A Management Plan for

Thomas M. Goodwin

Waterfowl Management Area

2015 - 2025




Brevard County, Florida

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

Florida Department of Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

September 1, 2015

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

RE: T. M. Goodwin Waterfowl Management Area

Dear Mr. Cochran:

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

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

Sincerely,

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

St. Johns River
Water Management District
Ann B. Shortelle, Ph.D., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • (386) 329-4500
On the Internet at floridaswater.com.

December 17, 2015

David Alden
Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Land Conservation and Planning
620 South Meridian Street
Tallahassee FL, 32399

Dear David,

On December 8, 2015, the Governing Board of St. Johns River Water Management District approved the 10-year management plan for the T.M. Goodwin Waterfowl Management Area.

We appreciate you and Dan taking time to provide a presentation to the Governing Board members.

Sincerely,

J.B. Miller

J.B. Miller
Land Resource Specialist
Bureau of Real Estate Services

A Management Plan
For
Thomas M. Goodwin Waterfowl Management Area

Brevard County, Florida

Owned by the St. Johns River Water Management District
Managed by the Florida Fish and Wildlife Conservation Commission

June 2015

Approved Thomas H. Eason

Thomas Eason
Director, Division of Habitat and Species Conservation

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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)
Common Name of Property: Thomas M. Goodwin Waterfowl Management Area
Location: Brevard County, Florida
Acreage Total: 6,482 acres
Acreage Breakdown:

Land Cover Classification	Acres	Percent of Total Area
Impoundment	6,526*	100%

*GIS-calculated acreage for land cover classification varies slightly from established total acreage.
Lease/Management Agreement No.: 90106 and 01183 (Appendix 13.1)
Use: Single _____ Management Responsibilities:
Multiple X Agency FWC Responsibilities
LEAD, SUBLESSEE (Waterfowl Management Area, resource protection, law enforcement)
Designated Land Use: Waterfowl Management Area
Sublease (s): None
Encumbrances: 30 year Natural Resource Conservation Service easement on the Broadmoor Marsh Unit.
Type Acquisition: Goodwin Unit: Save Our Rivers; Broadmoor Marsh Unit: Preservation-2000 and Wetlands Reserve Program
Unique Features: Natural: Floodplain marsh that provides habitat for a diversity of waterfowl, wading birds, and shorebirds.
Archaeological/Historical: One prehistoric midden (BR01614)
Management Needs: Habitat restoration and improvement; public access and recreational opportunities; hydrological preservation and restoration; exotic and invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.
Acquisition Needs/Acreage: No acres on FWC Additions and Inholdings list; 5,243 acres remaining in the Brevard Coastal Scrub Ecosystem St. Sebastian – St. Johns River Greenway Florida Forever Project (Figure 3).
Surplus Lands/Acreage: None
Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 13.3)

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

ARC Approval Date _____ BTIITF Approval Date: _____
Comments: _____

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Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	1
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	7
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	8
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	1, Appendix 13.1
5	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	2, 59
6	An **assessment** as to whether the property, or any portion, should be declared surplus. *Provide Information regarding **assessment and analysis** in the plan, and provide **corresponding map**.*	18-2.021	40
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. *Please clearly indicate parcels on a map.*	18-2.021	62-63
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	10, 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)	5
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	8-11

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	38
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	35-36
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	38-39
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	62, 65
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	57

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	101
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)	52-55
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	102
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Appendix 13.12
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	39
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	37-38
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	N/A
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	39

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	13, Appendix 13.3
25	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	Appendix 13.3
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	13, Appendix 13.3
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Appendix 13.3
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	Appendix 13.3
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. *Include manager's replies to the team's findings and recommendations.*	259.036	N/A
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	N/A
31	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	N/A

Section D: Natural Resources			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. *Use brief descriptions and include USDA maps when available.*	18-2.021	14-17, Appendix 13.4
33	Insert FNAI based natural community maps when available.	ARC consensus	20
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	17-35

