of Section 253.03, Florida Statutes, holds title to certain lands and property for the use and benefit of the State of Florida; and

WHEREAS, on November 14, 1996, LESSOR and LESSEE entered into Lease Number 4100; and

WHEREAS, LESSOR and LESSEE desire to amend the lease to add land to the leased property.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the parties hereto agree as follows:

1. The legal description of the leased premises set forth in Exhibit "A" of Lease Number 4100 is hereby amended to include the real property described in Exhibit "A", attached hereto, and by reference made a part hereof.

Page 1 of 5

Amendment No. 1 to Lease No. 4100

2. It is understood and agreed by LESSOR and LESSEE that in each and every respect the terms of the Lease Number 4100 except as amended hereby, shall remain unchanged and in full force and effect and the same are hereby ratified, approved and confirmed by LESSOR and LESSEE.

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

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

Patricia Toloday
Witness

Patricia Toloday
Print/Type Witness Name

Cheryl Granger
Witness

Cheryl Granger
Print/Type Witness Name

STATE OF FLORIDA
COUNTY OF LEON

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

"LESSOR"

1978 The foregoing instrument was acknowledged before me this day of February, 1998, by Daniel T. Crabb, as Chief, Bureau of Land Management Services, Division of State Lands, Florida Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. He is personally known to me.

Patricia Toloday
Notary Public, State of Florida

(SEAL)

Print/Type Notary Name

Commission Number:

Commission Expires:

Approved as to Form and Legality

By: Sam H. Hise
DEP Attorney



Page 2 of 5

Amendment No. 1 to Lease No. 4100

FLORIDA GAME AND FRESH WATER
FISH COMMISSION

Km Wright
Witness
Km Wright
Print/Type Witness Name

By: Victor J. Heller (SEAL)
Victor J. Heller
Print/Type Name

Title: Assist. Exec. Director

Witness

"LESSEE"

Print/Type Witness Name

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this
3rd day of February, 1998, by Victor J. Heller
as Assistant Executive Director of the Florida Game and Fresh
Water Fish Commission. He/she is personally known to me.

(SEAL)



Jimmie C. Bevis
MY COMMISSION # CC702862 EXPIRES
December 28, 2001
BONDED THROUGH FAIR INSURANCE, INC.

Jimmie C. Bevis
Notary Public, State of Florida
JIMMIE C. BEVIS

Print/Type Notary Name

Commission Number:

Commission Expires:

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

Page 3 of 5

Amendment No. 1 to Lease No. 4100

This Instrument Prepared By and
Please Return To:
Warren Willite
Palatka Abstract & Title Guaranty Co., Inc.
113 N. 4th Street
Palatka, FL 32177

WARRANTY DEED
(STATUTORY FORM - SECTION 689.02, F.S.)

THIS INDENTURE, made this 12th day of
December, A.D. 1997, between, W. E. TORODE, III, a
married man, grantor, and the BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose
post office address is c/o Florida Department of Environmental Protection,
Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 115,
Tallahassee, FL 32399-3000, grantee,

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

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

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

Property Appraiser's Parcel Identification Number: 22-11-25-0000-0020-0000

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

This property is not the homestead property of the grantor, nor contiguous to homestead property, as such homestead is
defined under Florida law.

AND the said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims
of all persons whomsoever.

IN WITNESS WHEREOF the grantor has hereunto set grantor's hand and seal, the day and year first above written.

Signed, sealed and delivered in
the presence of:

(Signature of First Witness)

John D. Mussoline

(Printed, Typed or Stamped Name
of First Witness)

(Signature of Second Witness)

Patsy V. Glisson

(Printed, Typed or Stamped Name
of Second Witness)

W. E. Torode, III
W. E. TORODE, III

Approved for Closing

By: W. E. Torode, III
DEP Attorney

Date: 12-16-97

STATE OF FLORIDA
COUNTY OF PUTNAM

The foregoing instrument was acknowledged before me this 12th day of December, 1997, by
W. E. TORODE, III. Such person (Notary Public must check applicable box):

☒ is personally known to me.
☐ produced a driver license.
☐ produced _____ as identification.

(NOTARY PUBLIC SEAL)

Patsy V. Glisson
Notary Public
Patsy V. Glisson

(Printed, Typed or Stamped Name of Notary Public)

PAGE 4 OF 5
EXHIBIT A
WARRANT NO. 1 TO LEASE NO. 4100

Commission No.: CC581624
My Commission Expires: 10/18/2000

EXHIBIT "A"

The Southwest 1/4 of the Northwest 1/4 of the Southeast 1/4 of Section 22, Township 11 South, Range 25 East, being Tract 8 of Block 4 of New South Farm and Home Company Subdivision according to Plat recorded in Map Book 2, Pages 15A, 15B, 16A and 16B of the public records of Putnam County, Florida.

PAGE 5 OF 5
EXHIBIT A
AMENDMENT NO. 1 TO LEASE NO. 4100

ATL1

10.0 Acres

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

AMENDMENT NUMBER TWO TO LEASE NUMBER 4100
CARAVELLE RANCH WILDLIFE MANAGEMENT AREA

THIS LEASE AMENDMENT is entered into this 27th day of August, 2009, by and between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR" and the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, successor in interest to the FLORIDA GAME AND FRESH WATER FISH COMMISSION, referred to as "LESSEE";

W I T N E S S E T H

WHEREAS, LESSOR, by virtue of Section 253.03, Florida Statutes, holds title to certain lands and property for the use and benefit of the State of Florida; and

WHEREAS, on November 20, 1996, LESSOR and LESSEE entered into Lease Number 4100; and

WHEREAS, LESSOR and LESSEE desire to amend the lease to add land to the leased premises.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the parties hereto agree as follows:

1. The legal description of the leased premises set forth in Exhibit "A" of Lease Number 4100 is hereby amended to include the real property described in Exhibit "A," attached hereto, and by reference made a part hereof.
2. It is understood and agreed by LESSOR and LESSEE that in each and every respect the terms of the Lease Number 4100, except as amended, shall remain unchanged and in full force and effect and the same are hereby ratified, approved and confirmed by LESSOR and LESSEE.
3. It is understood and agreed by LESSOR and LESSEE that this Amendment Number TWO to Lease Number 4100 is hereby binding upon the parties hereto and their successors and assigns.

Rev.3/07

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

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

Dave Finner
Witness

DAVE FEWELL
Print/Type Witness Name

Robert Smith
Witness

Robert Smith
Print/Type Witness Name

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

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 27th day of August, 2009, by Gloria C. Barber, Operations and Management Consultant Manager, Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. She is personally known to me.



David L. Fewell
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:

Approved as to Form and Legality

By: [Signature]
REP Attorney

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

[Signature]
Witness

Richard C. Mospers
Print/Type Witness Name

[Signature]
Witness

Webster D. Tenney
Print/Type Witness Name

By: Timothy A. Brauck (SEAL)

Timothy A. Brauck
Print/Type Name

Title: Director DWSC

"LESSEE"

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

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 21st day of August, 2009, by Timothy A. Brauck as Director DWSC, on behalf of the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION. He/she is personally known to me.

[Signature]
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:



P. S. McChesney
Commission # DD524435
Expires April 28, 2010
Bundled Tray / en. / operation. inc. / 800-365-7016

This Instrument Prepared By and
Please Return To:
Elaine Vergara
American Government Services Corporation
3812 W. Linebaugh Avenue
Tampa, Florida 33618
AGS # 19243

DS ST DEED .70 : 126.00 BK 1059 PG 802

WARRANTY DEED
(STATUTORY FORM - SECTION 689.02, F.S.)

THIS INDENTURE, made this 21 day of September, A.D. 2005, between Edith M. Hancock, Individually and as Trustee of the Edith M. Hancock Revocable Living Trust dated April 8, 1997, whose address is 380 Cedar Creek Road, Palatka, FL 32177, grantor, and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose post office address is c/o Florida Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 115, Tallahassee, FL 32399-3000, grantee,

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

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

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

Property Appraiser's Parcel Identification Number: 23-11-25-0000-0030-0000

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

This property is not the homestead property of the grantor, nor contiguous to homestead property, as such homestead is defined under Florida law.

AND the said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF the grantor has hereunto set grantor's hand and seal, the day and year first above written.

Signed, sealed and delivered in
the presence of:

Debra M. Armento
(Signature of First Witness)

Edith M. Hancock
Edith M. Hancock, Individually and as Trustee of the Edith
M. Hancock Revocable Living Trust dated April 8, 1997

Debra M. Armento
(Printed, Typed or Stamped Name
of First Witness)

APPROVED AS TO FORM AND LEGALITY

By: William C. Robinson
DEP Attorney

Date: 2-9-09

Renee Demetropoulos
(Signature of Second Witness)

Lauree Demetropoulos
(Printed, Typed or Stamped Name
of Second Witness)

*Note: This is a copy of the recorded
deed. The original was sent to the
Title and Land Records Section*

FILE #: 0000556481
Page 1 of 3

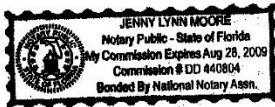
Exhibit "A"
Page 4 of 6 Pages
Amendment Number 2 to Lease No. 4100

STATE OF Florida
COUNTY OF Putnam

The foregoing instrument was acknowledged before me this 21 day of Sept, 2005, by
Edith M. Hancock, Individually and as Trustee of the Edith M. Hancock Revocable Living Trust dated April 8, 1997. Such
person (Notary Public must check applicable box):

- () is personally known to me.
(X) produced a driver license.
() produced FDL # 522-213-30-635-0 as identification.

(NOTARY PUBLIC SEAL)



Jenny Lynn Moore
Notary Public

Jenny Lynn Moore
(Printed, Typed or Stamped Name of Notary Public)

Commission No.: DD440804

My Commission Expires: Aug 28, 2009

FILE #: 0000556481

Page 2 of 3

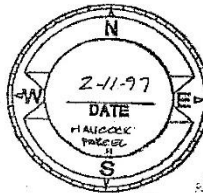
Exhibit "A"
Page 5 of 6 Pages
Amendment Number 2 to Lease No. 4100

DS ST DEED .70 : 126.00 BK 1059 PG 804

Exhibit "A"

The Southwest 1/4 of the Southwest 1/4 of the Southeast 1/4 of Section 23, Township 11
South, Range 25 East, Putnam County, Florida.

FILE #: 0000556481
Page 3 of 3



TIM SMITH, PUTNAM CO. CLERK OF COURT
RCD: 10/03/2005 @ 11:36

Exhibit "A"
Page 6 of 6 Pages
Amendment Number 2 to Lease No. 4100

12.2 SJRWMD Lease Agreement

LEASE AGREEMENT
FOR
CARAVELLE RANCH
WILDLIFE MANAGEMENT AREA

THIS LEASE AGREEMENT, made and entered into the 13th day of November, 1991, by and between ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a Water Management District organized under the provisions of Chapter 373, Florida Statutes, with its office in Palatka, Florida, whose post office address is P.O. Box 1429, hereinafter referred to as the DISTRICT; and the FLORIDA GAME AND FRESH WATER FISH COMMISSION of the State of Florida, with its primary office in Tallahassee, Florida, whose address is 620 South Meridian Street, hereinafter referred to as the COMMISSION:

WITNESSETH

WHEREAS, the DISTRICT owns certain lands located in Putnam County, known as Caravelle Ranch, for water management purposes; and

WHEREAS, it has been determined that additional public benefits from these lands can be derived from the management of such lands for public outdoor recreational purposes, including but not limited to hunting, fishing, hiking, horseback riding, bird watching and nature study, pursuant to Section 373.139 (4), Florida Statutes, to the extent these uses are consistent with the water management purposes of the DISTRICT as provided in Chapter 373, Florida Statutes and that all uses for public recreation are subordinate to DISTRICT responsibility under Section 373, F.S. to manage the water resources; and

WHEREAS, DISTRICT lands as described hereinafter serve a vital function to Caravelle Ranch by providing water storage for flood and low flow periods and diverse wetland and upland habitats for maintenance of wildlife populations; and

WHEREAS, management of these lands for outdoor recreational purposes may properly be served by their operation as a Type I Wildlife Management Area under the jurisdiction of the COMMISSION.

NOW THEREFORE, the parties hereto, for and in consideration of the mutual covenants, terms, and conditions hereinafter contained, and in the interest of the public served by both parties hereto, the DISTRICT and COMMISSION do hereby covenant and agree as follows:

1. The DISTRICT does hereby give, transfer and lease to the COMMISSION those lands described in Appendix A (attached hereto and by reference made a part hereof) for use as a Type I Wildlife Management Area. Therefore, the COMMISSION is granted subject to the maintenance of the hydrologic regime, the right to provide for public recreational use of these lands including:
 - (a) the right to establish bag limits which limit the taking of legal game and fish in reasonable quantities consistent with habitat maintenance, and preservation of wildlife and fish populations;
 - (b) the management of the lands and the creation of facilities as needed to support public recreational use of the area such as hunting, fishing, hiking, horseback riding, camping.
 - (c) access by COMMISSION agents and employees as necessary for such management of public recreational uses;
 - (d) the right to conduct public recreational uses compatible with the DISTRICT'S primary water management function, the DISTRICT'S property covenants, and limitations on development requiring these lands to be managed and maintained in an environmentally acceptable manner, so as to restore and protect its natural state and condition. Natural condition shall be interpreted to mean that only those minimum structural alterations to terrain, and impervious areas essential to public access and recreational use of these lands shall be constructed. DISTRICT approval shall be obtained for any construction beyond routine maintenance of existing improvements.
2. The DISTRICT hereby specifically reserves for its own use and exempts from this lease agreement:
 - (a) All other existing uses of the property. (Existing leases or licenses are described in Appendix B attached hereto and by reference made a part hereof).

- (b) All water management uses including periodic inundation, construction of works and appurtenant works, access roads and supporting structures. Water management uses shall take priority over all other uses including those general public recreational uses herein granted to the COMMISSION.
 - (c) All uses not compatible with water management uses or with DISTRICT property covenants or limitations requiring the land to be managed and maintained in an environmentally acceptable manner, so as to restore and protect their natural state and condition.
3. Other terms of this lease are:
- (a) The DISTRICT or the COMMISSION shall have the right to unilaterally terminate this lease. Either party may terminate this Agreement upon (60) days written notice to the other party. However, if such notice is given after March 1 of any calendar year, the date of termination shall be the first February 15 following the date of said notice.
 - (b) This lease shall expire five years from the effective date hereof but shall be renewable by mutual agreement of both parties.
 - (c) DISTRICT policy is to own and manage only those lands necessary for conduct of its water management responsibilities. As these responsibilities change due to project redesign, planning changes, or other reasons the DISTRICT may need to acquire additional lands through property exchange, dispose of part or all of its existing ownership included under this lease or transfer management authority to another agency. The DISTRICT therefore reserves the right to terminate this lease, or a portion thereof, at any time with advance notice of 45 days in order to release, exchange, or convey ownership.
 - (d) Specific COMMISSION responsibilities undertaken as term of this agreement are:
 - 1. To provide insofar as funds are available all suitable wildlife oriented public recreational opportunities on each major parcel described in this lease for this which a public demand is known. The DISTRICT shall have the final decision regarding resolution of conflicts between different

recreational activities on its lands covered by this lease. Any decisions relating to the regulation of wildlife or fresh water aquatic life shall fall within Commission guidelines.

2. To manage and maintain the lands and any facilities supporting general public recreational use in an environmentally acceptable manner and in accordance with good management practices. These duties include:
 - (a) Assist with fire protection.
 - (b) Notify District and COUNTY of current burn plans in accordance with management plan.
 - (c) Enforcement of applicable laws.
 - (d) Provide manpower, if available, and signs for boundary posting
 - (e) Repair of structures placed on the property by the COMMISSION.
 - (f) Public information on recreation.
 - (g) Maintenance of natural conditions.
 - (h) Periodic inspection and surveillance of lands.
 - (i) Necessary assistance to recreational users.
 3. To seek federal and state funds for construction and maintenance of roads, campsites and hiking trails on those lands and management of lands.
- (e) Specific DISTRICT responsibilities undertaken as terms of this agreement are:
1. The operation of all water management facilities and structures so as not to unnecessarily interfere with recreational uses.
 2. The District Land Management Coordinator, or his designee, shall provide assistance as necessary to COMMISSION personnel and public recreational users, shall assist in patrolling of the property and shall serve as the primary DISTRICT contact and agent on the property.

- (f) The COMMISSION shall submit an annual summary report by major land parcel to the DISTRICT on:
1. Public use figures.
 2. COMMISSION maintenance activities.
 3. Problem areas.
 4. Law enforcement summary.
 5. Status of land and wildlife conditions.
 6. The COMMISSION will submit annual activity reports to the DISTRICT, which will include, but not be limited to, recreational use and harvest data, management activities, and results of any wildlife population survey. These reports will be due on August 15 of each year.
- (g) The COMMISSION shall submit to the DISTRICT a Bi-Annual Recreational Use Plan, to be agreed upon by the DISTRICT, subject to annual review. The submission of the plan will coincide with the COMMISSION's bi-annual regulation cycle. Any deviation in the Master Recreational Use Plan will be reviewed by the DISTRICT.
- (h) Proposed deviations in authorized recreational use or in regulations governing such use shall be approved by the DISTRICT and COMMISSION. Comments received on proposed changes and current use shall be considered by the DISTRICT and COMMISSION for the succeeding year.
- (i) The COMMISSION agrees to utilize its best efforts to obtain federal and state funds for maintenance of the property including roads, and preventive fire techniques including the development of fire lanes and controlled burning consistent with the DISTRICT'S Interim Fire Plan. The burn plan shall be reviewed with the management plan on an annual basis.
- (j) By mutual agreement, the DISTRICT and COMMISSION may prohibit access and entrance onto said lands, upon notice to each other forty-eight hours prior to such prohibition, during periods of potential drought, flooding, fire hazard or other harm or disaster to said lands, as determined by the DISTRICT and COMMISSION.

- (k) Because land management activities such as forest management, range management, water management and prescribed burning have great impact on wildlife habitat and populations, such activities shall be coordinated and/or conducted mutually by the Division of Forestry, the DISTRICT, the COMMISSION and any other state agency that might be appropriate.
- (l) The COMMISSION shall neither transfer, nor assign, this lease Agreement, nor sublet the leased premises or any part thereof, nor grant any interest, privileges or license whatsoever in connection with this lease (except for hunting, fishing and access licenses).
- (m) It is clearly understood that nothing under the terms of the Agreement or any usage of the DISTRICT'S lands and waters contemplated by this Agreement will render the DISTRICT liable for property of personal damages resulting from any usage of this area by personnel of the COMMISSION or by persons authorized by the DISTRICT or COMMISSION to enter this area. Further, to the extent provided by and subject to the limitations and conditions specified in Section 768.28, F.S., the COMMISSION shall defend and indemnify the DISTRICT for any and all injuries to or death of any person or damage to any property resulting from the negligent or wrongful acts or omissions of the COMMISSION and those of its agents and employees under the terms of this agreement. Nothing contained herein shall be construed as a waiver of any sovereign immunity to which the COMMISSION or the DISTRICT may be entitled in accordance with Florida law.
- (n) The COMMISSION assures and certifies that it will comply with Title IV of the Civil Rights Act of 1964 (P. L. 88-352) and in accordance with the Act, no person in the United States shall, on the grounds of race, creed, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under the Wildlife Management and Recreation Area Program and will immediately take any measures necessary to effectuate this Agreement.

- (o) There is no conflict of interest or any other prohibited relationship between the DISTRICT and the COMMISSION.
- (p) The public purpose served by the lease is to provide public outdoor recreation.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement this 13th day of November, 1991.

Signed, sealed and delivered
our presence as witnesses:

Debbie Williams

Sam D. Demmond

Jimmie C. Bevis
Witness

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
Robert M. Brantly
Commission Attorney

ST. JOHNS RIVER WATER MANAGEMENT
DISTRICT

Joe E. Hill
~~XXXXXXXXXXXX~~, CHAIRMAN
JOE E. HILL

ATTEST

Lenore N. McCullagh
~~XXXXXXXXXXXX~~, SECRETARY
LENORE N. McCULLAGH
(AFFIX SEAL)

FLORIDA GAME AND FRESH WATER FISH
COMMISSION

Robert M. Brantly
COL. ROBERT M. BRANTLY
Executive Director
(AFFIX SEAL)

APPROVED AS TO FORM AND LEGALITY:

BY: John W. Williams
JOHN W. WILLIAMS
Sr. Assistant General Counsel
Office of General Counsel

12.3 Public Hearing Notice, Advertisements, and Press Release

12.3.1 Public Hearing Notice

NOTICE

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

PUBLIC HEARING

for the

Caravelle Ranch Wildlife Management Area Management Plan

Putnam & Marion County, Florida

7:00 P.M. Wednesday, July 8th, 2020

Connect to the meeting by going to

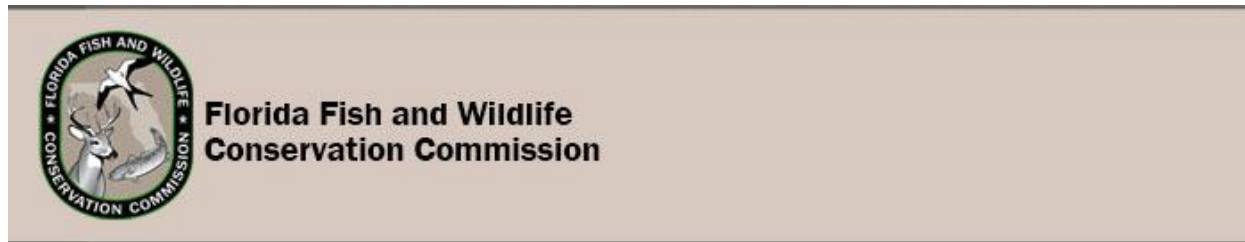
<http://fwc.adobeconnect.com/caravellepublichearing/>

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

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

A Management Prospectus for the Caravelle Ranch WMA is available upon request. For a copy please contact Dylan Haase by email at Dylan.Haase@MyFWC.com or by phone at (850) 487-9102. Additional information can be found by visiting our public hearing website: <https://myfwc.com/conservation/management-plans/upcoming/>

12.3.2 Internal FWC Press Release



(Having trouble viewing this email? [View it as a Web page.](#))

For immediate release: June 29, 2020

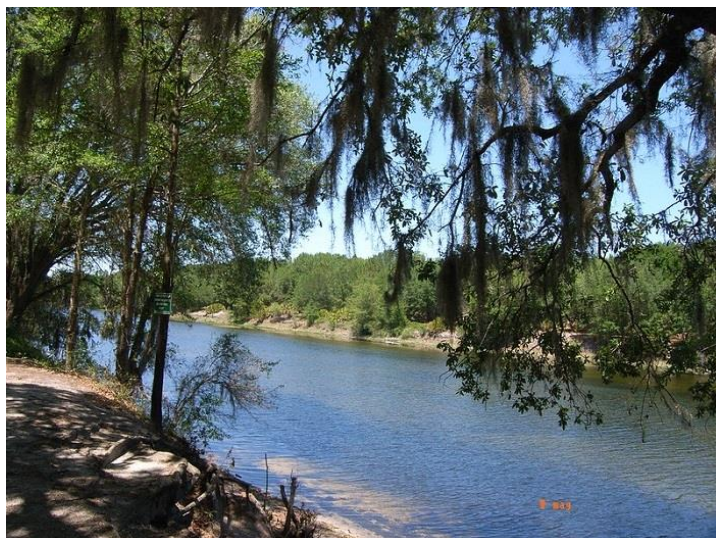
Media contacts:

Northeast Region: Greg Workman, 352-620-7335

Statewide: Jamie Rager, 850-404-6104; Carli Segelson, 772-215-9459

Photos available: <https://www.flickr.com/photos/myfwcmedia/albums/72157714906081997>

Suggested Tweet: We want your help to plan the future of Caravelle Ranch #WMA. Join us & learn more: <https://content.govdelivery.com/accounts/FLFFWCC/bulletins/2932100> @MyFWC #Florida



Help plan the future of Caravelle Ranch Wildlife Management Area

A 10-year plan for the Caravelle Ranch Wildlife Management Area will be presented at a public hearing virtually via Abode Connect, an online communications tool, on Wednesday, July 8. The

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

Florida Fish and Wildlife Conservation Commission (FWC) is conducting public hearings online to protect our communities due to COVID-19 social distancing guidelines. The public can watch and participate in these meetings for free using Adobe Connect.

People are invited to the 7 p.m. public hearing online at the following link: FWC.adobeconnect.com/caravellepublichearing. Please sign in as a guest and make sure your speakers are turned on.

FWC staff will present the draft land management plan for the FWC-managed WMA, and people will be encouraged to comment and ask questions. For more information on the [upcoming local public hearing](#), go to MyFWC.com/Conservation and select “Terrestrial Programs” then “Management Plans.”

The Caravelle Ranch WMA is between the Ocklawaha and St. Johns rivers. The area is set within a large mosaic of public conservation lands that include hardwood river swamps, pine flatwoods, hardwood hammocks and scattered pasture lands. It encompasses approximately 10,470 acres within Putnam County, and offers many opportunities for outdoor recreation including hunting, fishing, wildlife viewing, hiking, biking, horseback riding, paddling and camping.

The floodplain swamp, mesic and wet flatwoods, and mosaic of other natural communities in the Caravelle Ranch WMA provide important wildlife habitat and land connectivity. The Florida sandhill crane, gopher tortoise, little blue heron and American alligator are among the native species living there.

“Caravelle Ranch WMA was purchased to ensure the preservation of fish and wildlife resources, other natural and cultural resources, and for fish and wildlife-based public outdoor recreation,” **said Dylan Haase, FWC Senior Conservation Planner**. “This draft plan will specify how we intend to do that.”

All lands purchased with public funds must have a management plan that ensures the property will be managed in a manner that is consistent with the intended purposes of the purchase.

Hunting and fishing regulations are not included in this plan or meeting; those are addressed through a separate public process.

To obtain a copy of the land management prospectus for Caravelle Ranch WMA, call Dylan Haase at 850-487-9102 or email Dylan.Haase@MyFWC.com.

For more information and background on [management plans](#) and their objectives, visit MyFWC.com/Conservation and select “Terrestrial Conservation Programs” then “Management Plans.”

For more on the Caravelle Ranch WMA, go to MyFWC.com and select “Wildlife Viewing” then “Wildlife Management Areas.”



Florida Fish and Wildlife
Conservation Commission

MyFWC.com

QUESTIONS? [Contact the FWC](#)

STAY CONNECTED:



SUBSCRIBER SERVICES:

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

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

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

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



12.3.3 Newspaper

STATE OF FLORIDA

County of Putnam

The undersigned personally appeared before me, a Notary Public for the State of Florida, and deposes that the Palatka Daily News is a daily newspaper of general circulation, printed in the English language and published in the City of Palatka in said County and State; and that the attached order, notice, publication and/or advertisement:

The Florida Fish and Wildlife

Was published in said newspaper 1 time with said being made on the following dates:

06/27/2020

The Palatka Daily News has been continuously published as a daily newspaper, and has been entered as second class matter at the post office at the City of Palatka, Putnam County, Florida, each for a period of more than one year next preceding the date of the first publication of the above described order, notice and/or advertisement.

Debra Channell

Sworn to and subscribed to before me this 27th day of June, 2020 by Debra Channell, Administrative Assistant, of the Palatka Daily News, a Florida corporation, on behalf of the corporation.

Jeannette Eveland

Jeannette Eveland, Notary Public

My commission expires: April 30, 2021

Notary Seal

Seal of Office:



☒ Personally known to me, or
☐ Produced identification:
☒ Did take an oath

PUBLIC NOTICE

The Florida Fish and Wildlife Conservation Commission (FWC) announces a virtual PUBLIC HEARING for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area located in Putnam and Marion County, Florida.

FWC is conducting public hearings online to protect our communities due to COVID-19 (Coronavirus) social distancing guidelines. The public can watch and participate in these meetings for free using Adobe Connect, an online communications tool.

The meeting will start at 7:00 P.M. Wednesday, July 8th, 2020. Connect to the meeting by going to <http://fwc.adobeconnect.com/caravellepublichearing/>. Please sign in as guest and make sure your speakers are turned on.

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area (CRWMA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Caravelle Ranch WMA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit www.myfwc.com/about/rules-regulations/changes/.

A Management Prospectus for Caravelle Ranch WMA and copy of the agenda is available upon request from:

Florida Fish and Wildlife Conservation Commission,
Land Conservation and Planning Group,
620 South Meridian Street
Tallahassee, Florida 32399-1600.
Telephone: (850) 487-9102
Email: Dylan.Haase@MyFWC.com

Legal NO.: 00075679
06/27/20

AFFIDAVIT OF PUBLICATION

Star-Banner
Published – Daily
Ocala, Marion County, Florida

STATE OF FLORIDA
COUNTY OF MARION

Before the undersigned, a Notary Public of Said County and State, Nichelle Jones who on oath says that they are an authorized employee of the Star-Banner, a daily newspaper published at Ocala, in Marion County, Florida; that the attached copy of advertisement, being a notice in the matter of

The Florida Fish and Wildlife Conservation Commission FWC announces a virtual PUBLIC HEARING for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area located in Putnam and Marion County, Florida. FWC is conducting public hearings on

was published in said newspaper in the issues of:

6/28 1x

Affiant further says that the said STAR-BANNER is a daily newspaper published at Ocala, in said Marion County, Florida, and that the said newspaper has heretofore been continuously published in said Marion County, Florida, daily, and has been entered as second class mail matter at the post office in Ocala in said Marion County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the person of securing this advertisement for publication in the said newspaper.

The Florida Fish and Wildlife Conservation Commission (FWC) announces a virtual PUBLIC HEARING for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area located in Putnam and Marion County, Florida.

FWC is conducting public hearings online to protect our communities due to COVID-19 (Coronavirus) social distancing guidelines. The public can watch and participate in these meetings for free using Adobe Connect, an online communications tool.

The meeting will start at 7:00 P.M. Wednesday, July 8th, 2020. Connect to the meeting by going to <http://fwc.adobeconnect.com/caravellepublichearing/>. Please sign in as guest and make sure your speakers are turned on.

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area (CRWMA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Caravelle Ranch WMA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit www.myfwc.com/about/rules-regulations/changes/.

A Management Prospectus for Caravelle Ranch WMA and copy of the agenda is available upon request from:

Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning Group, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9102. Email: Dylan.Haase@MyFWC.com

June 28, 2020
#A000969861

Sworn to and subscribed before me this 28 day of June, A.D., 20 20

Harmony Stalter
Notary Public
HARMONY STALTER

(Print, Type or Stamp Name of Notary Public)



Ad #: A000969861

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

12.3.4 Florida Administrative Register Ad

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

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

Account: 1072 Invoice Date: 06/30/2020 Invoice Number: 104038

	P.O. #	Publication in Florida Administrative Register	#units	\$each	Extension
1	<u>B59932</u>	Vol/No: 46/123, June 24, 2020, Notice ID: 23366735	210	0.14	\$29.40
Invoice # must appear on all checks and correspondence. Please pay balance due: \$29.40 F.E.I.D. number: F 59-3466865 ***Net Due - 15 days - No Discount***					

Received: 6/24/20
J. Caravelle
Date of Service: 6/24/20
* Pay from FY 19/20 funds

TO INSURE PROPER CREDIT, PLEASE RETURN THIS PORTION.

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

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

Account: 1072 Invoice Date: 06/30/2020 Number: 104038 Amount Due: \$29.40

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

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

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

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

Vendor FEID:

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

ID 23366735

Notice of Meeting/Workshop Hearing

FISH AND WILDLIFE CONSERVATION COMMISSION

Freshwater Fish and Wildlife

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

DATE AND TIME: July 8, 2020, 7:00 p.m.

PLACE: Virtual public hearing via Adobe Connect - <http://fwc.adobeconnect.com/caravellepublichearing/>

GENERAL SUBJECT MATTER TO BE CONSIDERED: PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of Caravelle Ranch Wildlife Management Area (CRWMA).

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

A copy of the agenda may be obtained by contacting: Dylan Haase at Dylan.Haase@MyFWC.com or (850)487-9102.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 14 days before the workshop/meeting by contacting: Diana Kilgore at Diana.Kilgore@MyFWC.com. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

For more information, you may contact: Diana Kilgore at Diana.Kilgore@MyFWC.com.

12.4 Public Input

12.4.1 Management Advisory Group Meeting Results

Caravelle Ranch Wildlife Management Area (CRWMA) Management Advisory Group (MAG) Consensus Meeting Results

February 26, 2020 in Palatka, Florida

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

The MAG consensus meeting was held on the morning of February 26, 2020 at the St. Johns River Water Management District Headquarters, in Palatka, Florida in Putnam County. The ideas found below were provided by stakeholders for consideration in the 2020-2031 Management Plan (MP) with priority determined by vote. These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by FWC, the Acquisition and Restoration Council (ARC), and the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

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

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

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
1.	[6]	[11]	1. Acquire Inholdings Inholdings are a challenge for land management, especially with prescribed fire.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
2.	[6]	[16]	7. Continue prescribed fire program Prescribed fire is a very important land management tool.
3.	[3]	[8]	10. Continue regulated hunting Hunting is important for wildlife control and recreation opportunities.
4.	[3]	[11]	3. Continue monitoring and protecting cultural resources Some cultural resources are being looted, and artifacts are being sold.

Two items of equal rank:

5.	[2]	[6]	2. Restore altered hydrology Camp Branch and cross ditches in the pasture should be restored. Off-site impacts can occur with restored hydrology.
	[2]	[6]	5. Restoration plan for altered communities If it is an objective to restore pasture areas, develop a plan to help create a timeline to implement objectives for restoring these pastures.
7.	[2]	[8]	14. Evaluate cost effective options for Camp Branch The Barge Canal cuts Camp Branch, and on the south side of the canal there was a plan to reconstruct the water control structure at the outflow of Camp Branch. The bids came in very high, so look at other options to fix the water control structure.

Two items of equal rank:

8.	[2]	[9]	9. Allow compatible public use Have rules in place for optimal management of recreation use and impacts on natural communities.
	[2]	[9]	18. Maintain timber management activities FWC is doing a good job managing timber resources, and should continue timber management activities.
10.	[1]	[1]	4. Rare plant survey Changes in rare and listed plants are occurring due to climate change. Make sure all rare plants are included on the rare plants list.

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

Two items of equal rank:

- | | | | |
|-----|-----|-----|---|
| 11. | [1] | [2] | 12. Review public access Consider opening more of the area to vehicular traffic. The office is not accessible to the public. |
| | [1] | [2] | 20. Address UTV access UTV groups are becoming more popular, and there is increasing desire to have more UTV trails in the region. |

Two items of equal rank:

- | | | | |
|-----|-----|-----|--|
| 13. | [1] | [3] | 8. Exotic plant control Limited staff time limits how much of the area can be treated each year. |
| | [1] | [3] | 11. Continue all plant and animal surveys Develop an inventory of plants and animals on the area. Have some type of viewer to see which animals are using wildlife crossings. |

Two items of equal rank:

- | | | | |
|-----|-----|-----|---|
| 15. | [1] | [5] | 17. Consider native plant mitigation Plant native plants along the edges of the pasture areas to help encourage native plant growth in the pastures. |
| | [1] | [5] | 19. Coordinate with FNAI in the management plan FNAI has a wealth of resources and encourage them to participate in the management plan development process. |

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

- | | | | |
|--|-----|-----|---|
| | [] | [] | 6. Manage for uneven age classes It is important for the area to have uneven age classes for timber resources. |
|--|-----|-----|---|

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
	[]	[]	13. Consider expansion of regulated hunting There are good opportunities to hunt at Caravelle Ranch, including dove fields. There may be opportunities for additional hunting opportunities.
	[]	[]	15. Continue on-site residences. The residences allow for employee retention and help deter inappropriate uses. Having employees living on the area also helps improve management of the area.
	[]	[]	16. Address camping regulations The campground at Caravelle Ranch serves as a residence for some individuals. Regulations should be reviewed to address this issue.
	[]	[]	21. Work with FNAI on pine plantation community designation Having a pine plantation community designation can help managers identify appropriate desired future conditions for the pine stands on the area.

Caravelle Ranch Wildlife Management Area MAG Meeting Participants

Name

Affiliation

Active Participants

Jason Slater	FWC Area Biologist
Dan Dickson	FWC Law Enforcement
Doug Longshore	Florida Forest Service
Jeremy Olson	St. Johns River Water Management District
Chad Rischar	Backcountry Hunters and Anglers
Deborah Curry	Florida Native Plant Society
Adele Mills	Florida Department of Environmental Protection

Supportive Participants

Tina Hannon	FWC Habitat and Species Conservation (HSC), Regional Biologist
Matt Hortman	FWC HSC Assistant Regional Biologist
Justin Ellenberger	FWC HSC, District Biologist
Katherine Burke	FWC Public Access Services Office (PASO)
Tom M. Matthews	FWC PASO
Mark Jenkins	FWC PASO

Cade Cresap
Storm Wittenberg
Trevor Knight
Steven Hooley

Brent Bachelder
Sandy Oxenrider

FWC PASO
FWC HSC, Field Operations
FWC Division of Freshwater Fisheries Management
FWC HSC, Aquatic Habitat Restoration and
Enhancement
St. Johns River Water Management District
St. Johns River Water Management District

Invited but Unable to Attend

Jason O'Donoghue
Dan Hipes
Buddy Goddard
Mike Brown
David Nicholson
George Johnson
Jeff Glenn
Rob Ern
Mike Woodyard
Mark Bush
Lars Anderson
Kenny Deloach
Joyce King

Division of Historical Resources
Florida Natural Areas Inventory
Putnam County Commission District 5
Putnam County Planning Department
National Wild Turkey Federation
Natural Resources Conservation Service
Florida Trail Association
Bicycling stakeholder
Sunshine State Horse Council
Adjacent Private Landowner
Paddling Stakeholder
Hunting Stakeholder
Audubon Society

FWC Planning Personnel

Dylan Haase
Blake Finnegan
Lance Jacobson

Senior Land Conservation Planner, Facilitator
Land Conservation Planner, Co-Facilitator
Land Conservation Planner, Recorder

12.4.2 Public Hearing Report

PUBLIC HEARING REPORT
FOR
CARAVELLE RANCH WILDLIFE MANAGEMENT AREA
MANAGEMENT PLAN
HELD BY THE
CARAVELLE RANCH WILDLIFE MANAGEMENT AREA
MANAGEMENT ADVISORY GROUP
AND THE
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
JULY 8, 2020

The following report documents the public input that was received at the Caravelle Ranch Wildlife Management Area (CRWMA) Management Advisory Group's (MAG) public hearing for the update to the Management Plan for CRWMA that was held at 7:00-9:00 PM, on July 8, 2020. Due to COVID-19 gathering and travel restrictions, this meeting was held remotely via Adobe Connect.

CRWMA Management Advisory Group Introduction:

The meeting was introduced by Mr. Jason Slater, a CRWMA Management Advisory Group participant, who represented the CRWMA MAG. Mr. Slater indicated that he was one of seven stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated CRWMA MAG meeting held on February 26th, 2020. Mr. Slater stated that the Draft Management Plan was being presented tonight by FWC staff, and that hardcopies of the draft plan and the CRWMA MAG meeting report were available for download through Adobe Connect on their screens. Mr. Slater thanked everyone for attending and then introduced Mrs. Dylan Haase, Senior Conservation Planner, FWC, to facilitate and coordinate the presentation of an overview of CRWMA, FWC's planning process, and the draft components of the CRWMA Draft Management Plan.

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

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

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

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

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

Presentation of the CRWMA Draft Management Plan:

At this point, Mrs. Haase, began the presentation of the CRWMA Draft Management Plan. Mrs. Haase then completed and concluded the presentation of the CRWMA Draft Management Plan.

Questions and Comments on the CRWMA Draft Management Plan Presentation:

Mrs. Haase asked if there were any comments or questions from the public regarding the Draft Management Plan and encouraged everyone to utilize the Abode Connect chat box to notify staff that they would wish to provide public testimony. She informed them that all comments, questions, and public testimony will be duly considered equally by FWC.

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

Public Testimony on the CRWMA Draft Management Plan:

No members of the public audience notified staff indicating their intention to provide formal public testimony. Mrs. Haase again emphasized that the public hearing was for taking input regarding the CRWMA Draft Management Plan and opened up the public meeting for any further comments, questions, or public testimony.

No other speakers offered further comments.

Then Mrs. Haase declared the public hearing adjourned.

12.5 Land Management Review

2019 Land Management Review Team Report for Caravelle Ranch Wildlife Management Area

1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In cases where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team “shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan.”

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district or jurisdictional water management district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Caravelle Ranch Wildlife Management Area

Managed by: Fish & Wildlife Conservation Commission

Acres: 10,450

Counties: Putnam

Purpose(s) for Acquisition: to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.

Acquisition Program(s): CARL/SOR

Original Acquisition Date: 5/27/1993

Area Reviewed: Entire Property

Last Management Plan Approval Date: 8/19/2014

Review Date: 4/24/19

Agency Manager and Key Staff Present:

- Jason Slater, Manager
- Justin Ellenberger
- Tina Hannon
- Matthew Hortman

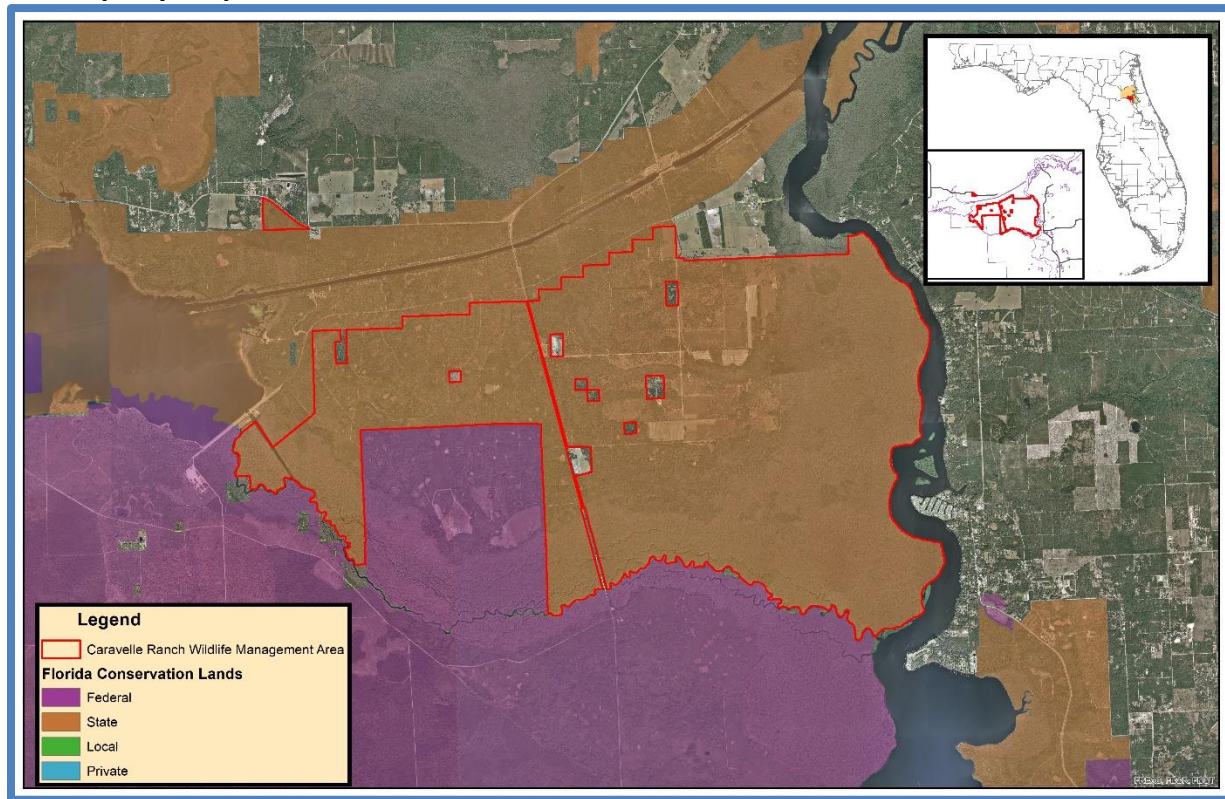
Review Team Members Present (voting)

- Adele Mills, DRP District
- Tess Simpson, Local Gov't.
- Travis Blunden, FWC
- Paul Duff, DEP District
- Doug Longshore, FFS
- Jeremy Olson, SJRWMD
- Eric Powell, Cons. Organization
- Private Land Manager, None

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Deborah Curry, FNPS
- Lance Jacobson, FWC

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed for purposes that are compatible with conservation, preservation, or recreation?

Yes = 7, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 7, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see Appendix A.

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the Florida Fish and Wildlife Conservation Commission (FWC) for using photos to depict the improvements of an area through time. (7+, 0-)
2. The team commends the FWC for the great work in flatwoods restoration through prescribed burning, timber thinning, and mechanical treatments. (7+, 0-)
3. The team commends the FWC for the great job with road maintenance. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends FWC increase the use of growing season fire in the mesic and wet flatwoods. (7+, 0-)

Managing Agency Response:

The FWC strives to use growing season burning to more closely mimic natural fire regimes in the flatwoods. However, it is operationally more difficult to conduct growing seasing burns due to administrative and weather constraints. So while FWC burns into to growing season as long as

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

Table 1: Results at a glance.

Major Land Management Categories		Field Review	Management Plan Review
Natural Communities / Forest Management		4.51	4.29
Prescribed Fire / Habitat Restoration		3.67	3.88
Hydrology		4.04	3.77
Imperiled Species		4.43	4.44
Exotic / Invasive Species		4.10	3.90
Cultural Resources		4.50	4.50
Public Access / Education / Law Enforcement		4.19	4.04
Infrastructure / Equipment / Staffing		4.36	N/A
Color Code (See Appendix A for detail)			
Excellent	Above Average	Below Average	Poor

possible, burn units are not typically saved for the growing season if they can be burned during the winter. FWC has determined that it is best to burn a burn unit exclusively in the dormant season instead of risking not being able to burn at all waiting for the right conditions during the growing season.

2. The team recommends FWC increase communication with the Bombing Range managers. (7+, 0)

Managing Agency Response:

The FWC concurs with the review team. Communication, cooperation and habitat management will continue to be improved between the two entities.

3. The team recommends that the restoration goals and delineation of the areas for the abandoned and improved pastures be stated in the management plan. (7+, 0-)

Managing Agency Response:

Current achievable restoration goals and areas are stated in the management plan. An overall long-term goal of restoring all the disturbed areas, including the entire cattle lease, has not been developed as it is not currently feasible. A more detailed statement describing the challenges of restoring improved pasture will be added to the restoration section of the next management plan. The lease area and other ruderal/converted sites are already mapped in the community types section of the management plan, and in the grazing plan.

4. The team recommends FWC inventory the wetlands for listed and invasive plant species. (7+, 0-)

Managing Agency Response:

The FWC agrees with the review team and will explore the possibility of adding specific surveys for listed and invasive plant species in addition to the OBVM monitoring.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural communities, specifically basin swamp, depression marsh, dome swamp, floodplain swamp, mesic flatwoods, mesic hammock, wet flatwoods, scrubby flatwoods, wet prairie, hydric hammock, and xeric hammock.**
2. **Listed species, plants and animals in general, and specifically gopher tortoise and pitcher plant.**
3. **Natural resource survey/monitoring resources, specifically listed species or their habitat monitoring, other non-game species or their habitat monitoring, fire effects monitoring, other habitat management effects monitoring, and invasive species survey and monitoring.**
4. **Cultural resources, specifically, cultural resource survey and protection and preservation.**
5. **Resource management (prescribed fire), specifically area being burned.**
6. **Restoration, specifically blackwater creek restoration.**

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

7. Forest management, specifically timber inventory, and timber harvesting.
8. Non-native, invasive, and problem species, specifically prevention and control of plants and pest/pathogens, and prevention of animals.
9. Hydrologic/geologic function, specifically roads/culverts, and ditches.
10. Surface water monitoring, specifically quality.
11. Resource protection, specifically boundary survey, gates and fencing, signage, and law enforcement presence.
12. Adjacent property concerns, land use, specifically expanding development, and inholdings and additions.
13. Public access, specifically roads.
14. Environmental education and outreach, interpretive facilities and signs, recreational opportunities, and management of visitor impacts.
15. Management resources, specifically waste disposal, buildings, equipment, staff, and funding.

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed:**

The review team scores did not identify items requiring improvement in the field.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Basin Swamp	I.A.1	4	4	4	4	4	4	5		4.14
Depression Marsh	I.A.3	4	5	3	4		4	5		4.17
Dome Swamp	I.A.4	5	5	3	4	3	4	4		4.00
Floodplain Swamp	I.A.5	5	5	4	4	5	4	4		4.43
Mesic Flatwoods	I.A.6	4	4	4	4	4	4	4		4.00
Mesic Hammock	I.A.7	5	4	5	4	5	5	4		4.57
Wet Flatwoods	I.A.8	5	4	5	5	5	5	5		4.86
Scrubby Flatwoods	I.A.9	4	4	5	5	3	5	5		4.43
Wet Prairie	I.A.10	5	4	5	5	4	4	5		4.57
Hydric Hammock	I.A.11	5	5	3	5	5	5	5		4.71
Xeric Hammock	I.A.12	5	5	5	5	5	5	5		5.00
Natural Communities Average Score										4.44
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5	5		5	5	3	5		4.67

Gopher Tortoise	I.B.1.a	4	4	5	4	4	3	5		4.14
Plants	I.B.2	5	5		4	4	3	5		4.33
Pitcher Plant	I.B.2.a	5	5	5	5	4	3	5		4.57
Listed Species Average Score										4.43
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	5	4	4	4	3	4		4.14
Other non-game species or their habitat monitoring	I.C.3	5	5	4	4	4	3	4		4.14
Fire effects monitoring	I.C.4	5	5	4	4	4	4	5		4.43
Other habitat management effects monitoring	I.C.5	5	5	4			4	5		4.60
Invasive species survey / monitoring	I.C.6	5	5	4	3	4	3	4		4.00
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	5	5	5	4	4	5		4.57
Protection and preservation	II.B	4	5	5	5	3	4	5		4.43
Cultural Resources Average Score										4.50
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	4	5	4	4	4		4.14
Frequency	III.A.2	4	4	4	4	3	4	3		3.71
Quality	III.A.3	3	4	4	4	2	4	3		3.43
Resource Management, Prescribed Fire Average Score										3.76
Restoration (III.B)										
Pastures	III.B.1	4	3	3	4	3	3	4		3.43
Blackwater Creek Restoration	III.B.2	5	5	3	5	5	3	4		4.29
Wetlands Restoration (Ditches)	III.B.3	3	3	x	x	3	3	3		3.00
Restoration Average Score										3.57
Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	5	4	4	4		4.57
Timber Harvesting	III.C.2	5	5	5	5	4	4	4		4.57
Forest Management Average Score										4.57
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	5	5	5	4	4			4.50
prevention - animals	III.D.1.b	4	5	4	5	3	3	5		4.14
prevention - pests/pathogens	III.D.1.c	5	5	4	5	4	3	4		4.29
Control										
control - plants	III.D.2.a	4	5	3	5	4	3	4		4.00
control - animals	III.D.2.b	3	5	3	5	3	3			3.67
control - pest/pathogens	III.D.2.c	3	5	x	5	4	3			4.00
Non-Native, Invasive & Problem Species Average Score										4.10
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										

Roads/culverts	III.E.1.a	4	5	4	5	4	3	5		4.29
Ditches	III.E.1.b	4	5	3	5	3	3	5		4.00
Hydro-period Alteration	III.E.1.c	4		2	4	4	3	4		3.50
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.93
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	5	5	5	3	4	4		4.43
Surface water quantity	III.F.3.b	3	5	5	5	3	3	3		3.86
Surface Water Monitoring Average Score										4.14
Resource Protection (III.F)										
Boundary survey	III.F.1	5	5	5	5	4	4	5		4.71
Gates & fencing	III.F.2	5	5	5	5	4	4	5		4.71
Signage	III.F.3	5	4	4	5	3	4	5		4.29
Law enforcement presence	III.F.4	5	4	4	x	3	4	4		4.00
Resource Protection Average Score										4.43
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	5	4	4	5	4	4		4.43
Issues with Inholdings	III.G.1.b	4	5	4	4	3	3	2		3.57
Inholdings/additions	III.G.2	4	5	4	4	4	3	4		4.00
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	4	5	5	4	4		4.43
Parking	IV.1.b	4	4	4	4	3	4	3		3.71
Environmental Education & Outreach										
Wildlife	IV.2.a	3	5	5		3	3	4		3.83
Invasive Species	IV.2.b	2	5	3		3	3	3		3.17
Habitat Management Activities	IV.2.c	3	5	5		3	4	3		3.83
Interpretive facilities and signs	IV.3	3	5	4	5	4	4	3		4.00
Recreational Opportunities	IV.4	4	5	4	5	4	4	5		4.43
Management of Visitor Impacts	IV.5		5	4	5	3	4	4		4.17
Public Access & Education Average Score										3.95
Management Resources (V.1, V.2, V.3, V.4)										
Maintenance										
Waste disposal	V.1.a	5	3	4	5	4	3	3		3.86
Sanitary facilities	V.1.b	4	5	3	3	3	3	4		3.57
Infrastructure										
Buildings	V.2.a	5	5	5	5	4	4	5		4.71
Equipment	V.2.b	5	5	5	5	5	5	5		5.00
Staff	V.3	5	5	5	4	4	4	4		4.43
Funding	V.4	5	5	5	5	4	4	4		4.57
Management Resources Average Score										4.36
Color Code:		Excellent	Above Average	Below Average	Poor					

Missing
VoteInsufficient
InformationSee
Appendix A
for detail

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

The review team scores did not identify items requiring improvement in the management plan.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Basin Swamp	I.A.1	3	2	4	4	5	3	4		3.57
Depression Marsh	I.A.3	3	2	3	5	5	4	4		3.71
Dome Swamp	I.A.4	3		3	5	5	4	4		4.00
Floodplain Swamp	I.A.5	3	3	4	4	5	4	4		3.86
Mesic Flatwoods	I.A.6	3	5	5	5	5	5	5		4.71
Mesic Hammock	I.A.7	3	5	3	5	5	4	4		4.14
Wet Flatwoods	I.A.8	3	5	4	4	5	4	4		4.14
Scrubby Flatwoods	I.A.9	3	5	4	5	5	4	4		4.29
Wet Prairie	I.A.10	3	3	4	5	5	4	4		4.00
Hydric Hammock	I.A.11	3	3	4	5		4	4		3.83
Xeric Hammock	I.A.12	3	3	4	5		4	4		3.83
Natural Communities Average Score										4.01
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5	5		5	5	4	5		4.83
Gopher Tortoise	I.B.1.a	4	4	4	5	4	4	4		4.14
Plants	I.B.2	5	5		5	4	4	4		4.50
Pitcher Plant	I.B.2.a	5	5	4	3	5	4	4		4.29
Listed Species Average Score										4.44
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	5	4	4	5	4	4		4.43

Other non-game species or their habitat monitoring	I.C.3	5	5	4	4	5	4	4		4.43
Fire effects monitoring	I.C.4	5	5	4	4	5	4	5		4.57
Other habitat management effects monitoring	I.C.5	4	5	4		5	4	5		4.50
Invasive species survey / monitoring	I.C.6	4	5	4	5	4	3	4		4.14
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	5	5	5	4	3	5		4.57
Protection and preservation	II.B	5	5	5	5	3	3	5		4.43
Cultural Resources Average Score										4.50
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	5	4	5		4	5		4.50
Frequency	III.A.2	4	5	4	5		4	4		4.33
Quality	III.A.3	3	5	4	5		4	4		4.17
Resource Management, Prescribed Fire Average Score										4.33
Restoration (III.B)										
Pastures	III.B.1	5	2	3	3	3	3	4		3.29
Blackwater Creek Restoration	III.B.2	5	4	3	3	4	3	4		3.71
Wetlands Restoration (Ditches)	III.B.3	4	2	3	5	2	3	4		3.29
Restoration Average Score										3.43
Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	5	4	4	4		4.57
Timber Harvesting	III.C.2	5	5	5	5	4	4	4		4.57
Forest Management Average Score										4.57
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	3	5	4	4	4	3	4		3.86
prevention - animals	III.E.1.b	3	5	4	4	4	3	4		3.86
prevention - pests/pathogens	III.E.1.c	5	5	4	4	4	3	4		4.14
Control										
control - plants	III.E.2.a	4	5	3	4	4	3	4		3.86
control - animals	III.E.2.b	4	5	3	4	4	3			3.83
control - pest/pathogens	III.E.2.c	4	5	3	4	4	3			3.83
Non-Native, Invasive & Problem Species Average Score										3.90
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	3	3	3	5	3	3	5		3.57
Ditches	III.F.1.b	3	3	3	5	3	3	5		3.57
Hydro-period Alteration	III.F.1.c	3		3	5	3	3	4		3.50
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.55
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	4	5	4	5	3	3	4		4.00

Surface water quantity	III.F.3.b	4	5	4	5	3	3	4		4.00
Surface Water Monitoring Average Score										4.00
Resource Protection (III.F)										
Boundary survey	III.G.1	5	5	5	5	3	3	5		4.43
Gates & fencing	III.G.2	5	5	5	5	3	3	5		4.43
Signage	III.G.3	5	5	5	5	3	3	5		4.43
Law enforcement presence	III.G.4	5	4		1	3	3	4		3.33
Resource Protection Average Score										4.15
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	5	5	4	4	2	3	4		3.86
Issues with Inholdings	III.H.1.b	5	5	4	4	2	3	4		3.86
Inholdings/additions	III.H.2	5	5	4	4	3	3	4		4.00
Discussion of Potential Surplus Land Determination	III.H.3	5	5	4	4	5	3	5		4.43
Surplus Lands Identified?	III.H.4	5	5	4	4	5	3	5		4.43
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	5	4	5	3	4	4		4.29
Parking	IV.1.b	5	5	4	4	3	4	4		4.14
Environmental Education & Outreach										
Wildlife	IV.2.a	4	4	4		3	3	4		3.67
Invasive Species	IV.2.b	3	4	4		3	3	4		3.50
Habitat Management Activities	IV.2.c	3	4	4		3	3	4		3.50
Interpretive facilities and signs	IV.3	4	5	4	5	3	3	4		4.00
Recreational Opportunities	IV.4	5	4	4	5	3	4	5		4.29
Management of Visitor Impacts	IV.5	5	4	4	4	3	4	4		4.00
Public Access & Education Average Score										3.92
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Hunting	VI.A.1	5	5	5	5	5	5	5		5.00
Fishing	VI.A.2	5	5	5	5	5	5	5		5.00
Nature Study	VI.A.3	5	5	5	5	5	5	5		5.00
Hiking	VI.A.4	5	5	5	5	5	5	5		5.00
Camping	VI.A.5	4	5	4	5	4	5	4		4.43
Grazing	VI.A.6	3	5	4	3	2	3	4		3.43
Timber Harvest	VI.A.7	5	5	5	5	3	5	5		4.71
Equestrian Use	VI.A.8	4	5	5	5	4	5	5		4.71
Bicycling	VI.A.9	4	5	5	5	5	5	4		4.71

Color Code:

Excellent

Above
Average

Below
Average

Poor

Missing
Vote

Insufficient
Information

See
Appendix A
for detail

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*
Scores 3.0 to 3.99 are *Above Average*
Scores 2.0 to 2.99 are *Below Average*
Scores 1.0 to 1.99 are considered *Poor*

12.6 Soil Series Descriptions

Map Unit Description

Ocala National Forest Area, Florida

[Minor map unit components are excluded from this report]

Map unit: Tc - Terra Ceia muck

Component: Terra Ceia (90%)

The Terra Ceia component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on flood plains on marine terraces on coastal plains. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 78 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map Unit Description

Putnam County Area, Florida

[Minor map unit components are excluded from this report]

Map unit: 3 - Myakka fine sand

Component: Myakka, non-hydric (75%)

The Myakka, non-hydric component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Myakka, hydric (15%)

The Myakka, hydric component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 8 - Arents, 0 to 2 percent slopes

Component: Arents (100%)

The Arents component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on fills, rises on marine terraces on coastal plains. The parent material consists of altered marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 9 - Pomona fine sand

Component: Pomona, non-hydric (75%)

The Pomona, non-hydric component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Pomona, hydric (10%)

The Pomona, hydric component makes up 10 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.



Survey Area Version: 13
Survey Area Version Date: 12/30/2013

Page 2 of 10

Map Unit Description

Putnam County Area, Florida

Map unit: 9 - Pomona fine sand

Component: Pomona, depressional (5%)

The Pomona, depressional component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 11 - Udorthents, excavated

Component: Udorthents, excavated (100%)

The Udorthents, excavated component makes up 100 percent of the map unit. Slopes are 0 to 4 percent. This component is on fills on marine terraces on coastal plains. The parent material consists of altered marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches.

Map unit: 12 - Electra fine sand

Component: Electra (85%)

The Electra component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces on coastal plains, knolls on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 19 - Pomona fine sand, depressional

Component: Pomona, depressional (80%)

The Pomona, depressional component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 20 - Bluff sandy clay loam, frequently flooded

Component: Bluff (75%)

The Bluff component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways on marine terraces on coastal plains. The parent material consists of loamy and clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is high. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, July, August, September, October, November, December. Organic matter content in the surface horizon is about 8 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.



Survey Area Version: 9
Survey Area Version Date: 12/07/2013

Page 3 of 10

Map Unit Description

Putnam County Area, Florida

Map unit: 20 - Bluff sandy clay loam, frequently flooded

Component: Bluff (75%)
surface

Map unit: 22 - Tomoka muck

Component: Tomoka (80%)

The Tomoka component makes up 80 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 60 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 23 - Palmetto fine sand

Component: Palmetto, non-hydric (75%)

The Palmetto, non-hydric component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Palmetto, hydric (10%)

The Palmetto, hydric component makes up 10 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 24 - Holopaw fine sand, frequently flooded

Component: Holopaw (80%)

The Holopaw component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map Unit Description

Putnam County Area, Florida

Map unit: 26 - Terra Ceia muck, frequently flooded

Component: Terra Ceia (90%)

The Terra Ceia component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 80 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 27 - Samsula muck

Component: Samsula (80%)

The Samsula component makes up 80 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, June, July, August, September, October, November. Organic matter content in the surface horizon is about 60 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 28 - Centenary fine sand

Component: Centenary (80%)

The Centenary component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on ridges on marine terraces on coastal plains, knolls on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 51 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY008FL Upland Hardwood Hammocks ecological site. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 29 - Riviera fine sand, frequently flooded

Component: Riviera (80%)

The Riviera component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 31 - Myakka fine sand, depressional

Component: Myakka, depressional (90%)

The Myakka, depressional component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, June, July, August, September, October. Organic matter content in the

Map Unit Description

Putnam County Area, Florida

Map unit: 31 - Myakka fine sand, depressional

Component: Myakka, depressional (90%)

surface horizon is about 5 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 33 - Winder fine sand

Component: Winder (80%)

The Winder component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 2 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 34 - Riviera fine sand

Component: Riviera, non-hydric (65%)

The Riviera, non-hydric component makes up 65 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Riviera, hydric (15%)

The Riviera, hydric component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 35 - Malabar fine sand

Component: Malabar, hydric (45%)

The Malabar, hydric component makes up 45 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Malabar, non-hydric (30%)

The Malabar, non-hydric component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is



Survey Area Version: 9
Survey Area Version Date: 12/07/2013

Page 6 of 10

Map Unit Description

Putnam County Area, Florida

Map unit: 35 - Malabar fine sand

Component: Malabar, non-hydric (30%)

greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Malabar, depressional (15%)

The Malabar, depressional component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is occasionally ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 36 - Shenks muck, frequently flooded

Component: Shenks (85%)

The Shenks component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of herbaceous organic material over clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is very high. Shrink-swell potential is high. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 40 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 37 - Ona fine sand

Component: Ona, non-hydric (80%)

The Ona, non-hydric component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during July, August, September. Organic matter content in the surface horizon is about 3 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Ona, hydric (10%)

The Ona, hydric component makes up 10 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map Unit Description

Putnam County Area, Florida

Map unit: 38 - Holopaw fine sand

Component: Holopaw, non-hydric (65%)

The Holopaw, non-hydric component makes up 65 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Holopaw, hydric (15%)

The Holopaw, hydric component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 2 inches during June, July, August, September. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY004FL North Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 39 - Holopaw fine sand, depressional

Component: Holopaw, depressional (85%)

The Holopaw, depressional component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 51 - Surrency fine sand, depressional

Component: Surrency, depressional (80%)

The Surrency, depressional component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 2 inches during January, February, March, April, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 61 - Newnan fine sand

Component: Newnan (75%)

The Newnan component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces on coastal plains, flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during August, September. Organic matter content in the surface horizon is about 2 percent. This component is in the R154XY008FL Upland Hardwood Hammocks ecological site. Nonirrigated land

Map Unit Description

Putnam County Area, Florida

Map unit: 61 - Newnan fine sand

Component: Newnan (75%)

capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 62 - Montecocha sand, depressional

Component: Montecocha, depressional (80%)

The Montecocha, depressional component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May, June, July, August, September, October. Organic matter content in the surface horizon is about 8 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 99 - Water

Component: Water (100%)

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

Map Unit Description

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

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

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

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

12.7 Management Plan Terms

Management Plan Goals and Objectives

Terms and Definitions

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

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

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

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

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

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

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

Hydrological assessment: A documented, systematic evaluation by a qualified

professional of the existing and historical quantity, quality, movement and function of water resources (e.g., computer modeling).

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

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

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

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

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

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

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

Poor, fair, good condition: Evaluating the condition of cultural resources is accomplished using a three-part evaluative scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists against the ideal. “Good” describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. “Fair” describes a condition in which there is a

discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A “fair” assessment is cause for concern. “Poor” describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

12.8 FNAI Element Occurrence Data Usage Letter



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

April 11, 2014

David Alden
Land Conservation & Planning
Florida Fish and Wildlife Conservation Commission
Tallahassee, FL

Dear David,

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

- FNAI will continue to provide our Florida Element Occurrence GIS database to FWC on a quarterly update basis;
- The FNAI GIS data will be available to FWC staff for reference and incorporation as required in management plan review and preparation.

Our database manager, Frank Price, currently provides this update via ftp to FWC staff on a quarterly basis. Current FWC contacts for the quarterly update are Beth Stys and Ted Hoehn. We are pleased to continue this beneficial collaboration with the Florida Fish and Wildlife Conservation Commission.

Sincerely,

Gary Knight
Director
Florida Natural Areas Inventory



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

12.9 FWC Agency Strategic Plan

The Florida Fish and Wildlife Commission

Strategic Plan 2020-2024



May 6, 2020

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

From the Executive Director

Balancing the needs of Florida's fish and wildlife resources with a diverse, growing population of people can be complicated and challenging. It is our honor to be the agency that is entrusted to take care of these resources on behalf of all Florida residents and visitors. The FWC team strives every day to uphold this public trust.

An important element of effective management and administration is focusing on strategic priorities that are vital in accomplishing our overall mission and adjusting resources accordingly. This reallocation must be done while continuing to attend to day-to-day functions. It is



critical to accurately identify these developing issues and set forth a strategy to address them. This formula is the basis for a strategic plan. As with any plan, it works best if it is a collaborative effort, with everyone having the opportunity to provide input in the planning process and identify emerging issues that require strategic solutions. We have put together diverse teams to develop the FWC's strategic plan, to encompass the major issues affecting our agency as a whole.

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

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

Respectfully yours,
Eric Sutton

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

Vision & Values

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

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

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

Additionally, we strive to make proactive resource decisions based on the best available science, balanced with social, economic and political interests, to create durable solutions with enforcement and managerial practicality. We empower staff to act locally on behalf of the agency to ensure decision making is as close to the issues as possible. We must cultivate a diverse and inclusive culture that

We envision...

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

cares and includes values of integrity, professionalism, dedication, and adaptability, and create an environment that is inclusive and supports diverse opinions and voices in decision making at all levels

Wildlife Governance Principles

Wildlife governance will:

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



Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

Our Core Values

Resource Stewardship We are passionate about Florida's natural resources and use our expertise to manage and conserve fish and wildlife

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

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

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

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

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

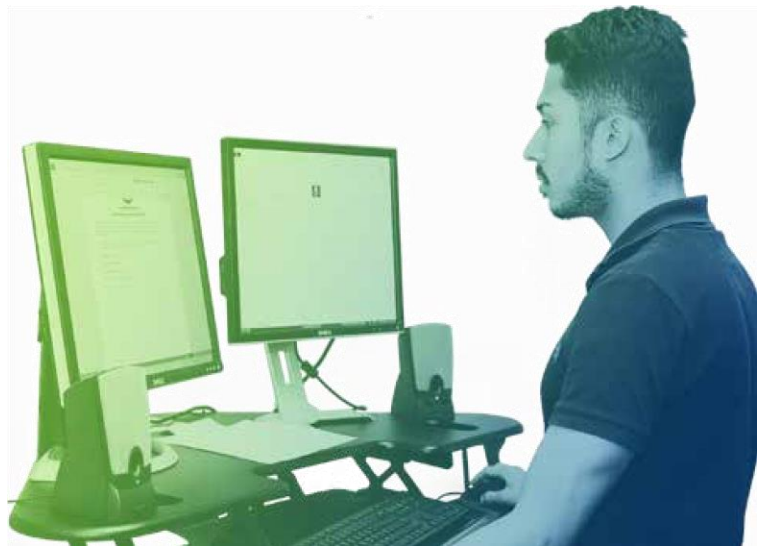


Business Practices

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

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

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



Overview of Strategic Planning

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

2014-2019 Strategic Initiatives

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

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

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

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

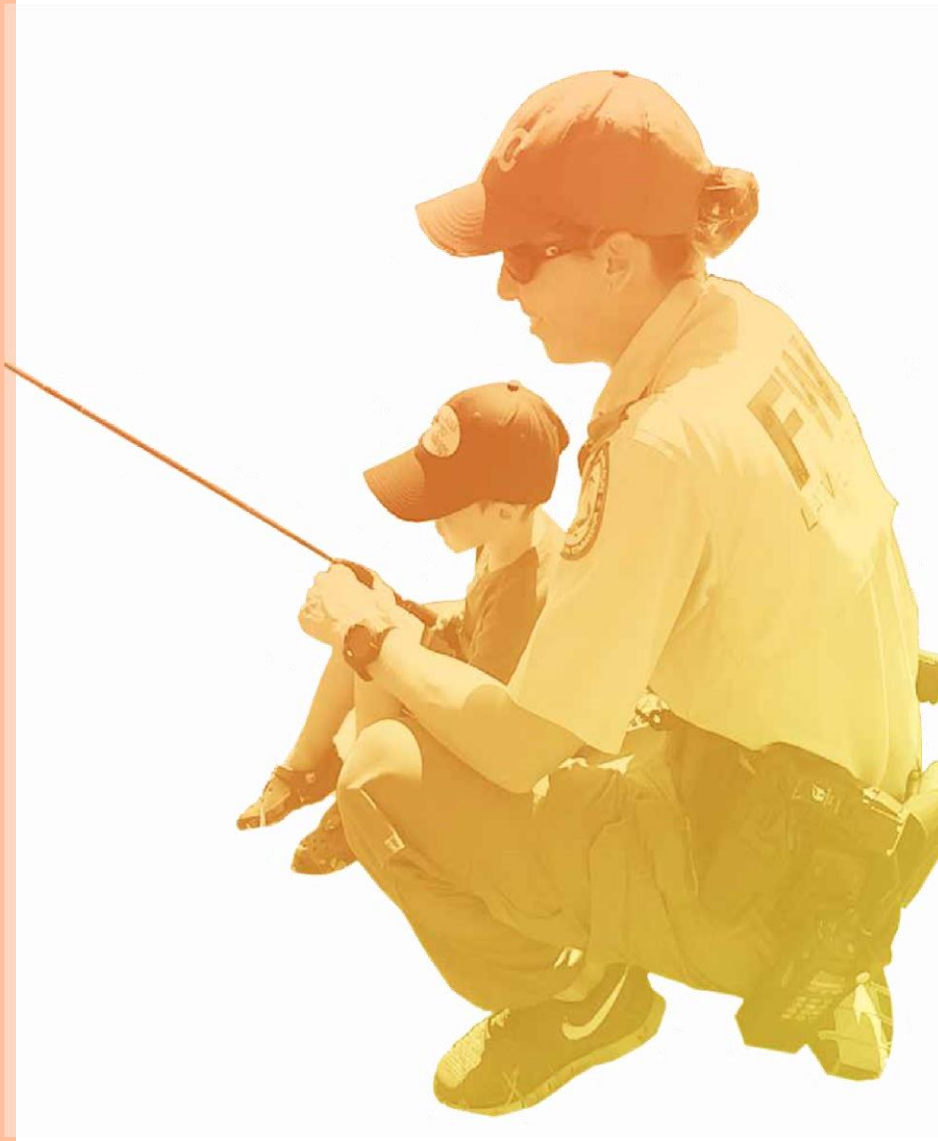
Expanding Participation in Conservation: Expand partnerships and FWC programs to encourage diverse youth and families to be more involved in the future of conservation.

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

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

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

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



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

Challenges we must address:

- ◆ Static revenue streams.
- ◆ Increasing program costs and infrastructure improvement needs.
- ◆ Loss of institutional knowledge with an unprecedented rate of upcoming retirements.
- ◆ Recruiting and retaining qualified employees.
- ◆ Leveraging legislative support for agency operations.
- ◆ Maintaining an adequate level of research, monitoring programs, and population assessments for fish and wildlife resource management.
- ◆ Balancing state and federal regulatory authorities and reducing unneeded regulatory burdens while ensuring sustainable species populations and protecting habitat.
- ◆ Securing habitat for fish and wildlife in the face of increasing development pressure.

Issues We Face

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

- ◆ Managing aquatic systems and resources without control over water quality, quantity, timing, and distribution
- ◆ Gaining public support for conservation and management
- ◆ Shifts in demographics, changing attitudes toward conservation, and declining percentages of hunters and anglers, which all impact our relevancy to the public

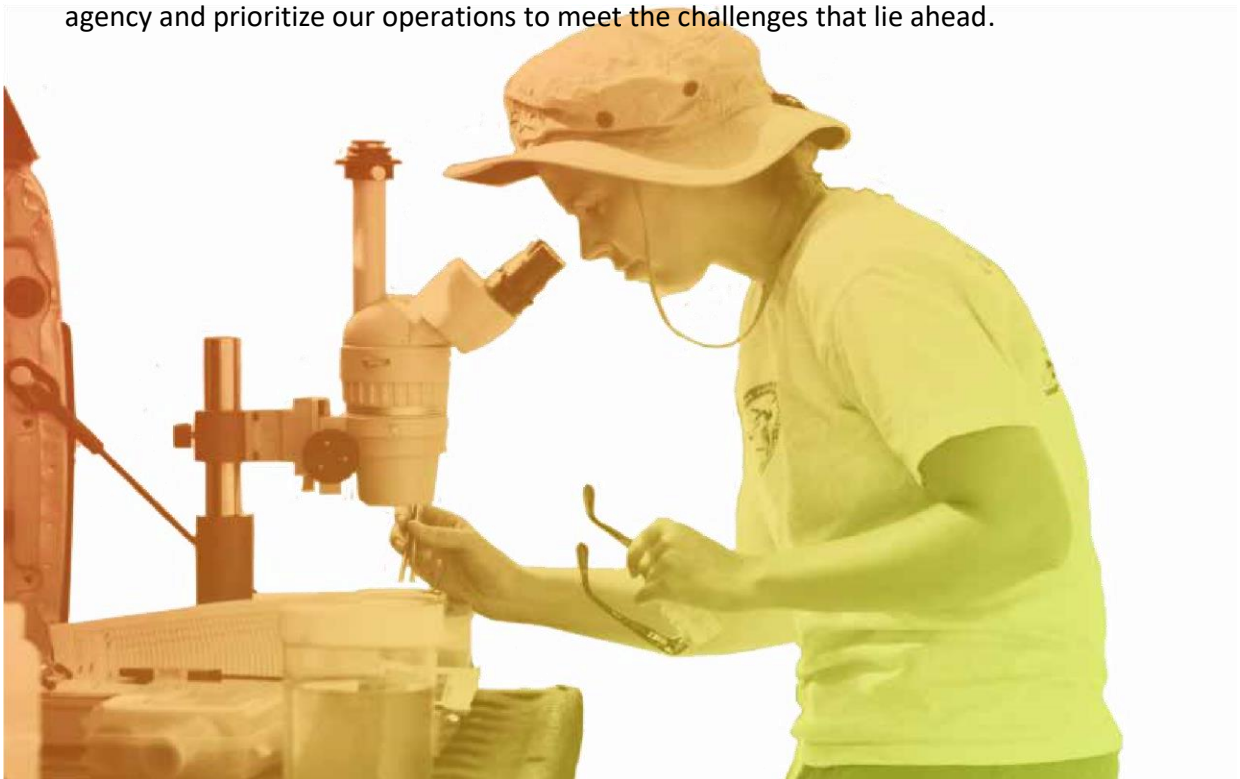
Meeting the Challenges

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



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

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



Our Organization

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

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

FWC

Florida Fish and Wildlife Conservation Commission

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

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



The Commissioners

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

Office of the Executive Director

OED

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

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



FWRI

Fish and Wildlife Research Institute

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

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

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



FFM

Freshwater Fisheries Management

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

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

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

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

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



HSC

Habitat and Species Conservation

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

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

Primary work areas include managing, maintaining, enhancing, and restoring native natural habitats on 1.4 million acres, assisting cooperators with wildlife management on another 4.5 million acres, and working with partners to connect and expand public conservation lands; providing technical assistance to private landowners to implement wildlife conservation strategies; restoring, enhancing, and managing publicly-owned aquatic resources to improve the ecological health of freshwater, estuarine, and marine habitats; directing, coordinating, and funding control of invasive upland plants on public conservation lands and invasive aquatic plants in public waterways; developing and implementing high-priority conservation activities to improve conditions for native and imperiled wildlife; addressing human wildlife interactions and managing the impact of native and nonnative fish and wildlife species; reviewing growth management and regulated land and water use project proposals that have potential to impact Florida's fish, wildlife, and habitat resources; and promoting, facilitating, and expanding nature-based tourism, recreational opportunities, and public participation in conservation .



Hunting and Game Management

HGM

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

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



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

courses and special events to ensure Florida hunters are well prepared to be safe, responsible, and conservation minded; and constructing and managing public shooting ranges located throughout the state.

Law Enforcement

LE

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

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

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



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

Marine Fisheries Management

MFM

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

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

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

Commissioners, interstate fisheries commissions, and federal fishery management councils that manage marine fish species such as snapper and grouper in federal and interstate waters; promoting responsible recreational and commercial fishing activities; and administering the statewide artificial reef programs.



Approach to the Future

Strategic Framework

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

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

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



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



Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

Establishing Dynamic Strategic Initiatives

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

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

Strategic initiatives:

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

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

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

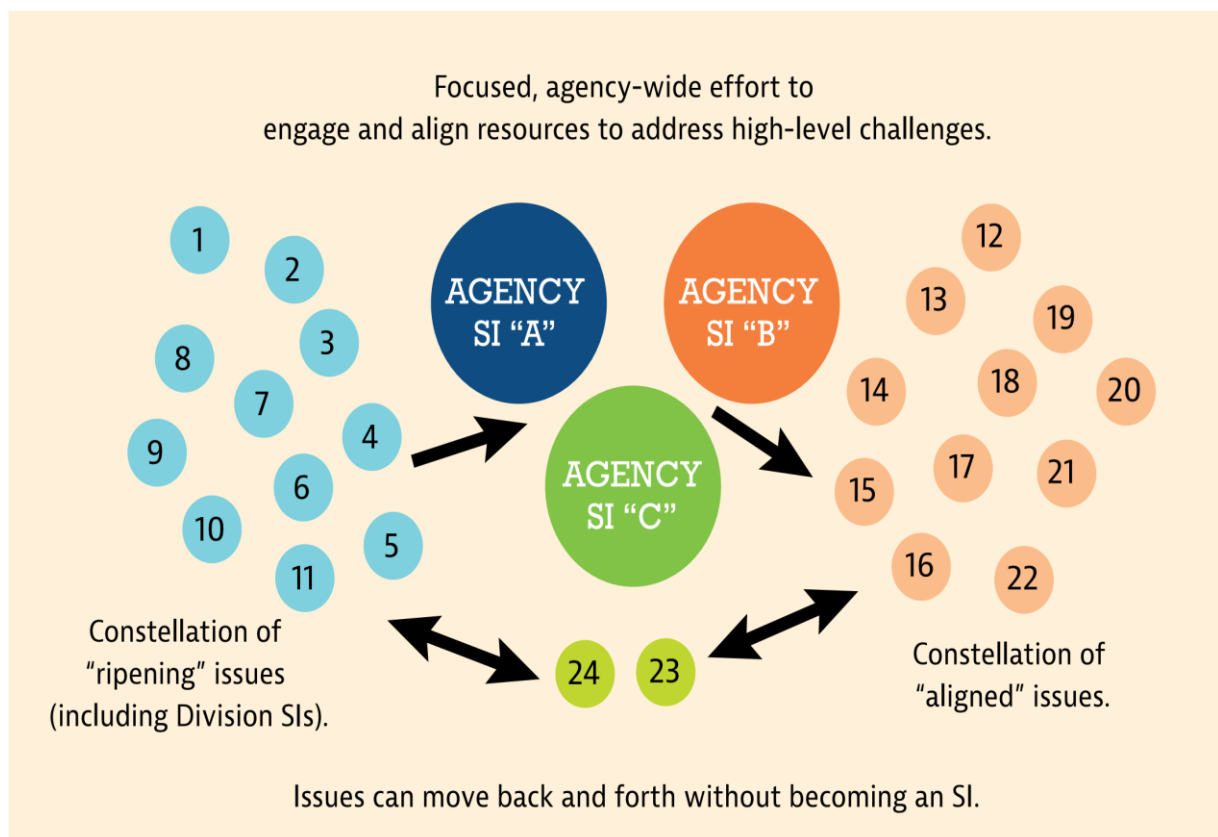


Figure 2. Dynamic Strategic Initiatives for 2020-2024

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

Integrative Work Planning

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

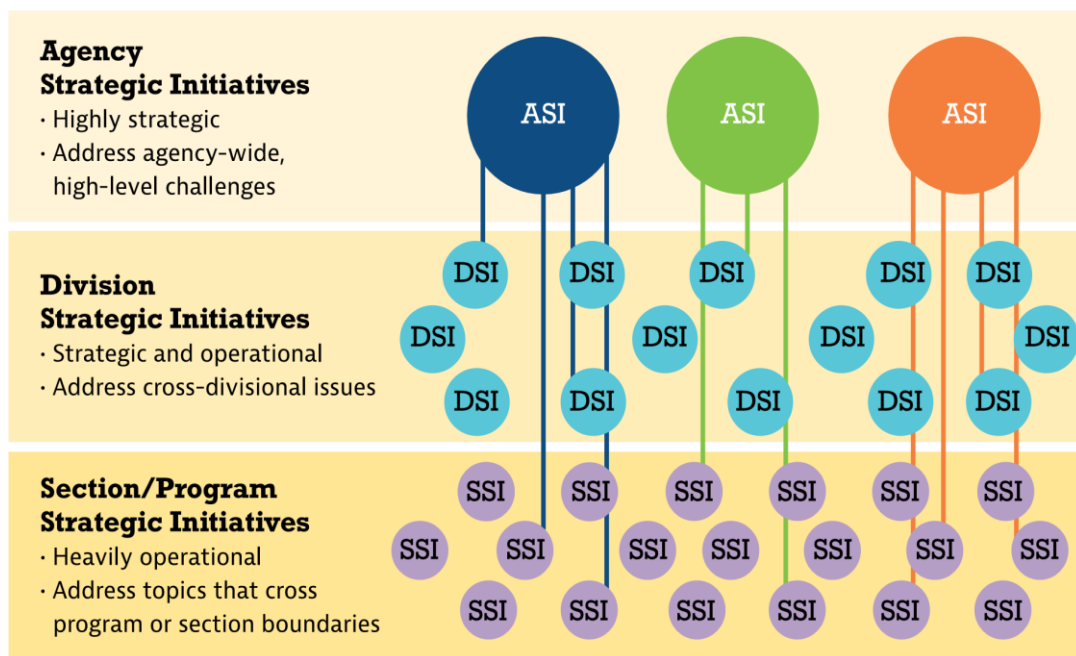


Figure 3. Strategic initiatives at the agency, division, and section or program levels. Vertical alignment of effort and coordination supports progress toward initiatives at multiple levels within the agency.

Future-focused Conservation

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



Strategic Initiatives: 2020

Agency Initiatives

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

Invest Inward

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

Landscape Conservation

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

Relevancy, Engagement, and Support

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

Division Initiatives

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

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

Strategic Alignment

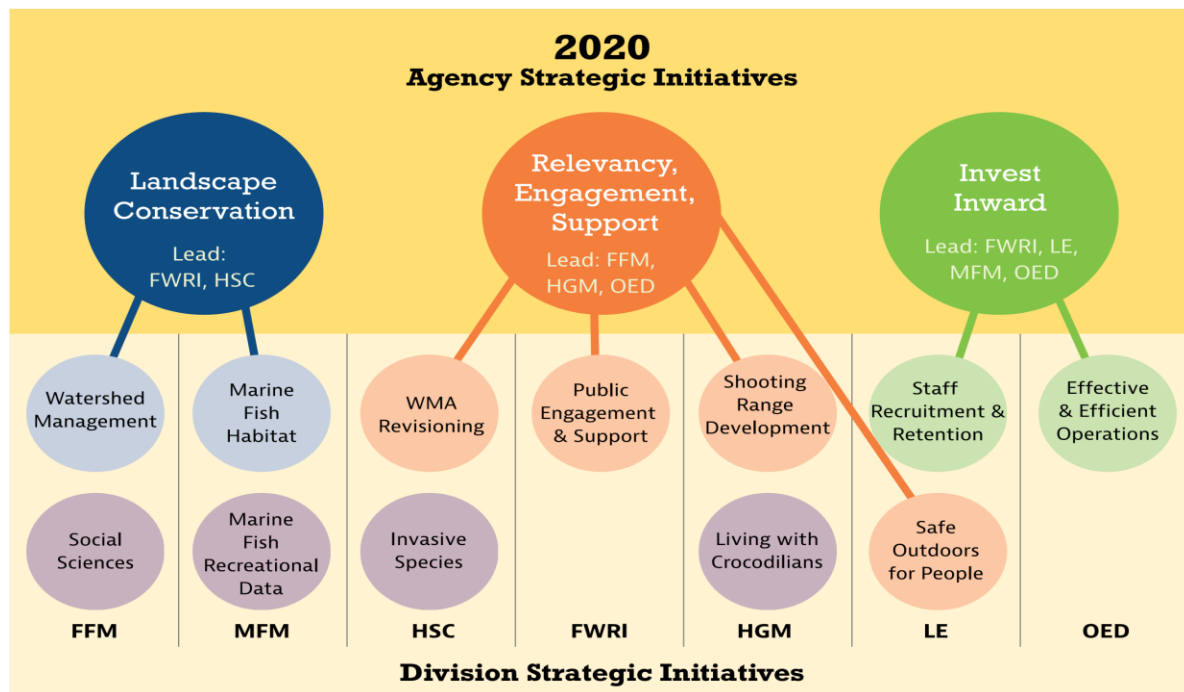


Figure 4. Vertical alignment between the agency and division initiatives shows multiple tiers of support for the broad initiative topics.

APPENDIX 1

2020 Strategic Initiative Selection Process

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

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



Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

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

Proposed Initiatives

	Agency Initiatives	Division Initiatives
FFM	<ul style="list-style-type: none"> Wildlife conflict Watershed management Social sciences 	<ul style="list-style-type: none"> Lake management plans Chipola and shoal bass Largemouth bass
FWRI	<ul style="list-style-type: none"> Relevancy Landscape conservation Diversify and modernize revenue K-12 and new resident education 	<ul style="list-style-type: none"> Staff recruitment and retention Integrative research on events Integrative research on events Integrate research and management
HGM	<ul style="list-style-type: none"> Landscape conservation Expand participation in conservation construction Wildlife conflict 	<ul style="list-style-type: none"> Implement R3 plan Shooting range Living with crocodilians campaign
HSC	<ul style="list-style-type: none"> Infrastructure improvement Landscape conservation Relevancy Invasive species 	<ul style="list-style-type: none"> WMA re-visioning (relevancy) HSC's role in landscape conservation
LE	<ul style="list-style-type: none"> Invest inward Public service Science and conservation 	<ul style="list-style-type: none"> Reinforce culture that cares Recruit and retain quality staff Safe environment for people
MFM	<ul style="list-style-type: none"> Invasives Wildlife trafficking Corals Invest inward 	<ul style="list-style-type: none"> Maximize productivity, capacity Marine fish habitat Marine fish recreation data collection
OED	<ul style="list-style-type: none"> Internal focus/invest inward Human dimensions and social science Connectivity with other D/Os Effective, efficient operation 	<ul style="list-style-type: none"> OED organizational management

Common Themes

Invest Inward

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

Landscape Conservation

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

Relevancy, Engagement, and Support

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

Social Science and Human Dimensions

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

Wildlife Conflict and Invasives

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

Operational: Proactive Research and Development/Other

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

12.10 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

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

DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

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

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

Definitions

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

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

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

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

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

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

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

Establishment of Apiary Sites on WMA/WEA

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

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

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

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

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

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

WMA/WEA Staff Responsibilities

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

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

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

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

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

Apiary Wait List and Apiary Application

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

apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the THCR Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during this drawing will be awarded the contract.

Apiary agreements are non-transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the THCR Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be \$40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of \$40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is \$80.
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is \$160.

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pineland communities and no more than 100 hives per site in areas with bountiful resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the Beekeeper shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see <http://www.leg.state.fl.us/Statutes/>), Rule Chapter 5B-54, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund – Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 23, 1986

S:\HSC\THCR\APIARY.BACKUP.POLICY\dlissupport@dos.state.fl.us_20100903_111446.pdf

Senate Resolution 580, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

APPROVED:

Division Director or Designee

DATE: _____

APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as “the COMMISSION,” and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as “the USER.”

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.
2. The COMMISSION Agrees:
 - a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

- b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.
- c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).

3. The USER Agrees:

- a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.
- b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.
- c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.
- d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.
- e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.
- f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.

- g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.
- h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.
- i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.
- j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than \$300,000 for bodily injury and \$100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.
- k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.
- l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)
- m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after

this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.

4. The parties mutually agree:

- a. This Agreement is not transferable.
- b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.
- c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.
- d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.
- e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.
- f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.
- g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.

- h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.
- i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities are found to be incompatible with the COMMISSION'S management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

USER SIGNATURE

Date: _____

Witness

Witness

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Mike Brooks, Section Leader
Terrestrial Habitat Conservation and
Restoration

Date: _____

Approved as to form and legality

Commission Attorney

Date: _____

AGREEMENT

ATTACHMENT 1

Use of Electric Fencing to Exclude Bears And Prevent Property Damage

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of

a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When

an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the “shock”. The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system. The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or “hot” wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately \$200 for a 40' x 40' area (160 linear feet of fence).

Materials:

- 1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
- 1 - 50 foot roll 12 gauge insulated wire
- 20 - 5 foot 5/8 inch dia fiberglass fence posts
- 5 - plastic gate handles
- 1 - 110 volt fence charger
- 1 - 10 foot ground pipe
- 4 - plastic electric fence signs

Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep

into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

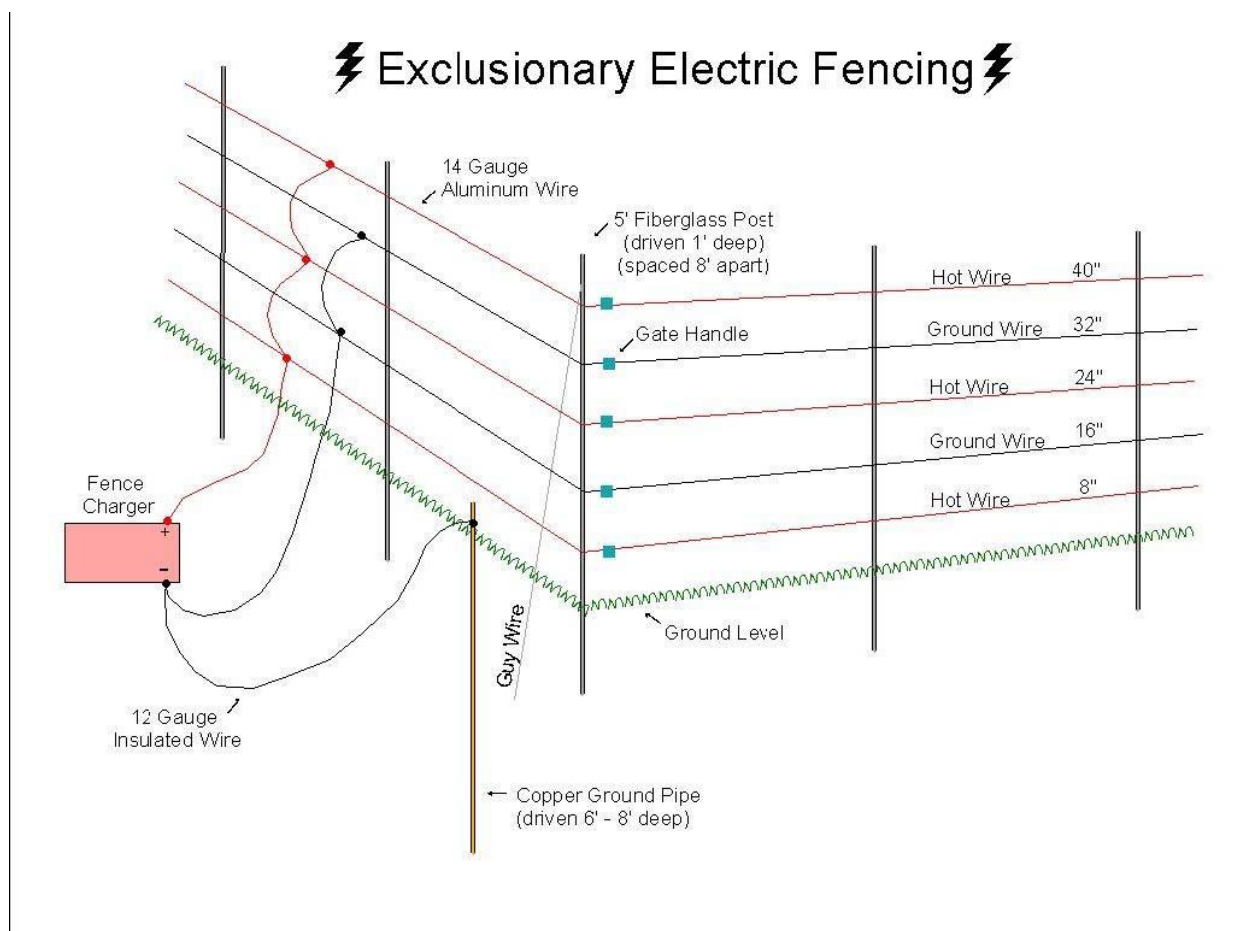
Tips to improve the effectiveness of your electric fence to deter black bears:

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.

9. When protecting a specific structure (like a shed or rabbit hutch), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.
10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.
11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences*. Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

APIARY SITE APPLICATION FORM

Florida Fish and Wildlife Conservation Commission

RETURN TO: The Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please print or type all information. Attach additional sheets if necessary.

Name _____ Telephone Number _____

Mailing Address _____

City or Town _____ County _____ Zip Code _____

Physical Address (If Different from Mailing Address) _____

Company Name: _____

Email Address _____

Requested Wildlife Management or Wildlife and Environmental Area(s)(see attached list of WMA/WEAs with apiary sites):

WMA/WEA _____ County _____ # of Sites _____

WMA/WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

Planned Number of Hives Per Site: _____ Permanent: ____ Seasonal: ____

Member of Beekeepers Association: Yes ____ No ____

Number of Years a Member _____

Name of Beekeepers Association: _____

Are you registered with Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI): ____ Yes ____ No ____ N/A If yes, please provide proof.

Are you current with any and all special inspection fees: ____ Yes ____ No ____ N/A. If yes, please provide proof.

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife
Management Area Management Plan

Do you follow all recommended Best Management Practices from FDACS/DPI?: _____ Yes _____ No

If no, then please explain on a separate piece of paper.

Please provide below a chronological history of your beekeeping experience. If you need more space, please provide additional sheets:

References: If a new apiary contractor, please provide on a separate piece of paper at least 3 references who can verify your apiary experience. Provide each reference's name, address, phone number and email address (if applicable). Please attach reference sheet to this document and submit.

MISSION STATEMENT

Management

Of

Florida Fish and Wildlife Conservation Commission's

Wildlife Management Areas

And

Wildlife and Environmental Areas

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animal's characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR

MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.
2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random survey of colonies using the FABIS (Fast African Bee Identification System) and/or the computer-assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees (AHB) (USDA-ID) or other approved methods by FDACS on a yearly basis or as requested.
3. Honey bee colony divisions or splits should be queened with production queens or queen cells from EHB breeder queens following Florida's Best Management Practices.
4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from EHB queen producers.
5. Florida Beekeepers should practice good swarm-prevention techniques to prevent an abundance of virgin queens and their ready mating with available AHB drones that carry the defensive trait.
6. Maintain all EHB colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of AHB.
7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be attractive to AHB swarms.
8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.

9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.
10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with AHB drones.
11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.
12. Treat all honey bees with respect.

RANDOM
SELECTION PROCESS
FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for this selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist:

1. The THCR Contract Manager will maintain an “Apiary Wait List Folder” on the THCR SharePoint for each WMA/WEA with apiary sites.
2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.
3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an “Apiary Wait List”.
4. If a list exists then the qualified applicant will be added to the list.
5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest.

6. The letter will request a response within 10 working days to make them eligible for the random drawing.
7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed from the waiting list*.
8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist.
9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds then the random drawing process will be used to determine who will be awarded the site.
10. Steps to be performed by the THCR Contract Manager to execute the random selection for an available apiary site are listed below:
 - a. The names of each interested apiarist will be noted on a 1" X 2" piece of paper and folded in half.
 - b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stirred up prior to the selection.
 - c. A non-biased person will be selected to reach into the bowl (which will be held above the selection person's eyesight) and randomly select one of the canisters.
 - d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.
 - e. The apiarist whose name is selected will be awarded the available site.
 - f. A new Agreement will be developed by the THCR Contract Manager.

*A new apiary application must be submitted once requestor's name is removed from a waiting list.

**12.11 Wildlife Conservation and Prioritization and Recovery
Program Strategy (WCPR)**

**Caravelle Ranch Wildlife Management Area
Species Management Strategy**

May 2011

Florida Fish & Wildlife Conservation Commission

Division of Habitat & Species Conservation

Terrestrial Habitat Conservation & Restoration Section

A product of the Wildlife Conservation,
Prioritization & Recovery Program



EXECUTIVE SUMMARY

The Florida Fish & Wildlife Conservation Commission's (FWC) Terrestrial Habitat Conservation and Restoration section (THCR) takes a proactive, science-based approach to species management on lands in the Wildlife Management Area (WMA/WEA) system. This approach uses information from statewide models in conjunction with input from species experts and people with knowledge of the area to create site-specific wildlife assessments of a number of focal species. Staff combine these assessments with management considerations to develop a wildlife management strategy for the area. FWC intends for this strategy to: 1) provide land managers with information on actions that should be taken, provided necessary resources are available, 2) promote the presence of and ensure the persistence of focal wildlife species on the area, and 3) provide measurable species objectives that can be used to evaluate the success of wildlife management on the area.

This document presents the results of a science-based approach to evaluating focal species needs within an ecosystem management approach for the Caravelle Ranch Wildlife Management Area (CRWMA). Natural community management focused on a set of focal species provides benefits to a host of species reliant upon the same natural communities. Monitoring select species provides information that verifies whether natural community management is having the desired effect on wildlife. Throughout the process, the role of the area in regional and statewide conservation initiatives was considered to maximize the potential benefit.

[Section 1](#) informs the reader about the process used to generate this document. [Section 2](#) describes historic and ongoing management actions on the property. [Section 3](#) provides a list of the focal and listed species on the area, and an assessment of each species' level of opportunity/need. This includes species-specific goals and objectives when appropriate. Objectives are identified for 6 species on this area; gopher frog, striped newt, gopher tortoise, Bachman's sparrow, brown-headed nuthatch, and northern bobwhite. [Section 4](#) describes specific land management actions recommended for focal species. This includes Strategic Management Areas (SMA) and Objective-Based Vegetation Management (OBVM) considerations. A SMA is an area in which FWC will apply a specific land or species management action(s) to facilitate conservation of a single or group of species. This section also discusses management necessary to ensure continued persistence of focal species. [Section 5](#) describes species-specific management (e.g. restocking, nest structures, etc.), the species monitoring prescribed for the area, and research that would be necessary to guide future management efforts. Species-specific management actions are recommended for the southeastern American kestrel and for bats. Monitoring efforts are described for 7 species; gopher frog, striped newt, gopher tortoise, Bachman's sparrow, brown-headed nuthatch, northern bobwhite, and Southeastern American kestrel. Opportunistic monitoring is suggested for a number of other focal and imperiled species. The conservation of CRWMA's wildlife requires interaction with other entities beyond local staff. Intra-agency coordination with 7 other units in FWC and inter-agency coordination with 6 other entities are identified in [Section 6](#). [Section 7](#) describes efforts prescribed "beyond the area's boundaries" to help affect conservation of the species on the area.

Continuation of current resource levels would be required to continue to meet all objectives and provide for most of the land management recommended in this document. The FWC will use a combination of private sector contract work and efforts of area staff to accomplish these activities.

Some of the monitoring recommendations will require additional resources, while FWC can accomplish others with continuation of existing resources.

Acronym List

ARCI	Avian Research and Conservation Institute
BMP	Best Management Practice
CARL	Conservation and Recreation Lands (program)
CRWMA	Caravelle Ranch Wildlife Management Area
DEP	Florida Department of Environmental Protection
DFC(s)	Desired Future Condition(s)
DOF	Florida Division of Forestry
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
FWLI	Florida Wildlife Legacy Initiative
FWRI	Florida Wildlife Research Institute
HCSS	Habitat Conservation Scientific Services (section)
HGM	Hunting and Game Management (section)
IPM	Invasive Plant Management (section)
ISM	Imperiled Species Management (section)
IUA	Important Use Areas
MU	Management Unit
OBVM	Objective Based Vegetation Management
OGT	Office of Greenways and Trails
PLCP	Public Lands Conservation Planning (project)
PVA	Population Viability Assessment
SCP	Species Conservation Planning (section)
SHCA	Strategic Habitat Conservation Area
SJRWMD	Saint Johns River Water Management District
SMA	Strategic Management Area
THCR	Terrestrial Habitat Conservation and Restoration (section)
UERP	Upland Ecosystem Restoration Project
USFWS	United States Fish and Wildlife Service
WCPR	Wildlife Conservation Prioritization and Recovery
WEA	Wildlife and Environmental Area
WMA	Wildlife Management Area

The map displays the Caravelle Ranch Wildlife Management Area (WMA) in Putnam County, Florida. The ranch is highlighted in red. Major roads are shown as black lines, and public lands are shaded in gray. The map includes a scale bar (0 to 18 miles) and a north arrow. An inset map of Florida shows the location of the WMA within the state.

Caravelle Ranch WMA (Putnam County)

- Caravelle Ranch
- Public Lands
- Major Roads

1 in = 160 miles

Section 1: Introduction

The FWC takes a proactive, science-informed approach to species management on lands in the WMA/WEA system. Staff integrates conservation planning, Population Viability Analysis (PVA) results, and geospatial analytical techniques to model potential habitat to help FWC determine where to affect focal species conservation. Staff combines the landscape level assessments with input from species experts and people with knowledge of the area to create site-specific wildlife assessments for a number of focal species. Staff combines these assessments with management considerations to develop a wildlife management strategy for the area or WMA complex.

The FWC intends for this Strategy to: 1) provide land managers with information on actions that should be taken provided the necessary resources are available, 2) promote the presence and facilitate the persistence of focal wildlife species on the area, and 3) provide measurable species objectives that can be used to evaluate the success of wildlife management on the area. On FWC lead areas, goals and objectives included in the Management Plan (formerly known as Conceptual Management Plan) are referenced when discussing the species and drafting the Strategy; therefore this Strategy will help guide and support the goals of the Management Plan. The species-specific objectives identified in this Strategy will be incorporated into the Management Plan and this Strategy will be appended to the Management Plan.

In this document, we define goals, objectives and strategies as follows: Goals are broad statements of a condition or accomplishment to be achieved; goals may be unattainable, but provide direction and inspiration. Objectives are a measurable, time-specific statement of results responding to pre-established goals. Strategies are the actions that will be taken to accomplish a goal or objective.

Staff uses species-specific habitat models to create statewide potential habitat maps. A GIS analysis was conducted to determine which of the focal species were modeled to have potential habitat on each area. We use local staff's knowledge, species-expert knowledge, and area-specific maps of natural communities to refine habitat information for each species and evaluate the area's potential role in conservation of the species. A workshop is conducted at which all individuals involved in the decision making process discuss the focal species status, evaluate opportunities for land and species management on the area, and decide on appropriate monitoring and/or research actions. Some species cannot be expected to persist on an area based solely on area-specific measures; therefore, this strategy identifies intra- and interagency coordination and any "beyond the boundary" considerations (i.e. working with neighboring landowners) necessary for the management of focal species. Area-specific species objectives, a list of necessary actions to achieve these objectives, and the monitoring necessary to verify progress towards objectives are agreed upon and used to create the area's Strategy.

The primary focus of this approach is non-game species; however, 2 of the focal species are game birds. Specific game management actions are not included in this Strategy, though game management actions are considered when drafting the Strategy and are compatible with the actions

prescribed by this Strategy. While this Strategy focuses on the CRWMA, it considers the role of the area within the larger state or regional context. Similarly, while the Strategy has species-specific objectives and actions, it does not endorse single-species management. The FWC's land management focuses on natural community management that benefits the host of species that naturally occur in each natural community. However, some species may need directed actions if they are to recover from past declines or be restored to habitat from which they were extirpated. By implementing the Strategy, FWC believes our management will benefit the largest suite of native wildlife by keeping common species common and aiding in the recovery of listed species.

2 Section 2: Current and Historic Management on Caravelle Ranch Wildlife Management Area

The CRWMA consists of 3 portions (Figure 1), each with a different state agency receiving a lease to manage their portion of the property. The State purchased the 5,170-acre portion on which FWC has lead management authority in 1994 through the Conservation and Recreation Lands (CARL) program. Additions have increased the acres on which FWC is lead to 5,789. The Saint Johns River Water Management District (SJRWMD) purchased the southern 6,541 acres of CRWMA using Save Our Rivers funds in 1992. The State purchased the 11,486 acres north of the FWC managed portion in 1995 and leased the management of these acres to the Department of Environmental Protection's (DEP) Office of Greenways and Trails (OGT). A sublease assigned the FWC as a cooperator and allowed this portion to be part of the CRWMA. Later additions to the DEP portion of CRWMA have brought the total DEP lead acres to 16,354.

Through a cooperative agreement, FWC manages much of the actively managed natural communities under SJRWMD management authority on CRWMA. This document reflects this agreement and focal species assessments on the FWC managed portion of CRWMA (hereafter called FWC lead) will refer to areas under lease to FWC and SJRWMD (12,330 acres). To date, FWC runs hunting activities on the DEP portion of CRWMA, but DEP handles other management activities like timber management and prescribed fire. For this document, we will call portions of the CRWMA under DEP management authority DEP lead, and CRWMA will refer to the entire 28,684-acre parcel.

Prior to 1965, previous owners used the area for commercial timber operations, cattle grazing, and hunting. Trees were removed from portions of the property east of State Highway 19 (SR19) in the late 1960s and early 1970s to create pastures for cattle managed under the Caravelle Ranch Cattle Company of Palatka. Acreage east of SR19 was ditched to remove standing water from pastures to improve forage and crop production. Additional water control structures were installed to retain water for cattle. At this time, the FWC lead acres were used as a hunting preserve. Managers reported high populations of turkey, quail, deer, and dove during this time. At some point, land managers released feral hogs to supplement the existing population. Over time, the feral hogs became a problem due to their competition with cattle for grain.

Previous landowners managed the flatwoods west of SR19 and south of Rodman Road for timber production, hunting, and some cattle grazing during the 1960s. Most of the timber was harvested during the 1970s and 1980s, and replanted as a slash pine (*Pinus elliottii*) plantation. Most timber

on the FWC lead is from this reforestation. A subsequent lack of prescribed fire created conditions with extensive shrub cover and little herbaceous groundcover in the years before State ownership. A private hunting club maintained a lease on the western portion of CRWMA and created the extensive network of roads and wildlife openings currently used by area managers.

Caravelle Ranch WMA Management Authority by Agency

*Note: FWC manages SJRWMD acreage under a cooperative agreement.
Boundaries and acreages from FNAI Managed Areas shapefile.*

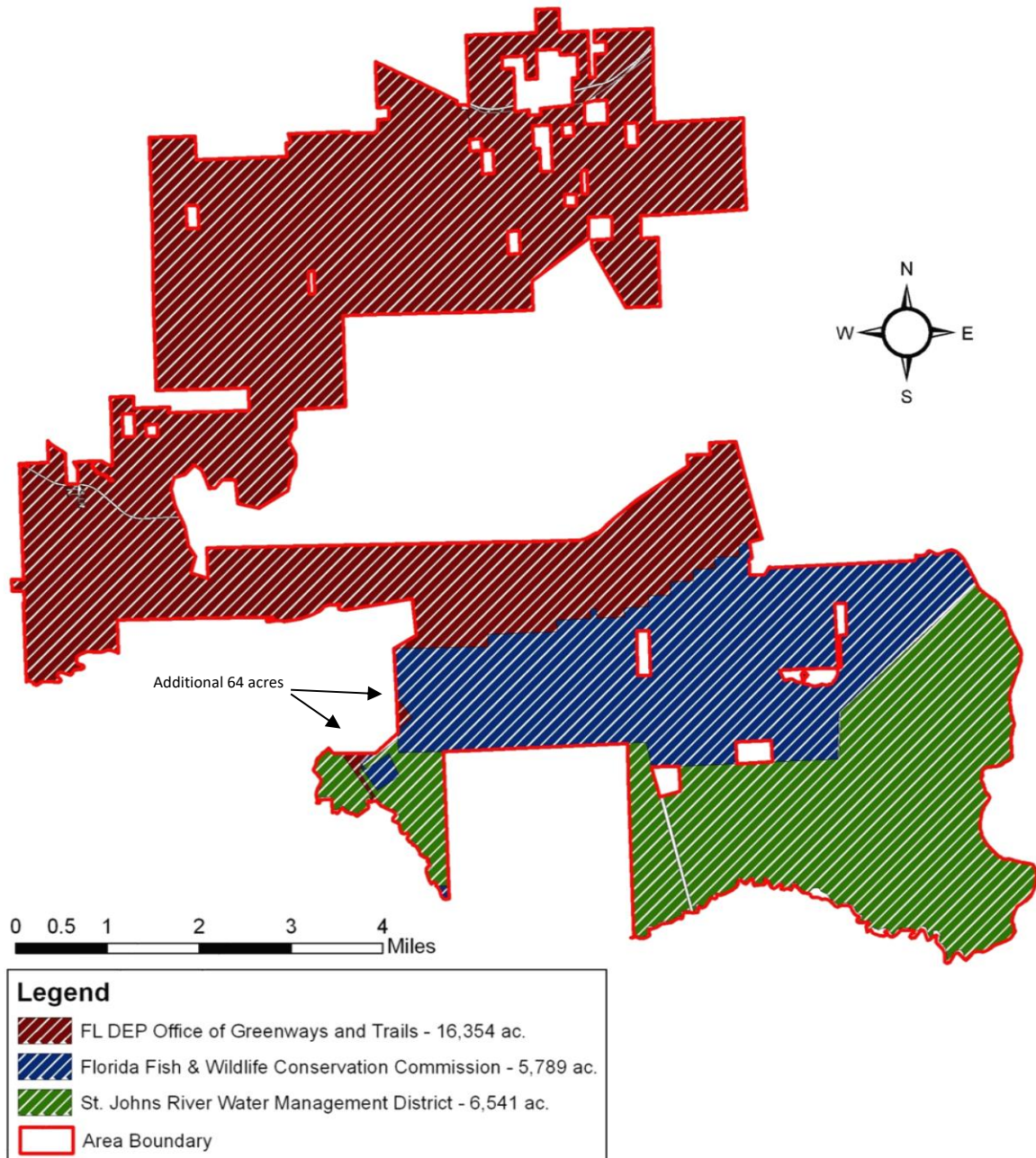


Figure 1: Caravelle Ranch WMA by lead management agency.

During the 1930s, the State of Florida Canal Authority managed the acres that later became the DEP lead acres. The Canal Authority was authorized to create and maintain the Cross Florida Barge Canal in 1933. Ground was broke for the canal in 1935 and again in 1963. This canal currently bisects CRWMA and connects the St. Johns River to the Rodman Reservoir to the west. A structure with a flap gate located on the south bank of the barge canal regulates the flow of water into the Camp Branch Creek. This creek flows south and east through the FWC lead before draining into the St. Johns River. Water levels in the creek are entirely dependent on water levels in the canal.

Landowners harvested bald cypress in the hardwood swamps along the southern portion of CRWMA during the 1930s and 1940s. Additional timber harvest occurred in these areas during the late 1980s when the Federal Deposit Insurance Corporation owned the property. Roads leading into the portion of CRWMA now under SJRWMD management authority were created at this time to facilitate timber removal.

The portion of CRWMA under management by SJRWMD has been open to public hunting and other passive recreational activities since being established as a WMA in 1992. CRWMA provides archery, muzzleloading, general gun, small game, and spring turkey seasons.

Current management actions on the FWC lead focus largely on the restoration and maintenance of natural communities like mesic flatwoods and wet flatwoods ([Table 1](#)). Prescribed fire is the most frequently used management action on the FWC lead. Historically, fire helped maintain about 5,804 acres of natural communities on the FWC lead, comprised largely of mesic and wet flatwoods. To meet desired future conditions (DFC) for vegetative parameters, staff uses a 2-3 year fire return interval in flatwoods utilizing a mixture of dormant and growing season fire. Pasture and ruderal areas typically receive fire every 2 years during winter months after the grasses dry out. Most non-actively managed natural communities that are fire maintained (e.g., depressional marshes) are embedded within actively managed portions of the WMA and burned when fire originates in surrounding uplands.

When originally acquired by the State, most of the fire-dependent communities on the FWC lead were not conducive to prescribed fire due to high fuel loads. Staff spent considerable time and labor reducing fuel loads in these areas to improve their suitability for prescribed burns. As of 2010, all acres within fire-maintained natural communities have received at least one application of prescribed fire, with most acreage into a second or third rotation since FWC acquisition. Other management actions used on the FWC lead include timber thinning in flatwoods when basal areas exceed desired conditions, mechanical vegetation treatments (i.e., mowing or roller-chopping) prior to prescribed fire, and the use of herbicide to treat non-native and invasive plant species. Invasive species found on the FWC lead include tropical soda apple (*Solanum viarum*), Chinese tallowtree (*Triadica sebifera*), cogongrass (*Imperata cylindrica*), torpedograss (*Panicum repens*), and camphor tree (*Cinnamomum camphora*).

The FWC has initiated a hydrologic restoration project involving Camp Branch Creek on the FWC lead with a projected completion date of spring 2011. A 5,000 ft portion of the creek currently runs through a ditch created in the late 1960s that lies just north of the historic creek bed. During periods of normal water flows, this ditch holds the entire creek flow as it moves towards the St. Johns River. The restoration project proposes to return water to the historic creek channel through the complete filling of the ditch or through the installation of a weir/diversion structure at the beginning of the ditch. The use of the weir/diversion structure will shift most water back into the historic creek channel, but would allow some flow into the ditch during high water events.

Table 1. Mapped acreage of current and historic plant communities on FWC lead portion of CRWMA including management status and number of focal species that use the community.

Community Type	Estimated Current Acreage	Estimated Historic Acreage	Actively Managed¹	# of focal species that use the NC
Basin Swamp	21	41		6
Baygall	-	10		2
Depression Marsh	84	91		6
Dome Swamp	90	95		5
Floodplain Swamp	3,356	3,372		4
Hydric Hammock	2,440	2,454		3
Mesic Flatwoods	850	4,719	Yes	12
Mesic Hammock	709	617		4
Open Water	17	-		2
Improved Pasture	0.3	-		7
Pine Plantation	1,149	-		3
Ruderal	2,297	-		4
Scrubby Flatwoods	23	26		12

Upland Mixed Forest	134	-		3
Wet Flatwoods	1,193	950	Yes	8
Wet Prairie	29	18		4
Xeric Hammock	2	-		7
Total Acres	12,394²	12,394²		

¹ Communities that are actively managed and monitored via the OBVM process. Other communities are managed, but not monitored via OBVM.

² Total acreage includes an additional 64 acres of mesic flatwoods (19.5 acres), floodplain swamp (36.6 acres), and ruderal (7.9 acres; Kirkpatrick Dam spillway) under DEP management according to FNAI's managed areas shapefile. The 19.5 acres of mesic flatwoods actually fall under FWC management.

Wildlife species currently monitored on the FWC lead include spring call surveys for Northern bobwhite, spotlight surveys for white-tailed deer (*Odocoileus virginianus*), quarterly avian biodiversity surveys using local Audubon groups, bluebird (*Sialia sialis*) nest box monitoring, kestrel nest box monitoring, herpetofauna monitoring with drift fences, and opportunistic assessment of Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) use of a constructed bat house. Results of the bobwhite surveys are included in the species assessment ([3.2.11](#)). White-tailed deer populations on the FWC lead remain stable and continue to provide good hunting opportunities. Volunteers from local Audubon groups opportunistically document all species of birds they encounter while walking around the property. These surveys do not record total number of individual birds observed during these surveys, but have been successful in documenting several new species for the WMA's bird list. Bluebirds continue to use nest boxes and fledge young annually. An ephemeral wetland survey was completed for the FWC lead in 2010 and concluded that many wetlands west of State Highway 19 were in good condition as a result of FWC management.

Section 3: Area Focal Species

FWC's land management focuses on restoring the natural form and function of natural communities. However, in some instances, it is important to consider the needs of specific species, and it is necessary to monitor the impacts of natural communities' management on select wildlife. To ensure a focused, science-informed approach to species management, FWC uses the focal species concept embraced by the [Wildlife Habitat Conservation Needs in Florida](#) project. The focal species approach incorporates a variety of concepts and considerations that, if applied correctly, allow one to identify the needs of wildlife collectively by strategically focusing on a subset of wildlife species.

The species selected as focal species includes umbrella species, keystone species, habitat specialist

species, and indicator species. The Public Lands Conservation Planning (PLCP) project selected 60 focal species for the statewide assessment. The PLCP project used potential habitat models to create statewide potential habitat maps for each species. Models were created using relevant available data. The base layer for all models was the FWC 2003 landcover data. Staff selected additional data layers such as the species range, soils, land use, etc. based on the natural history of the species. As such, each model is species specific. Once statewide potential habitat maps were available, a PVA was conducted for each focal species.

Using the statewide landcover based habitat maps, models identified 21 of the focal species as having potential habitat on CRWMA ([Section 3.1](#)). Staff added one additional species to the list due to its known use of the area. To create more accurate area-specific potential habitat maps, we used the same statewide model for each focal species on the area but replaced the landcover data with area-specific natural community data. The resulting potential habitat map was then refined using input from local managers and species experts. All potential habitat acres provided in [Section 3.2](#) are the results of this area-specific model and resulting map. Acreages provided are estimates.

The CRWMA Conservation Prioritization and Recovery (WCPR) Workshop held September 14-15, 2010 brought decision makers together to discuss an assessment of the opportunity and needs; identify measurable objectives; determine necessary actions including monitoring; and identify necessary coordination efforts. WCPR staff compiled information on the focal species in a workbook to facilitate informed discussion of the species. Participants at the workshop discussed the “level of opportunity and need” for each species. This included analyzing the long-term security of the species (i.e., examine PVA results), considering if the species occurs in actively managed communities ([Table 1](#)), if the species is management responsive, and any other local overriding considerations (e.g., status of species in the region, local declines/extirpations). A brief summary of this assessment of each species is available in [Section 3.2](#).

3.1: CRWMA Focal Species

Species that have a measurable objective are indicated with a ¹ and species for which monitoring is recommended are indicated with a ². Occasionally, models indicate species have potential habitat on the area when using statewide data; however, the local assessment indicates there is little opportunity to manage for these species on the area and they are not a focus of management on the area. These species are identified with an *.

Frosted flatwoods salamander (*Ambystoma cingulatum*) *

Gopher frog (*Lithobates capito*) ^{1, 2}

Striped newt (*Notophthalmus perstriatus*) ^{1, 2}

Florida pinesnake (*Pituophis melanoleucus mugitus*)

Gopher tortoise (*Gopherus polyphemus*) ^{1, 2}

American swallow-tailed kite (*Elanoides forficatus*)

Bachman's sparrow (*Aimophila aestivalis*)^{1, 2}

Brown-headed nuthatch (*Sitta pusilla*)^{1, 2}

Cooper's hawk (*Accipiter cooperii*)

Florida sandhill crane (*Grus canadensis pratensis*)

Florida scrub-jay (*Aphelocoma coerulescens*) *

Florida mottled duck (*Anas fulvigula*) *

Limpkin (*Aramus guarauna*)

Northern bobwhite (*Colinus virginianus*)^{1, 2}

Red-cockaded woodpecker (*Picoides borealis*)

Short-tailed hawk (*Buteo brachyurus*)

Southeastern American kestrel (*Falco sparverius paulus*)²

Southern bald eagle (*Haliaeetus leucocephalus*)

Wading birds

Florida black bear (*Ursus americanus floridanus*)

Florida mouse (*Peromyscus floridanus*) *

Sherman's fox squirrel (*Sciurus niger shermani*)

3.2: Focal Species Opportunity/Needs Assessment

This section provides an assessment of the opportunity for management and needs of each of the focal species. Because all federally listed species are State listed, for species listed at the federal level, we will provide the federal listing. When a species is not federally listed but is listed by the FWC, we will provide the FWC listing category. Unless otherwise noted, all acres of potential habitat are the result of using the area-specific natural community data in the species potential habitat model. We presume that by doing the actions called for in this strategy, we will ensure the area fulfills its role in the conservation of wildlife.

The FWC is currently in the process of developing management plans for State listed species. Staff will monitor these plans to determine if the content of the plans would warrant a revision to any of these assessments. Revisions will be amended to the strategy.

3.2.1: *Gopher Frog*

Gopher frogs have never been documented on CRWMA, but one was documented on the bombing range adjacent to the FWC lead. Staff recently began dip-netting depressional wetlands on the FWC lead to look for larval specimens of a number of focal amphibians, including gopher frog. FWC initiated these surveys in 2008 and have focused on wetlands west of State Road 19 and within 1,640 ft (500m) of xeric uplands (e.g., Management Units (MU) 13, 19, 28, 31, 38, 46 and 48). Staff selected this area because it has some of the best potential breeding ponds, the most functionally intact uplands, and is close to where the gopher frog was documented on the bombing range.

Gopher frogs breed in seasonally flooded ponds that lack predatory fish and have intact groundcover. After breeding, frogs move into uplands and often occupy gopher tortoise burrows. However, they will use rodent and crayfish burrows, stump holes, and hollow logs.

This state-listed species of special concern is responsive to management actions, suggesting that management on CRWMA will have a benefit, if the species is present. The gopher frog triggers 2 of 6 statewide prioritization parameters (a decreasing population trend and a low proportion of populations on state lands modeled to persist). From a regional perspective, CRWMA exists in a part of the State with a high historic amount of the xeric communities preferred by this species. Many of these communities are now impacted by development, agricultural production or pasture, or are subject to incompatible silviculture. A gopher frog was documented in 1996 on the bombing range located immediately south of CRWMA. The nearest known population of gopher frogs occurs on Ocala National Forest. The Ocklawaha River, which is believed to be an effective barrier to gopher frog movement, is located between CRWMA and the Ocala National Forest. The Cross Florida Barge Canal to the north, Rodman Reservoir to the west, and the Saint Johns River to the east also border the FWC lead, all of which limits the potential for gopher frog movement into or out of the FWC lead.

The FWC lead has a limited amount of the xeric communities favored by gopher frogs, but the area retains a good amount of depressional wetlands embedded in the flatwoods communities, with some scrubby flatwoods occupied by gopher tortoises. On the FWC lead, models identified 846 acres of potential habitat using current natural community data with 2,484 acres possible if management could restore all natural communities. These potential habitat estimates are likely too high; gopher frogs are closely associated with xeric communities with seasonal movements into mesic and wetlands for breeding. Only 28 acres (26 acres of scrubby flatwoods, 2 acres of xeric hammock) of this are considered xeric uplands. FWC should continue to maintain the xeric habitat on the FWC lead with prescribed fire. These fires should continue to be allowed to burn through suitable wetlands whenever possible. Due to the isolation of the FWC lead and the actual amount of xeric habitat on-site, the level of opportunity for this species is low.

More xeric communities (e.g., scrubby flatwoods, sandhill, and scrub) occur on the DEP lead; restoration of these areas through mechanical vegetation control and the return of prescribed fire

could greatly improve habitat conditions for this species. In their current condition, these areas are overgrown and transitioning into xeric hammock, and are not optimal for the gopher frog. On the DEP lead, models identified 7,354 acres of potential habitat using current natural community data with 7,540 acres if management could restore all natural communities. While there does not appear to be a significant difference in acres of “potential” habitat between current and following restoration, in actuality, much of the modeled current potential habitat is pine plantation. While gopher frogs may persist in plantation under good conditions, natural community restoration would significantly enhance conditions for this species. On the DEP lead, the amount of potential habitat and its connectivity with other xeric habitats in the larger regional landscape provide a moderate level of opportunity for gopher frog provided natural community restoration is implemented.

Periodic monitoring of potential breeding wetlands using call surveys is recommended with the purpose of documenting the presence of this species on the FWC lead and to track use of breeding wetlands over time ([Section 5.2.1](#)). Gopher frogs have been successfully reintroduced in Mississippi; there may be a need to explore the possibility of restocking this species on CRWMA, should this be deemed necessary.

Because existing natural community management and other management actions on CRWMA will benefit this species, no SMA is recommended. See [Section 4.3.1](#) for additional land management recommendations to benefit this species. The area goal is to maintain habitat in suitable conditions to provide for the potential for a viable population of gopher frogs on CRWMA. The measurable objectives are to:

1. Conduct a baseline survey to determine presence and extent of distribution and the number of breeding ponds on FWC lead by 2015.
2. Use standard call count monitoring protocol to monitor distribution on the area.

3.2.2: Striped Newt

The striped newt has never been documented on CRWMA, but staff have begun to periodically dip-net depressional wetlands on the FWC lead to look for them and the gopher frog. FWC initiated these surveys in 2008 and have focused on wetlands west of SR19 and within 1,640 ft (500m) of xeric uplands (MUs 13, 19, 28, 31, 38, 46 and 48) to maximize the likelihood of detecting this species. Staff selected this area because it has some of the best potential breeding ponds, the most functionally intact uplands, and the only xeric uplands on the FWC lead.

Striped newts breed in seasonally flooded ponds that lack predatory fish and have intact groundcover. After breeding, newts move into xeric uplands where much of their natural history remains unknown. Striped newts are a moderate to high statewide priority and trigger 4 of 6 prioritization parameters (Millsap biological and supplemental scores, Legacy population trend and population status). This species is responsive to management actions making it possible that management on CRWMA will have a benefit, if the species is present. From a regional perspective,

CRWMA exists in a part of the state with a high historic amount of the xeric communities preferred by this species. Many of these communities are now impacted by development, agricultural production or pasture, or are subject to incompatible silviculture. The nearest known population of striped newt occurs on the Ocala National Forest. Several records from the 1970s mention collection of museum specimens from the Riverside Island area of the forest located immediately south of CRWMA. However, the Ocklawaha River, which is an effective barrier to striped newt movement, is located between CRWMA and the Ocala National Forest. The Cross Florida Barge Canal to the north, Rodman Reservoir to the west, and the Saint Johns River to the east also border the FWC lead, all of which limit the potential for striped newt movement into or out of the FWC lead.

The FWC lead of CRWMA has a limited amount of the xeric communities favored by striped newts, which limits the potential of the WMA to have a significant influence on the conservation of this species. On the FWC lead, models identified 636 acres of potential habitat using current natural community data with 4,869 acres possible if management could restore all natural communities. While this appears to be a large amount of acreage, only 28 acres (26 acres of scrubby flatwoods, 2 acres of xeric hammock) of this are considered xeric uplands, and none is sandhill, the preferred upland. The vast majority of this potential habitat occurs in mesic flatwoods and depressional wetlands that are seasonally important for breeding. FWC should continue to maintain the xeric habitat on the FWC lead with prescribed fire. These fires should continue to be allowed to burn through suitable wetlands whenever possible. Due to small amount of xeric habitat on the FWC lead and its isolation from other conservation lands with known populations of striped newts, the level of opportunity for this species on this portion of CRWMA is low.

On the DEP lead, models identified 2,271 acres of potential habitat using current natural community data with 7,278 acres if management could restore all natural communities. As with gopher frog, more xeric communities (e.g., scrubby flatwoods, sandhill, and scrub) occur on the DEP lead; restoration of these areas through mechanical vegetation control and the return of prescribed fire could greatly improve habitat conditions for this species. In their current condition, these areas are overgrown, pine plantations, or transitioning into xeric hammock, and are not optimal for the striped newt. On the DEP lead, the amount of potential habitat and its connectivity with the larger regional landscape of xeric habitat provides a moderate level of opportunity for this species.

The continued dip-netting of potential breeding wetlands is recommended with the purpose of documenting the presence of this species on the FWC lead and to track use of breeding wetlands over time should newts be detected ([Section 5.2.2](#)). If surveys fail to detect this species on the FWC lead by 2020, staff can discontinue the surveys.

Because existing natural community management and other management actions on CRWMA will benefit this species, no SMA is recommended. See [Section 4.3.1](#) for additional land management recommendations to benefit this species. The area goal is to maintain habitat in suitable conditions to promote occupancy of CRWMA by striped newts. The measurable objective is to:

1. Determine presence or absence of striped newt on the FWC lead through dipnet surveys by 2020.

3.2.3: Florida Pine Snake

Pine snakes have never been documented on CRWMA. Pine snakes are commonly associated with upland pine and sandhill communities and prefer areas with sandy soil for burrowing. Snakes can use mesic sites if upland communities nearby can be used for refuge during heavy rain events. From a regional perspective, CRWMA exists in a part of the state that historically had a high amount of the xeric communities preferred by this species. Many of these communities are now impacted by development, agricultural production or pasture, or are subject to incompatible silviculture. Occurrence records note a large amount of pine snakes were collected for museum records during the 1970s and 1980s in areas immediately around CRWMA. Pine snakes currently occupy the Ocala National Forest.

This species is state-listed as a species of special concern and triggers 3 of the 6 prioritization parameters (proportion of populations modeled to persist on public lands, high Millsap supplemental score, and declining Legacy population trend), making the pine snake a moderate statewide priority.

The FWC lead lacks the upland pine and sandhill communities favored by pine snakes, which reduces the potential of CRWMA to have a significant impact on the conservation of this species. On the FWC lead, models identified 3,212 acres of potential habitat using current natural community data with 3,813 acres possible if management could restore all natural communities. While this appears to be a large amount of acreage, the model overestimates the amount of potential habitat. Most of the identified potential habitat is comprised of mesic flatwoods with sandy soils that are seasonally inundated with water and not preferred by this species. As such, there is a limited amount of suitable habitat on the FWC lead to support an independent population. However, the FWC lead's proximity to the Ocala National Forest indicates some potential to influence the persistence of this species at the larger regional level. Fox squirrels, which require similar habitat to pine snakes, occur on the FWC lead and biologists believe they move between the two conservation lands. This suggests some potential for pine snakes to move between the Ocala National Forest and the FWC lead. As such, the FWC lead may have a limited role in supporting the regional population.

On the DEP lead, models identified 6,122 acres of potential habitat using current natural community data with 6,348 acres possible if management could restore all natural communities. As with the FWC lead, much of this acreage includes historic mesic flatwoods that could be used by pine snakes if suitable xeric habitat persists nearby. These flatwoods are currently in pine plantations that are not suitable for this species. The eventual thinning and the frequent use of prescribed fire to promote native groundcover in these stands could create conditions suitable for this species. Additionally, the restoration of sandhill and other xeric communities on the DEP lead through a combination of vegetation control and prescribed fire will improve conditions for pine snakes.

While it is unlikely the DEP lead can independently support a local population, it has good connectivity with the larger sandhill landscape and has a role to play in supporting the regional population of this species. Due to these factors, the level of opportunity for this species is moderate on the DEP lead.

Ongoing land management that emphasizes prescribed fire and efforts to restore and maintain a mature pine forest with healthy groundcover will provide good quality habitat for Florida pine snakes; therefore, no SMA is necessary. Retain stumps and other coarse woody debris during land management activities as potential refuge sites ([Section 4.3.2](#)). Opportunistic observation of pine snakes is recommended ([Section 5.2.6](#)). The area goal is to maintain suitable habitat for this species in order to contribute to the sustainability of the regional population. However, the presence of pine snakes on the area is likely dependent on conditions that influence the regional population.

3.2.4: Gopher Tortoise

Gopher tortoises are commonly observed in small patches of suitable habitat on the FWC lead and there is evidence of reproduction. Tortoises are commonly seen within scrubby flatwoods and the berms of the barge canal on the DEP lead. Staff have mapped and recorded into a GIS shapefile the distribution of tortoise burrows on the FWC lead. No other population assessments have been conducted. Burrows on the FWC lead are distributed in a patchy manner and these patches are isolated from one another. Burrows can be found in the scrubby and mesic flatwoods within MUs 13 and 19, the xeric hammock within MU 38, the mesic flatwoods and hammock of MU 7, and berms and pasture of MUs 62, 63, and 69. Staff have observed sub-adult tortoises in the larger pine island in MU 50.

The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. Ecologists consider this species a keystone species because many other species use their burrows, including focal species such as the Florida mouse and gopher frog.

This state-listed threatened species triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap biological score, Millsap supplemental score and Legacy population trend), making it a high priority species statewide. The FWC recently approved a management plan that places emphasis on increasing the number of tortoises on public lands. From a regional perspective, the occurrence of gopher tortoises around CRWMA is well documented. Tortoise burrows are commonly found along the berms of the Cross Florida Barge Canal, and there are numerous historical records of tortoises on areas immediately around CRWMA. Tortoises have been documented on the bombing range located immediately south of CRWMA and are present in the managed uplands of the Riverside Island area of the Ocala National Forest.

The presence of gopher tortoises on the FWC lead is interesting because much of the area is dominated by soils that are seasonally inundated with water, which reduces their suitability to this

species. Additionally, the FWC lead is surrounded by water on all sides and is therefore isolated from other areas known to contain tortoises. Evidence of reproduction and the amount of potential habitat, however, lead to the conclusion that the FWC lead can support a small population. On the FWC lead, models identified 334 acres of potential habitat using current natural community data with 331 acres possible if management could restore all natural communities. Based on information in the literature, this would be an adequate amount of potential habitat to support a population if the habitat were contiguous. On the FWC lead, tortoises are scattered in several small patches of habitat. The largest patch occurs in scrubby and mesic flatwoods in MUs 13 and 19. Management activities on the FWC lead have improved habitat conditions for gopher tortoise since State acquisition and the continued use of prescribed fire, timber thinning, and other actions to increase herbaceous diversity will maintain these conditions. In addition, the presence of berms along the numerous ditches should continue to provide adequate sites for burrow construction. Current plans to restore Camp Branch Creek by removing ditches should have a minimal impact on this species as no burrows have been documented in this portion of the FWC lead. Given these factors, the level of opportunity for management to have a significant impact on this species here is moderate.

On the DEP lead, models identified 524 acres of potential habitat using current natural community data with 491 acres if management could restore all natural communities. Most of this potential habitat is in the xeric communities off Deep Creek Road. The models likely underestimated the potential habitat for this species on the DEP lead. Slightly drier mesic flatwoods that provide habitat for species like Bachman's sparrow likely provide habitat for tortoises. Restoration of scrubby flatwoods, xeric hammock, and scrub in the area around Deep Creek Road through a combination of mechanical and/or chemical vegetation control treatments in concert with prescribed fire will greatly improve habitat conditions for this species. Gopher tortoises are known to occupy this area and DEP staff should consider initiating a monitoring effort for tortoises to document their current or future occupancy of restored natural communities. Given these factors, the level of opportunity for management to have an impact on this species is high.

Because existing natural community management and other management actions on CRWMA will benefit this species, no SMA is recommended. See [Section 4.3.3](#) for additional land management recommendations to benefit this species. A standardized burrow survey should be initiated with the purpose of establishing a baseline and to track burrow densities on the WMA over time ([Section 5.2.3](#)). The area goal is to maintain a viable population of gopher tortoise on CRWMA. The measurable objectives are:

1. To implement a baseline survey of gopher tortoise on FWC lead by 2014.
2. To repeat these surveys on a 5-year interval, pending resources.

3.2.5: American Swallow-Tailed Kite

The American swallow-tailed kite is commonly seen on CRWMA. Nesting has not been documented on CRWMA, although staff report frequently seeing large aggregations of swallow-tailed kites flying above the WMA during this species' breeding season. Swallow-tailed kites have been documented roosting along portions of Camp Branch Creek located immediately to the west of the field office on the FWC lead.

A habitat generalist, swallow-tailed kites utilize a variety of natural communities on CRWMA. Tall trees are an important component of nesting habitat, and open areas are used for foraging. Trees that are dominant or taller than surrounding trees are preferred as nest trees. Shrub height and density tends to be higher around nest sites. Because this species has high nest site fidelity, maintaining suitability of nesting areas is important. Thinning of pine plantations can help improve the forest structure and increase the use of these areas by swallow-tailed kites.

Swallow-tailed kites are a moderate statewide priority and trigger 4 of 6 statewide prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and probability of a 50% decline on public lands, Legacy population status and population trend). From a regional perspective, CRWMA is located within a portion of the State frequently used by this species. Nesting of swallow-tailed kites has been documented on Fort McCoy WMA, located roughly 20 miles west of CRWMA and along the Saint Johns River immediately south of CRWMA. Adult and juvenile kites have been documented together on the bombing range located immediately south of CRWMA.

On the FWC lead, models identified 5,140 acres of potential habitat using current natural community data with 8,810 acres possible if management could restore all natural communities. On the DEP lead, models identified 5,130 acres of potential habitat using current natural community data with 12,460 acres possible if management could restore all natural communities. While CRWMA plays an important role in the conservation of this species, American swallow-tailed kites are not typically considered management-dependent and the opportunity to influence this species at the management-unit level on CRWMA is low. However, ongoing efforts to maintain CRWMA's natural community structure and function will benefit kites. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure, as well as the thinning of dense pine plantations. If nests are located on the area, management considerations around these sites will be used ([Section 4.3.4](#)) and the nest will be reported to the Avian Research and Conservation Institute (ARCI; [Section 6.4](#)).

Because this species naturally occurs in relatively low densities and nests are difficult to detect, local monitoring would be inefficient, and area-specific objectives for this species are not needed. There is no need to establish a SMA as there is no specific management action that could be applied specifically for the benefit of this species. If staff observe swallow-tailed kite activity indicative of nesting, this information should be documented ([Section 5.2.6](#)).

The area goal is to promote suitable foraging and nesting habitat for the American swallow-tailed kite that will allow kites using CRWMA to function as part of a regional population. While the

continued presence of this species on CRWMA is dependent on conditions that influence the regional population of American swallow-tailed kites, the proximity of CRWMA to other conservation lands enhances the potential for this species to persist on the area.

3.2.6: Bachman's Sparrow

Bachman's sparrows were observed on the FWC lead in July 2009 during an opportunistic bird survey with members of the local Audubon Society. Several individuals were seen and heard utilizing the scrubby and mesic flatwoods within MUs 13 and 19. Follow-up monitoring by area staff have noted Bachman's sparrows in these areas and in the mesic flatwoods within MUs 18, 28, 31, and 38. Flatwoods within MUs 13, 18, 19, 28, and 38 have all received mechanical treatments to reduce vegetation heights and experienced repeated application of prescribed fire in the last several years. This species has not been documented on the DEP lead, although efforts to locate them have not been attempted. This species prefers mature pine forests or old fields with a healthy herbaceous groundcover maintained with frequent prescribed fire.

The Bachman's sparrow triggers 2 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend) and is currently experiencing range-wide population declines. From a regional perspective, CRWMA is located close to the Ocala National Forest, which supports a healthy Bachman's sparrow population. Conversations with Forest Service staff indicate the common occurrence of this species in the Riverside Island area and the Little Lake George Wilderness area of the forest. Despite no occurrence records, it is probable that this species occurs in fragmented patches of suitable habitat to the north, west, and east of CRWMA.

On the FWC lead, models identified 1,731 acres of potential habitat using current natural community data with 4,683 acres possible if management could restore all natural communities. Based on information in the literature, this is enough potential habitat to support a population. Historic management of CRWMA was not compatible with the needs of this species; pine plantations with high basal areas and fire suppression created a dense shrub layer and reduced herbaceous diversity. Since State acquisition, the habitat conditions have improved and flatwoods on the FWC lead in the MUs mentioned above are currently in the best condition to support Bachman's sparrows. Flatwoods within MUs 21, 72, 65, and 72 could provide additional habitat with ongoing management focused on frequent prescribed fire (e.g., a 2-year interval) and timber management that strives for mature open pine stands. The combination of timber thinning when appropriate in conjunction with continued use of frequent fire will allow pine plantations on CRWMA to have the potential to support this species. Given its presence on the FWC lead, the high amount of potential and currently suitable habitat and the fact that Bachman's sparrows are highly responsive to management, there is a high level of opportunity to positively influence this species on CRWMA.

On the DEP lead, models identified 2,122 acres of potential habitat using current natural community data with 7,889 acres possible if management could restore all natural communities. As with the FWC lead, this is enough potential habitat to support a population that would be part of the Bachman's sparrow population occurring on the FWC lead. Much of this potential habitat currently is in flatwoods or pine plantations with basal areas and groundcover conditions that are not appropriate for this species; timber thinning when appropriate would create more desired structure. In addition, the introduction and continued use of prescribed fire on a short return interval in these areas would increase herbaceous diversity and further enhance habitat suitability for Bachman's sparrow. Given the amount of potential habitat and the known proximity to individuals occurring on the FWC lead, the level of opportunity for Bachman's sparrow on the DEP lead is high.

The DFC for mesic flatwoods and wet flatwoods on the FWC lead should be altered to better suit the habitat preferences of this species as well as other focal species ([Section 4.2.1](#)). Additional land management considerations for this species are found in [Section 4.3.5](#). We propose monitoring this species through a spring bird survey with the purpose of tracking relative abundance over time ([Section 5.2.4](#)).

The area goal is to maintain a viable population of Bachman's sparrows on CRWMA. Actions taken to achieve this goal will be to continue to manage potential habitat with the assumption that individuals will remain on-site or disperse onto the area naturally from Ocala National Forest or other neighboring conservation lands. By providing suitable foraging and nesting sites that maintain the presence of Bachman's sparrows on the area, CWMA will fulfill its role in reversing the ongoing decline of this focal species. Measurable objectives for this species include:

1. Conduct a baseline survey to track distribution and relative abundance of Bachman's sparrow on the FWC lead by 2012.
2. Repeat these surveys on an annual basis.

3.2.7: Brown-Headed Nuthatch

Brown-headed nuthatches are commonly seen and heard throughout the FWC lead and along Rodman Dam Road within the DEP lead. They are most commonly seen and heard in the mesic and wet flatwoods within MUs 5, 15, 18, 22, 24, 46, 48, 51, and 58. Individuals have been heard in MUs 65 and 70. Breeding has not been documented; however, based on the regularity with which this species is encountered, staff believe breeding is occurring on the area. This species is dependent on open stands of mature pine that contain the snags in which this species excavates nesting cavities. Nuthatches prefer communities that experience frequent, low-intensity fires that create a limited midstory with low shrub cover and high herbaceous diversity.

The brown-headed nuthatch triggers 2 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend) and is currently experiencing range-wide declines due to habitat loss and degradation. From a regional perspective,

CRWMA is located close to the Ocala National Forest, which supports a population of brown-headed nuthatches. Forest Service staff report the historic common occurrence of brown-headed nuthatches around the Riverside Island area; their current occurrence in this portion of the forest is now more variable. Nuthatches probably persist elsewhere in the fragmented patches of suitable habitat around CRWMA.

On the FWC lead, models identified 2,980 acres of potential habitat using current natural community data with 4,725 acres possible if management could restore all natural communities. Based on information in the literature, this is enough potential habitat to support a population. Historic management of CRWMA was not compatible with the needs of this species; dense pine plantations with high basal areas and fire suppression created a thick shrub structure and reduced herbaceous diversity. Much like the Bachman's sparrow, flatwoods within MUs 21, 72, 65, and 72 could provide habitat for this species with ongoing management focused on frequent prescribed fire (e.g., a 2-year interval) and timber management that strives for mature open pine stands. The combination of timber thinning when appropriate in conjunction with continued use of frequent fire will allow pine plantations on CRWMA to have the potential to support this species. The maintenance of snags within these natural communities will be important for the long-term persistence of this species on CRWMA. Given these factors and the fact that the brown-headed nuthatch is highly responsive to management actions, it has a high level of opportunity on CRWMA.

On the DEP lead, models identified 2,110 acres of potential habitat using current natural community data with 7,877 acres possible if management could restore all natural communities. As with the FWC lead, this is enough potential habitat to support a population that would be considered a single population with the brown-headed nuthatches occurring on FWC lead. Much of this potential habitat currently is in flatwoods or pine plantations with basal areas and shrub layers that are not appropriate for this species; timber thinning when appropriate would create more desired structure. In addition, the introduction and continued use of prescribed fire on a short return interval in these areas would increase herbaceous diversity and further enhance habitat suitability for brown-headed nuthatches. Given the amount of potential habitat and the known proximity to individuals occurring on the FWC lead, the level of opportunity for brown-headed nuthatches the DEP lead is high.

Ongoing efforts to maintain CRWMA's natural community structure and function through mechanical treatments and timber thinning when combined with a short fire return interval will maintain and improve the suitability of habitat for brown-headed nuthatch; therefore, no SMA is required. The DFCs for mesic flatwoods and wet flatwoods on the FWC lead should be altered to better suit the habitat preferences of this species as well as other focal species ([Section 4.2.1](#)). [Section 4.3.6](#) describes additional land management considerations. We propose monitoring this species through a spring bird survey with the purpose of tracking relative abundance over time ([Section 5.2.4](#)).

The area goal is to maintain a viable population of brown-headed nuthatches on CRWMA. Actions taken to achieve this goal will include continuing to manage potential habitat with the assumption

that individuals will remain on-site or disperse onto the area naturally from Ocala National Forest or other neighboring conservation lands. By providing suitable foraging and nesting sites that maintain the presence of nuthatches on the area, CRWMA will fulfill its role in reversing the ongoing decline of this focal species. Measurable objectives for this species include:

1. Conduct a baseline survey to track distribution and relative abundance of Brown-headed nuthatches on the FWC lead by 2012.
2. Repeat these surveys on an annual basis.

3.2.8: Cooper's Hawk

The Cooper's hawk is rarely observed on CRWMA although it is not often searched for. Commonly associated with woodlands, this species will nest in a variety of habitats including swamps, floodplain and bottomland forests, sand pine scrub and baygalls. Nests are usually placed near the crown of a tree close to an edge in dense stands of oaks. Cooper's hawks primarily feed on other birds, so nests are located in proximity to suitable hunting areas. While nesting has not been documented on CRWMA, staff believe nesting is occurring on CRWMA.

The Cooper's hawk triggers 1 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands). From a regional perspective, CRWMA occurs within a landscape that retains a lot of potential habitat for this species. Pine plantations and hammocks adjacent to open fields or pastures, communities well distributed in the area immediately around CRWMA, provide appropriate foraging or nesting habitat for this species.

On the FWC lead, models identified 8,787 acres of potential habitat using current natural community data with 7,814 acres possible if management could restore all natural communities. On the DEP lead, models identified 4,890 acres of potential habitat using current natural community data with 10,148 acres possible if management could restore all natural communities. Cooper's hawks typically are not considered management-dependent and the opportunity to influence this species at the management-unit level on CRWMA is low. However, ongoing efforts to maintain CRWMA's natural community structure and function will benefit the Cooper's hawk. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure.

Because this species naturally occurs in relatively low densities and nests are difficult to locate, local monitoring would be inefficient. It would be impractical to establish measurable objectives for this species given these conditions. It would be inappropriate to establish a SMA as there is no specific management that could be applied specifically for the benefit of the Cooper's hawk. During the nesting season (April-July), the Cooper's hawk is secretive and sensitive to human disturbance near the nest site. No attempt will be made to actively search for nests, but if individuals are observed exhibiting nesting behavior (carrying nesting material to/from an area, acting aggressively), the

location will be noted ([Section 5.2.6](#)) and the area will be protected from disturbance ([Section 4.3.7](#)).

The area goal is to promote suitable foraging and nesting habitat for the Cooper's hawk that will allow individuals using CRWMA to function as part of the regional population. While the continued presence of Cooper's hawks on CRWMA is dependent on conditions that influence the regional population, the proximity of CRWMA to other conservation lands enhances the potential for this species to persist on the area.

3.2.9: Florida Sandhill Crane

The Florida sandhill crane is commonly seen and reproduction has been documented on the FWC lead. Cranes also have been documented along Hunter Road on the northern part of the DEP lead. This species uses a combination of shallow wetlands and open upland habitats with a majority of the vegetative cover ≤ 20 inches in height. Standing water is an important component of nesting habitat for Florida sandhill cranes. Nests consist of herbaceous plant material mounded in shallow water or marshy areas. Home range size varies seasonally and regionally. For adult pairs home range varies from approximately 300 to 600 acres per pair. Habitat used includes a mosaic of emergent palustrine wetlands and open uplands such as pasture, prairie, and open pinelands.

The Florida sandhill crane is state listed as threatened. This species triggers 4 of the 6 statewide prioritization parameters (Millsap biological and supplemental scores, declining trend, and a low proportion of populations on state lands modeled to persist) and is a moderate to high statewide priority. From a regional perspective, CRWMA occurs in a portion of the state where sandhill cranes are known to occur, even appearing in peoples yards.

On the FWC lead, models identified 3,624 acres of potential habitat using current natural community data with 1,061 acres possible if management could restore all natural communities. These acreages are too small to support a viable local population on the area, and much of the current potential habitat is in the form of pasture or ruderal habitats that are not natural. CRWMA plays a limited role in supporting the regional population of Florida sandhill cranes through ongoing efforts to maintain natural community structure and function. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring and maintaining an open natural community structure near suitable wetlands. In addition, the continued grazing of pasture and other ruderal sites promote the short, open conditions cranes prefer for foraging. Over the long-term, the restoration of all CRWMA's pastures to more natural conditions will reduce the amount of habitat available to sandhill cranes. Removal of cattle and any planting of pine trees will alter the vegetative structure of these areas, making them less than suitable for this species. CRWMA, however, is not a critical area for cranes when considered in the regional context, and changes in the amount of potential habitat on CRWMA over time will not significantly impact the regional crane population. Given these factors, the level of opportunity for this species on the FWC lead is low.

On the DEP lead, models identified 1,245 acres of potential habitat using current natural community data with 629 acres possible if management could restore all natural communities. As with the FWC lead, this is not enough acreage to support a population. Most of this potential habitat is wet flatwoods located near Rodman Dam Road and the Cross Florida Barge Canal, or several wetlands located near the xeric communities off Deep Creek Road. Management actions that could benefit cranes in these areas include mechanical vegetation treatments to reduce shrub cover and the frequent application of prescribed fire through wetlands or flatwoods to create the short, open conditions preferred by this species. The level of opportunity for this species on the DEP lead is low.

Because of the limited number of sandhill cranes using the area and the low level of opportunity, monitoring and area-specific objectives are not recommended. There is no need to establish a SMA as there is no specific management action we plan to implement specifically for the benefit of this species. If nests are located on the area, management considerations around these sites will be used ([Section 4.3.8](#)) and nesting should be documented ([Section 5.2.6](#)). The area goal is to provide suitable foraging and nesting habitat for Florida sandhill crane that will allow individuals using CRWMA to function as part of a regional population. While the continued presence of sandhill cranes on CRWMA is dependent on conditions that influence the regional population, the proximity of CRWMA to other conservation lands enhances the potential for this species to persist on the area.

3.2.10: Limpkin

The limpkin has been documented once on the FWC lead along Camp Branch Creek near the main entrance road; area staff completed a single survey down the Ocklawaha River in 2009 to try to determine their presence along the river. This survey did not detect any limpkins and noted few masses of apple snail eggs. Apple snails are a preferred food item of this species. Limpkins have been documented on the DEP portion near the Rodman Reservoir. This species typically inhabits freshwater marshes, swamps, springs and spring runs. Limpkins are highly mobile and influenced by regional water levels and the availability of prey items, primarily apple snails.

Limpkins are a state listed species of special concern and trigger 1 of 6 prioritization parameters (Legacy population trend). The FWC Breeding Bird Atlas suggests the possibility of this species breeding Putnam County based on observations of individuals in appropriate habitat during the breeding season. However, there are no direct observations of limpkins breeding in the areas immediately around CRWMA. Limpkins occur on Ocala National Forest, utilizing the various rivers, streams and spring runs distributed throughout the forest.

On the FWC lead, models identified 3,407 acres of potential habitat using current natural community data with 3,427 acres possible if management could restore all natural communities. On the DEP lead, models identified 2,241 acres of potential habitat using current natural community data with 3,210 acres possible if management could restore all natural communities. It is not known

if this is enough to support an independent population of limpkins, but any limpkins using CRWMA are part of a larger regional population and affected by conditions at this larger regional level.

While limpkins live in wetland habitats that typically are not actively managed, the use of prescribed fire through depressional wetlands within flatwoods and marsh habitats will improve the quality of these habitats by enhancing foraging opportunities and preventing the encroachment of shrubby species. Additional land management considerations for this species are found in [Section 4.3.9](#). The level of opportunity to affect the local population of this species at the management unit level on CRWMA is low and ongoing efforts to maintain natural community structure and function should meet the needs of this species; therefore, no SMA is recommended.

While local monitoring could detect a change in the area's local population, the potential for management to influence the larger population is low so this monitoring would be inefficient. The area goal is to promote suitable habitat for limpkins that will allow individuals using CRWMA to function as part of a regional population. While the long-term persistence of limpkins on CRWMA will be influenced by factors affecting the regional population, the proximity of CRWMA to other conservation lands and the series of rivers and canals enhances the potential for this species to persist on the area.

3.2.11: Northern Bobwhite

Northern bobwhites (quail) are commonly heard on CRWMA with nesting confirmed on the FWC lead portion and suspected on DEP lead. Staff monitors this species on the FWC lead through spring whistle counts and fall covey counts. The purpose of these monitoring events is to track relative abundance and distribution over time. Monitoring has shown a variable, but generally increasing trend of singing males during the spring. Quail have experienced significant range-wide population declines since the 1980s and are currently a major focus of many initiatives including the Upland Ecosystem Restoration Project (UERP). Quail are typically associated with open canopy forests and grassland communities dominated by warm-season grasses, legumes, and patchy bare ground. Areas with dense herbaceous cover are used for brooding and foraging; shrubs or other thickets are useful as roosting habitat or escape cover.

Quail trigger 2 of 6 prioritization parameters (Legacy population trend and population status). From a regional perspective, historically this species was well distributed in the landscape around CRWMA. Open canopy sandhill and drier mesic flatwoods maintained with frequent fire created the appropriate matrix of habitat for bobwhites. Many of these communities are now developed, in agricultural production or pasture, or subject to incompatible silviculture. Ocala National Forest currently holds a viable population of quail; individuals have been heard calling in the Riverside Island area immediately south of CRWMA. There are no occurrence records for this species on areas to the north, west, or east of CRWMA although biologists presume that quail do persist in small, isolated fragments of suitable habitat.

On the FWC lead, models identified 5,647 acres of potential habitat using current natural community data with 5,702 acres possible if management could restore all natural communities. Historic management activities on CRWMA were not compatible with the needs of quail; conversion to high basal area pine plantations and the absence of frequent fire created an extensive midstory and shrub layer with very little herbaceous groundcover. Since State acquisition, the use of mechanical vegetation control, timber thinning, and frequent low-intensity fire has improved habitat conditions for this species. Currently, the best potential habitat for quail on CRWMA occurs in the scrubby flatwoods and drier mesic flatwoods in MUs 13, 18, and 10. Much of the potential habitat includes improved pasture, or ruderal habitat, on the east side of CRWMA that quail currently use. Quail also utilize the wet flatwoods located between SR19 and the drier mesic flatwoods mentioned above. The removal of cattle and restoration of ruderal sites to their appropriate flatwoods ground cover will further enhance habitat suitability for quail and other focal species. Restoration of these areas, however, is a long-term and expensive process. In the mean time, disking and other chemical or mechanical disturbance of linear strips in these ruderal sites has the potential to stimulate the native seedbed and create more habitat diversity for quail. While these communities do not have the potential to create optimal quail habitat like sandhill, the FWC lead has the potential to hold a small, but viable population. Given the amount of potential habitat and the fact that quail respond well to management actions, it has a medium level of opportunity on the FWC lead.

On the DEP lead, models identified 10,140 acres of potential habitat using current natural community data with 10,073 acres possible if management could restore all natural communities. Most of this potential habitat occurs within flatwoods communities or pine plantations that are not currently suitable for quail. Timber thinning and the reintroduction of frequent prescribed fire will be needed in much of this acreage to improve habitat conditions for quail. Portions where vegetation is very overgrown may require chemical or mechanical vegetation treatments prior to the use of fire. When these actions occur, the level of opportunity for the DEP lead to have a significant impact on quail is moderate. See [Section 4.3.10](#) for additional land management considerations.

Ongoing efforts to maintain CRWMA's natural community structure and function in the FWC lead combined with a shorter fire return interval (e.g., 2-year interval) will improve the suitability of habitat for this species; therefore, no SMA is required. DFCs for mesic flatwoods and wet flatwoods on the FWC lead should be altered to better suit the habitat preferences of this species as well as other focal species ([Section 4.2.1](#)).

The area goal is to promote suitable foraging, brooding and nesting habitat to increase the current quail population on CRWMA. The continued use of spring whistle counts is recommended with the purpose of tracking relative abundance and distribution of quail as portions of CRWMA become more suitable ([Section 5.2.4](#)). Measureable objectives for this species include:

1. Continue to track distribution and relative abundance of quail on the FWC lead using annual spring whistle counts.

3.2.12: Red-Cockaded Woodpecker

The red-cockaded woodpecker has never been documented on CRWMA. Red-cockaded woodpeckers inhabit open, mature pine woodlands with a diversity of grass, forbs and shrub species. A basal area of 40-80 ft²/acre is preferred, but the species uses stands with a larger range of basal area. Important aspects are forest structure and age. As cavity nesters, individuals excavate cavities in the heartwood of older (typically > 60 years) living pine trees. Suitable cavities and potential cavity trees are often the limiting factor for this species, as is the case on CRWMA. In other locations, use of artificial cavities has been effective in increasing populations when combined with appropriate habitat management.

The red-cockaded woodpecker is a federally endangered species. It triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap biological score, Legacy population trend and population status). A FWC Management Plan and a U.S Fish and Wildlife Service (USFWS) Recovery Plan have been developed for this species, making it a high priority. From a regional perspective, the nearest known population of red-cockaded woodpeckers occurs in the Riverside Island area of Ocala National Forest, approximately 2.5 miles southwest of CRWMA. Conversations with Forest Service staff indicate they are looking to expand their red-cockaded woodpecker population in the Riverside Island area. Forest Service staff also plan to establish red-cockaded woodpeckers into the Norwalk restoration area, which is located south of CRWMA along State Road 19. Occurrence records do not document any red-cockaded woodpeckers in the areas immediately to the north, west, and east of CRWMA. The prevalence of sandhill to the north and west of CRWMA, however, suggest that red-cockaded woodpeckers probably were well distributed in the landscape around CRWMA historically. Much of this sandhill is now developed, in agricultural production or pasture, or subject to incompatible silviculture.

On the FWC lead, models identified 3,094 acres of potential habitat using current natural community data with 5,702 acres possible if management could restore all natural communities. With a home range of 100-400 acres per territory, a population of 7.5 to 30 territories on the FWC lead could be possible with the current estimates. Using the post restoration estimate of 5,702 acres of potential habitat, the FWC lead could support a population of 14 to 57 territories. The literature suggests that a population of 30 potential breeding groups can be moderately secure in the short-term, depending on the arrangement of suitable habitat. Additionally, CRWMA's proximity to the Ocala National Forest would enhance the potential for long-term persistence. It also would interact with any population established on the DEP lead. However, translocation would be required to establish occupancy on both the FWC lead and the DEP lead.

Most of the potential habitat for red-cockaded woodpecker on the FWC lead is in mesic flatwoods, wet flatwoods, ruderal areas, or pine plantations that are currently in an inappropriate habitat

structure. Pine trees are too young, pine basal areas in the flatwoods and pine plantations are currently too high, and tree diameters are too small to promote the creation of natural or artificial cavities. Additionally, it is not realistic to believe that all ruderal areas on the FWC lead will be restored to a condition suitable for use by this species. While it will be greater than 20 years before CRWMA could have appropriate habitat structure, ongoing efforts to maintain and enhance natural community structure and function will improve the potential for red-cockaded woodpeckers in the future. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. Timber management that strives for mature open pine stands and uses thinning to reduce pine basal areas, the planting of longleaf pine when possible (as was completed in MUs 13 and 18) and regular application of fire will create conditions that could benefit red-cockaded woodpeckers. Given these factors, the FWC lead has a moderate level of opportunity for management to have an influence on red-cockaded woodpeckers in the long-term, but a low opportunity currently. In the next 10 years (the time-span of this document), area staff can continue to work towards creating the open mature pine forest conditions suitable for this species.

On the DEP lead, models identified 2,628 acres of potential habitat using current natural community data with 8,396 acres possible if management could restore all natural communities. With a home range of 100-400 acres per territory, a population of 6 to 26 territories could be possible with the current estimates on the DEP lead. Using the post restoration estimate of 8,396 acres of potential habitat, the DEP lead could support a population of 21 to 83 territories. As mentioned previously, if red-cockaded woodpeckers were established on FWC lead and DEP lead, they could eventually function as one population that also interacts with the Ocala National Forest population. However, the DEP lead has the same issues as the FWC lead. Pine trees are too young; pine plantations have basal areas that are too high and an extensive midstory component. Thinning these plantations and reducing the midstory through mechanical/chemical treatments and using frequent fire will improve habitat conditions for red-cockaded woodpeckers. As with FWC lead, the DEP lead has a moderate level of opportunity for management to have a significant impact on red-cockaded woodpeckers in the long-term.

CRWMA has the potential to support between 35 and 140 territories depending on habitat arrangement. A population of 30 potential breeding groups is moderately secure, while a population of > 100 potential breeding groups is reasonably secure. CRWMA's proximity to Ocala National Forest would further enhance the survival potential of this species on the area.

At this time, no SMA is required for the red-cockaded woodpecker, but this species will be considered during land management activities to ensure protection of potential cavity trees ([Section 4.3.11](#)). The area goal is to enhance the suitability of habitat for red-cockaded woodpeckers on CRWMA to provide the opportunity for future occupation by this species. Future establishment of a population of red-cockaded woodpeckers on CRWMA would enhance the long-term persistence of the population currently occurring on the Ocala National forest. Species management or monitoring

needs are not proposed at this time, but future needs could include translocation and associated monitoring and management according to the red-cockaded Woodpecker Management Plan if a population is established. This is a long-term need. However, part of ensuring future potential is achieved includes applying appropriate management actions and engaging in coordination with Ocala National Forest staff to ensure connectivity between areas are established ([Section 6.7](#)).

3.2.13: Short-Tailed Hawk

While not modeled to have any potential habitat on CRWMA, the short-tailed hawk has been documented foraging over the area. In addition, a historic record of nesting is documented just off-site near where US Highway 19 and County Road 310 come together. The short-tailed hawk is an elusive species that breeds in dense or open woodland stands in wetlands, cypress swamps and bayheads. Vegetation surrounding nest trees is often very dense, making it difficult to locate and assess nests from the ground. This species exhibits high nest-site fidelity, emphasizing the need to locate and preserve nest sites. Foraging habitat includes prairies and open areas adjacent to nesting areas. Transitional zones and ecotones may be important components of foraging habitat for this species. The short-tailed hawk triggers 6 of 6 prioritization parameters, making it a high statewide priority.

This species typically is not considered management-dependent and the opportunity to affect this species at the management-unit level on CRWMA is low. However, ongoing efforts to restore and maintain CRWMA's natural community structure and function will benefit short-tailed hawks by improving the suitability of foraging habitat. Management actions that maintain or enhance foraging habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. See [Section 4.3.12](#) for additional land management recommendations.

Because this species naturally occurs in relatively low densities, local monitoring would be unlikely to detect a change in the area's population. There is no need for an SMA or area objective. Monitoring for this species will be opportunistic, and should include season and color phase ([Section 5.2.6](#)). Observations of this species should be shared with ARCI ([Section 6.4](#)).

The area goal is to promote suitable foraging and nesting habitat for the short-tailed hawk that will allow individuals using CRWMA to function as part of a regional population. However, the continued presence of short-tailed hawks on the WMA is dependent on conditions that influence the statewide population.

3.2.14: Southeastern American Kestrel

Southeastern American kestrels have not been documented on CRWMA; however, the migratory American kestrel is commonly seen during the fall and winter months. Staff erected several nest boxes in portions of the FWC lead; however, no nesting has been documented. Only kestrels remaining in Florida during the spring and summer months to breed are the southeastern American

subspecies. Southeastern American kestrels utilize upland habitats, including sandhills and longleaf savannas, pastures, sand pine scrub and prairies. Birds also cue into habitat structure; open pastures like those found on the FWC lead can provide these conditions. As a secondary cavity nesting species, southeastern American kestrels use cavities previously excavated in large snags. They will utilize artificial cavities when placed in areas of suitable habitat. They require adequate perch sites within foraging areas for hunting, and low ground cover (< 1 ft) and an open canopy (< 20%) are ideal for this species. Average breeding territory size is 125 acres, though more area may be necessary if the habitat quality is marginal.

Southeastern American kestrels are a state threatened species and trigger 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap updated biological score, Legacy population trend and population status). From a regional perspective, the landscape around CRWMA has the potential to support this species. While much of the former sandhill has been altered or degraded, open pasture on lands in proximity to CRWMA could be potentially suitable for kestrels. Southeastern American kestrels are common on the Ocala National Forest around recent clearcuts and in open prairie communities. Forest Service staff believe the population on the forest is in a healthy condition although their use of any particular site is dependent on forest activities that create a shifting mosaic of recent clearcuts.

On the FWC lead, models identified 2,297 acres of potential habitat using current natural community data with 26 acres possible if management could restore all natural communities. Most of the current potential habitat is in the form of ruderal or pasture areas that could provide open habitat for hunting by kestrels. It is unclear why the Southeastern American kestrel does not occur on CRWMA, but the migratory kestrel is commonly seen during the winter months. It is possible that open pastures, which provide the appropriate open structure, do not have an adequate amount of prey base to support nesting individuals. Other suitable habitat includes the open-canopy scrubby flatwoods along the western edge of CRWMA. Management actions to benefit kestrels in these flatwoods include prescribed fire and other mechanical vegetation actions to maintain the open structure. Over time, restoration of ruderal sites will reduce potential habitat for this species. However, as the subspecies does not currently use the FWC lead and that these ruderal sites are historic mesic flatwoods, it appears the area is not critical to the regional stability of this species. Mesic flatwoods are not optimal habitat for kestrels. Given this, the level of opportunity is low. This assessment may need to be revisited if management is successful in attracting southeastern American kestrels to the area.

On the DEP lead, models identified 2,243 acres of potential habitat using current natural community data with 8,080 acres possible if management could restore all natural communities. This is an overestimate of potential habitat; the DEP lead has few ruderal areas and a limited amount of sandhill that could be suitable for kestrels. Models for the DEP lead include historic mesic flatwoods, which are not optimal habitat for kestrels. Restoration of small sandhill areas through midstory control and the reintroduction of fire could benefit this species although the acreage (~57

acres) involved is small and fragmented. Given this, the level of opportunity for the DEP lead is low. Additional land management considerations including the protection and creation of snags can be found in [Section 4.3.13](#).

Ongoing efforts to maintain CRWMA's natural community structure and function combined with a shorter fire return interval will improve the suitability of habitat for kestrels; therefore, no SMA is required. As the existing nest boxes have not been used by kestrels, staff should work with FWRI staff to determine if the location and placement of the nest boxes are optimal for the species ([Section 6.1.3](#)).

Monitoring of nest boxes on the FWC lead will follow a protocol developed by FWRI as part of a statewide kestrel nest box monitoring program ([Section 5.2.5](#)). The results of this monitoring will be shared with FWRI. The area goal is to provide habitat for southeastern American kestrels that provide conditions to encourage occupancy. However, the future occupancy of CRWMA by this species is dependent on conditions that influence the regional population, and whether or not habitat conditions in ruderal sites are suitable.

3.2.15: Southern Bald Eagle

Bald eagles are commonly observed on CRWMA. There are 30 records of historic or currently active bald eagle nests within 3 miles of CRWMA, with 6 nests occurring within the boundary (including portions managed by DEP). Two of these nests were last active in 2009, 1 in 2008, 1 in 2007, and the remaining 2 last known to be active before 2004.

The bald eagle does not trigger any of the prioritization parameters, but is protected by specific rules and requirements under the Bald and Golden Eagle Protection Act. The FWC approved a Bald Eagle Management Plan in 2008 to ensure the continued recovery of this species. From a regional perspective, CRWMA occurs in one of the Important Use Areas (IUAs) identified for Bald Eagles. This IUA is located along the Ocklawaha River and includes portions of the Cross Florida Barge Canal and conservation lands north and south of CRWMA to Etoniah Creek State Forest. An additional foraging IUA occurs just west of the Rodman Reservoir, which is located immediately to the northwest of CRWMA.

On the FWC lead, models identified 4,261 acres of potential habitat using current natural community data with 4,082 acres possible if management could restore all natural communities. The potential reduction in habitat is an artifact of the modeling process and restoration is not expected to cause a reduction in habitat for this species. On the DEP lead, models identified 1,929 acres of potential habitat using current natural community data with 3,228 acres possible if management could restore all natural communities. Bald eagles typically are not considered management-dependent and the opportunity to affect them at the management-unit level on CRWMA is low. However, ongoing efforts to maintain CRWMA's natural community structure and function will benefit this species. Management actions that maintain or enhance habitat for this

species include managing for mature stands that include potential nest trees, prescribed fire and mechanical actions that aid in restoring natural community structure.

While local monitoring could detect a change in this species' use of CRWMA, nests on CRWMA are already monitored as part of a larger statewide monitoring effort. Additional monitoring would be inefficient as information from the statewide effort can provide meaningful results to area staff. As there are no specific management activities recommended for this species there is no need to establish a SMA and no need to establish measurable objectives. Any activity around nest sites will be conducted according to the guidance in the management plan ([Section 4.3.14](#)). Documentation and reporting of nesting sites is recommended ([Sections 5.2.6](#) and [6.1.3](#)).

The area goal is to promote suitable foraging and nesting habitat for the bald eagle that will allow individuals using CRWMA to function as part of a regional population. While the continued presence of bald eagles on CRWMA is dependent on conditions that influence the regional population, the proximity of CRWMA to IUA and a series of rivers and canals enhances the potential for this species to persist on the area.

3.2.16: Wading Birds

Two of the 8 focal species of wading birds [great egret (*Ardea alba*) and white ibis (*Eudocimus albus*)] are occasionally seen on the FWC lead portion of CRWMA. Four others [snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), little blue heron (*Egretta caerulea*), and wood stork (*Mycteria Americana*)] are rarely observed on the FWC lead portion of CRWMA. The roseate spoonbill (*Platalea ajaja*) and the reddish egret (*Egretta rufescens*) have not been documented. A colony of tricolored herons occurs along Deep Creek within the DEP lead.

Statewide, this group of species is a moderate priority. Several species are state listed species of special concern and the wood stork is federally listed as endangered. The Millsap biological scores for the reddish egret, little blue heron and wood stork are high. The snowy egret, little blue heron, and roseate spoonbill are believed to have declining population trends while the tricolored heron and white ibis have unknown trends. From a regional perspective, there are several historic occurrence records of these species using portions of the Ocala National Forest and many individuals pass over CRWMA. Wading birds use riparian edges of the Ocklawaha River, Saint Johns River, and the various depressional wetlands on the FWC lead. There are historical records indicating large aggregations of wood stork using portions of the Ordway-Swisher Biological Station, located ~16 miles northwest of CRWMA.

On the FWC lead, models identified 9,541 acres of potential habitat using current natural community data with 7,206 acres possible if management could restore all natural communities. Perceived decreases in the amount of potential habitat with restoration are likely an artifact of the model. On the DEP lead, models identified 4,275 acres of potential habitat using current natural community data with 6,738 acres possible if management could restore all natural communities.

Wading birds tend to use natural communities that are not actively managed and may travel great distances between foraging and roosting habitat. Therefore, the opportunity to influence the regional populations of these species at the management unit level on CRWMA is low. The area does have a role in supporting the regional population by maintaining water quality and promoting foraging habitat and potential nesting sites.

Specific management activities to benefit wading birds are inappropriate on the FWC lead, therefore no SMA or measurable objectives are recommended. No specific monitoring actions are recommended at this time. Managers should protect breeding colonies by providing a 330 ft buffer around the colony ([Section 4.3.15](#)). New wading bird colonies should be documented and reported ([Section 5.2.6](#)).

The area goal is to promote suitable habitat for wading birds that will allow individuals using CRWMA to function as part of the regional populations. While the continued presence of these species on CRWMA is dependent on conditions that influence the regional population, the proximity of CRWMA to a series of rivers and canals enhances the potential for these species to persist on the area.

3.2.17: Florida Black Bear

Florida black bear or its sign is commonly seen on the FWC lead and occasionally seen on the DEP lead. While no den sites have been documented on CRWMA, it is likely occurring. The Florida black bear is a wide-ranging species capable of significant dispersal. Home range size varies according to resource availability and the level of habitat fragmentation on the landscape. Suitable habitat contains a mosaic of natural communities that provide a diversity of foraging opportunities, cover when traveling between these habitat types, and adequate den sites.

This state listed threatened species triggers 2 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands and Millsap biological score). From a regional perspective, CRWMA occurs within the primary range of the Ocala population as identified by the 2008 FWC Bear Management Plan. The Ocala population of Florida Black Bear is one of the state's largest populations. CRWMA plays an important role as a movement corridor within a network of conservation lands connecting the Ocala black bear population with the Osceola population to the north and the Saint Johns population to the northeast. The literature suggests at least 40,000 acres is needed to support a population.

On the FWC lead, models identified 12,007 acres of potential habitat using current natural community data with 12,303 acres possible if management could restore all natural communities. On the DEP lead, models identified 12,397 acres of potential habitat using current natural community data with 14,302 acres possible if management could restore all natural communities. While CRWMA itself cannot support a local population, it exists within a network of conservation

lands where the likelihood of long-term persistence of black bears is very high. In this context, CRWMA has a role in conserving this species at the larger regional level.

Employing land management practices that keep the needs of bears in mind will continue to support the area's primary role as a regional corridor while also providing suitable foraging habitat for bears ([Section 4.3.16](#)). Ongoing efforts to maintain CRWMA's natural community structure and function in actively managed natural communities could result in a change in the amount of denning cover for bears (i.e., reducing desired saw palmetto cover in mesic flatwoods per [Section 4.2.1](#)). However, the non-actively managed natural communities and the number and interspersed wetland habitats associated with managed natural communities on CRWMA will ensure this area always provides suitable bear denning habitat. Because suitable bear habitat occurs across the area and there are no specific management actions that could be applied specifically to benefit this species, no SMA is recommended.

Because this species naturally occurs in relatively low densities and is difficult to detect, no specific monitoring or measurable objectives are recommended. However, documenting opportunistic observations ([Section 5.2.6](#)) of bears or bear sign will assist in identifying potential travel corridors between natural communities on CRWMA. Because management actions affecting bears on the Ocala National Forest will directly affect bear use of CRWMA, ongoing coordination with the Forest Service is recommended ([Section 6.7](#)). Area staff should continue to communicate with FWC's imperiled species management section on black bear management issues ([Section 6.1.6](#)).

The area goal is to provide suitable habitat for Florida black bears on CRWMA that will allow the area to continue to serve as an important regional corridor. While the long-term persistence of bears on CRWMA is dependent on what happens to the larger Ocala population, the proximity of CRWMA to a number of other conservation lands increases the chance of this species persisting on the area.

3.2.18: Sherman's Fox Squirrel

Sherman's fox squirrels are rarely seen on CRWMA. Fox squirrels have been documented in the mesic flatwoods along the western edge of the FWC lead, along the southern boundary with the bombing range, and in a pine plantation located east of the equipment area. On the DEP lead, fox squirrels have been noted along Highway 310, the west side of Highway 19 near the barge canal, and near the office in the northeastern portion of the parcel. Suitable habitat for Sherman's fox squirrel includes longleaf pine sandhills or flatwoods with a mixture of pines and oaks, such as along the edges of longleaf pine savannas and live oak forests. Fox squirrels have a large home range size, and large oaks and pines are often used for nest sites. Biologists believe fox squirrels need a mosaic of habitat conditions to ensure a year-round supply of food that consists of a variety of seasonally abundant items.

This state species of special concern triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap supplemental score, Legacy population trend and population status). From a regional perspective, the landscape around CRWMA historically supported a good population of this species. Much of the sandhill and open-canopied flatwoods desired by fox squirrels has now been developed or converted to incompatible silviculture. Open pastures may continue to provide some habitat for this species, particularly when located adjacent to remaining small, isolated patches of open forests. The nearest population of Sherman's fox squirrel occurs on the Ocala National Forest. Conversations with Forest Service staff suggest a healthy population occurs on the national forest, and the species is commonly found in the Riverside Island area of the forest.

On the FWC lead, models identified 4,405 acres of potential habitat using current natural community data with 5,734 acres possible if management could restore all natural communities. The fox squirrel is a wide-ranging species and it is not known if the potential habitat on FWC lead could support an independent population of this species. Literature suggests fox squirrels require 2,000 – 9,000 acres of habitat to support a population. It is likely, however, that fox squirrels using the FWC lead also are using habitat and interacting with squirrels found on the Ocala National Forest and on the DEP lead. In this context, CRWMA has a role in supporting the regional population of fox squirrels. Cooperation with the Forest Service ([Section 6.7](#)) is recommended to ensure corridors between the two properties are maintained for this species.

While specific habitat conditions desired by fox squirrels are not well understood, management believed to maintain habitat for fox squirrels include prescribed fire, timber management that strives for open mature stands of longleaf pine, and mechanical actions that aid in restoring natural community structure and function. Given the connection with Ocala National Forest and the amount of potential habitat in managed communities, the level of opportunity for this species on the FWC lead is moderate.

On the DEP lead, models identified 2,852 acres of potential habitat using current natural community data with 7,958 acres possible if management could restore all natural communities. Most of the current potential habitat on the DEP lead occurs within mesic flatwoods along Rodman Dam Road. Management actions here to benefit fox squirrels would include the frequent use of prescribed fire to create a more open structure. Historically, portions of the DEP lead now in pine plantation would have been mesic flatwoods. Thinning of these plantations and the reintroduction of prescribed fire would benefit this species. Small pockets of sandhill found on the DEP lead could be managed for fox squirrels through midstory control and frequent use of fire. Given the amount of potential habitat and connection with the larger regional landscape, the level of opportunity for fox squirrels on the DEP lead is moderate. [Section 4.3.17](#) describes additional land management consideration

As ongoing efforts to maintain CRWMA's natural community structure and function will benefit this species, no SMA is recommended. Because this species naturally occurs in relatively low densities

and is difficult to detect, no specific monitoring action other than opportunistic documentation is recommended ([Section 5.2.6](#)). No measurable objective for this species is recommended at this time.

The area goal is to promote suitable habitat for Sherman's fox squirrels on CRWMA that allow the fox squirrels to function as part of a regional population. While the continued presence of this species on CRWMA may be dependent on conditions that influence the regional population, the area is part of a larger landscape of conservation lands that increases the chance of persistence.

3.2.19: Limited Opportunity Species

Four focal species (Frosted Flatwoods Salamander, Florida mottled duck, Florida scrub-jay, and Florida mouse) modeled (using statewide data) to have potential habitat on the FWC lead lack reasonable opportunity for management on the area. Opportunistic observations of these species should be documented ([Section 5.2.6](#)). If any of these species are documented with increasing regularity, the FWC lead's role in their conservation and recovery should be re-visited. Level of opportunity for these species on the DEP lead may also be limited. When different, level of opportunity for this species on the DEP lead will be stated.

Frosted flatwoods salamander- The flatwoods salamander (*Ambystoma cingulatum*) was recently recognized to be 2 distinct species by the USFWS; the frosted flatwoods salamander (*A. cingulatum*), which occurs to the east of the Apalachicola River and the reticulated flatwoods salamander (*A. bishopi*) which occurs to the west of the Apalachicola River. The USFWS lists the frosted flatwoods salamander as threatened, and the reticulated flatwoods salamander as endangered. Flatwoods salamanders have never been documented on CRWMA or within Putnam County. The nearest known occurrence is one record from 1954 near Burbank in Marion County (about 20 miles from CRWMA). Flatwoods salamanders have been documented in Duval, Alachua and Bradford counties to the north and west of CRWMA. However, there have been no records of this species in northeast Florida since 1990. Conversations with FWC herpetologists suggest, despite model results, that CRWMA falls outside the known range of this species and this species should not be considered a focal species for the area. Prior to the installation of the Cross Florida Barge Canal, flatwoods on the FWC lead were connected to the larger flatwoods landscape in Putnam County and Northeast Florida. Under these conditions, it is possible that salamanders could have occurred on CRWMA. Disruption of this connectivity by the barge canal, however, severely reduced the likelihood of long-term persistence of this species on the FWC lead.

On the FWC lead, models identified 2,153 acres of potential habitat using current natural community data with 5,790 acres possible if management could restore all natural communities. On the DEP lead, models identified 2,387 acres of potential habitat using current natural community data with 8,473 acres if management could restore all natural communities. Theoretically, this is enough potential habitat to support a population. However, a loss of connectivity to the larger landscape from the barge canal and the lack of documentation in Northeast Florida since 1990 make

the opportunity for flatwoods salamander on CRWMA very limited. On the DEP lead, flatwoods and pine plantations occurring within mesic communities still maintain some potential connectivity, but habitat conditions in these areas are not compatible with the needs of flatwoods salamanders.

While the opportunity to manage for flatwoods salamanders on CRWMA is very limited, monitoring of other focal herpetofauna species (e.g., striped newt) can verify presence of flatwoods salamanders from CRWMA ([Section 5.2.2](#)) should they occur on CRWMA. If the species is not detected during other herpetofauna surveys over a 10-year period, flatwoods salamander should be removed from consideration in future strategies for CRWMA. If this species is detected on the WMA, the need for area goals and management opportunities should be revisited.

Florida mottled duck- Mottled ducks have never been observed on CRWMA. Elsewhere, mottled ducks nest in dry marshes, pine flatwoods, citrus groves and even urban areas. Habitats that mottled ducks avoid include wet prairies, shrub and forested wetlands, and open water.

From a regional perspective, CRWMA is on the northern perimeter of the known range of the species. There may be some small, isolated patches of potential habitat scattered throughout the immediate area, but most of the wetlands and rivers immediately surrounding CRWMA represent unsuitable habitat for this species. On the FWC lead, models identified 29 acres of potential habitat using current natural community data with 18 acres possible if management could restore all natural communities. On the DEP lead, models identified 0 acres of potential habitat using current natural community data with 0 acres possible if management could restore all natural communities. This is not enough to support an independent population. Given the small amount of potential habitat on CRWMA, we believe the level of opportunity to manage for the mottled duck on CRWMA is limited. However, ongoing efforts to maintain CRWMA's natural community structure and function may provide some limited benefit to this species.

Florida scrub-jay- The Florida scrub-jay has never been documented on CRWMA. Ideal habitat for Florida scrub-jays is oak-dominated scrub predominantly 3 to 6 feet tall with an average of < 1 pine per acre. Increased pine densities and decreased distance to forest edge will decrease habitat suitability for scrub-jays by providing cover and perches for predators. Scrub-jays will occupy and use scrubby flatwoods and mesic flatwoods or ruderal sites that have suitable vegetative structure when these occur adjacent to scrub communities.

From a regional perspective, CRWMA occurs in an area that marks a transition from scrub to sandhill and flatwoods communities. Historically, small, isolated pockets of scrub or scrubby flatwoods occurred within the larger landscape of sandhill and flatwoods. Most of this habitat is now altered via development, in agricultural production or pasture, or subject to incompatible silviculture. Occurrence records document the presence of scrub-jays south of CRWMA throughout the Ocala National Forest. The only records of scrub-jays to the north, west, and east of CRWMA are roughly 14 miles to the north in Etoniah Creek State Forest. Ocala National Forest retains the largest

population of scrub-jays in Florida, but it is currently isolated from CRWMA by an extensive barrier of unsuitable riparian communities along the Ocklawaha River and the Rodman Reservoir.

On the FWC lead, models identified 23 acres of potential habitat using current natural community data with 26 acres possible if management could restore all natural communities. This is not enough habitat to support a population of scrub-jays based on the literature, which suggests a minimum population size of 10 family groups each of which require a minimum of 25 acres (a total of 250 acres). Given the limited amount of habitat and the isolation of the FWC lead from other areas known to hold scrub-jays, we believe the level of opportunity to manage this species is limited on the FWC lead.

On the DEP lead, models identified 391 acres of potential habitat using current natural community data with 300 acres possible if management could restore all natural communities. Most of this identified habitat is scrubby flatwoods with some small pockets of scrub located along Deep Creek Road, which is currently overgrown and not suitable for scrub-jays. Restoration of these areas with mechanical vegetation reduction and the re-introduction of fire could create more appropriate habitat conditions for this species. Even though scrub-jay occupancy of these acres is unlikely, habitat management for scrub-jays would create conditions suitable to a number of xeric dependent wildlife species, including the gopher tortoise and Florida mouse. While there is theoretically enough potential habitat to support a population of > 10 family groups on the DEP lead, conversations with FWC's statewide scrub-jay coordinator suggest acreages of > 500 acres are preferred, and the potential for this areas to be important for scrub-jays is limited.

Jay habitat on the DEP lead is isolated from other jay habitat. Jays may have historically moved from the Ocala National Forest northwards into CRWMA through fire-maintained open-canopied mesic flatwoods and small, isolated patches of scrubby flatwoods. However, establishment of the Rodman Reservoir and an extensive floodplain community around the Ocklawaha River and Deep Creek likely reduce any jay movement in and/or out of the potential habitat on the DEP lead. Etoniah Creek State Forest is located further than the accepted 7.5 mile (12 km) dispersal distance used to identify the state's jay metapopulation groups. While it is possible that the occasional jay might disperse into restored habitat on the DEP lead, the frequency of these events would probably be too low to support a local population. Translocation of jays into restored habitat on the DEP lead also is unlikely, and would do little to support a connection between the Ocala and Etoniah Creek populations due to the geographic distance and reduced amount of potential habitat north of CRWMA. Given these factors, the level of opportunity on the DEP lead for scrub-jays is currently limited with a low potential after habitat restoration.

Florida mouse- The Florida mouse has never been documented on CRWMA, although staff have never attempted to verify its occurrence on the FWC lead. Florida Natural Areas Inventory (FNAI) looked for the Florida mouse on the DEP lead and found none. The Florida mouse inhabits sandhill and scrub habitats and relies almost exclusively on gopher tortoise burrows for refuge. Acorns and a diversity of seed producing groundcover plants are important food sources for this species.

From a regional perspective, CRWMA exists in a part of the state with a high historic amount of the xeric communities preferred by this species. Many of these communities are now impacted by development, agricultural production or pasture, or are subject to incompatible silviculture. The nearest known population of Florida mice occurs on the Ocala National Forest. The Ordway-Swisher Biological Station, located ~16 miles northwest of CRWMA, also maintains a healthy population of Florida mice. Historic occurrence records document Florida mice being captured in the Welaka State Forest, across the Saint Johns River from CRWMA, and from a site located 4-5 miles directly north of CRWMA. The FWC lead, however, is isolated from these sites by water on all four sides.

On the FWC lead, models identified 41 acres of potential habitat using current natural community data with 46 acres possible if management could restore all natural communities. This is not enough acreage to support a population based on literature estimates of 75 - 200 acres being required to maintain a viable population. Despite being management responsive, the lack of appropriate habitat on the FWC lead makes the level of opportunity for this species limited.

On the DEP lead, models identified 524 acres of potential habitat using current natural community data with 492 acres possible if management could restore all natural communities. This is enough habitat to support a viable population although the potential habitat is distributed in a patchy manner across the DEP lead. Most of this potential habitat occurs in xeric communities off Deep Creek Road. A combination of mechanical vegetation reduction and the reintroduction of fire would improve habitat conditions in these areas for Florida mice. Several small, isolated pockets of sandhill distributed throughout the DEP lead also could provide suitable habitat if restored through a combination of midstory reduction and the frequent use of prescribed fire. Given these factors and the fact that FNAI did not document Florida mice, the level of opportunity for this species on the DEP lead is currently low. DEP staff may consider another opportunistic survey for Florida mice in the xeric communities off Deep Creek Road once this area is restored. Following restoration, the DEP lead may have a more significant role in the conservation of this species.

3.2.20: Other Focal and Imperiled Species

The American alligator (*Alligator mississippiensis*) is the only other listed wildlife species documented on CRWMA. Ongoing management to maintain healthy wetland habitats should ensure the continued existence of the alligator on CRWMA.

One rare but unlisted species, the Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) occurs on CRWMA; several individuals roost in the sign shop on the FWC lead and in a newly constructed bat house. Continued maintenance of this bat house and protection of riparian areas where this species forages should encourage the continued existence of big-eared bats and southeastern myotis (*Myotis austroriparius*) on CRWMA. While the southeastern myotis is not modeled to occur on CRWMA, the FWC mammal taxa coordinator believes they are likely to occur on the area.

Three imperiled plant species have been documented on the FWC lead; hooded pitcher plant (*Sarracenia minor*; state threatened), and two species of butterworts (*Pinguicula lutea* & *P. caerulea*; both state threatened). On CRWMA, the continued use of prescribed fire in appropriate natural communities should benefit the hooded pitcher plant; periodic fires reduce the encroachment of competing plants. Pitcher plants survive fire by resprouting from rhizomes. Like the pitcher plant, the butterworts are carnivorous and will be benefited by the continued use of prescribed fire in appropriate natural communities. Degradation of water quality and drainage of wetlands also threatened these species; thus, the protection of wetlands on CRWMA will provide opportunities for their continued presence.

It is possible other imperiled species occur on CRWMA. Imperiled species on CRWMA should continue to benefit from FWC's ongoing management actions that aim to restore natural communities' structure and function. Florida's imperiled species are adapted to these natural communities and have a higher probability of persistence under FWC management actions than in the absence of management.

Section 4: Land Management Actions and Considerations

Models identified potential habitat for 21 focal species on the area ([Section 3.1](#)); however, not all of these species have the same level of management opportunity or need ([Section 3.2](#)). The FWC's natural community-based management, which emphasizes frequent growing season prescribed fire, will promote the habitat conditions necessary for most of these species, without the need for further strategic management actions.

We may designate Strategic Management Areas (SMA) when actions over and above ongoing natural community management are required ([Section 4.1](#)). The designation of SMAs allows for identification of an area in which managers can apply specific land or species management action(s) to facilitate conservation of a species or group of species. A SMA is an area in which specific actions will occur that typically will not occur area-wide and can be used to do the following:

- Identify the area in which to apply specific land or species management that creates the highest probability for persistence/conservation of a species/suite of species. These specific actions may aid in restoring, enhancing or maintaining the habitat or population.
- Identify an area in which to focus specific management actions (land management or species management) for the best chance of success on large areas with more restoration/enhancement than can be accomplished in short order. This might be the first or next step in a sequential series of management actions that will increase the likelihood of occupation and/or persistence of a specific species.
- Identify an area that is so critical to the persistence of a species on the area that it warrants identification to ensure protection against negative alteration.

- Focus efforts on restoration/enhancement of a natural community that will benefit a priority species or a group of focal species. The SMA should identify the area in which these actions have the greatest positive impact for the species of interest.
- Identify areas that are critical for research or monitoring.
- Recommend specific OBVM DFCs in a specific area to benefit a specific species when we would not want to change the DFCs in the natural community area-wide.

In order to ensure natural community management addresses the needs of these focal species, the OBVM DFCs are evaluated ([Section 4.2](#)). Some species have specific protective measures or land management considerations that are necessary to ensure their continued use of the property. [Section 4.3](#) provides these recommendations.

4.1: Strategic Management Areas

While the intent on CRWMA is to restore all restorable natural communities to a more natural condition that will better suit these species, SMAs allow focus on areas with the highest possibility of success and/or areas most critical for the conservation of a species on the area. The workshop participants concluded that ongoing and planned natural community management will meet the needs of these species, and there was no need to identify specific actions in an SMA.

4.2: Objective-Based Vegetation Management Considerations

Staff will use Objective-Based Vegetation Management (OBVM) to monitor progress towards Desired Future Conditions (DFCs) of various natural community parameters ([Table 2](#)). As such, OBVM will be effective in monitoring progress towards land management strategies.

The OBVM DFCs target a range in values for various habitat parameters within actively managed communities. However, some focal species may require a more restricted range in habitat parameters than is reflected in the DFCs. Therefore, we suggest which parameters should be added if habitat parameters important to a particular species are not currently monitored as part of OBVM ([Section 4.2.1](#)). [Section 4.2.1](#) also identifies cases in which the needs of the species require a change in the DFC area-wide.

Table 2. Desired Future Conditions for specific vegetative parameters in actively managed natural communities at CRWMA as identified via the OBVM workshop process.

Mesic Flatwoods	
Pine basal area	20-60 ft ² /ac.
Average maximum shrub height	≤ 5 ft
Shrub cover	≤ 60%
Saw palmetto cover	≤ 40%
Herbaceous cover	≥ 25%
Wiry graminoid cover	≥ 5%
Weedy species cover	≤ 5%
Exotics cover	0%
Wet Flatwoods	
Pine basal area	20-60 ft ² /ac.
Average maximum shrub height	≤ 5 ft
Shrub cover	≤ 60%
Herbaceous cover	≥ 25%
Wiry graminoid cover	≥ 5%
Weedy species cover	≤ 5%
Exotics cover	0%

4.2.1: Modifications to Desired Future Conditions

Mesic Flatwoods

Average maximum shrub height (ft):

All management units: change from ≤ 5 ft to ≤ 4 ft.

Justification: Shrub height is a parameter that greatly influences the amount and type of herbaceous diversity within flatwoods communities. Higher shrub heights typically indicate reduced herbaceous cover and diversity, which reduces habitat suitability for focal species like gopher frog, Bachman's sparrow, northern bobwhite, and gopher tortoise. Modifying the DFC for this parameter will ensure management is successfully maintaining the habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

Shrub cover:

All management units: change from $\leq 60\%$ to $\leq 30\%$

Justification: Shrub cover is a parameter that greatly influences the amount and type of herbaceous diversity within flatwoods communities. Higher amounts of shrub cover typically indicate reduced herbaceous cover and diversity, which reduces habitat suitability for focal species like gopher frog, Bachman's sparrow, northern bobwhite, and gopher tortoise. Modifying the DFC for this parameter will ensure management is successfully maintaining the habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

Saw palmetto cover:

All management units: change from $\leq 40\%$ to $\leq 30\%$

Justification: Saw palmetto cover is a parameter that greatly influences the amount and type of herbaceous diversity within flatwoods communities. Higher amounts of saw palmetto cover typically indicate reduced herbaceous cover and diversity, which reduces habitat suitability for focal species like gopher frog, Bachman's sparrow, northern bobwhite, and gopher tortoise. Modifying the DFC for this parameter will ensure management is successfully maintaining the habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

Wet Flatwoods

Average maximum shrub height (ft):

All management units: change from ≤ 5 ft to ≤ 4 ft.

Justification: Shrub height is a parameter that greatly influences the amount and type of herbaceous diversity within flatwoods communities. Higher shrub heights typically indicate reduced herbaceous cover and diversity, which reduces habitat suitability for focal species like striped newts, and gopher frogs. Modifying the DFC for this parameter will ensure management is successfully maintaining the

habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

Shrub cover:

All management units: change from $\leq 60\%$ to $\leq 30\%$

Justification: Shrub cover is a parameter that greatly influences the amount and type of herbaceous diversity within flatwoods communities. Higher amounts of shrub cover typically indicate reduced herbaceous cover and diversity, which reduces habitat suitability for focal species like striped newts, and gopher frogs. Modifying the DFC for this parameter will ensure management is successfully maintaining the habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

4.3: Further Land Management Considerations

Most generalist or wide-ranging species benefit from management that restores the natural structure and function of natural communities they use. However, for some species, specific management recommendations and precautions are necessary to ensure the continued suitability of the area for the species. The following recommendations should help ensure CRWMA continues to fulfill its role in the conservation of these species.

4.3.1: Gopher Frog/Striped Newt

Gopher frogs and striped newts frequently move between wetland breeding ponds and adjacent uplands. Do not place ground disturbing firebreaks along wetland ecotones because they can alter/destroy the herbaceous component of pond margins preferred by these species and other amphibians. Wet-lining can be an alternative to mineral firebreaks around wetlands if necessary; however, it is preferred to allow fire to burn through the wetland. Managers will use prescribed fire as the primary tool to remove shrubs and other thick vegetation from pond margins; mechanical treatments may be needed initially, but prescribed fire should be the main management tool in suitable wetlands.

Growing season (April–September) burns, preferably after April, are more beneficial to the gopher frogs and striped newts than dormant season (October–March) burns. This is because they are more effective at reducing shrub cover and litter in the wetland basin, stimulating the growth of herbaceous emergent vegetation, enhancing the wetland/upland ecotone, and stimulating the reproduction of wiregrass in the surrounding uplands. The most beneficial time to burn is when the wetland is dry. While growing season fires are preferred, it is better to burn during the dormant season than to avoid burning.

4.3.2: Florida Pine Snake

Large upland snakes such as the Florida pine snake are relatively wide-ranging and elusive. Ongoing land management activities will enhance the suitability of habitat for this species, but could also be directly detrimental. When using heavy equipment during land management activities, it is important to avoid direct mortality. When practical, keep heavy equipment at least 25 feet from areas with a high density of pocket gophers or gopher tortoise burrows, as pine snakes regularly use their burrows. Coarse woody debris and residual stumps should be left intact when possible to provide cover for these species. In general, avoid removing stumps. While it is acceptable to pile and burn excess logging slash if necessary to reduce smoke management issues, ensure some debris remain in the stand to provide cover for these species. Creating brush piles can provide cover for these species if natural cover is sparse or absent.

4.3.3: Gopher Tortoise

In areas where gopher tortoises occur, the timing of roller-chopping will, whenever appropriate, occur during the dormant season to minimize negative impacts to gopher tortoises. Gopher tortoises are generally less active and remain in burrows during the winter months. Therefore, roller-chopping at this time will be less likely to crush or otherwise harm foraging tortoises. Regardless of timing, make an effort to minimize impacts to known burrows, whether active or inactive/abandoned.

4.3.4: American Swallow-Tailed Kite

Because swallow-tailed kites exhibit high nest site fidelity, protect known nest sites from disturbance and alteration, and retain all of the tallest pines in the area of nest sites. Maintaining a 330-foot protective buffer around active nests during nest season should minimize the chance of disturbance. When possible, kite nesting areas should be allowed to have a higher shrub height and density than surrounding areas as this may reduce the likelihood of nest predation. If kite activity is observed during nesting season, particularly if kites are observed carrying nesting material, mobbing, or congregating in groups of 3 or more, this information should be documented and an effort to locate the nest should be made. For information on how to locate nests, see:

Meyer, K. D., and M. W. Collopy. 1995. [Status, distribution, and habitat requirements of the American swallow-tailed kite \(*Elanoides forficatus*\) in Florida](#). Project Report, Florida Game and Fresh Water Fish Commission, Tallahassee, FL. 137 pp.

While no swallow-tailed kites have been documented nesting on CRWMA, it is still important to preserve future potential nest trees. Staff can accomplish this by retaining the largest, oldest trees on the landscape during land management activities.

4.3.5: Bachman's Sparrow

Prescribed fire improves the quality of habitat for Bachman's sparrows, and is the primary land management tool recommended to promote habitat for Bachman's sparrow on CRWMA. Suitable

habitat can be created/maintained through frequent (≤ 3 year rotation) use of prescribed fire. The occurrence of fire is critical to sustaining this species as use of an area by Bachman's sparrows declines rapidly around 18 months post-fire. Bachman's sparrows may abandon habitat if fire is excluded for more than 3 years. When using mechanical treatments to reduce understory, make an effort to retain some small patches of shrubs, which are used by singing males as singing perches during the breeding season. Follow mechanical treatment with a prescribed burn.

4.3.6: Brown-Headed Nuthatch

This species is a cavity nester and is dependent on the presence of snags for suitable nesting habitat. Unfortunately, and to the detriment of the nuthatch, management activities frequently knock over snags, especially the old, soft snags on which the nuthatch is dependent. The impact of land management on snags should be evaluated to ensure new snags are replacing consumed snags. If there is a net loss of snags during prescribed fire or mechanical treatments, consider taking efforts to protect snags or taking actions to create new snags. It is possible to create future suitable snags by girdling oaks with a diameter at breast height of < 10 inches. Over time, these snags become soft and become preferred nest sites. Managers should take care to keep this particular type of snag.

When possible, avoid prescribed fire during February and March in management units known to contain brown-headed nuthatches. The loss of nests early in the season frequently results in re-nesting attempts. Most re-nesting occurs during periods of increased snake activity which results in greater predation on nesting females and their eggs and young. However, if this is the only time in which suitable conditions occur for a burn, it is better to burn than to avoid burning.

4.3.7: Cooper's Hawk

During the nesting season (April-July), Cooper's hawks are secretive and intolerant of human disturbance near the nest site. Males show a strong fidelity to traditional territories. For this reason, whenever possible, protect known nesting sites from disturbance during land management activities by maintaining a 50-foot buffer around the nest during the nesting season, and avoiding heavy alteration of the nesting location. Whenever signs of Cooper's hawk nesting (e.g., carrying nesting material, aggressive dive bombing) are encountered, the location should be documented and an effort made to protect the nest.

4.3.8: Florida Sandhill Crane

Prescribed fire improves the quality of upland habitat for this species. In known nesting areas, fires should occur outside of the nesting season (December - June) and after the young are able to fly. A 400-foot buffer around known nests should reduce the likelihood of disturbance. Reducing disturbance to nest areas decreases chances of abandonment or other negative impacts. Consider seasonality of wetland management activities to avoid flooding of nests or reductions in foraging habitat. To ensure management is conducive with the needs of this species, follow the management guidelines found at:

Stys, B. 1997. [Ecology of the Florida sandhill crane](#). Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 15. Tallahassee, FL. 20 pp.

4.3.9: Limpkin

Any timber harvest should observe Best Management Practices for protecting streams and spring runs and avoid soil disturbance if there is a risk of impacting streams or spring runs. As exotic invasive aquatic plants can have a negative impact on apple snails, document any occurrence of these species on the area and reported them to the Invasive Plant Management Section or Saint Johns River Water Management District ([Section 6.1.6](#) and [Section 6.2](#)). If detected early enough it may be possible to eradicate invasive exotic plants before a population becomes established.

4.3.10: Northern Bobwhite

The primary land management tool used to benefit northern bobwhite is the frequent use of prescribed fire. Ignite fires using a variety of firing techniques and environmental conditions with the goal of promoting a mosaic burn. Mosaic burns result in a patchwork of burned and unburned areas that meet different habitat requirements for northern bobwhite. Growing season fires are generally preferred. Growing season fires are required to trigger flowering and viable seed production in many native plants. Recent evidence suggests that the frequency of fire in flatwoods communities may be just as important as the seasonality of burn. Thus, if growing season burns do not occur, it is better to burn the unit during the following dormant season to retain the fire return interval. On CRWMA, the fire return interval should be enhanced to allow for more frequent fire in actively managed natural communities utilized by northern bobwhite. This is an overall goal of the prescribed fire program on the area that will benefit a number of other species.

Pine stands with basal areas > 80 ft²/acre should be thinned to trigger herbaceous growth and improve habitat conditions for this species. Staff can manage ruderal areas for northern bobwhite through mechanical actions like mowing and/or disking strips during the summer months to promote herbaceous growth.

4.3.11: Red-Cockaded Woodpecker

Following habitat restoration, red-cockaded woodpecker colonization of CRWMA is unlikely to occur without active assistance. Existing pines are likely >30 years away from becoming suitable for use as cavity trees, and much of the forest structure is not in a condition preferred by this species. As such, there are no current plans for red-cockaded woodpecker specific management. However, it is essential to protect future potential cavity trees on CRWMA during ongoing land management activities. Restoration of natural community structure and function will enhance the suitability of habitat for this species over time. Replanting of sites with longleaf pine at low basal areas may be necessary, particularly in mesic flatwoods on the west side of CRWMA. After management has

restored the habitat to suitable conditions, a reintroduction plan should be developed to guide reintroduction of this focal species to the area. Actions for this species should be consistent with the [state management plan](#) and the [federal recovery plan](#).

4.3.12: Short-Tailed Hawk

Short-tailed hawks exhibit high nest site fidelity, and historic nest areas are often used for multiple years, even if not active every year. Nests are difficult to locate and monitor. If nest sites are located, protective action should be taken if/when nests are known to be active. Protect known nesting sites from disturbance during land management activities by maintaining a 330-foot buffer around the nest during the nesting season, and avoiding heavy alteration of the nesting location. Protect trees near the nest to preserve the integrity of the nest area. Protect potential future nest trees by retaining the largest, oldest trees on the landscape during land management activities. Report new nests to ARCI ([Section 6.4](#)).

4.3.13: Southeastern American Kestrel

Southeastern American kestrels are dependent on the occurrence of open upland habitats that contain a number of snags for nest sites. While ongoing management will encourage the open foraging condition this species requires, make an effort to retain large snags during land management activities. The practice of snag management (i.e. protecting snags when safe and practical, promoting the creation of new snags in areas currently lacking) will benefit southeastern American kestrels. If nesting is documented, the amount of mechanical activity within 500 feet of the nest will be minimized during the nesting season and the snag will be protected during prescribed fire activities. For more information on management for kestrels, see:

Stys, B. 1993. [Ecology and habitat protection needs of the southeastern American kestrel](#) (*Falco sparverius paulus*) on large-scale development sites in Florida. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 13. Tallahassee, Fl. 35 pp.

4.3.14: Southern Bald Eagle

State and federal law requires protection of bald eagles, including avoiding disturbance of nesting eagles. Managers will consider the management guidelines in the [state management plan](#) when planning activities within 660 feet of known eagle nests. Any new nests that are located will be documented. As this species is surveyed on a statewide basis, the bald eagle [nest locator](#) will be checked annually to check status of current nests and if any new nests are detected via the survey. It is undesirable to have unnaturally dense stands around eagle nests. Continue to manage stands in which eagle nests occur, but with proper planning to avoid negative impacts to the eagles, per the guidance of the management plan. During management activities, retain large, mature pines as potential future eagle nesting sites.

4.3.15: Wading Birds

It is possible that ongoing actions (e.g., prescribed fire, timber harvest) could have negative impacts on wading birds if the needs of the species are not considered during the planning of these activities. Providing a 330-foot buffer around nesting colonies during nesting season will ensure adequate protection of these resources. Additionally, plan any mechanical and/or chemical control of aquatic vegetation at a time that avoids disturbance to the colony, and using methods that do not damage the plants in which wading birds construct their nests.

4.3.16: Florida Black Bear

Bears require large areas of dense vegetation for escape and denning cover. Efforts to restore natural communities in pine plantations will result in a more open- landscape with reduced tree density and lower shrub height. Efforts to restore natural communities in pasture and ruderal areas will increase cover. Non-actively managed natural communities and the number and interspersed of wetland habitats associated with managed natural communities on CRMWA will ensure this area always provides suitable bear habitat. During the planning of land management activities on CRWMA, consideration should be given to promoting and protecting travel corridors for bears within the WMA and across boundaries to other managed areas. While denning on CRWMA has not been documented, mechanical treatments or prescribed fire in areas with dense cover should be avoided during denning season (December – April). Burning to achieve a mosaic habitat structure within a given management unit will provide multi-aged palmetto patches and other cover habitat used by bears.

4.3.17: Sherman's Fox Squirrel

As habitat restoration occurs on CRWMA, it is likely the area will become more suitable for fox squirrels. To ensure the area reaches its potential for fox squirrels, prescribed fire and thinning should continue to create an open, mature forest structure. Restoration of open mature pine stand, especially restoring the longleaf pine component, will benefit this species. Efforts to reduce the dense shrub layer will benefit this species by providing the open conditions the species prefers, as well as promoting food producing species such as runner oak (*Quercus pumila*). As fox squirrels require an oak component, some oaks should be retained in appropriate sites (e.g., fire shadows) during natural community restoration. Ideally, a variety of oak species in a range of age classes should be retained, but not to the extent this interferes with other species' needs and natural community management.

Section 5: Species Management Opportunities

The focal species approach taken here represents a science-based approach to ecosystem management. Though this method relies on a suite of individual species, land management actions focused on these species directly benefit associated species. For some species, land management actions alone are insufficient in aiding recovery. These include species that are not present on a site

and have limited dispersal capabilities are unlikely to occupy a site without reintroduction once habitat restoration is complete. Additionally, species that are currently present but occur at low densities, have low reproduction potential, or have other limitations that inhibit recovery, may require species-specific management. This section provides species management recommendations ([Section 5.1](#)) as well as monitoring recommendations ([Section 5.2](#)) to assess species response to land management and to determine the need for additional species management. [Section 5.3](#) identifies research necessary to guide future management.

5.1: Species Management

Species management as used here refers to non-monitoring actions taken for a specific species. It can include actions such as translocation, restocking, installing artificial cavities, etc. [Section 5.2](#) covers monitoring related actions, including banding or tagging. [Section 2](#) and [Section 4](#) provide information on land management actions, such as prescribed fire or mechanical treatments. On the FWC lead, staff will be involved in species management for southeastern American Kestrels and bats.

5.1.1: Southeastern American Kestrel Nest Box Program

Staff originally placed 8 nest boxes on the eastern side of FWC lead in the early 2000s. To date, kestrels have not occupied these boxes. After further examination, staff determined that these original boxes were not placed in the correct location for kestrels and therefore removed the boxes. Staff will place 3 new boxes in suitable locations (e.g., open pastures and open canopied scrubby flatwoods). These new boxes will be maintained and monitored by area staff according to protocol developed by FWRI as part of a statewide effort to erect and monitor southeastern American kestrel nest boxes. This effort will collect data on habitat structure around these boxes to gain a greater understanding of preferred nesting habitat. The purpose of monitoring southeastern American kestrel nest boxes on CRWMA is to document presence of the species on the area and to promote nesting opportunities.

5.1.2: Rafinesque's Big-Eared Bat House Maintenance

Area staff completed construction of a cinder block bat house for big-eared bats in 2010. Within several months, several individuals left a nearby structure (where they were originally observed) and took occupancy of the bat house. Staff will continue to maintain the structure and monitor use of this bat house on a weekly basis. Each week, staff will document the number of individuals using the bat house, ambient temperature inside the house, and other pertinent data. Over time, this information should provide insight into factors that affect use of bat houses by Rafinesque's big-eared bats.

5.2: Species Monitoring

Monitoring is critical to evaluating the impact of the management actions described in this Strategy. While we are unable to monitor all of the focal species on CRWMA, the recommended monitoring will assess species in all actively managed communities, select wetland dependant species, and includes opportunistic monitoring for uncommon or hard to monitor species. Data collected will be reported to the regional conservation biologist for inclusion in the appropriate database developed for the WCPR program. We will make monitoring data available to cooperating agencies and organizations such as FNAI ([Section 6.5](#)).

This section provides the list of monitoring actions recommended for the area, and provides the purpose for the monitoring. The FWC is in the process of standardizing monitoring protocols for a number of these species. Approved protocols are available at the [WCPR SharePoint site](#). When protocols are finalized, they will be implemented in accordance with the timeframe described in this Strategy.

5.2.1: Gopher Frog Monitoring

The purpose of gopher frog monitoring is to determine the distribution of breeding ponds of this species on the area and to track changes in the distribution of this species in suitable wetlands over time. Call surveys will be completed following an approved protocol. The survey should be repeated on average every 3 years. However, as this species is dependent on specific weather events, the cycle of repetition may not be every 3 years and will need to follow the guidance of the protocol. As an opportunistic breeder that responds quickly to heavy rains, surveys should occur around potential wetlands after major rain events during winter/early spring months.

5.2.2: Striped Newt / Flatwoods Salamander Monitoring

The purpose for monitoring these pond breeding obligates is to document presence of the species, which wetlands are breeding ponds and to monitor use of these ponds over time. Surveys following the approved standardized protocol should determine presence/absence and will not be of sufficient intensity to detect changes in relative abundance.

For striped newt, conduct surveys in years with sufficient rainfall to ensure water remains in ponds during late winter through early spring. Using the methodology and data sheets developed by the FWRI Amphibian and Reptile Research Scientist, conduct timed dip net searches of ponds to determine if the species is present. Document other captured species. Report data to the FWRI Amphibian and Reptile Research Scientist for inclusion in the database he has developed for the statewide monitoring effort ([Section 6.1.3](#)).

For flatwoods salamander, the standardized monitoring protocol currently in development specifies dip-netting potential breeding ponds a total of 3 times per year during 3 good years. If these surveys are unsuccessful in ≥ 3 good sampling years, the wetlands are presumed to not be breeding sites. Surveys should occur during late winter through early spring and when weather results in appropriate water levels.

For both of these species, if the surveys fail to detect any individuals after 10 years, the monitoring may be discontinued.

5.2.3: Gopher Tortoise Monitoring

The purpose of gopher tortoise monitoring will be to track the distribution and relative abundance of the species to determine the impact of management on the population trend. This trend is based on the number of burrows, and is not considered an actual population or density estimate. To convert the burrow density into tortoise density would require determining the actual occupancy rate of burrows on the area during the survey. While this is worthwhile information, it requires additional resources and is not necessary for basic trend evaluation. The surveys will follow the established FWC gopher tortoise protocol and will be conducted on a 5-year interval. Data will be reported to the gopher tortoise plan coordinator.

If time and resources permit, area staff may continue to maintain the area shapefile containing information on known burrow locations and status. This activity, however, should be considered secondary to the primary action of using the standardized burrow protocol mentioned above.

5.2.4: Spring Grassland Bird Monitoring

The purpose of monitoring northern bobwhite, Bachman's sparrows, and brown-headed nuthatches is to establish a baseline (for Bachman's sparrows and nuthatches) and track relative abundance (all 3 species) over time. Surveys for Bachman's sparrow and brown-headed nuthatch will use standardized point counts using a protocol currently under development. If necessary to achieve results, it may be appropriate to incorporate the use of callback tapes in the call station protocol for Bachman's sparrow and brown-headed nuthatch. On CRWMA, these avian surveys will occur on an annual basis. Spring surveys for Northern bobwhite will continue to use the established protocol already in use on the WMA. Bobwhite data should be shared upon request with FWC's Hunting and Game Management section ([Section 6.1.2](#)).

5.2.5: Southeastern American Kestrel Nest Box Monitoring

The purpose of monitoring kestrel nest boxes is to determine the extent of nesting by southeastern American kestrels on CRWMA, and to track nesting in boxes over time. Staff will conduct southeastern American kestrel monitoring according to protocol developed by FWRI. Data will be reported to the conservation biologist for submission to FWRI for consideration as part of the statewide study ([Section 6.1.3](#)).

5.2.6: Opportunistic Monitoring

The purpose of opportunistic monitoring is to document the presence of specific species. Opportunistic monitoring is the process of recording important information as it is encountered. Documentation of opportunistic sightings including species, date of the observation, observer, approximate lat/long or appropriate MU, number of individuals, behavior, and habitat type should

be forwarded to the regional conservation biologist. Monitoring data will be made available to cooperating agencies and organizations such as FNAI ([Section 6.5](#)). Record encounters or sign of the following focal species:

- Swallow-tailed kite (aggregations of 3 or more birds on regular basis in one area during spring and any nesting activity)
- Cooper's hawk (nesting activity only)
- Flatwoods salamander
- Florida black bear
- Florida pine snake
- Florida scrub-jay
- Red-cockaded woodpecker
- Short-tailed hawk (also record season and color phase)
- Sherman's fox squirrel
- Bald eagle (only document nesting activity)
- Rafinesque's big eared bat (document arrival/departure dates in bat house and shop for seasonal use information)
- Any listed species that does not have a monitoring protocol in this section

5.3: Species Research Needs

Species management recommendations in other sections of this document are based on the most current information regarding management strategies for a given species. However, cases arise when little or no information is available to guide management. This section outlines research needs identified through the WCPR process. At the WCPR workshop for CRWMA, there were no research needs identified. However, a number of the focal species that have not been documented on CRWMA may not be able to colonize the area if they are not present. Therefore, methodology for successful reintroduction of these species may be needed in the future if we desire to restore these species to CRWMA.

Section 6: Intra/Inter Agency Coordination

Throughout the WCPR process, many recommendations were made regarding possible management strategies for focal species. THCR staff can handle most proposed management actions; however, cases may arise when coordination with other sections in FWC or other agencies is necessary or increases efficiency. This section identifies cases in which coordination is necessary outside of THCR, identifies the entity to coordinate with, and provides position contacts for these entities.

We attempt to provide the name, position and contact information for the people holding the position when this Strategy is drafted. As positions experience turnover, when in doubt, contact the current Section Leader /supervisor to determine the appropriate individual.

6.1: Florida Fish & Wildlife Conservation Commission

6.1.1: Species Conservation Planning Section (SCP)

Monitoring animal populations on a WMA/WEA gives managers a way to gauge animal response to management. If this information is not shared with others, valuable data that can be used to assess statewide conservation efforts often is lost. Therefore, share monitoring data with the appropriate taxa coordinator and program coordinator for species in which conservation initiatives or other management programs have been developed. The regional SCP biologist is a good source of information on the regional status of non-game species. Additionally, FWC staff is authorized to handle federally listed species if it is done consistent with the requirements of the agency's Endangered Species Act Section 6 Cooperative Agreement. To meet these requirements, staff will provide reporting as outlined in the Agreement to the agency's Endangered Species Coordinator. Please note some contacts will also be covered under [Section 6.1.3](#); FWRI, and [Section 6.1.5](#); Florida's Wildlife Legacy Initiative.

Contacts:

Elsa Haubold, Species Conservation Planning Section Leader: (850) 488-3831

Robin Boughton, Avian Taxa Coordinator: (352) 732-1225

Melissa Tucker, Mammalian Taxa Coordinator: (386) 758-0525 ext 114

Bill Turner, Herpetofauna Taxa Coordinator: (850) 410-0656 ext 17331

Brad Gruver, Endangered Species Coordinator: (850) 488-3831

Alex Kropp, Regional Biologist: (352) 732-1225

6.1.2: Hunting & Game Management (HGM)

As the FWC has a statewide quail strategy, information collected on northern bobwhite should be shared with the small game coordinator.

Contacts:

Paul Schulz, Section Leader: (850) 488-3831

Chuck McKelvy, FWC Small Game Program Coordinator: (850) 342-0256

6.1.3: Fish and Wildlife Research Institute (FWRI)

Area staff will cooperate with FWRI staff conducting monitoring and research for bald eagle by reporting new eagle nests through the FWC bald eagle database. Area staff will cooperate with Kevin Enge on herpetofauna monitoring and report documentation of these species to FWRI. Staff will communicate with Karl Miller on an assessment of the current location of kestrel nest boxes and whether more suitable sites can be identified. Jim Rodgers administers the FWC's migratory bird scientific collection permit. Report handling of migratory birds covered by the permit to Mr. Rodgers in January of each year.

Contacts:

Tim O'Meara, Section Leader: (850) 488-3831

Jim Rodgers, Research Administrator (wading birds): (352) 955-2081

Janell Brush, Avian Research Biologist (bald eagle): (352) 955-2081

Kevin Enge, Associate Research Scientist (herpetofauna): (352) 955-2081

Karl Miller, FWRI Biological Administrator (SE American kestrel): (352) 955-2081

6.1.4: Habitat Conservation Scientific Services (HCSS)

HCSS works with many private landowners and may be able to assist in making contacts or providing incentives for management activities on neighboring private lands. Maintaining communication regarding current and future projects will be critical.

Contacts:

Scott Sanders, HCSS Section Leader: (850) 488-3831

Mark Asleson, Northeast Region Coordinator: (352) 732-1225

6.1.5: Florida's Wildlife Legacy Initiative (FWLI)

Monitoring animal populations on a WMA/WEA gives managers a way to gauge animal response to management. If this information is not shared with others, valuable data that can be used to assess statewide conservation efforts often is lost. FWLI can be helpful in identifying and assisting with

partnering efforts, and might be a source of funding via the State Wildlife Grants program. Therefore, regular communication with this section will be valuable.

Contacts:

Katherine Haley, Florida's Wildlife Legacy Initiative: (850) 410-0656 x17297

Adam Kent, Northeast Region Legacy Biologist: (352) 955-2081

6.1.6: Imperiled Species Management Section (ISM)

The Imperiled Species Management section is responsible for the implementation and evaluation of imperiled species management and recovery plans including the Florida black bear. Area staff should maintain contacts with the ISM section to ensure CRWMA remains an important regional corridor for black bear.

Contacts:

Kipp Frohlich, Section Leader: (850) 922-4330

Dave Telesco, Black bear administrator: (850) 922-4330

6.1.7: Invasive Plant Management Section (IPM)

The Invasive Plant Management Section provides technical and financial assistance to assist in the control of upland invasive exotic plants. The Invasive Plant Management Section may serve as a critical resource in determining appropriate solutions to and identifying funding for solutions for exotic plant issues.

Contacts:

Ed Harris, Biological Administrator: (407) 858-6170

6.2: Saint Johns River Water Management District (SJRWMD)

The SJRWMD currently owns parcels that occur in the southeast portion of CRWMA. Opportunities to coordinate management actions or initiate monitoring/research efforts for focal species should be shared with SJRWMD staff. Area staff also can coordinate with SJRWMD on prescribed burning and treatment and control of exotic invasive plant species.

Contacts:

Steve Miller, SJRWMD Director of Land Management: (386) 329-4399

Matt Corby, SJRWMD Land Manager: (904) 626-8572

6.3: Florida Department of Environmental Protection Office of Greenways and Trails (OGT)

The OGT has lead management authority over portions of CRWMA near and north of the Cross Florida Barge Canal. Because wildlife species are not concerned with political boundaries and will use appropriate habitat throughout the WMA, staff should continue to communicate with and look for opportunities to coordinate with OGT staff. See [Section 3.2](#) for a more complete assessment of wildlife opportunities on the OGT managed portion of CRWMA.

Contacts:

Mickey Thomason, OGT Manager: (352) 236-7143

Adele Mills, OGT Biologist: (352) 236-7143

6.4: Avian Research and Conservation Institute (ARCI)

The Avian Research and Conservation Institute (ARCI) surveys and keeps information on American swallow-tailed kite and short-tailed hawk populations. Location information on the swallow-tailed kite and short-tailed hawk, particularly nests or nesting behavior, should be shared with ARCI.

Contacts:

Ken Meyer, Avian researcher: (352) 335-415: meyer@arcinst.org

6.5: Florida Natural Areas Inventory (FNAI)

The FNAI collects, interprets, and disseminates ecological information critical to the conservation of Florida's biological diversity. The FNAI's database and expertise facilitate environmentally sound planning and natural resource management to protect the plants, animals, and communities that represent Florida's natural heritage. The FNAI maintains a database of rare and listed species that is often used for planning purposes. As such, staff should share information about element occurrences on CRWMA with FNAI to ensure this information is included in their database. FWC also has a contract with FNAI for plant and animal surveys if the need exists and resources are available.

Contacts:

Dan Hipes, Chief Scientist: (850) 224-8207

6.6: Florida Division of Forestry (DOF)

The DOF can assist with timber management on state lands. They also issue authorizations for prescribed burning and will assist on escaped fires. Staff should continue to coordinate with DOF on these issues.

Contacts:

DOF Dispatch: (352) 955-2010

Billy Anderson, Forestry Area Supervisor: (386) 467-2388

6.7: United States Forest Service (Ocala National Forest)

The Ocala National Forest contains a healthy population of many wildlife species identified in this document. Area staff should continue to communicate with Forest Service staff regarding their plans to manage for species like red-cockaded woodpecker, Florida black bear, and others.

Contacts:

Carrie Sekerak, Forest Service Wildlife Biologist: (352) 669-3153

Section 7: Beyond the Boundaries Considerations

There is enough potential habitat (with restoration and appropriate management) to support many of CRWMA's focal species such as Bachman's sparrow, brown-headed nuthatch, northern bobwhite, and gopher tortoise. There also is the potential to maintain a population of gopher frog, and striped newt if these species can be successfully documented on the area. A number of CRWMA's focal species, however, cannot be supported in isolation (e.g., Florida black bear, Sherman's fox squirrel, American swallow-tailed kite, and bald eagle). While many of CRWMA focal species are highly mobile (e.g. Cooper's hawk, limpkin, bald eagle, American swallow-tailed kite, southeastern American kestrel, and short-tailed hawk) and will likely continue to occur on the area, their long-term persistence on CRWMA is dependent on regional conditions. As an example, FWC does not control water manipulation within the Ocklawaha River and Rodman Reservoir. However, these manipulations could have impacts on species like bald eagle, limpkin, and wading birds. FWC should continue to communicate with staff from DEP and SJRWMD on their water management activities so wildlife impacts are considered, and mitigated when possible.

Many of CRWMA's focal species benefit from the proximity of CRWMA to other conservation lands, such as the Ocala National Forest and Welaka State Forest. From a larger regional perspective, CRWMA is located at the northern end of a series of conservation lands that follow the Saint Johns River. To enhance persistence of CRWMA's focal species, opportunities to develop additional conservation areas northward to Camp Blanding and ultimately the Osceola National Forest through acquisition or conservation easements should be encouraged.

The FWC originally identified Strategic Habitat Conservation Areas (SHCAs) in the Closing the Gaps in Florida's Wildlife Habitat Conservation System report (Cox et al. 1994; available at [Closing the Gaps Report, 1994](#)). The goal of SHCAs is to identify the minimum amount of land needed in Florida to ensure long-term survival of key components to Florida's biological diversity. The SHCAs identify important remaining habitat conservation needs on private lands. New SHCAs have been identified in recent FWC efforts to update the Closing the Gaps entitled "Wildlife Habitat Conservation Needs in Florida: Updated Recommendations for Strategic Habitat Conservation Areas" (available at

[Wildlife Habitat Conservation Needs in Florida Web Information](#)). The striped newt, black bear, American swallow-tailed kite, Cooper's hawk, Florida mouse and scrub-jay are species for which SHCA was identified within 3 miles of CRWMA. Although it is unlikely Florida will acquire all property identified in SHCAs, property acquisition and encouraging land use and management that is compatible with the needs of CRWMA's focal species should be a priority in the area.

Because most of the FWC lead's immediate boundary is in public ownership (e.g., Ocala National Forest and the DEP lead), increases in human population growth are unlikely to directly affect the area surrounding FWC lead. However, by the year 2060, significant development could occur along CRWMA's northern boundary. Impacts from regional development can affect species that require large home ranges or are dependent on dispersal for maintaining their population. Roadways further fragment available habitat, impede species' movement between areas of suitable habitat and increase mortality. Consumptive water use from a growing human population may reduce water levels in historically wet areas and affect water manipulation decisions related to the Rodman Reservoir. Increases in water levels along the Saint Johns River from sea level rise could shift natural community structure and location along CRWMA's eastern boundary with potential impacts to focal species.

Habitat suitability on CRWMA will increase with planned land management. Restoration will increase the amount of habitat available for use by species, but will be a long-term and expensive process. Several private inholdings within CRWMA complicate management activities like prescribed burning; acquisition of these parcels would provide habitat continuity for many focal species. When opportunities to purchase these inholdings exist, state acquisition staff should be encouraged to examine these parcels. Coordination with OGT on scrubby flatwoods and scrub restoration would potentially increase the amount of suitable potential habitat available for species dependent on xeric communities ([Section 6.3](#)). Many of CRWMA's species are dependent on the availability of adjacent suitable habitat on private and public lands. As such, the actions of adjacent landowners will determine if some of these focal species will persist on CRWMA. Area staff should make every effort to cooperate in the conservation of focal species by coordinating with HCSS to ensure willing private landowners get the proper technical assistance and are informed of incentive programs to encourage conservation-based management ([Section 6.1.4](#)). Conservation partnerships are critical to the long-term persistence of many species and should be encouraged.

Document Map

Species	Species assessment	Land management actions	Species management actions	Species monitoring	Research needs	Intra/inter agency coordination
Frosted flatwoods salamander	3.2.19			5.2.2		6.1.3
Gopher frog	3.2.1	4.3.1		5.2.1		
Striped newt	3.2.2	4.3.1		5.2.2		6.1.3
Florida pine snake	3.2.3	4.3.2		5.2.6		
Gopher tortoise	3.2.4	4.3.3		5.2.3		
American swallow-tailed kite	3.2.5	4.3.4		5.2.6		6.4
Bachman's sparrow	3.2.6	4.3.5		5.2.4		
Brown-headed nuthatch	3.2.7	4.3.6		5.2.4		
Cooper's hawk	3.2.8	4.3.7		5.2.6		
Florida sandhill crane	3.2.9	4.3.8		5.2.6		
Florida scrub-jay	3.2.19			5.2.6		
Florida mottled duck	3.2.19			5.2.6		
Limpkin	3.2.10	4.3.9		5.2.6		

Northern bobwhite	3.2.11	4.3.10		5.2.4		6.1.2
Red-cockaded woodpecker	3.2.12	4.3.11		5.2.6		6.7
Short-tailed hawk	3.2.13	4.3.12		5.2.6		6.4
Southeastern American kestrel	3.2.14	4.3.13	5.1.1	5.2.5		6.1.3
Southern bald eagle	3.2.15	4.3.14		5.2.6		6.1.3
Wading birds	3.2.16	4.3.15		5.2.6		
Florida black bear	3.2.17	4.3.16		5.2.6		6.1.6 ; 6.7
Florida mouse	3.2.19			5.2.6		
Sherman's fox squirrel	3.2.18	4.3.17		5.2.6		6.7

12.12 Recreation Master Plan

Recreation Master Plan for Caravelle Ranch WMA



Florida Fish and Wildlife Conservation Commission



Office of Public Access and Wildlife
Viewing Services

November 2013

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

I. Introduction

Purpose of Plan/Planning Process

This Recreation Master Plan serves as a guide for providing recreational and educational experiences focused on wildlife viewing and nature study on Caravelle Ranch Wildlife Management Area (Caravelle Ranch). The RMP contains specific recommendations for recreational enhancements and educational products and programs. It also provides guidelines for monitoring recreation-related use to ensure resource protection and meaningful visitor experiences. The plan was developed by the Florida Fish and Wildlife Conservation Commission (FWC) Office of Public Access and Wildlife Viewing Services (PAWV) in collaboration with Caravelle Ranch Field Staff with input from other FWC divisions and a Technical Assistance Group of recreational stakeholders (Appendix 1).

Location

(Figure 1)

Caravelle Ranch protects a total of 27,251 acres of mesic and wet flatwoods, pasture and floodplain swamp in Putnam County. This plan covers 11,224 acres leased to and managed by FWC with the remainder leased to Florida Department of Environmental Protection (FDEP) and the St. Johns River Water Management District (SJRWMD) and managed as a WMA by FWC. The property is a key part of a mosaic of public lands that protects the ecology of the region and helps to provide a linkage up and down the St. Johns River and westward along the Cross- Florida Greenway. Caravelle Ranch supports a diversity of wildlife populations that provides opportunities for hunting, fishing and wildlife viewing. A network of roads and trails accommodates bicyclists, hikers, horseback riders, and other recreationists while a small creek supports fishing.

II. Resource Inventory

Topography and Hydrology

Caravelle Ranch is very flat with a difference in elevation of approximately 25 feet between the higher pine flatwoods in the west and north and the hydric hammock and river floodplains in the south and east. There is a single 30 foot elevation “island” at Outhouse Hammock on the western side of the WMA. Camp Branch Creek flows in a “U” shape through the north part of the WMA from the Cross-Florida Barge Canal to the St. Johns River. The topography is suitable for easy to moderate hiking, but periodic flooding can make the experience more strenuous.

There are no paddling opportunities on the WMA but there is excellent paddling on the St. Johns River along the eastern boundary and Ocklawaha River along the southern boundary.

Natural Communities

(Figure 2)

Floodplain swamp along the St. Johns and Ocklawaha rivers comprises 37% of the WMA, making it the most prevalent natural community on Caravelle Ranch. Mesic flatwoods, the next most common community at 15%, is found primarily on the west and north side of the WMA. Wet flatwoods represent 12% of the area and are found in a mosaic with the mesic flatwoods. Pastures make up 11% of the WMA, ruderal (agriculture or disturbed) areas are 7%, and the remaining 10 natural communities each comprise 6% or less of the WMA. Seven of these represent 1% or less of the area. Despite their small size, several are ecologically or recreationally significant. For example, mesic hammock has a sparse understory and shady canopy, making it an ideal location for low-impact recreation facilities such as picnic areas.

Small areas of scrubby flatwoods, which are relatively uncommon statewide, are of very high quality.

Most of the natural communities on Caravelle Ranch are in excellent condition and represent benchmark examples of native north Florida landscapes. They would be appropriate for interpretation of land management practices.

Sensitive Areas

Wetlands on Caravelle Ranch are particularly sensitive to physical disturbance, which may churn up organic soils and displace plants. Access to these areas should be controlled and monitored to avoid damage.

Wildlife and Plant Species

Wildlife viewing can be good at almost any spot on the WMA, especially near the pastures and in the flatwoods. Neotropical migrants such as yellow-bellied sapsuckers, gray catbirds and a variety of warblers offer seasonal variety. More than 125 bird species are documented to occur on the area and several are among the “top 40 most sought-after birds” compiled by the PAWV Wildlife Viewing Section: [Bachman’s sparrow](#), [bald eagle](#), [hairy woodpecker](#), [limpkin](#), [mottled duck](#), [purple gallinule](#), [sandhill crane](#) and [swallow-tailed kite](#).

Over 100 species of butterflies have been identified in Putnam County and many may occur on the area including Aaron’s skipper, Arogos skipper, Baracoa skipper, black swallowtail, cloudless sulphur, Cofaqui giant-skipper, Eastern tailed-blue, Eastern tiger swallowtail, Henry’s elfin, Meske’s skipper, Palatka skipper, palmetto skipper, Texan crescent and zebra heliconian.

Other species of particular interest to visitors include the Florida black bear, eastern diamondback and pygmy rattlesnakes, five species of bats including Rafinesque’s big-eared bat, and bobcats. There are also several species of carnivorous plants found on Caravelle Ranch including pitcher plants, bladderworts and sundew.

Cultural Resources

The Florida Master Site File contains 7 archaeological and historic sites recorded within the boundary of Caravelle Ranch. Archaeological sites include a lithic scatter site and middens ranging from prehistoric to St. Johns Period (700 BC to 1500 AD). Historic sites include a turpentine camp. The wreck of the Federal gunboat Columbine is located in the St. Johns River very near the WMA boundary.

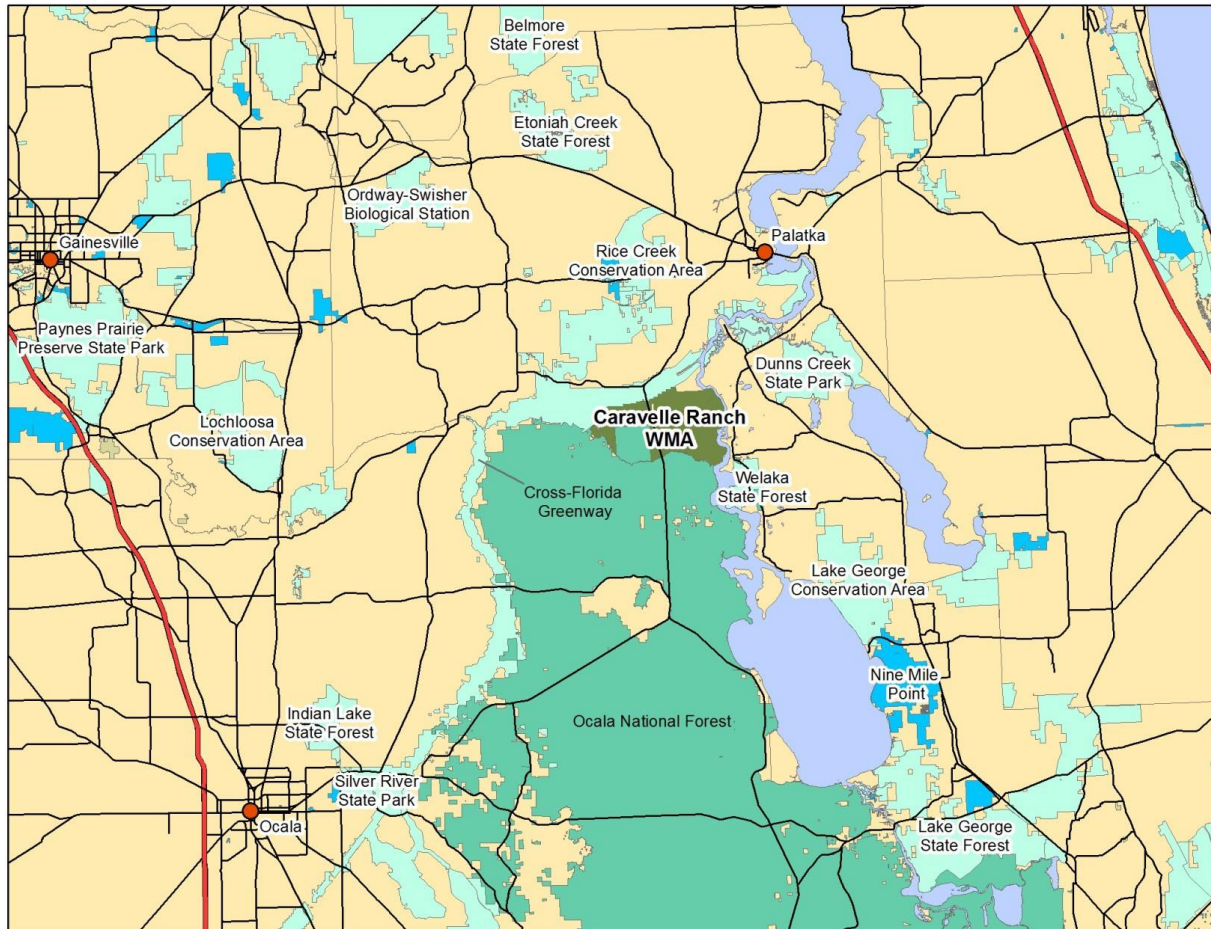


Figure 1: Caravelle Ranch WMA Location Map

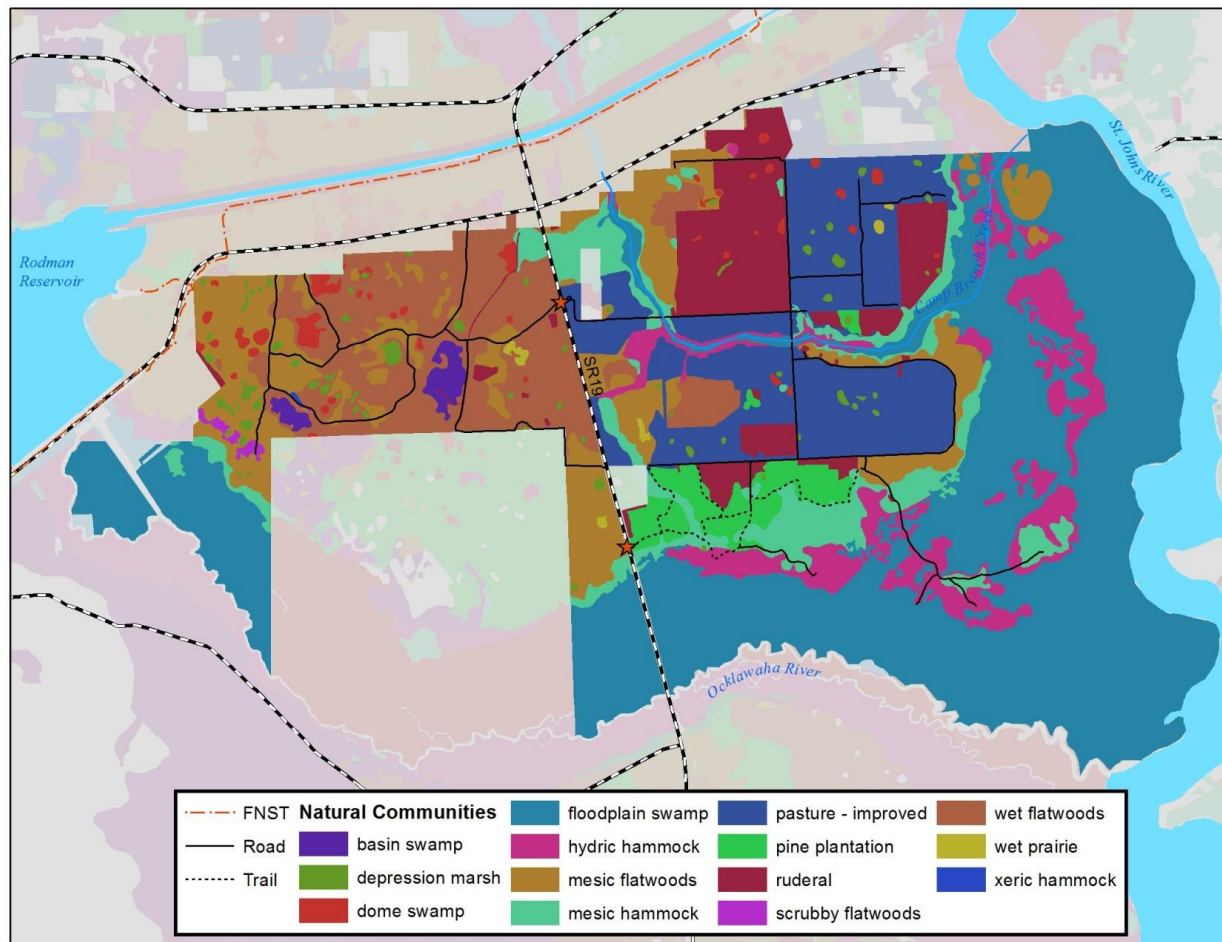


Figure 2: Caravelle Ranch WMA Natural Communities

Scenic Resources

Caravelle Ranch offers a variety of scenic vistas including creeks, forested wetlands and views of well-maintained flatwoods. The hammocks and floodplain swamps along the rivers are particularly scenic. They feature a sparse understory, a high canopy and a variety of epiphytic plants. Seasonal wildflowers include Florida tickseed (*Coreopsis floridana*), a variety of *Vaccinium* species, meadow-beauties (*Rhexia* sp.), St. Andrews cross (*Hypericum hypericoides*), vanillaleaf (*Carphephorus odoratissimus*), and yellow-eyed grasses (*Xyris* sp.). Peak blooms occur in the fall.

Resource Management

The FWC's resource management goals for the area include enhancing and maintaining the native upland and wetland communities on the WMA. To accomplish this objective, the FWC is restoring disturbed sites, has instituted a program of prescribed burning and is eliminating or controlling nonnative invasive plants through mechanical and chemical treatments. Plants such as tropical soda apple (*Solanum viarum*), Chinese tallowtree (*Triadica sebifera*) and cogongrass (*Imperata cylindrica*) are problematic on the area. Other management activities include re-establishing hydrologic regimes to benefit fish and wildlife habitats.

III. Recreation Planning Context

The 2010 population estimate for Putnam County was 74,364 people with a projected growth to 74,388 (0.03% increase) in 2020 and 76,636 (3% increase) by 2040 (Office of Economic and Demographic Research 2013). Hispanic or Latino groups comprise 9% of the county's population (US Census 2010). As with much of Florida, the Hispanic population of Putnam County is projected to grow at a higher rate than other demographic groups although Putnam County currently has a significantly lower proportion (13.5% lower) of Hispanic or Latino residents compared to the statewide average. In other respects, the population demographics of Putnam County fall in line with statewide proportions. Twenty-three percent of the county's population identifies itself as non-white, with the largest groups being African American (16.2%), Other (3.6%) and Multi-racial (1.7%). These demographic data will inform the design of infrastructure and interpretive materials in order to accommodate the full spectrum of potential visitors to the WMA.

Race/Ethnicity	Putnam County		Florida		Difference
	#	%	#	%	
Hispanic or Latino	6,706	9.0%	4,223,806	22.5%	-13.5%
Non-Hispanic or Latino	67,658	91.0%	14,577,504	77.5%	13.5%
White	57,468	77.3%	14,109,162	75.0%	2.3%
African American	12,030	16.2%	2,999,862	16.0%	0.2%
Asian	455	0.6%	454,821	2.4%	-1.8%

American Indian/Alaskan Native	359	0.5%	71,458	0.4%	0.1%
Native Hawaiian/Pacific Islander	53	0.1%	12,286	0.1%	0.0%
Other	2,705	3.6%	681,144	3.6%	0.0%
2 or more	1,294	1.7%	472,577	2.5%	-0.8%

Population age distribution is slightly older than the state distribution with a larger percentage of people over 50.

Age/Gender	Putnam County		Florida		Difference
	#	%	#	%	
Male	36,884	49.6%	9,189,355	48.9%	0.7%
Female	37,480	50.4%	9,611,955	51.1%	-0.7%
<18	16,785	22.6%	4,002,091	21.3%	1.3%
18+	57,579	77.4%	14,799,219	78.7%	-1.3%
20-24	4,046	5.4%	1,228,758	6.5%	-1.1%
25-34	7,747	10.4%	2,289,545	12.2%	-1.8%
35-49	13,287	17.9%	3,832,456	20.4%	-2.5%
50-64	16,414	22.1%	3,677,959	19.6%	2.5%
65+	14,070	18.9%	3,259,602	17.3%	1.6%

As the regional population increases, the public use pressures on the WMA will likely increase. Recreational user groups can be expected to urge connections to trails on lands outside the WMA. Caravelle Ranch is within 15 miles of several other public recreation areas that offer a variety of recreation opportunities:

Area	Hiking	Biking	Camping	Paddling	Fishing	Horseback Riding	Hunting	Wildlife Viewing
Crescent Lake Conservation Area	✓	✓	✓	✗	✗	✓	✗	✓
Deep Creek Conservation Area	✓	✓	✓	✓	✓	✓	✗	✓
Dunns Creek Conservation Area	✓	✓	✓	✗	✗	✓	✓	✓
Dunns Creek State	✓	✓	✗	✗	✗	✓	✗	✓
Etoniah Creek State Forest	✓	✓	✓	✓	✓	✓	✓	✓
Lake George Conservation Area	✓	✓	✓	✓	✓	✓	✓	✓
Marjorie Harris Carr Cross Florida	✓	✓	✓	✓	✓	✓	✓	✓
Murphy Creek Conservation Area	✓	✓	✓	✓	✓	✓	✗	✓
Ocala National Forest	✓	✓	✓	✓	✓	✓	✓	✓
Palatka to Lake Butler State Trail (DEP)	✓	✓	✗	✗	✗	✗	✗	✓
Ravine Gardens State Park	✓	✓	✗	✗	✗	✗	✗	✓
Rice Creek Conservation Area	✓	✓	✓	✗	✗	✓	✗	✓
Welaka State Forest	✓	✗	✓	✗	✗	✓	✗	✓

✓ =Activity available

✗ =Activity not available

The Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) collects data on participation levels in various outdoor recreation activities for different regions of Florida. The results for the Northeast Region are summarized below:

Activity	Resident Participation (%)	Tourist Participation (%)
Paddling	25	10
Picnicking	40	37
Hiking	25	22
Unpaved Bicycle Trails	17	4
Wildlife Viewing	52	47
Nature Study	14	8
Equestrian Activities	6	6
Geocaching	2	3

The Northeast Region is at approximately 50% of the statewide average level of service (miles of trail/1000 participants) for hiking. At current participation levels, it is projected that over 60 additional miles of trail will be required over the next 10 years to maintain the current level of service; yet trail miles per 1,000 participants is projected to decline slightly over the the same time period. Levels of service for the other listed activities are very close to the statewide mean with the exception of equestrian activities which is more than 50% above the statewide level of service.

There is no MPO (Metropolitan Planning Organization) or TPO (Transportation Planning Organization) for Putnam County, although the North Florida TPO does have an ex-officio member from Putnam County. The Putnam County Trails Plan includes all of the roads and trails on Caravelle Ranch and proposes a multi-use trail along SR19 which bisects the WMA. It also proposes paddling trails on the Ocklawaha and St. Johns rivers adjacent to the WMA. No roads near Caravelle Ranch are slated for improvement on Florida Department of Transportation work plans through 2015. The Putnam County Comprehensive Plan classifies Caravelle Ranch as Conservation Land in the Current and Future Land Use components. None of the roads near Caravelle Ranch are proposed for improvements in the Comprehensive Plan. Community-based organizations are also very active in trail development in Putnam County including the Putnam Blueways and Trails CSO, St. Johns River Alliance and Putnam Trails Council.

There are currently no large scale residential development projects proposed near Caravelle Ranch. Developments have the potential to increase recreational demand and impact the area and its natural and recreation resources.

IV. Interpretation

In this plan, emphasis is placed on integrating recreation and interpretive planning. Using this approach, the type of recreational experience offered and the location of recreation amenities provided, is strongly influenced by the interpretive goals for the area. Recreation opportunities thus become a means to an end - reaching visitors with important themes and concepts about an area's natural resources, plant communities, wildlife and wildlife management.

Visitor Experience Goals

Caravelle Ranch has the potential to provide visitors with opportunities to see and learn about a variety of natural communities while engaging in recreational activities focused on fish and wildlife resources. Visitor experience goals are those concepts and experiences we want visitors to take away from their time at Caravelle Ranch. These goals guide both interpretive and recreation planning.

At Caravelle Ranch, the FWC will provide opportunities for visitors to:

1. Become oriented to and participate in a range of recreational activities on Caravelle Ranch and adjoining natural areas while:
 - Becoming acquainted with wildlife and natural plant communities
 - Understanding Caravelle Ranch's natural, cultural and commercial history within the context of the state's prehistory and modern history
 - Appreciating Caravelle Ranch as an oasis providing a retreat from the pressures of urban life and an opportunity to connect with the natural world
2. Learn information and stories associated with major interpretive themes and other related information, through interpretive materials at welcome kiosks, trails and wildlife viewing sites.
3. Have an enjoyable recreational experience without impairing the natural and cultural values of the site. In terms of wildlife viewing, FWC's goal will be to facilitate positive, memorable experiences that keep wildlife disturbances to a minimum.
4. Understand the management goals and activities of the FWC on Caravelle Ranch.

Interpretive Themes

Interpretive concepts are categorized into themes and subthemes. All interpretive materials revolve around one or two primary themes, which allow visitors to understand and remember important messages. Primary themes also help set visitor experience goals and priorities and are considered in the

design of amenities offered to nature-based recreationists. Subthemes expand upon and support the primary themes. These guide the development of all interpretive products, which may include sign panels, printed materials, electronic media and educational programming. This detailed media prescription will be developed at a later date.

Central Theme: Biologists manage the diverse habitats at Caravelle Ranch WMA to benefit wildlife populations and improve recreational opportunities.

Subtheme 1: Diverse plant and animal communities at Caravelle Ranch WMA require a variety of management tools.

- A. Science-based management allows managers to fine-tune their methods to fit the needs of individual species and ecosystems.
- B. Prescribed fire is one of the most visible and effective management tools.
- C. Invasive vegetation is monitored and controlled.
- D. Management that benefits one species or habitat type often benefits many others.

Subtheme 2: Restoration benefits wildlife populations, gives visitors a glimpse of the original wild Florida and increases ecosystem resilience.

- A. Restoration takes place on both uplands and wetlands, improving the quality of habitats, water resources and wildlife populations.
- B. Restoration is a long-term solution that may appear destructive in the short-term.
- C. As wildlife populations increase as a result of restoration, recreational opportunities such as hunting, fishing and wildlife viewing will improve.
- D. Restored habitat improves species survival and may increase species' resilience to environmental changes.

Subtheme 3: Habitats at Caravelle Ranch WMA are part of a larger regional network of conservation lands.

- A. Cooperative agreements with landowners on adjoining properties link wetlands and uplands, creating wildlife corridors and increased opportunities for recreation beyond WMA boundaries.
- B. Hydrological connections between Caravelle Ranch and the St. Johns and Ocklawaha rivers influence management on the WMA which in turn improves water quantity and quality in the region.

- C. The WMA preserves evidence of the historical significance of the region, which included subsistence hunting and fishing, cattle ranching and silviculture.
- D. The value of these conservation lands to recreationists and wildlife will increase as urban boundaries expand.

V. Recreation Assessment

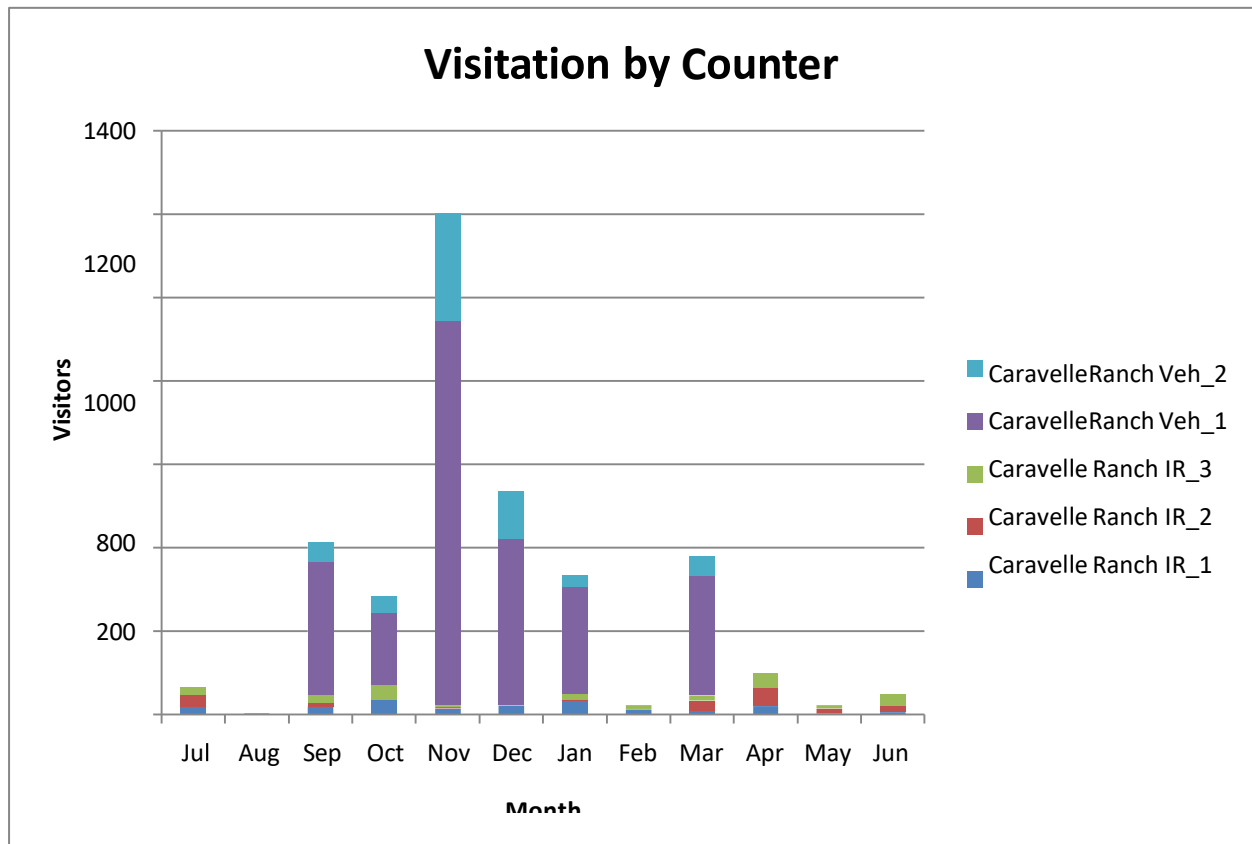
Existing Recreational Use and Facilities

The purpose of this section is to identify and describe the existing recreational uses and facilities on Caravelle Ranch and note their status and condition (Figure 3). This informs recommendations for achieving visitor experience goals and meeting future recreation demands and needs.

Caravelle Ranch offers opportunities for a variety of high quality, wildlife-focused recreation activities. Based on the approved uses and activities as stated in the 2013-2023 Management Plan (MP), the analysis of existing resources and uses, and the interpretive themes developed for the area, the following activities should be continued and enhanced as described in this section. Conditional activities are those that require additional permits or permission.

- Astronomy (Conditional)
- Bicycling
- Primitive Camping
- Ecotourism (Conditional)
- Environmental Education
- Fishing (Conditional)
- Geocaching (Conditional)
- Hiking
- Horseback riding
- Hunting (Conditional)
- Wildlife Observation

Visitation, as recorded by five separate vehicle and pedestrian counters installed and monitored by FWC, has averaged 23 visitors/day for July 2011 to June 2012. Seasonally, use peaks during deer, special-opportunity dove, and small game seasons from September to December with another, smaller peak in March for spring turkey hunting season.



Infrared (Pedestrian) Counters: Caravelle Ranch IR_1 is at the walk-in entrance, Caravelle Ranch IR_2 is at the main entrance, and Caravelle Ranch IR_3 is on the west side of SR19.

Vehicle Counters: Caravelle Ranch Veh_1 is at the main entrance and Caravelle Ranch Veh_2 on the west side of SR19.

Visitor Contact Points and Roads/Vehicle Access - The main entrance for Caravelle Ranch WMA is on the east side of SR19 approximately 1.1 miles south of the Cross Florida Barge Canal and 2.7 miles north of the Ocklawaha River. The camping area, check station and a non-standard single-panel kiosk are all located at this point. Another entrance is located on the west side of SR19 directly opposite the main entrance. This entrance does not allow for parking without blocking the gate. There is also a walk-in entrance on the east side of SR19 approximately 1.5 miles south of the main entrance. This entrance is for accessing the hiking trails and has a parking area and non-standard single-panel kiosk. Other than visitor contact kiosks there are no interpretive resources on the WMA.

Vehicles are allowed during specific hours during periods open to hunting and 1 day prior to specified hunts. Tracked vehicles, airboats, and unlicensed/unregistered motorcycles are prohibited.

Caravelle Road, Aubrey Road and Main Access Road are well-maintained limerock roads. Other roads vary in surface and condition but are generally grass or sand and can be traversed in two-wheel drive vehicles.

Wayfinding signage on interior roads is to FWC standards. There are no approach signs for Caravelle Ranch on SR19.

Hunting - Hunting is an approved use on Caravelle Ranch with seasons for archery, dove, muzzleloading gun, supervised small game (youth), general gun, small game, youth spring turkey, spring turkey, and migratory birds. There are 69 days of hunting each year excluding migratory birds. Between September and March there is hunting 18 out of 31 weekends and 3 of those weekends are spring turkey season with shooting hours only until 1pm. There is no hunting in February and 5 days of hunting in January. The area is open to other users during hunt days. Quotas limit the number of hunters accessing the area during most hunting seasons to provide a high-quality-hunting experience.

Fishing/Boating/Paddling - Fishing is available at all water bodies within the WMA. Shoreline fishing for bass, catfish, and panfish is available on Camp Branch Creek and large concrete culverts provide a stable place to fish. There is no boating access on the WMA but there are boat ramps at Rodman Reservoir and the Ocklawaha River.

Trail Use – Hiking, bicycling and horseback riding are permitted on all areas of Caravelle Ranch.

Trail infrastructure - There are 5.5 miles of recreational trails available. All of these are accessed from the walk-in entrance on SR19. These trails are well-shaded and traverse the hammocks along the Ocklawaha River floodplain. There are two picnic shelters located on these trails.

There are no designated recreational trails west of SR19. A designated recreational trail west of SR19 would provide access to the extensive flatwoods on that part of the WMA and enhance interpretive opportunities at Outhouse Hammock. The Florida National Scenic Trail (FNST) traverses Cross Florida Greenway property adjacent to the WMA. Access to Caravelle Ranch from the FNST and vice versa will be explored.

Wildlife Viewing and Nature Study - Wildlife viewing opportunities are available throughout Caravelle Ranch, with some of the best, most accessible, opportunities located along the designated trails and the pastures east of SR19. The pastures provide viewing for a wide variety of birds including turkey, swifts and swallows, and flycatchers. There are no viewing structures at these sites to enhance the viewing experience.

Picnicking - There are currently two picnic shelters on the WMA along the designated trails. Placement of additional tables at the main entrance and Outhouse Hammock will be considered.

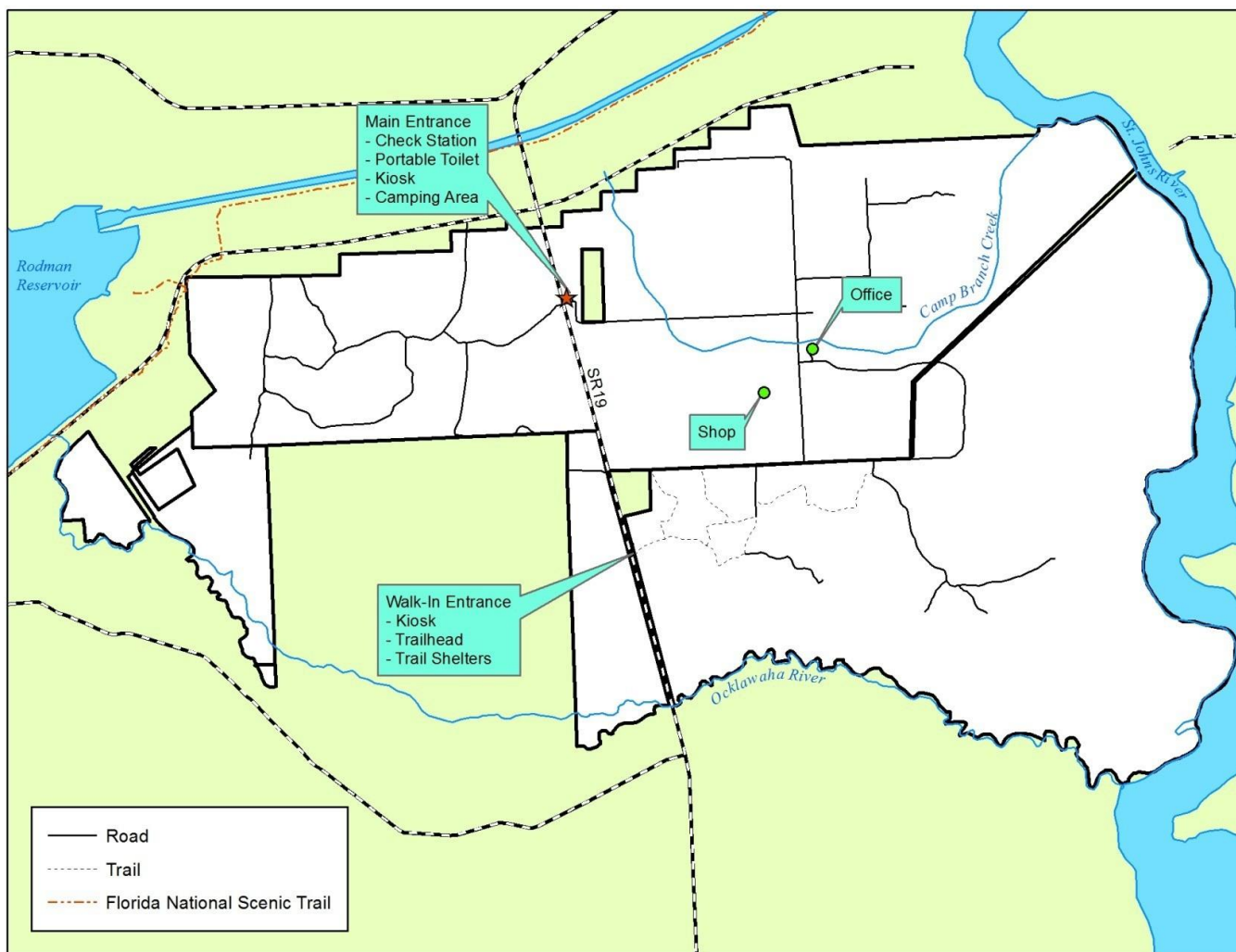


Figure 3: Caravelle Ranch WMA Existing Facilities

Camping - Camping is available at the main entrance camping area. Stays are limited to no more than 14 days within a 30 day period. There is a portable toilet at this location during hunting seasons.

Geocaching - Geocaching is allowed on the area. There are currently no permitted geocaches on Caravelle Ranch. Approval of new geocaches and disposition of existing geocaches is at the discretion of the site manager and coordinated by FWC's PAWV

Special Events/Tours – There are no regular tours or special events at Caravelle Ranch.

Staff/Volunteers - A Fisheries and Wildlife Biological Scientist III, a Fisheries and Wildlife Biological Scientist II and a Wildlife Technician are assigned to Caravelle Ranch. Summer interns from the University of Florida are used to assist in field work.

Recreation Sensitivity Analysis

(Figure 4)

While there are existing facilities at Caravelle Ranch, it is useful to analyze the WMA in its entirety to determine optimum locations for recreation opportunities. To this end, a Recreation Sensitivity Analysis is developed (Appendix 4) that looks at the entire WMA, independent of existing infrastructure and opportunities, to look for the potential to relocate or improve facilities, and to determine locations for new infrastructure.

Recreation Zoning

Research of recreational use demonstrates that visitors come to recreate on public lands with many different expectations (NPS, 1997). Providing a variety of settings allows visitors to select the type of experience they desire, simplifies management and reduces conflicts between visitors who are seeking different types of experiences. The zones delineated by the planning team are provided in Figure 5. Each zone is described below in terms of the type of experience it offers, the natural resources related to the experience and the level of management required.

Primitive Zone

This zone offers an experience of solitude deep in a natural landscape with no evidence of human development. This zone can encompass sensitive natural resources. Access is difficult and the number of people should be limited. Only limited recreation and interpretation opportunities should be developed in this zone. A minimal level of management is necessary for resource protection and safety.

Semi-Primitive Zone

The semi-primitive zone provides a sense of being immersed in a natural landscape with opportunities for solitude. Observation structures, boardwalks, interpretative signs and unpaved trails are the types of recreational facilities that are appropriate in this zone. A moderate level of management is provided for resource protection and safety. In areas with vehicle access on roads, the semi-primitive motorized zone provides a sense of being in a natural landscape with minimal human modification and moderate opportunities for solitude. Interpretative signs, wayfinding signs, vehicle pull-offs, unimproved parking locations and unpaved roads are the types of recreational facilities that are appropriate in this zone. Roads are passable by two-wheel drive vehicle. A moderate level of management is provided for resource protection and safety.

Developed Zone

Developed zones are areas with visitor facilities such as parking, picnicking and toilets. The visitor's experience in this zone is highly social. Trails may be paved or hardened for access by people with disabilities. Visitors and facilities are intensively managed in this zone for resource protection and safety purposes. Staff should monitor visitor behavior and attend to maintenance needs. The most intensive interpretation is provided in the developed zone. This is the most appropriate zone for building construction.

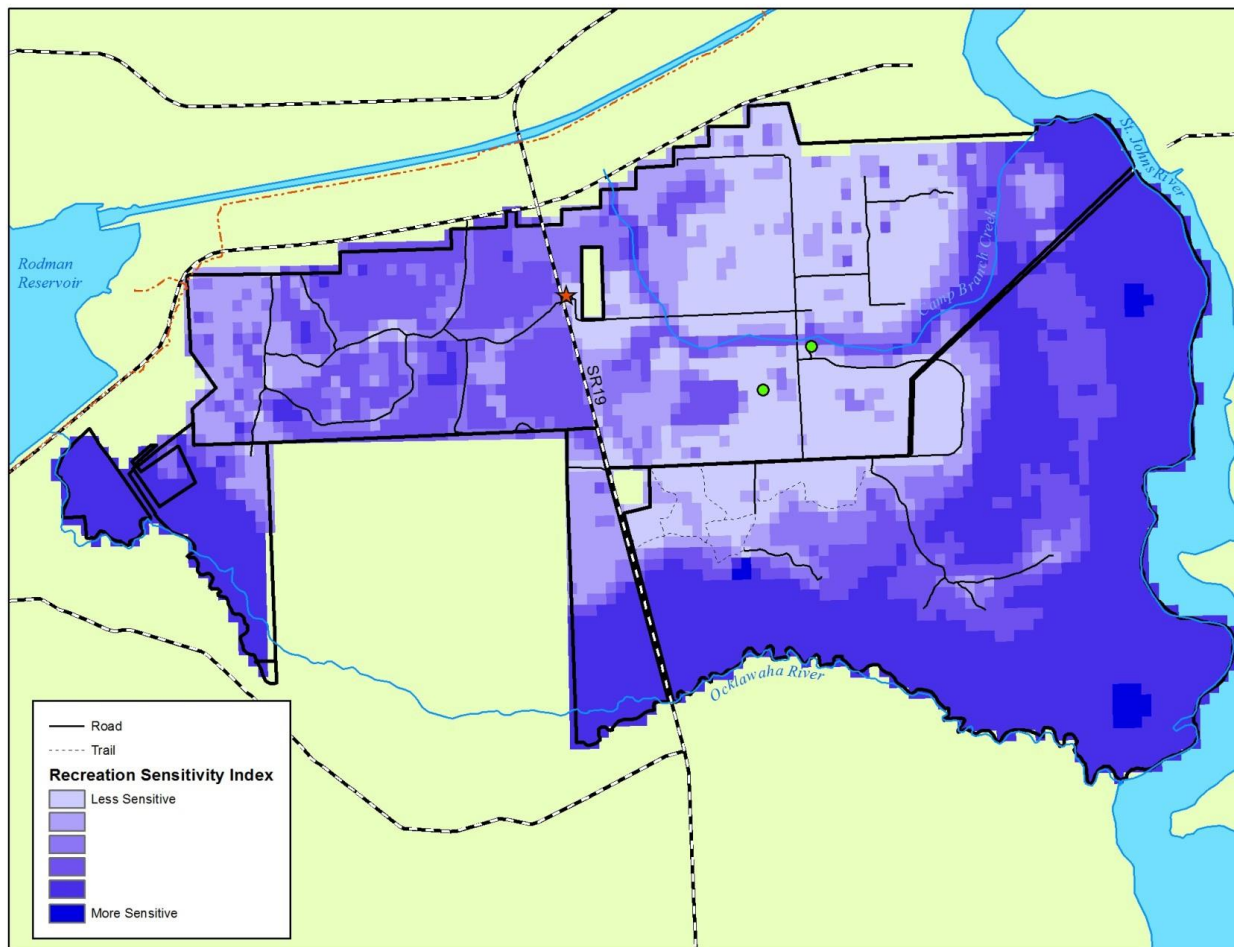


Figure 4: Caravelle Ranch WMA Recreation Sensitivity Index

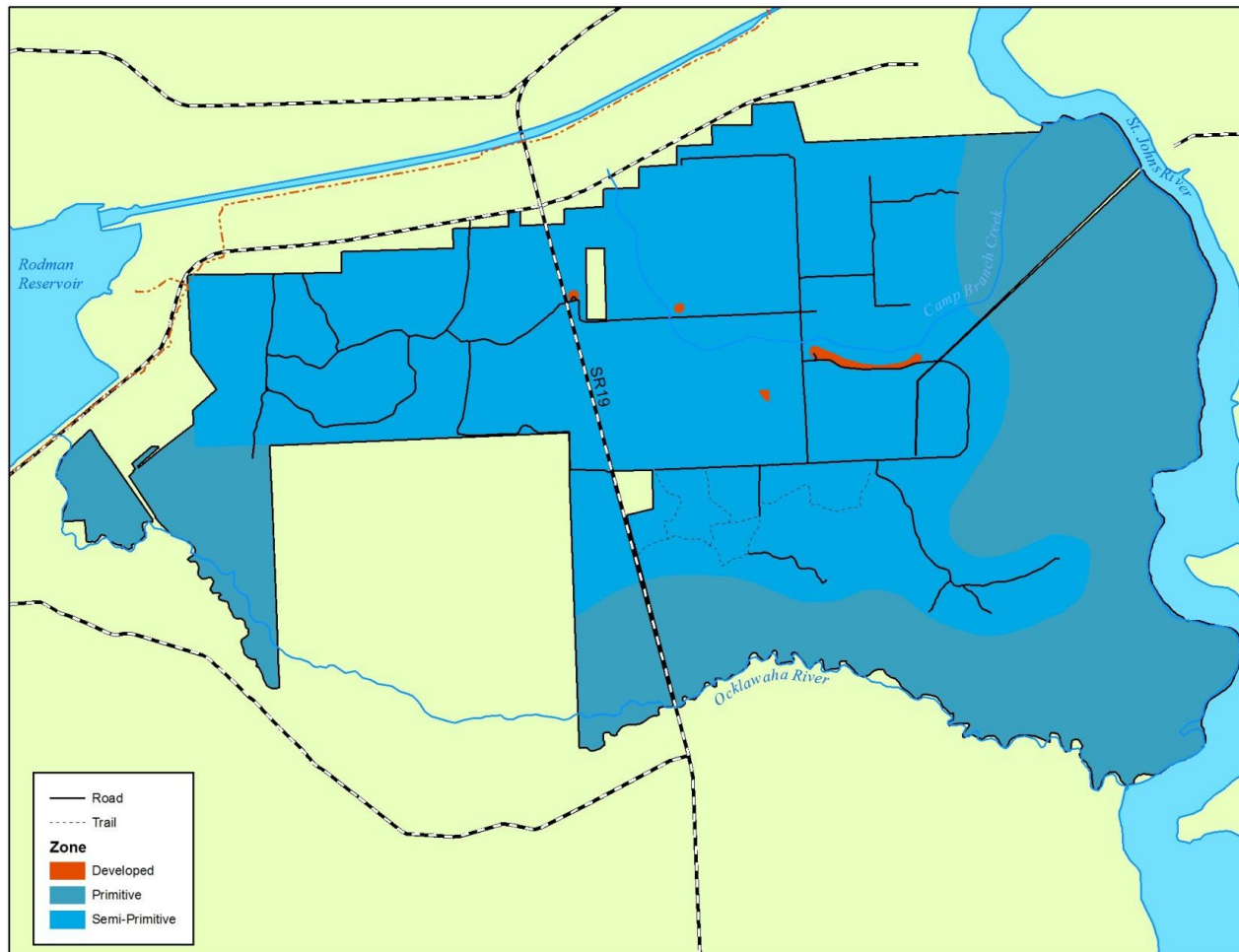


Figure 5: Caravelle Ranch WMA Recreation Zone

○ ***Carrying Capacity***

In order to minimize disturbance of wildlife and other natural resources and to provide an enjoyable experience for visitors, FWC calculates a carrying capacity for its managed areas (Appendix 4). This carrying capacity takes into consideration natural community sensitivity, known locations of sensitive natural communities, known archaeological and historic sites, existing recreation facilities and wildlife disturbance distances with a turnover rate that varies with the activity or facility. This capacity is not a visitation goal but rather is a level at which the natural and recreation resources of the area can sustain use without damage. Current capacity for Caravelle Ranch is 568 people per day (including hunting capacity). If all planned facilities are constructed, this capacity increases to 653 people per day.

VI. Nature-based Recreation Recommendations

Caravelle Ranch WMA Recreation Use Potential

Caravelle Ranch provides an opportunity for visitors to learn about and see examples of natural communities that are rapidly being converted to other uses in central Florida. The following sections of the plan provide for comprehensive interpretation of these communities, common and listed species of interest to visitors, and FWC's management. Recommended recreation enhancements are those that provide a range of enjoyable opportunities to view wildlife without negatively impacting resources.

Goals and Objectives

Careful design and placement of recreational facilities can provide desirable visitor experiences and minimize impacts to the natural and cultural resources of the area. Construction and improvements will not harm wildlife, fragile habitats or historic and cultural sites. All planning and implementation should be done in accordance with guidelines in Appendix 3. A conceptual site plan for proposed recreation facilities is provided in Figure 6.

○ **Goal A. Orient visitors to the area and its recreation opportunities and interpret WMA resources**

1. Develop recreation guide.
2. Develop interpretive sign plan.
3. Develop a trail guide.
4. Develop interpretive materials for Outhouse Hammock and explore use of multimedia interpretation (QR Codes, etc.).

5. Stock recreation guide, regulation summaries and bird list in brochure boxes at the main entrance and walk-in entrance.
6. Install approach signs on SR19.
7. Maintain up-to-date information about the area on the FWC website.

Goal B. Enhance existing trail opportunities

1. Monitor trail use and demand to determine the need for expanded trail opportunities.

Goal C. Create new trail opportunities

1. Construct and mark a new trail route from the entrance west of SR19 to Outhouse Hammock using a combination of existing roads and new trails.

Goal D. Enhance existing facilities and develop new wildlife viewing opportunities

1. Install picnic tables at Outhouse Hammock and the check station.

Goal E. Direct and manage recreational use to minimize negative resource impacts and maximize visitor satisfaction

1. Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards.
2. Collect and evaluate information about visitor use and satisfaction:
 - Number of visitors to the area and patterns of visitation
 - User group conflicts
 - Origin and length of stay
 - Motivations for visiting and preferred experiences
 - What visitors already know about the area and primary interpretive themes

Goal F. Coordinate with local, state and federal agencies and organizations when planning and implementing nature-based recreation opportunities and enhancements

1. Cross-promote Caravelle Ranch WMA with other regional public lands.

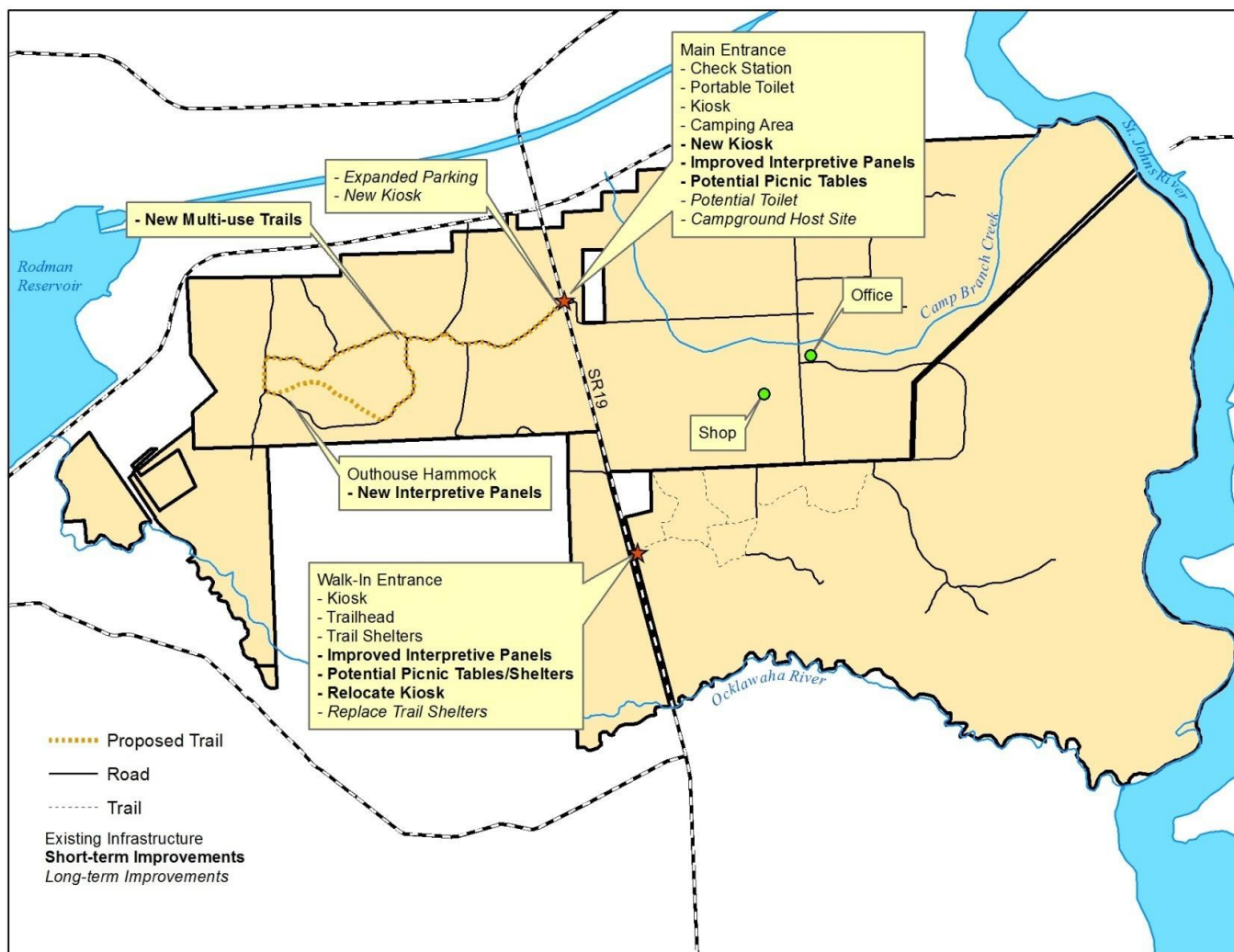


Figure 6: Caravelle Ranch WMA Proposed Recreation Facilities

Challenges and Strategies

There are several challenges facing the effective implementation and management of nature-based recreation opportunities on Caravelle Ranch. Challenges and proposed strategies to address them are discussed in this section.

1. Challenge:

Caravelle Ranch is not a well-known recreation destination. Strategies:

- Cross-promote Caravelle Ranch with other regional conservation lands.
- Provide rack cards or similar publication at sources in Palatka, Ocala and the Ocala National Forest.
- Work with Putnam County tourism boards for promotion.
- Investigate developing an online mapping application on the FWC website to provide location and recreation information for Caravelle Ranch.

2. Challenge:

As the population density around Caravelle Ranch continues to increase, recreational use of the area will increase, potentially resulting in resource damage and wildlife disturbance.

Strategies:

- Periodically monitor all public use sites for environmental impacts and implement corrective actions when and where necessary.
- Recreational use will be directed away from sensitive environments to the greatest degree possible.
- Environmental protection information will be provided in all interpretive materials.

3. Challenge:

As recreational use increases, conflicts among user groups may occur. Strategies:

- Provide a range of recreational opportunities in a variety of settings to avoid user conflicts as much as possible.
- Involve stakeholders and user groups during planning.

- Ensure that user groups understand how to contact local staff to resolve problems.
- Provide opportunities for different user groups to volunteer together to maintain public access amenities and conduct conservation stewardship activities.
- Display hunting information (dates, times and types) at all entrances to help all users make choices as to when to visit.

Summary of Proposed Infrastructure Enhancements

- Main Entrance
 - New kiosk with interpretive sign panels
 - Picnic tables
 - Toilet if warranted and feasible
 - Campground host site if warranted and feasible
- West SR19 Entrance
 - Kiosk
 - Expanded parking
 - Multi-use trail utilizing existing roads and single-track connectors
 - Interpretation at Outhouse Hammock
- Walk-in Entrance
 - Updated and improved interpretive panels
 - Picnic tables/picnic shelters
 - Replace trail shelters as necessary
 - Relocate kiosk for better visibility

Work Plans

PAWV will work with local staff to prepare annual work plans and budgets to implement the RMP for Caravelle Ranch. PAWV will be responsible for 1) developing cost estimates for recreation-related facilities; 2) coordinating design and permitting; and 3) obtaining construction bids and the work of

contractors during the construction phase. This includes pre- construction meetings, site visits at construction milestones and final reviews. Generally, the area manager and staff monitor construction sites frequently during the construction process to make sure contractor is not doing damage to the surrounding area.

PAWV will design interpretive materials for the areas in consultation with management area staff. Generally, the cost of producing maps and interpretive products and maps comes from the PAWV budget.

Monitoring and Management of Recreation Facilities

PAWV will monitor recreation infrastructure on the WMA biannually including trail and structure photopoints. PAWV will also create an annual monitoring report at the end of each fiscal year. Any impacts encountered during each monitoring will be brought to the attention of PAWV and WMA staff to determine the best course of action for correction and prevention.

Measurable indicators for monitoring key aspects of the visitor experience and resources at Caravelle Ranch are described in Appendix 5. Indicators should be monitored for each zone, and when necessary, management actions taken to ensure that visitor use and resource impacts remain within the established standards.

References

A Management Plan for Caravelle Ranch Wildlife Management Area 2013 – 2023. Florida Fish and Wildlife Conservation Commission (2013).

Office of Economic and Demographic Research. <http://www.edr.state.fl.us>. 2013

Florida Statewide Comprehensive Outdoor Recreation Plan. Florida Department of Environmental Protection (2008).

National Park Service. The Visitor Experience and Resource Protection (VERP) Framework: A Handbook for Planners and Managers (1997).

Putnam County Comprehensive Plan. Putnam County (2007) Putnam County Trails Plan. Putnam County (2009)

US Census 2010. US Census Bureau (2010)

Appendix 1: Caravelle Ranch WMA Stakeholder Meeting Notes

12 July, 2012

Caravelle Ranch WMA Field Office

List of stakeholders in attendance:

Justin Williams, Deer Hunter Larry Bennett, Turkey Hunter

Guion and Ella Lindsay, Florida Trail Association Joyce King, Florida Audubon

Carol McDonald, Florida Native Plant Society Sam Carr, Paddler, Putnam Blueways CSO

Matt Corby, St. Johns River Water Management District

FWC staff in attendance:

Rich Noyes, Section Leader, Planning and Design Tom M. Matthews, Recreation Planner

Ann Morrow, Interpretive Writer Mike Abbott, NE Regional Biologist Jimmy Conner, District Biologist

Jason Slater, Caravelle Ranch WMA Manager and Biologist Rio Throm, Caravelle Ranch WMA Biologist

Jen Williams, NE Regional Public Hunt Areas Biologist Allison Jones, Trail Specialist

Josh Cucinella, Trail Specialist

Meeting Agenda:

Introduction and Overview of Recreation Planning – Rich Noyes Overview and History of Caravelle Ranch
– Jason Slater Proposed Interpretive Themes - Ann Morrow

Overview of Proposed Recreation Improvements – Tom M. Matthews Stakeholder Input

Review of Stakeholder Suggestions – Tom M. Matthews

Responses to stakeholder comments and suggestions:

Trails/Activities

- **Produce and distribute a map of the trails west of SR 19.**
 - *Currently there are no trails in that section, but once the trails are constructed a trail map will be produced.*

- **Include all road and trail names, as well as GPS points, in maps to reduce confusion for users.**
 - *We will look at options on how to best provide navigational aid on the area.*

Programming/Interpretation

- **Conduct interpretive walks led by biologists to educate visitors about butterflies, birds, and wildflowers.**
 - *We will investigate the possibility of using volunteers for this purpose. Area staff may occasionally be available to speak to groups.*
- **Publicize what is available in brochures.**
 - *Brochures will be produced once the plan is finished.*

Parking/Road Improvements

- **Provide parking area further in to the area on the east side to access more distant destinations, such as the trails in the southeastern portion.**
 - *We will explore the feasibility of this option.*

Facilities/Structures

- **Provide water source for equestrian use.**
 - *We will monitor the need for and explore the feasibility of this option.*
- **Install toilets near picnic and camping but away from highway.**
 - *We will monitor the need for and explore the feasibility of this option.*
- **Place picnic areas far from road and in shaded areas.**
 - *Picnic tables with either be in natural shade or covered tables will be installed.*
- **Provide soft landing access to the Ocklawaha and St John's Rivers and Barge Canal paddling trails.**
 - *We will determine the ownership of an existing campsite near the junction of the Ocklawaha River and St. Johns River. Beyond this there is no access to either waterway. DEP and SJRWMD offer water access in the immediate vicinity of Caravelle Ranch.*

Camping

- **Allow primitive, reservation-only camping at appropriate locations, such as in Outhouse Hammock, near trail shelters, or along the river, for biking, hiking and/or paddling.**
 - *Staffing levels, land management needs, and other uses of Caravelle Ranch make this impractical. DEP, US Forest Service, Florida Forest Service, and SJRWMD all offer camping in the vicinity of Caravelle Ranch.*
- **Find out who maintains the primitive campsite along the Ocklawaha River near the WMA and if it can be developed. The Blueways Paddling CSO can maintain but it needs to be mapped, signed, and acknowledged as a camping site.**
 - *We will determine the ownership of this existing campsite and proceed accordingly.*

Other

- **Additional opportunities for visitors are likely to attract more visitors and gain support and stewardship and preserve our heritage. Implement WMA recreation permit or fee to use property to recreate similar to state park or state forest pass.**
 - *Entrance fees are at the discretion of the FWC Commissioners. This issue will continue to be revisited as appropriate.*

Appendix 2: Work Plan for Recreation Enhancements

Based on the prioritization of the goals and objectives listed above, the following list of projects and tasks has been ordered in terms of short and long term completion timeframes.

Short Term

- Main Entrance
 - New kiosk with interpretive sign panels
 - Picnic tables
- West SR19 Entrance
 - Multi-use trail utilizing existing roads and single-track connectors
 - Interpretation at Outhouse Hammock
- Walk-in Entrance
 - Updated and improved interpretive panels
 - Picnic tables/picnic shelters
 - Relocate kiosk for better visibility

Long Term Completion and Ongoing Tasks

- Main Entrance
 - Toilet if warranted and feasible
 - Campground host site if warranted and feasible
- West SR19 Entrance
 - Kiosk
 - Expanded parking
- Walk-in Entrance
 - Replace trail shelters as necessary

Appendix 3: Recreation and Wildlife Viewing Facilities Design Guidelines

- **Entrances**

Should welcome visitors to the area, identify the Commission, describe the range of potential experiences on the area, and describe the wildlife viewing experiences by season, time of day or wildlife event.

- **Viewing structures**

Structures should include wildlife identification or other interpretive information. The structure should be surrounded by and focused on wildlife and habitat, rather than being the focus itself. For towers, each level should focus visitor attention to a different habitat or feature.

- **Trails**

Trails should be described at the trailhead with length or time required. If the focus is wildlife viewing, include best seasons. Interpretive panels or brochure stops should be well-spaced and focused by season.

General considerations in developing facilities:

- Locate viewing facilities on previously disturbed properties wherever possible.
- Preserve a sense of solitude and limit impact on natural resources by concentrating recreation uses in small “developed” zones and along existing road/trail corridors.
- Site facilities and design trails to minimize user conflicts.
- Avoid sensitive areas such as wetlands and route trails to avoid fragmenting habitat.
- Consider physical characteristics and the historical and natural character of the location.
- Adapt parking lots, buildings and other physical developments to existing topography.
- Retain on-site surface water run-off generated by development.
- Use porous pavements where surface hardening is required.
- Consider sewage disposal needs.
- Use native plants representative of the area for all landscaping.
- Design and build trails and observation structures to avoid disturbing wildlife and to minimize negative impacts such as erosion.

- Use elevated boardwalks in wet areas and swamps and walkovers to protect other sensitive areas.
- Incorporate wildlife viewing ethics into all interpretive materials.
- Incorporate interpretive themes into all brochures, trail guides and other materials produced to support recreation opportunities.
- Install interpretive signs and panels as appropriate at all recreation facilities.
- Route trails to interpret restoration and wildlife management activities.
- Insure interpretation of highly desired species viewable on the area.

Universal Access

Nature-based recreation facilities and programs must be developed and implemented in compliance with the Americans with Disabilities Act. All facilities in developed zones should be universally accessible. Recreation facilities in semi-primitive or primitive zones should be planned to be accessible to the degree possible except where:

- compliance will cause harm to cultural, historic or religious sites or significant natural features or characteristics.
- compliance will substantially alter the nature of the setting or purpose of the facility (or a portion of the facility).
- compliance would require construction methods or materials prohibited by federal, state or local regulations or statutes, or compliance would not be feasible due to terrain or prevailing construction practices.

Appendix 4: Carrying Capacity Methodology

FWC Recreation Carrying Capacity

Carrying capacities for recreational users on FWC lands are developed using a methodology employing existing spatial data and models, recommended guidelines for spatial and temporal carrying capacity, recommended guidelines for minimizing wildlife disturbance by outdoor recreation, and site-specific characteristics. The intent of this methodology is to provide a realistic carrying capacity which is based on the best science and data available with a focus on minimizing wildlife and habitat disturbance and providing the type of recreation our visitors desire and FWC's managed areas can support. This methodology also provides a means of monitoring visitor impacts and allows for flexibility in responding to these impacts and adjusting the carrying capacity as necessary. The carrying capacities generated through this process are not a visitation goal but are a guideline included in the overall area Management Plan and used as a tool to help plan and develop recreation opportunities.

Sensitivity Analysis

An initial analysis of site sensitivity to recreation impacts is conducted using:

- Integrated Wildlife Habitat Ranking System model results for the site
- Natural community values based on threat rankings developed for the Florida Wildlife Legacy Initiative using the rankings for Roads, Incompatible Recreation Activities, and Conversion to Recreation Areas
- Natural community values based on the sensitivity guidelines published by the Florida Park Service
- Wetlands
- Slope
- Soils
- Known point locations of species-of-interest
- Known locations of sensitive resources
- Division of Historic Resources Master Site File sites
- Density of existing roads, trails and facilities

- Other datasets as available and appropriate

These data layers are converted to grids as necessary and normalized to a scale of 1-100. Then a weighted sum is calculated for all data resulting in a “Sensitivity Index” for the area with higher values being more sensitive to disturbance from recreation.

Recreation Zoning

Once the results of the Site Sensitivity model are obtained, a Recreation Zone Map is developed incorporating these results and any statutory or rule constraints for recreation activities. These Recreation Zone Maps will show the different types of recreation experiences appropriate for each zone of the area. This guides potential trail lengths, trail types, types of facilities and other parameters related to recreation infrastructure.

Carrying Capacity Development

For linear recreation facilities (i.e. trails), a physical carrying capacity is developed based on trail length using a 100-meter buffer on either side of the trails. This buffer distance is consistent with the estimated area of wildlife disturbance along the trail. In addition, an additional 100- meter buffer is used between potential trail users to provide an undisturbed 100-meter area between users. This results in an estimate of 1 user or group every 300 meters along the trail. This estimate is generated using GIS and is adjusted to minimize disturbance “hot spots” such as overlapping disturbance buffers. Point facilities (i.e. observation structures) have a single 100-meter radius buffer. The temporal component of carrying capacity is developed based on the Florida Park Service turnover estimate of two per day on primitive hiking trails or four per day on shorter, improved nature trails. In addition, existing and planned parking and other trailhead limitations are factored into the estimate. If the site already has a Recreation Master Plan (RMP) developed, these estimates will be based on existing and planned facilities as detailed in the RMP. If the area does not have an RMP these estimates are based on potential

trail corridors and potential point facility sites derived from the Recreation Zoning and site visits by OPAWVS and area staff. Another product of this estimate is a “Wildlife Habitat Disturbance Index” based on the ratio of potentially impacted habitat to impact-free habitat expressed as a percentage of the area potentially impacted by recreation.

Camping Facility Carrying Capacities

- Primitive tent camping with no facilities or limited facilities (fire ring, picnic table): 4 people/site with a turnover of once per day.
- Standard camping site (fire ring, picnic table, improved or paved pad, toilet facilities): 8 people/site with a turnover of once per day.

- Generally group camping will be 30 people per 5 acres of camping area.

Picnic Areas

- 8 tables/acre and 4 people/table with a turnover twice a day.

Structures

- Structures dependent on trails for access will be included in the calculated trail capacity.
- Structures that can be accessed independently of trails will have a carrying capacity determined on a case-by-case basis based on the type and size of the structure.

Shoreline Fishing Areas

- Shoreline fishing areas will have a capacity of 1 angler per 25 linear feet. Seasonal Hunting
- For those areas with seasonal hunting use carrying capacities range from one hunter per 75 acres to one hunter per 150 acres. The exact density chosen depends on a variety of factors with game management most paramount, but is also influenced by the layout of the area and the chosen hunting framework. Areas with dove fields will have a dove field capacity of one hunter to 1.75 acres of dove fields. This capacity is in addition to the calculated capacity for non-hunting recreation uses. Areas with quota permits will have the hunting capacity established as double the maximum number of permits for any one season to account for guest permits.

As needed, capacities for other uses not listed above will use the carrying capacity guidelines published by the Florida Park Service as a baseline.

Recreation Impact Monitoring

To provide a quantitative measure of recreation impacts, limits will be established as “No impact ranks greater than 1,” as observed during each biannual monitoring conducted by OPAWVS field staff. If any ranking values are greater than 1, the site will be assessed to determine the source of the impact. If impacts are the result of recreation activities (as opposed to facility design or other sources), the carrying capacity will be revisited and corrective measures will be developed by OPAWVS and area staff.

Appendix 5: Management and Monitoring

Recreation Facility Monitoring Protocol

Florida Fish and Wildlife Conservation Commission Office of Public Access and Wildlife Viewing Services

Introduction

In order to better plan and manage recreation opportunities on lands managed by the Florida Fish and Wildlife Conservation Commission (FWC), FWC's Office of Public Access and Wildlife Viewing Services (PAWV) has developed a monitoring program for recreation-related facilities and infrastructure. Using both qualitative and semi-quantitative methods this program will encompass trails, signs, wildlife viewing structures and other facilities. Data obtained through this program will help FWC better plan, construct and maintain facilities to provide the recreation experiences that are meaningful, enjoyable and safe.

Materials

- Digital camera
- Tripod
- Kaidan panoramic photo mount
- VRWorx, or other software for creating panoramic photos
- Monitoring forms
- Tape measure
- Compass
- GPS (loaded with waypoints for monitoring points)
- Hand tools for checking structure hardware

Monitoring Procedures

Frequency

Starting in FY 2013-2014, trails will be monitored annually in the fall and structures monitored annually in the spring. Prior to FY13-14 trails and structures were both monitored biannually.

Photopoints

Panoramic and single photopoints are used to track and document impacts such as trail degradation, corridor condition, structural integrity and vandalism. Single photopoints are taken at use areas to capture the overall condition. Additionally, each amenity and structure has a photopoint associated with it. Panoramic photos are taken at use areas in a central location and at trailheads. Photopoints are predetermined (with the exception of trouble areas along trails), geographically referenced, and consistent. Data are compiled by analyzing panoramas and photopoints from each monitoring session and combining the findings with impact indices recorded for each site.

Photopoints should be recorded with GPS, which can also be used to navigate back to the photopoint location on future monitoring visits. A description of the location should be recorded to ensure maximum accuracy in relocating the photopoint.

Assemble the panoramic photo gear and set the tripod over the photopoint, making sure the panoramic head is level. Standard photopoint height is 60" to the center of the camera lens while mounted on the panoramic mount. This may be modified for some photopoints depending on surrounding vegetation or other considerations, but the new height should be recorded and used each time that photopoint is taken. The easiest way to set the height is to assemble the tripod, panoramic mount and camera on level ground, adjust the legs to their full length and adjust the center column to achieve the proper lens height. The center column can be marked with a permanent marker, tape, or scored with a small file or engraver and each mark should be labeled with the height and camera model. This will have to be done for each different camera that will be used for photopoints, although it is preferable that the same camera be used for all photopoints.

Cameras should be set to full wide zoom, landscape mode if available, with flash off. All photopoints begin with the detent closest to due north and continue in a clockwise direction. A log should be kept to record the photo numbers and their corresponding photopoint.

After downloading the images they should be processed into a flat panorama (a digital image composed of all of the photos for a particular photopoint). These panoramas along with the component images should be kept in a central location organized by WMA, photopoint number, and photopoint date. Parallel photopoints will not need to be processed but should be organized as above.

Trails

Trails are monitored with a panoramic photopoint centered at the trailhead, and one photopoint wherever problems areas exist: one photo taken facing forward on the trail and one facing the opposite direction on the trail.

Use areas

Use areas have 2 photopoints. One is a panoramic photo taken at the center of the use area that follows the procedure for trailhead photopoints. The other is a single photo taken from the perimeter of the area. The compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint.

Structures

Structures have a single photopoint. This is a single photo, and the compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint. If desired, a panoramic photo can be taken to represent the view from the structure (such as the top of a tower).

Physical Inspections

- Check for presence or absence (smaller amenities such as fire rings and benches)
- Check for proper location (smaller amenities such as fire rings and benches)
- Inspect for damage (signs and structures)
- Check hardware and tighten or replace if necessary (signs and structures)

Trails should be traversed in their entirety, either on foot for shorter trails or by vehicle for longer trails. Trouble spots (erosion, trail braiding, shortcuts, litter, excess vegetation encroachment, etc.) should be recorded by GPS and noted on the monitoring form.

Monitoring Forms and Record Keeping

Monitoring forms are completed in the field. This can be done electronically using the Recon field computer or manually. If done manually they should be transferred to an electronic version by filling out the form on computer. Completed electronic forms are then placed in the appropriate location on the Project Management Site for that WMA along with any relevant GPS data (converted to shapefile), photographs, photopoints and other notes.

Any issues that need attention should be sent to the appropriate Recreation Planner via email. The Recreation Planner is responsible for ensuring that the issue is brought to the attention of the appropriate personnel, both internal and external to FWC, and tracking the issue through resolution.

Litter Impacts		
Rating	Category	Description
1	None	
2	Very Little	small isolated pieces of litter
32	Some	frequent small pieces or isolated large pieces of litter
4	Extensive	small areas used for trash dumping or multiple areas of high litter
5	Very Extensive	large areas used for trash dumping

Structure or Amenity Damage		
Rating	Category	Description
1	None	none/ loose bolts on new structures.
2	Very Little	minor graffiti or scratches, dirty, light crazing or oxidation, crooked, minor cracks.
32	Some	minor wood repair; extensive graffiti; cuts or gouges; bullet holes; major cracks, extensive crazing or fading.
4	Extensive	hazardous damage, rotten supports, severe rust, illegible signs, burnt
5	Very Extensive	structure is missing or rendered completely ruined/useless

Trail and Use Area Erosion		
Rating	Category	Description
		mostly natural groundcover distribution or man-made materials (concrete, aggregate, mulch, etc.)

1	Very little	
2	Some	localized patches of bare soil from use or runoff from structures or impervious surfaces; vehicle tracks noticeable; standing water; minor hog damage
3	Moderate	large areas of bare soil created by use, ruts from vehicles, areas muddied by use, roots partially exposed, heavy hog damage
4	Extensive	channelization, washout, and/or undercutting banks; roots mostly exposed; deep ruts; trail widening

Trail Corridor Condition		
Rating	Category	Description
1	Within Standards	minimal vegetation encroachment
2	Exceeds Standards	trail needs some mowing/lopping/chainsawing; minor tree fall
3	Unacceptable	trail is generally overgrown and difficult to find; tree fall that impedes passage

2 Ratings of three and above exceed PAWV standards for structure and amenity damage or litter impacts and trail erosion.

3 Ratings of two and above exceed PAWV standards for trail corridor condition.

WMA Visit Checklist

- Trail maintenance needs
- Sign maintenance needs
- Structure maintenance needs
- Day-use area
condition/maintenance needs o
Sufficient PAWV publications in
field office o Brochure boxes
adequately stocked
- Hunting calendar posted and up-
to-date
- Users encountered on area
(number, activity, address for
future surveys)
- Geocaches inspected
- Manager concerns
- New ideas for area enhancement

12.13 Management Procedures Guidelines - Management of Archaeological and Historical Resources

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, *‘Historic property’ or ‘historic resource’ means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state.’*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
<http://www.flheritage.com/preservation/compliance/guidelines.cfm>

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:

http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Robin Jackson
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street Tallahassee, FL 32399-0250
Phone: (850) 245-6496
Toll Free: (800) 847-7278
Fax: (850) 245-6439
Robin.Jackson@DOS.MyFlorida.com

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan

12.14 Historical Resources

Environmental Resource Analysis

Historical Resources

Analysis Shape Type: Polygon

Analysis Timestamp: 02042020 09:50:37

Shape Name: Caravelle Ranch ERA 2020

Total Area: 12407.28 acres

Cultural Resources									
Florida Sites									
SITE NAME	SITEID	SITETYPE1	SITETYPE2	SITETYPE3	SITETYPE4	SITETYPE5	SITETYPE6	HUMANREMN	Total Area (acres) Percent of Area
BEAR DEN	PU01229	Land-terrestrial							2.15 0.02 %
BEAR SCAT TURPENTINE CAMP	PU01222	Turpentine camp							0.94 0.01 %
High Midden	PU01727	Prehistoric shell midden		Wetland-palustrine-sometimes flooded	Prehistoric shell mound(s)				1.04 0.01 %
LONELY POINT	PU01221	Land-terrestrial	Single artifact or isolated find						0.21 0 %
MIDDEN ROAD MIDDEN	PU01219	Campsite (prehistoric)	Prehistoric shell midden	Prehistoric midden(s)	Historic refuse / dump				0.64 0.01 %
NN	PU00030	Prehistoric midden(s)							1.49 0.01 %
NN	PU00033	Prehistoric midden(s)							10.21 0.08 %
OUTHOUSE HAMMOCK	PU01220	Building remains	Campsite (prehistoric)	Lithic scatter/quarry (prehistoric: no ceramics)	Building remains from a prehistoric camp				1.20 0.01 %

Pine Island Midden	PU01640	Land-terrestrial	Prehistoric shell midden	Prehistoric midden(s)	1.08	0.01 %
TOTAL:					18.94	0.15 %
Florida Structures						
No Records Found						
Historical Cemeteries						
No Records Found						
Historic Bridges						
No Records Found						
National Register of Historic Places						
No Records Found						
Resource Groups						
No Records Found						
Field Survey						
SURVEY NUMBER	TITLE				Total Area (acres)	Percent of Area
6029	A SUMMARY OF KNOWN ARCHAEOLOGICAL AND HISTORIC SITES IN THE CARAVELLE RANCH WILDLIFE MANAGEMENT AREA PUTNAM COUNTY, FLORIDA INCLUDING MANAGEMENT RECOMMENDATIONS FOR HISTORICAL RESOURCES				12,279.63	98.97 %
10459	NEXTEL CELLULAR TOWER, RODMAN & SR 19, PUTNAM COUNTY, FLORIDA				1,460.92	11.77 %
13910	FINAL REPORT ON PEDESTRIAN SURVEY: OCKLAWAHA SURVEY PROJECT, JUNE 2006-DECEMBER 2006				1,307.65	10.54 %
17047	REPORT OF ARCHAEOLOGICAL EVALUATIONS AT THE CAMP BRANCH CREEK HYDROLOGIC RESTORATION PROJECT ON THE CARAVELLE RANCH WILDLIFE MANAGEMENT AREA IN PUTNAM COUNTY, FLORIDA				12.71	0.1 %
22482	NRHP EVALUATION OF 12 ARCHAEOLOGICAL SITES AT THE RODMAN BOMBING RANGE, PUTNUM COUNTY, FLORIDA, UNDER THE JURISDICTION OF NAS JACKSONVILLE				26.01	0.21 %
TOTAL:					15,086.93	121.6 %

12.15 Land Management Uniform Accounting Council Categories

Land Management Uniform Cost Accounting Council

Uniform Land Management Cost Categories and Subcategories

1. Resource Management

- a. Exotic Species Control. -- Invasive exotic plant and animal removal activities and costs for inventorying, planning, preparing, executing, evaluating, monitoring and reporting. Also includes equipment, chemicals, protective clothing and supplies. Includes nuisance native feral animal and plant control.
- b. Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.
- c. Cultural Resource Management. -- Management activities and costs for assessing, planning, executing, evaluating and reporting, and for all maintenance, restoration or monitoring activities for prehistoric and historic sites, features and collection objects.
- d. Timber Management. -- Activities and costs related to the establishment of a stand of potentially merchantable timber, harvest of merchantable timber, and cultural treatments intended primarily to improve the growth and overall health of a stand of merchantable timber. Also includes activities and costs related to the cutting of merchantable timber in natural community and habitat restoration projects.
- e. Hydrological Management. -- Hydrological management and restoration activities and costs for assessing, monitoring, planning, preparing, executing, evaluating and reporting. Includes water level management, repair, removal or back-filling of ditches, canals, berms and dams. Also includes water quality and water quantity monitoring.
- f. Other. -- All other resource management activities and costs not captured in other specific subcategories. Examples include natural community and habitat restoration through other techniques; plant, animal or biological community survey, monitoring

and research; listed species management; technical assistance; and evaluating and commenting on resource impacts to parks.

2. Administration

- a. Central Office/Headquarters. -- Headquarters units conducting general administration of land under management by the agency. Includes upper management direction, administration and fiscal, budget, personnel, purchasing and record keeping required for operations oversight and specific programs. Includes all duties unless they specifically relate to other categories or subcategories.
- b. Districts/Regions. -- Sub-state administrative districts or regions conducting general administration of the properties under their management. Includes all duties, unless they specifically relate to other categories or subcategories. General operating costs of district or region administrative facilities are included.
- c. Units/Projects. -- Conducting general administration duties at a specific management unit (state park, state forest, state wildlife management area, etc.). Includes supervisory duties, fiscal and record keeping duties, and any other duties that do not specifically relate to other categories or subcategories. General operating costs for the property, such as utilities, telephones and garbage collection, are included.

3. Support

- a. Land Management Planning. -- Developing land management plans required by Sec. 253.034, F.S. Includes researching and compiling plan information, materials and maps, coordinating planning activities, conducting review activities (internal reviews, public meetings, advisory group meetings, ARC, etc.), and promulgating draft plans and final plans.
- b. Land Management Reviews. -- Planning, organizing and conducting land management reviews by teams created under Sec. 259.036, F.S. Includes preparing and responding to land management review reports. Also includes similar work conducted as part of internal agency land management reviews.
- c. Training/Staff Development. -- Staff training and development costs incurred in any facet of the agency's land management activities.
- d. Vehicle Purchase. -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

- e. Vehicle Operation and Maintenance. -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.
- f. Other. -- Any other support activity or cost not captured by other categories or subcategories.

Capital Improvements

- g. New Facility Construction. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all new facility design and construction activities. Includes new roads, parking and all other infrastructure.
- h. Facility Maintenance. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all repairs or renovations to existing facilities, roads or other infrastructure. Also includes ADA accessibility improvements and renovations.

4. Visitor Services/Recreation

- a. Information/Education Programs. -- Interpretive, environmental education and marketing programs that explain or promote the agency's mission or instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper use and care. Includes signs, brochures, maps and other public information materials that are produced or disseminated.
- b. Operations. -- Includes the non-administrative and non-support costs involved in providing public access to lands. Includes all actions required to manage visitor activities in a way to ensure safe and enjoyable use by the public. Includes routine maintenance, cleaning and other work required to provide safe and efficient utilization of facilities and resources that support visitor use and recreation. Includes protection activities required by staff to safeguard natural and cultural resources, facilities, material, staff and visitors.

6. Law Enforcement

The provision of all activities for enforcing criminal, conservation and boating laws on land, freshwater and marine environments and all costs associated with these services. Includes the provision of uniform patrol. Includes overt and covert criminal investigations. Includes regulation of commercial wildlife trade. Also includes the direction and administration of all law enforcement programs and activities, and all associated costs.

Land Management Uniform Cost Accounting Council and FWC Activity Code Groupings

Resource Management

Exotic Species Control

- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

Prescribed Burning

- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

Cultural Resource Management

- 201 Cultural resource management

Timber Management

- 202 Timber management

Hydrological Management

- 194 Lake restoration
- 215 Hydrology management
- 216 Dams, dikes, levees
- 217 Canals
- 218 Water level management

Other

- 185 GIS
- 200 RESOURCE MANAGEMENT
- 203 Tree and shrub planting
- 213 Wildlife management
- 214 Listed Species management
- 219 Upland restoration
- 221 Animal surveys
- 228 Inland aerial surveys
- 235 Vegetation and plant surveys
- 250 MONITORING AND ASSESSMENTS
- 252 Biomedical monitoring
- 253 Ecological monitoring
- 256 Habitat monitoring analysis
- 263 Nest box monitoring
- 264 Population demographics
- 275 Permits and authorizations
- 276 Commission rule development and review
- 281 Technical assistance
- 282 Herbaceous seeding
- 283 Clearings
- 284 Feeding/watering
- 285 Nest structures
- 286 Population control
- 287 Stocking enhancements/population augmentation

288	Nuisance animal complaints 282	Herbaceous seeding
289	Native vegetation management (mechanical)	
290	Native vegetation management (chemical)	
293	Mortality investigations	
294	Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level 295	Biological data collection, analysis, and reporting
296	Habitat protection technical assistance	
750	URTD assessment	
789	Site Preparation – GCR	
790	Irrigation – GCR	
791	Seed Collection – Hand	
792	Seed Collection – Mechanical	
793	Herbicide Maintenance Treatment	

Administration

Central Office/Headquarters

- 100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
- 104 Budget/purchasing/accounting

Districts/Regions

See Location code

Units/Projects

See Location code

Support

Land Management Planning

- 103 Meetings C includes workshops, conferences, staff, and other meetings.
- 204 Resource Planning

Land Management Reviews

- 101 Project inspection C field inspections of projects.
- 209 Land Management Reviews

Training/Staff Development

- 150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.

Vehicle Purchase

- 128 New Vehicle and Equipment Purchase

Vehicle Operation and Maintenance

- 923 FEM C vehicles/equipment

Other

- 140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
- 141 Grant applications
- 180 SYSTEMS ADMINISTRATION AND MANAGEMENT
- 182 Data management
- 184 Metadata development and management
- 187 IT
- 188 Web development
- 226 Human dimensions surveys
- 721 Geospatial analysis techniques

Capitol Improvements

New Facility Construction

- 910 New facility construction C buildings/structures
- 912 New construction C roads/bridges
- 913 New construction C trails
- 914 New construction C fences

Facility Maintenance

- 920 Facility and equipment maintenance (FEM) C buildings/structures
- 921 FEM C utilities
- 922 FEM C custodial functions
- 925 FEM C boating access
- 926 FEM C roads/bridges
- 927 FEM C trails

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs

312 Informational signs

320 Outreach and education C attending or developing educational or informational materials or events for the public

341 Public use administration (hunting)

342 Public use administration (non-hunting)

350 Customer service support C disseminating written or verbal information or assistance to the public

700 STUDIES

740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

12.16 Operation Plan Fiscal Year 2019-2020

Activity	Description	Man Days	Salary	Fuel Cost	Other	Total
101	Project inspection	20	\$4,359.60	\$170.00	\$0.00	\$4,529.60
103	Meetings	20	\$4,359.60	\$170.00	\$0.00	\$4,529.60
104	Budget/purchasing/accounting	25	\$5,449.50	\$212.50	\$0.00	\$5,662.00
128	New Vehicle and Equipment Purchases	0	\$0.00	\$0.00	\$32,600.00	\$32,600.00
140	Report writing/editing/manuscript preparation	10	\$2,179.80	\$85.00	\$0.00	\$2,264.80
150	Personnel management	20	\$4,359.60	\$170.00	\$2,500.00	\$7,029.60
185	GIS	15	\$3,269.70	\$127.50	\$0.00	\$3,397.20
202	Timber management	10	\$2,179.80	\$85.00	\$0.00	\$2,264.80
204	Resource planning	150	\$32,697.00	\$1,275.00	\$40,140.00	\$74,112.00
206	Prescribed burning - growing season	50	\$10,899.00	\$425.00	\$2,500.00	\$13,824.00
207	Prescribed burning - dormant season	95	\$20,708.10	\$807.50	\$5,000.00	\$26,515.60
208	Firebreaks	15	\$3,269.70	\$127.50	\$0.00	\$3,397.20
212	Exotic plant control (chemical)	25	\$5,449.50	\$212.50	\$2,500.00	\$8,162.00
218	Water level management	25	\$5,449.50	\$212.50	\$100,000.00	\$105,662.00
221	Animal surveys	80	\$17,438.40	\$680.00	\$1,500.00	\$19,618.40
235	Vegetation and plant surveys	20	\$4,359.60	\$170.00	\$0.00	\$4,529.60
282	Herbaceous seeding	120	\$26,157.60	\$1,020.00	\$25,000.00	\$52,177.60
285	Nest structures	5	\$1,089.90	\$42.50	\$1,000.00	\$2,132.40
289	Native vegetation management (mechanical)	100	\$21,798.00	\$850.00	\$0.00	\$22,648.00
294	Program coordination and implementation	20	\$4,359.60	\$170.00	\$0.00	\$4,529.60
295	Biological data collection, analysis, and reporting	60	\$13,078.80	\$510.00	\$3,500.00	\$17,088.80
312	Informational signs	10	\$2,179.80	\$85.00	\$2,000.00	\$4,264.80
320	Outreach and education	5	\$1,089.90	\$42.50	\$0.00	\$1,132.40
341	Public use administration (hunting)	20	\$4,359.60	\$170.00	\$2,500.00	\$7,029.60

350	Customer service support	5	\$1,089.90	\$42.50	\$0.00	\$1,132.40
793	Herbicide Maintenance Treatment	10	\$2,179.80	\$85.00	\$1,000.00	\$3,264.80
910	New facility construction -- buildings/structures	10	\$2,179.80	\$85.00	\$250,000.00	\$252,264.80
920	FEM -- buildings/structures	45	\$9,809.10	\$382.50	\$15,000.00	\$25,191.60
923	FEM -- vehicles/equipment	125	\$27,247.50	\$1,062.50	\$56,000.00	\$84,310.00
926	FEM -- roads/bridges	120	\$26,157.60	\$1,020.00	\$150,000.00	\$177,177.60
927	FEM -- trails	10	\$2,179.80	\$85.00	\$2,500.00	\$4,764.80
928	FEM -- fences	10	\$2,179.80	\$85.00	\$2,500.00	\$4,764.80
Total:		1,255.00	\$273,564.90	\$10,667.50	\$697,740.00	\$981,972.40

12.17 Conservation Action Strategy



A Conservation Action Strategy Caravelle Ranch Wildlife Management Area

Putnam and Marion Counties, Florida

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



Introduction

Nestled between the Ocklawaha and St. Johns Rivers, the Caravelle Ranch Wildlife Management Area (CRWMA) is set within a much larger mosaic of public conservation lands that are interspersed with hardwood river swamps and pine flatwoods, punctuated with small depression ponds, hardwood hammocks, and scattered pasture lands. These unique habitats provide floodplain, watershed, and water quality protection for these rivers and the Cross-Florida Barge Canal. The CRWMA is managed by the Florida Fish and Wildlife Conservation Commission (FWC) to conserve habitat for an array of imperiled species, including gopher tortoise (*Gopherus Polyphemus*) and Florida sandhill crane (*Grus canadensis pratensis*), other native fish and wildlife species, and important natural and cultural resources along with providing a diverse array of fish and wildlife-based public outdoor recreational opportunities including hunting, fishing, wildlife viewing, hiking, horseback riding, and bicycling.

The quality and diversity of habitats found on the CRWMA attract an equally diverse suite of wildlife species including waterfowl and wading bird species in the wetlands, passerine bird species in the uplands, and various mammalian, reptilian, and amphibian wildlife throughout the CRWMA. Both rare and imperiled wildlife species, and more commonly found species, thrive in the area's floodplain swamp and mesic flatwoods, including the little blue heron (*Egretta caerulea*), Florida sandhill crane (*Grus canadensis pratensis*), and wood stork (*Mycteria americana*).

The FWC is currently assigned lead management authority for approximately 10,470 acres of the CRWMA. This lead managed area is composed of 5,200 acres of public property owned by the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) and approximately 5,270 acres titled to the St. Johns River Water Management District (SJRWMD).

Additionally, the Department of Environmental Protection (DEP), Division of Recreation and Parks' Office of Greenways and Trails (OGT) has subleased approximately 3,000 acres to the FWC for cooperative management and has a management agreement with the FWC for cooperative management over an additional 13,027 acres. This acreage, along with approximately 374 acres added in 2008 by the SJRWMD, are also a part of the Marjorie Harris Carr Cross-Florida Greenway. Both the SJRWMD and DEP-OGT leased lands are included within the overall Establishment Order for the CRWMA to provide outdoor recreational opportunities including hunting and fishing. Combined with the lands for which the FWC is the lead managing agency, there are a total of approximately 26,497 acres within the overall Establishment Order for the CRWMA.

The CRWMA Conservation Action Strategy (CAS) has been developed as an integral component of the FWC Land Conservation Work Plan and the CRWMA Management Plan to provide recommended land conservation acquisition and stewardship actions for the CRWMA. As described in the CRWMA Management Plan, the FWC utilizes a three-tiered approach to land conservation and stewardship analysis and recommended actions that includes identifying, acquiring, or otherwise protecting important conservation lands adjacent to, or in proximity to, existing FWC-managed areas that involves development of an Optimal Resource Boundary (ORB), Optimal Conservation Planning Boundary (OCPB), and a CAS.

The CAS was developed to aid in recommending lands within the CRWMA OCPB for inclusion on the FWC Florida Forever Addition and Inholding (A&I) Acquisition List; to enhance the ongoing operational and resource management of the CRWMA; sustain the overall conservation of wildlife within and adjacent to the CRWMA; increase wildlife habitat or landscape conservation connectivity on adjacent public and private conservation lands; maintain adequate prescribed burning buffers; aid in landscape conservation connectivity; conserve additional wildlife habitat; and provide more public access opportunities on conservation lands.

Additionally, the CAS also fulfills an objective of the CRWMA Management Plan, specifically the Land Conservation and Stewardship Goal. Following, are other elements of this CAS including more information on the area's location; acquisition purposes and history; adjacent land uses within the vicinity of the CRWMA; the OCPB; and the recommended prioritized conservation actions that have been developed to provide a proactive, comprehensive, and long-term strategy for further potential land conservation opportunities within, adjacent to, and surrounding the CRWMA.

Location

The FWC lead managed portion of the CRWMA is situated in Putnam County west of the St. Johns River and north of the Ocklawaha River, approximately ten miles south of Palatka, with a small portion of the SJRWMD-owned land located in northeast Marion County. The CRWMA lies within Putnam County, roughly bisected by State Road (SR) 19. The property begins 0.6 miles south of where SR19 crosses the Barge Canal within parts of Sections 25, 26, 27, and 37, Township 11 South and Range 25 East, as well as within the entire Sections 19, 20, 28, 29, and 30 in Township 11 South and Range 26 East. The portion of CRWMA located in northeast Marion County is within Section 3, Township 11, and Range 25. The CRWMA is not located within any Area of Critical State Concern [Chapter 380.05, Florida Statute (F.S)] or within or adjacent to an aquatic preserve (Chapter 18-2.018 and 18-2.021 Florida Administrative Code (F.A.C)).

Purpose for Acquisition

The primary purposes for acquiring lands within the CRWMA under the Conservation and Recreation Lands (CARL) program were to expedite restoration and protection of the St. Johns and Ocklawaha River systems, protect endangered and threatened species, and provide resource-based public outdoor recreational opportunities. The CRWMA is managed by the FWC 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.

The 50-year Board of Trustees' lease agreement with the FWC directs the agency 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), F.S." The lease agreement further directs the FWC to "implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.004(1)(d), F.A.C., which have been selected, developed, or approved for the protection and enhancement of the leased premises."

Acquisition History

The SJRWMD lands, that are leased to the FWC within the CRWMA, were acquired by the SJRWMD in 1989 under the Save Our Rivers program, and subsequently leased to the FWC for management in 1991. In 1996, through the CARL program, the Board of Trustees purchased 5,103-acres to be added to the CRWMA and leased to the FWC for management. The CARL program was established for the purpose of purchasing environmentally endangered lands and other lands such as those which have potential for public recreation.

Subsequent purchases by the State, under the Preservation 2000 program and the Florida Forever program, increased the Board of Trustees owned acres on which the FWC is lead managing agency to 5,200, bringing the area to its current size of 10,470 acres.

Proximity to Other Public Conservation Lands and Florida Forever Projects

The CRWMA is surrounded by a myriad of conservation lands including the Carl Duval Moore State Forest and Park to the north, Dunns Creek State Park to the east, and Ocala National Forest to the south. Conservation lands near the CRWMA's boundary are shown in Figure 1.

Most of the conservation lands within the vicinity of the CRWMA are owned in full-fee by a public entity, while others are owned in full-fee by a private not-for-profit entity. However, several of these conservation lands are protected by less-than-fee conservation easements consisting primarily of privately owned and managed ranchlands with a public or private entity holding and monitoring a conservation easement. Others are simply owned by the private landowner, while public agencies or not-for-profit organizations manage the land. Some conservation lands may also be co-owned by multiple agencies.

The CRWMA is part of the Etoniah/Cross Florida Greenway Florida Forever project. The project area includes 92,254 acres, in which approximately 34,405 acres have been acquired, leaving 57,849 remaining acres in the project yet to be acquired. Other Florida Forever projects near the CRWMA include Strategic Managed Area Lands, Mill Creek to the west, and Matanzas to Ocala Conservation Corridor to the east.

Adjacent Land Use

The CRWMA is primarily located in south central Putnam County, with a small portion of the area located in northeast Marion County. The lands within the CRWMA where FWC is the lead managing agency are bordered on the north by the DEP-OGT's Marjorie Harris Carr Cross Florida Greenway. The Rodeheaver Boys Ranch borders the northeast portion of CRWMA. The area's southern boundary is adjacent to the Rodman Bombing Range, a U.S. Navy bombing facility, and the Ocala National Forest managed by the U.S. Forest Service (USFS). The majority of the area to the east of the CRWMA is characterized by privately owned agricultural/silvicultural land and is currently zoned for Agriculture. The eastern perimeter of CRWMA is bordered by the St. Johns River. The western border of CRWMA is adjacent to the Marjorie Harris Carr Cross Florida Greenway and the Ocala National Forest. The nearest municipality is Welaka, located to the east, across the St Johns River.

The land within and surrounding the CRWMA in Putnam and Marion County is currently zoned for Agriculture. This designation allows for agricultural operations and low-density residential dwellings.

Nearby land across the St. Johns River is primarily zoned for Agriculture, as well as Residential, Mixed (R-2); Residential, Single Family (R-1); Residential, Single Family Estate (RE); and Residential 1A, Single Family (R-1A).

The 2010 Putnam County Comprehensive Plan Future Land Use Element designates CRWMA and most of its surrounding public lands as Conservation land. This plan is expected to be updated in the year 2025. Land to the north and east of CRWMA that is not in public ownership is generally designated as Agriculture II, which allows for a residential density of one unit/20 acres to one unit/10 acres, and Rural Residential. The density for Rural Residential development ranges from one unit/five acres to one unit/acre. The future land use designation for the small portion of CRWMA located in Marion County is Preservation. Surrounding lands in Marion County are designated as Preservation or Rural Land. The Rural Land designation represents privately held lands suited for very low density (one unit/acre) and agricultural purposes.

Based on the location of the property and the current and five-year future zoning ordinances for the CRWMA and surrounding properties, the CRWMA may face some development impacts or challenges in the foreseeable future. The closest cities, apart from Bradford, are considered urban including Palatka and Gainesville.

Florida's Changing Population

More U.S. residents moved to Florida than any other state in 2018, making it one of the fastest growing in the nation. Florida had the nation's fourth-highest growth rate (1.5 percent), the third-highest population (21 million), the second-highest number of total new residents (323,000), and 133,000 people who came from elsewhere in the country between July 1, 2017 and July 1, 2018. This means that, Florida's population is growing by nearly 1,000 people a day: about half of the newcomers are foreign-born immigrants and half are from other U.S. states. In the years to come, Florida's growth rate is expected to stabilize. In 2019, the U.S. Census estimated that there were 73,268 people living in Putnam County and 360,421 people in Marion County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2030, there will be 73,700 people living in Putnam County, while Marion County is expected to grow to 414,800. The BEBR's medium-range population projections for the same year of the surrounding counties are as follows: Alachua – 291,600; Bradford – 29,500; Clay – 252,500; Citrus – 163,600; Flagler – 138,300; Lake – 450,300; Levy – 43,600; St. Johns – 347,600; Sumter – 170,800; and Volusia – 595,800.

However, it should be noted that, according to Wildlife 2060, the population of coastal counties is predicted to double from 12.3 million to more than 26 million by 2060 (FWC 2008). The FWC has prepared a report titled, ["Wildlife 2060: What's at Stake for Florida"](#) to relay the changes that may occur in Florida's fish and wildlife and in our own lifestyles, if the state's population doubles. Recent predictions indicate if that happens, as a study published by [1000 Friends of Florida](#) suggests, about seven million acres of land could be converted from rural and natural to urban uses.

The CRWMA Optimal Conservation Planning Boundary

Several properties have been identified for inclusion in the OCPB (Figure 3), which qualifies them for potential acquisition under the auspices of FWC's Florida Forever A&I acquisition program. These

properties have been identified to further protect the wildlife and other resources of the property, to lessen conflicts caused by housing development within an area where prescribed burning is required for resource management, to achieve an optimum property boundary, and to provide critical habitat connectivity for the CRWMA and other wildlife habitat. Lands within the OCPB are important to buffer the boundaries of the CRWMA from potential adjacent incompatible developments, and to aid the FWC, other state and federal governmental entities, non-governmental organizations, and local governments with their acquisition and planning efforts in order to better manage the area on a landscape level for the benefit of the continued conservation of wildlife and other natural resources.

Potential Conservation Stewardship Opportunities Adjacent to the CRWMA

The FWC Landowner Assistance Program (LAP) provides many potential opportunities for conservation minded landowners to obtain the assistance and advice of FWC staff and programs for improving land conservation practices on their lands. The LAP routinely conducts workshops for interested landowners to interact with FWC staff and learn how they may participate in the program. In addition, the LAP works with landowner to enroll in the Natural Resources Conservation Service conservation cost-share programs in order to assist with implementation of wildlife friendly practices.

At the time of the plan development, no specific land stewardship workshops had been conducted for landowners adjacent to the CRWMA. The role and development of Land Conservation and Stewardship Partnerships is fully explained in section 5.11 and 6.10 of the CRWMA Management Plan. Private landowners seeking assistance with habitat management will likely find it offered within the FWC's 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. The FWC will continue to evaluate the level of interest and efficacy of providing technical assistance to adjacent private landowners on enhancing the conservation management of their lands. More information on FWC's LAP program and online habitat management tools are available online at: <http://myfwc.com/conservation/special-initiatives/lap/>.

The FWC Florida Forever A&I Acquisition List Conservation Benefits Analysis

Several properties have been identified for recommended acquisition under the auspices of the FWC Florida Forever A&I acquisition program for the CRWMA (Figures 4-5). The FWC Florida Forever A&I acquisition list identifies lands within or adjacent to FWC-managed areas that are important for the conservation of fish and wildlife, serve as a link or corridor to other publicly owned property, enhance the protection or management of the property, would create a more manageable boundary configuration, have a high resource value that would otherwise be unprotected, or that could be acquired at substantially less than fair market value. Consistent with Florida Forever program criteria, parcels on the list have been ranked High, Medium, or Low priority based on a score generated by a GIS-based resource evaluation model, along with technical input from FWC staff.

The FWC Florida Forever A&I acquisition list is updated through time, thus staying up-to-date for land ownerships, county parcel records, land conservation opportunities, and evolving management challenges.

The FWC continually analyzes, evaluates, and prioritizes its recommended conservation actions in a systematic, comprehensive, and consistent manner over time.

The FWC continues to recommend acquisition of the remaining lands within the Etoniah/Cross Florida Greenway Florida Forever projects as essential to the long-term conservation of wildlife and to the optimal resource and operational management of the CRWMA. Parcels recommended for inclusion on the FWC Florida Forever A&I acquisition list will be acquired if possible, according to their priority ranking for acquisition and landowner willingness to sell their lands. Participation in any FWC acquisition is entirely voluntary and at the sole discretion of willing landowners.

Prioritization of Lands on the FWC Florida Forever A&I Acquisition List

Figures 4 - 5 depicts the results of the FWC's Acquisition Prioritization Model Analysis and the recommended prioritization of acquisition actions of lands on the FWC Florida Forever A&I acquisition list for the CRWMA. These parcels are prioritized on the accompanying map (Figure 5), into one of three priority categories: High, Medium, and Low. The order of acquisition priority may be changed as necessary based on factors including available funding necessary to complete a particular acquisition project, changing development pressures, landowner willingness, funding partnerships, and unique acquisition opportunities like bargain sales (less than 80% of appraised value), and donations.

It should be noted that, only parcels located directly in or adjacent to the subject area can be recommended for fee-simple acquisition through the FWC Florida Forever A&I acquisition program. A corresponding list also provides more detailed ownership information. A complete list of all the parcel identification numbers, corresponding prioritization ranking, and acreage are provided in Table 1.

If the circumstances with adjacent land uses and conservation opportunities arise, the FWC may recommend adding other parcels to the FWC Florida Forever A&I acquisition list.

Acquisition Partnership Opportunities

Opportunities for working with other potential acquisition partners within this project area include the Florida Department of Agricultural and Consumer Services (FDACS), DEP, SJRWMD, Putnam County, Marion County, U.S. Department of Agriculture, USFS, U.S. Department of Defense (USDOD), U.S. Fish and Wildlife Service (USFWS), local land trusts, and other organizations and potential grant programs.

Analysis of the Potential and Need for Fee vs. Less-than-Fee Acquisition

At this time, the FWC continues to recommend full-fee acquisition of the lands on the FWC Florida Forever A&I acquisition list for the CRWMA, that are either inholdings or are located immediately adjacent to the area, to optimize the conservation of fish and wildlife, public access and use, and overall resource and operational management of the area. However, since the CRWMA is located within a rural landscape of working agricultural and silvicultural lands, less-than-fee acquisition of large acreage tracts on the FWC Florida Forever A&I acquisition list should also be considered as a viable conservation alternative for larger tracts of land. Since, less-than-fee acquisitions in a largely rural, working landscape may often provide many of the same conservation benefits that are derived from full-fee acquisitions, if

the landowner has a desire to continue to manage their lands to maintain a working landscape in a manner that will also enhance the conservation benefits provided by their lands. Though, it should be noted that landowner preference is also a key factor in determining whether to pursue a full-fee or less-than-fee conservation acquisition.

Recommendations for Prioritized Land Conservation Actions

Following are the prioritized recommendations of conservation actions for the CRWMA:

1. Acquire parcels on the FWC Florida Forever A&I acquisition list as prioritized and feasible with available funding.
2. Recommend adding parcels within the Etoniah/Cross Florida Greenway Florida Forever Project that are also within the CRWMA OCPB for inclusion on the FWC Florida Forever A&I acquisition list.
3. Working with surrounding landowners and as needed, recommend addition of parcels to nearby Florida Forever projects, the OCPB, and/or the A&I acquisition list.
4. Continue to assist and support DEP/Board of Trustees with the acquisition of the lands remaining within Florida Forever projects within the vicinity of the area.
5. Continue to work with private landowners near the CRWMA to encourage participation in available conservation stewardship programs for private landowners.
6. Recommend landowner assistance workshop(s) for neighboring and surrounding landowners to assist with enhanced conservation of these lands.
7. Continue to cooperate with public and private organizations for conservation of lands within the OCPB.
8. Continue to recommend acquisition of identified land through the DEP, the FDACS, the USFS, the USDOD, the SJRWMD, the USFWS, Putnam County, Marion County, local land trusts, and other non-governmental conservation organizations; and pursue potential grant program opportunities.

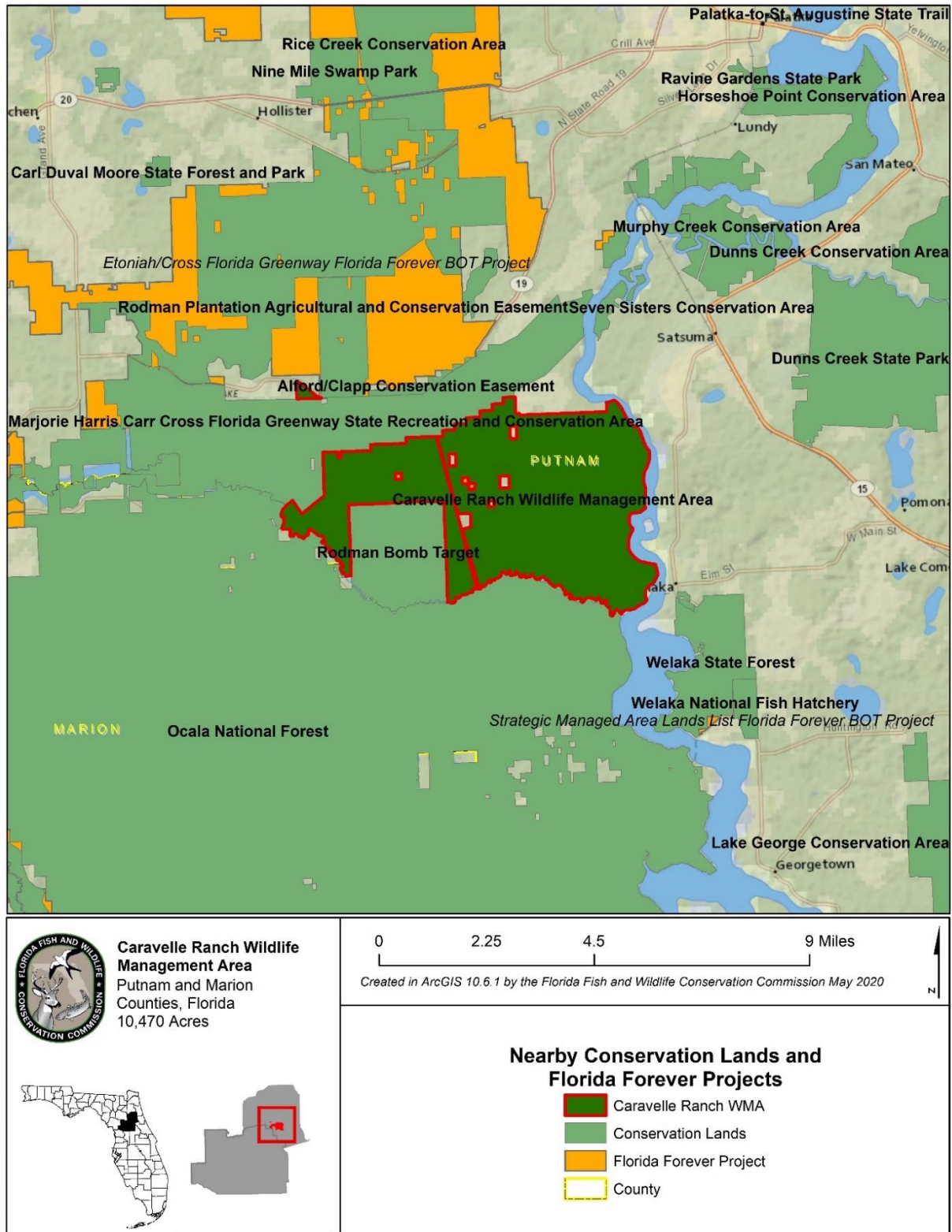


Figure 1. Vicinity Map of the CRWMA

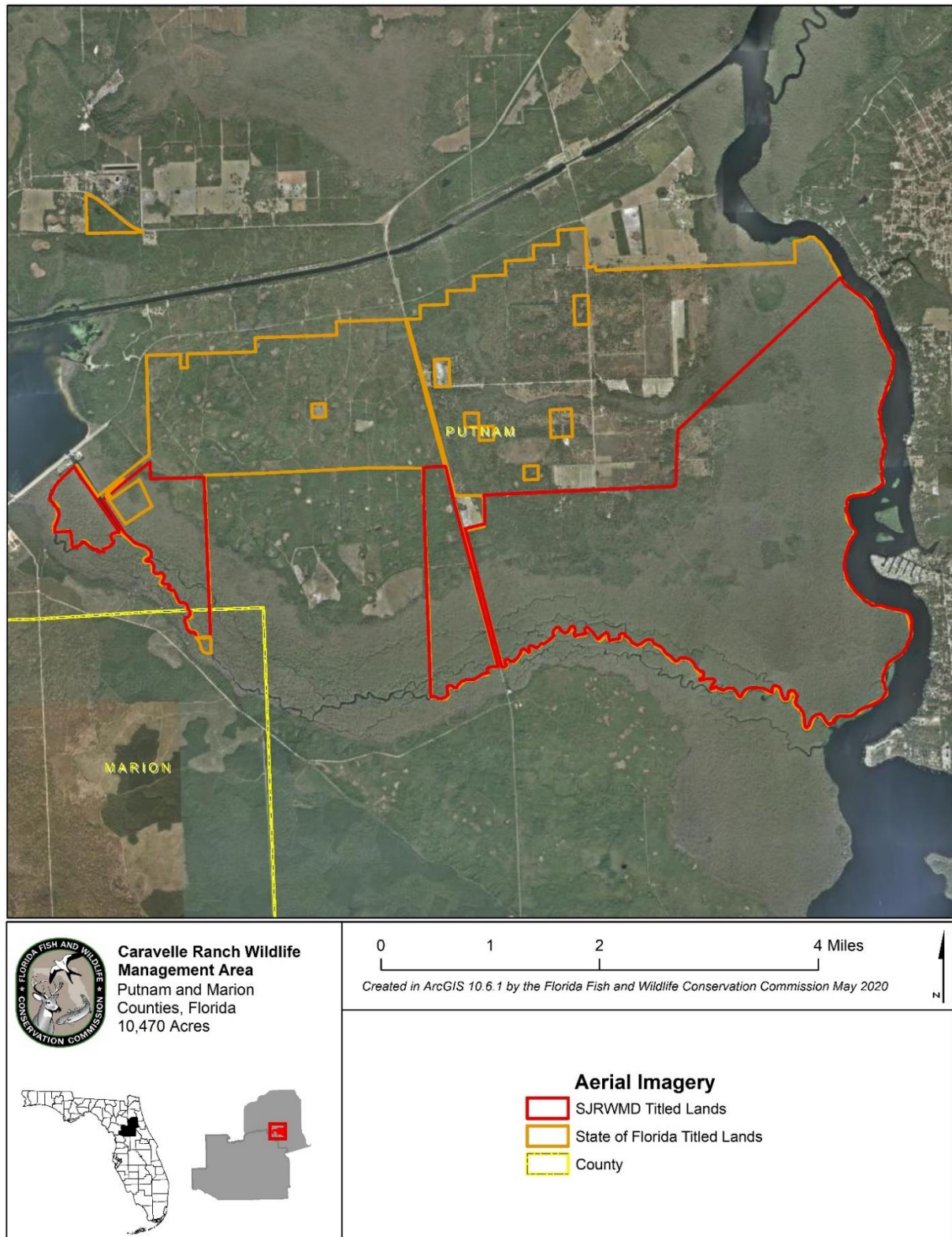


Figure 2. Aerial Imagery

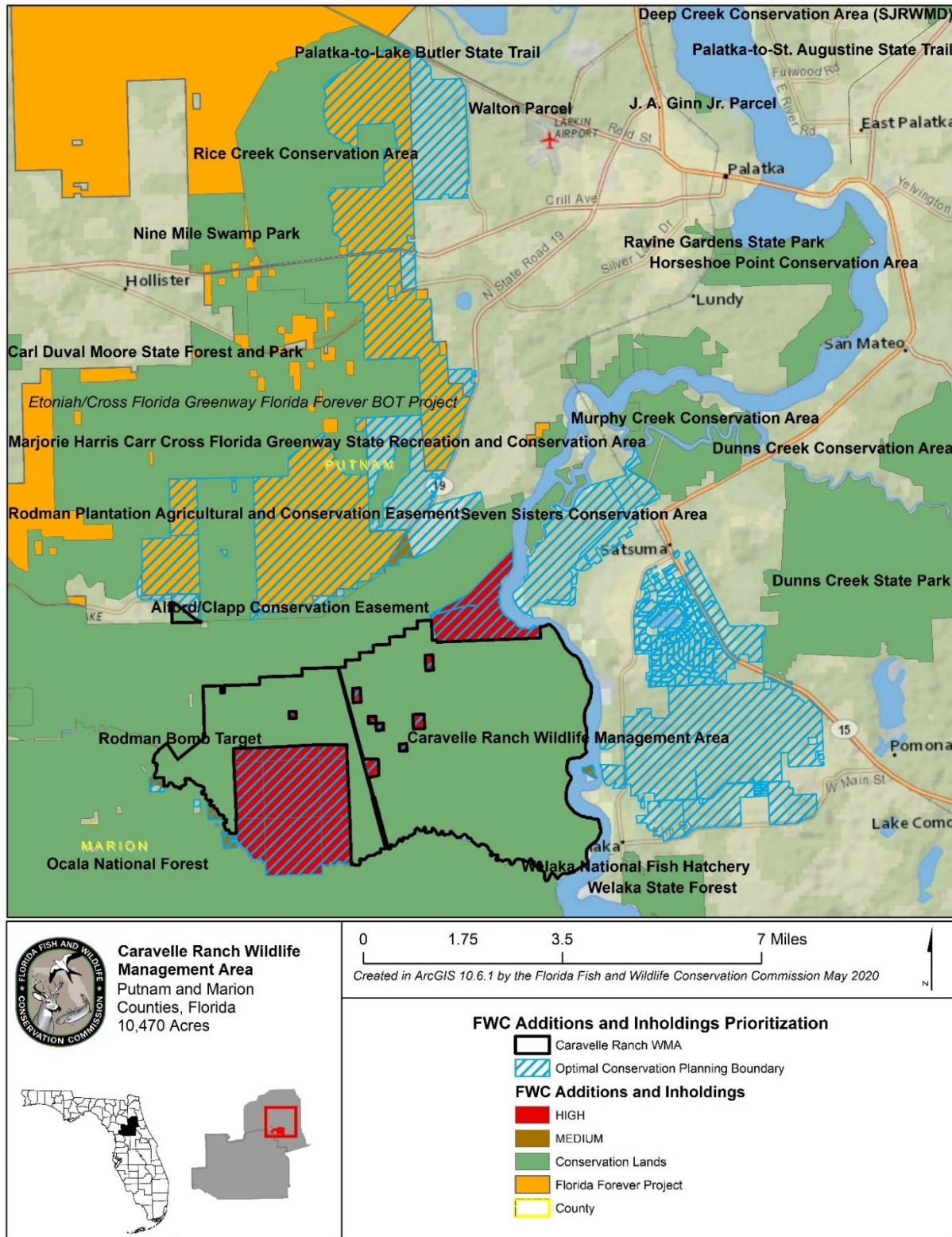


Figure 3. Optimal Conservation Planning Boundary

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management Area Management Plan

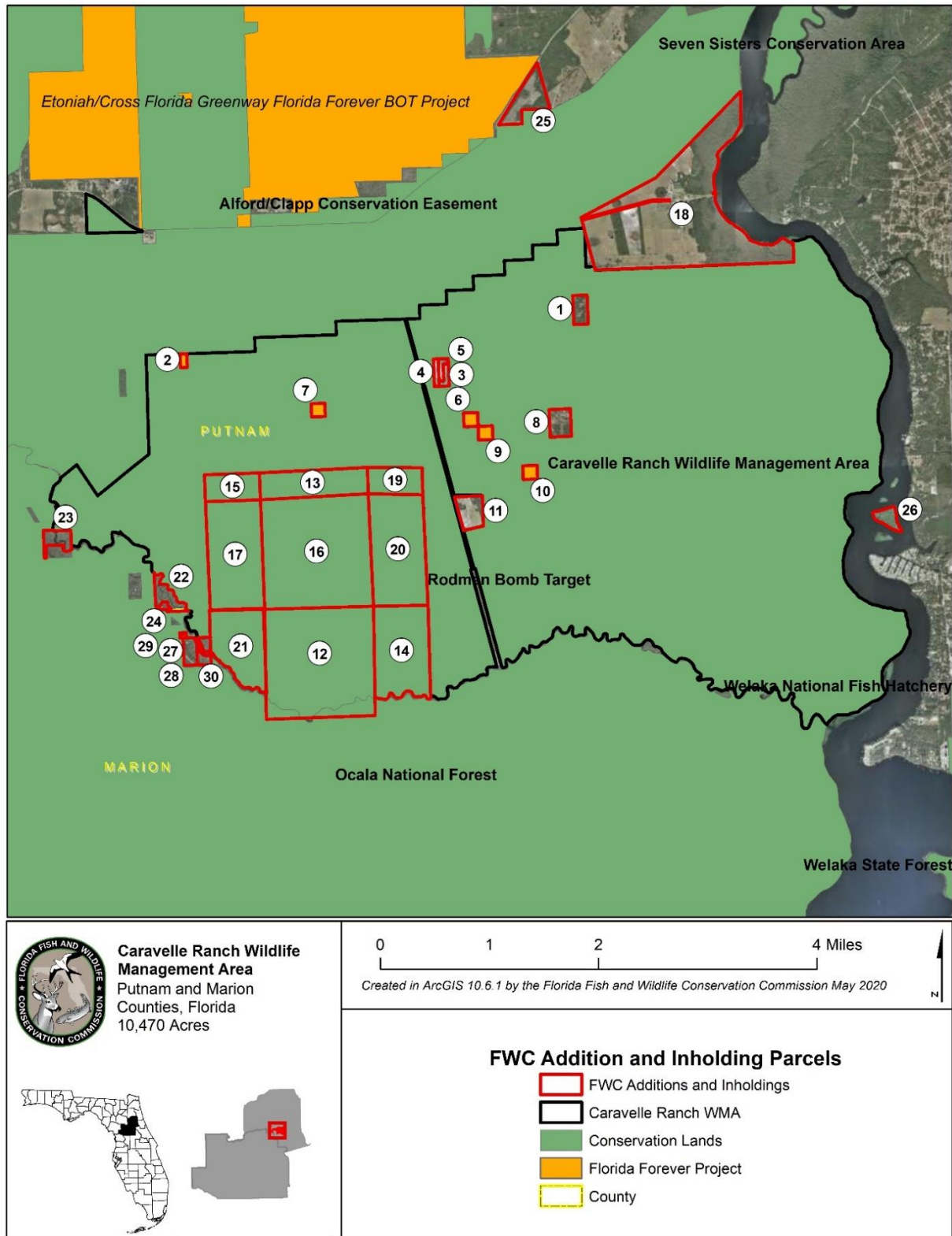


Figure 4. FWC Additions and Inholdings

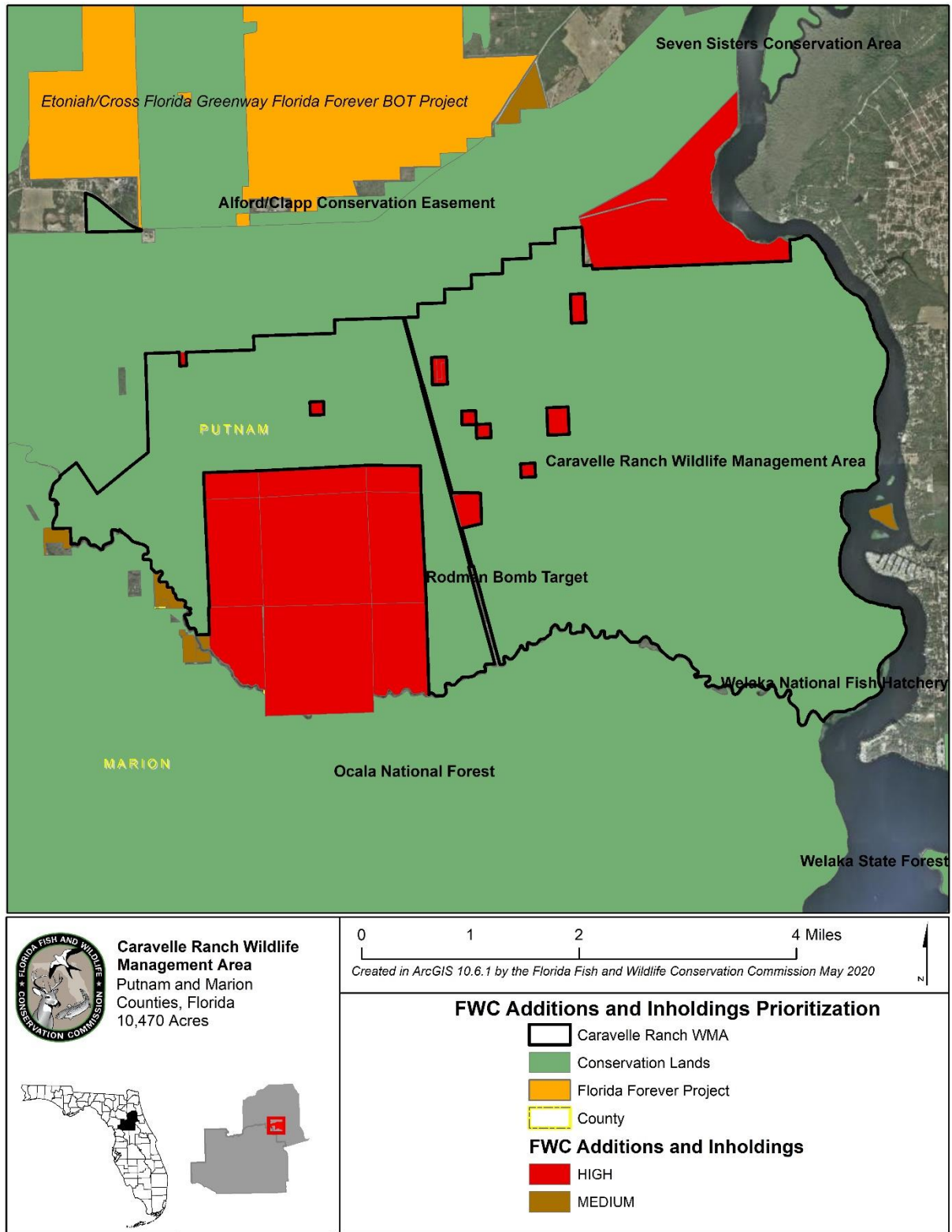


Figure 5. FWC Additions and Inholdings Prioritization

Table 1. Additions and Inholdings List for the CRWMA

<u>Label</u>	<u>Parcel ID</u>	<u>Acres</u>	<u>Priority</u>
1	19-11-26-0000-0020-0000	22.59	HIGH
2	22-11-25-0000-0030-0000	4.99	HIGH
3	24-11-25-0000-0020-0000	7.92	HIGH
4	24-11-25-0000-0020-0010	7.27	HIGH
5	24-11-25-0000-0020-0020	6.83	HIGH
6	25-11-25-0000-0030-0000	10.29	HIGH
7	26-11-25-0000-0030-0000	9.67	HIGH
8	30-11-26-0000-0010-0000	31.64	HIGH
9	30-11-26-0000-0020-0000	10.55	HIGH
10	30-11-26-0000-0030-0000	10.57	HIGH
11	36-11-25-0000-0010-0010	41.80	HIGH
12	02-12-25-0000-0010-0000	641.66	HIGH
13	26-11-25-0000-0050-0000	154.40	HIGH
14	01-12-25-0000-0020-0000	267.42	HIGH
15	27-11-25-0000-0030-0000	79.71	HIGH
16	35-11-25-0000-0020-0000	647.20	HIGH
17	34-11-25-0000-0080-0000	321.09	HIGH
18	37-11-26-0000-0100-0000	818.17	HIGH
19	25-11-25-0000-0020-0000	78.17	HIGH
20	36-11-25-0000-0060-0000	326.23	HIGH
21	05647-000-00	198.13	HIGH
22	34-11-25-0000-0030-0000	30.35	MEDIUM
23	33-11-25-0000-0020-0000	25.54	MEDIUM
24	34-11-25-0000-0020-0000	3.70	MEDIUM
25	07-11-26-0000-0020-0010	68.26	MEDIUM
26	33-11-26-0000-0170-0000	20.35	MEDIUM
27	05648-000-00	19.47	MEDIUM
28	05642-001-00	0.57	MEDIUM
29	05642-000-00	1.34	MEDIUM
30	05648-001-00	15.57	MEDIUM

12.18 Arthropod Control Plan



Nicole 'Nikki' Fried
COMMISSIONER

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

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

For use in documenting an Arthropod Control Plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein. Fill this form out if control work is necessary or planned.

Name of Designated Land: Caravelle Ranch Wildlife Management Area

Is Control Work Necessary:

☐ Yes

☒ No

Location: Putnam County

Land Management Agency: Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary?

☐ Yes ☒ No

If "Yes", please explain:

Which Surveillance Techniques Are Proposed?

Please Check All That Apply:

☐ Landing Rate Counts

☐ Light Traps

☐ Sentinel Chickens

☐ Citizen Complaints

☐ Larval Dips

☐ Other

N/A

If "Other", please explain: N/A

Arthropod Species for Which Control is Proposed: N/A

Proposed Larval Control: N/A

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ☐ Yes ☒ No

Biological Control of Larvae: N/A

Might predacious fish be stocked: ☐ Yes ☒ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications: N/A
(Please Check All That Apply:)

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide: N/A

Chemical or Common name: N/A

☐ Ground ☐ Aerial

Rate of application:

Method of application:

Proposed Adult Mosquito Control:

Aerial adulticiding ☐ Yes ☒ No

Ground adulticiding ☐ Yes ☒ No

Please specify the following for each adulticide:

Chemical or common name:

Rate of application:

Method of application:

N/A

Proposed Modifications for Public Health Emergency Control: In the event of a declared public health emergency, control may be performed by the arthropod control agency, as part of a larger treatment plan to safeguard public health. Land managers of the area will be notified prior to treatment.



Proposed Notification Procedure for Control Activities:

Manager of the area will be notified by e-mail when treatment of the area will occur. The notice should include a map of the area being treated, the material to be used and the general time of day the treatment will occur.

Records:

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

☒ Yes ☐ No

Records Location: 140 COUNTY LANDFILL RD PALATKA, FL 32177

How long are records maintained: 5+ YEARS

Vegetation Modification:

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

None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed?

None

Include proposed operational schedules for water fluctuations:

None

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

None

Proposed Modification of Aquatic Vegetation:

None

Land Manager Comments:

Arthropod Control Agency Comments:

PUTNAM COUNTY MOSQUITO CONTROL WILL NOT RECOMMEND
CHEMICAL ARTHROPOD SPRAYING OF PUBLIC LANDS
UNLESS THERE IS A GRAVE THREAT TO PUBLIC HEALTH

James C Conner III

Digitally signed by James C
Conner III

Date: 2021.01.30 12:05:49 -05'00'

Signature of Lands Manager or Representative

Date

Bryan W. Warden

Signature of Mosquito Control Director / Manager

1/29/21

Date

12.19 Putnam and Marion County Letter of Compliance with Local Government Comprehensive Plan

P. O. Box 1486
Palatka, FL 32178-1486
Email: pzb@putnam-fl.com



Planning / Zoning: 386-329-0316
Building: 386-329-0307
Codes Enforcement: 386-329-0317

March 10, 2021

Dylan (Imlah) Haase, AICP
Senior Conservation Planner
Florida Fish and Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, Florida 32399

RE: Caravelle Ranch WMA management plan letter of compliance with
Putnam County comprehensive plan

Dear Ms. Haase:

I have reviewed the Caravelle Ranch WMA Management Plan and have found it to be in compliance with Putnam County's Comprehensive Plan, which designates the area as conservation. The plan is in concert with the anticipated public use of the property. If you have any questions regarding this issue, contact me at (386) 329-1902 at your convenience.

Sincerely,

John Salmons
Interim Planning Manager



**Marion County
Board of County Commissioners**

Growth Services

2710 E. Silver Springs Blvd.
Ocala, FL 34470
Phone: 352-438-2600
Fax: 352-438-2601

April 7, 2021

[via email]

Ms. Dylan Haase, AICP
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

RE: Comprehensive Plan Consistency Determination:
Florida Fish and Wildlife Conservation Commission's (FWC)
Caravelle Ranch Wildlife Management Area (CRWMA)
Draft Management Plan for 2021-2031 (Management Plan)

Dear Ms. Haase:

Thank you for transmitting the FWC's CRWMA draft Management Plan for Marion County's Comprehensive Plan consistency review. Marion County Growth Services has reviewed the draft Management Plan and determined it is consistent with Marion County's Comprehensive Plan.

The Management Plan will ensure the CRWMA is managed to restore, protect, and maintain native ecosystems and water resources, ensure the viability of listed species populations, and integrate compatible human uses. Planned management and recreational opportunities will provide year-round accessibility and support resource-based recreational and eco-tourism opportunities which are a growing focus for Marion County.

We appreciate the opportunity to review the Caravelle Ranch Wildlife Management Area draft Management Plan for 2021-2031 and look forward to continued cooperation and coordination with the FWC. We look forward to receiving a final copy of the Management Plan upon its approval and completion. If you have any questions related to this matter, please contact me by phone or via email at MaryE.Burgess@marionfl.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Mary E. Burgess".
Mary Elizabeth Burgess
Growth Services Director

Cc by Mounir Bouyounes, MC Administrator
email: James Couillard, P&R Director

Angel Roussel, ACA-PW
CRWMA File

Loretta Shaffer, TDC Director
OCF

Empowering Marion for Success

www.marioncountyfl.org

Florida Fish and Wildlife Conservation Commission | Caravelle Ranch Wildlife Management
Area Management Plan