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	17-35
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	34
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	34
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	17-35
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	19-24
40	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	17-33, Appendix 13.5
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)	44-96
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.	↓	44-97
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.		44-96
42-C.	The associated measurable objectives to achieve the goals.		69-81
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*		Appendices: 13.6, 13.7, 13.8
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.		97-100, Appendix 13.10
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	17-22
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).		44-97

44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		44-96
44-C.	Measurable objectives (see requirement for #42-C).		74
44-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
44-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10
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).	↓	44-97
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		50-51
45-C.	Measurable objectives (see requirement for #42-C).		70-71
45-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
45-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	51-52
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 13.11
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).	↓	44-97
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		51-52
48-C.	Measurable objectives (see requirement for #42-C).		71-72
48-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
48-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	5

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	33
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	17-22
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	18, 33-34
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).	↓	44-97
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		56-57
53-C.	Measurable objectives (see requirement for #42-C).		74
53-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
53-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	35, Appendix 13.6
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	35, Appendix 13.6
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	57, Appendix 13.6
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).	↓	44-97
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		57
57-C.	Measurable objectives (see requirement for #42-C).		77
57-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
57-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10

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

Section G: Facilities (Infrastructure, Access, Recreation)			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. *See footnote.*	253.034(5)	57-59
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).	↓	44-97
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		57-58
59-C.	Measurable objectives (see requirement for #42-C).		77-78
59-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
59-E.	Budgets (see requirement for #42-E).		97-100, Appendix 13.10
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	57-59
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).	↓	44-97
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		52-55
61-C.	Measurable objectives (see requirement for #42-C).		72-74
61-D.	Related activities (see requirement for #42-D).		Appendices: 13.6, 13.7, 13.8
61-E.	Budgets (see requirement for #42-E).		97-100 Appendix 13.10

Section H: Other/ Managing Agency Tools			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	iii
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	i
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	40-43
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	44-95

66	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	97-100, Appendix 13.10
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)	97-100, Appendix 13.10
68	A statement of gross income generated, net income and expenses.	18-2.018	38, 97-100, Appendix 13.10

*** = 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

List of Figures

List of Tables

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1 Introduction and General Information

Centered within a broad expanse of conservation lands that protect the upper St. Johns River Basin, the Thomas M. Goodwin Waterfowl Management Area (TMGWMA) provides important flood control and floodplain protection for the St. Johns River. It also aids in providing important water quality protection functions for both the St. Johns River and Indian River Lagoon systems. Conservation of this landscape of riverine floodplain marsh lands, which includes TMGWMA, provides important wildlife habitat for migrating waterfowl and an array of imperiled wildlife (wildlife species listed as endangered, threatened or species of special concern) along with other wildlife species.

Comprising approximately 6,482 acres, the TMGWMA is located in the upper St. Johns River Basin (USJRB) in southern Brevard County (Figure 1). Approximately 3,000 acres of the area are intensively managed as impoundments, with the remaining acreage being maintained as open marsh habitat. As a result of this intensive management, the area provides important habitat to a robust population of migrating water fowl and wading birds as the area is renowned for both its duck hunting and birding opportunities.

The TMGWMA is owned by St. Johns River Water Management District (SJRWMD) and leased to the Florida Fish and Wildlife Conservation Commission (FWC) for management as a waterfowl management area and public small game hunting area along with other compatible fish and wildlife based public outdoor recreational uses.

In May 1991, the SJRWMD leased the property to the FWC for the purpose of establishing a waterfowl management area, under the name the C-54 Retention Area. The FWC began developing the area in 1990 as a joint project between the SJRWMD, Ducks Unlimited (DU) through their Matching Aid to Restore States Habitat (MARSH) program, and the North American Wetlands Conservation Council. Project construction was completed in the fall of 1995, and in December of 1995, the area was established by the FWC as a Public Waterfowl Area. The Broadmoor Marsh Unit was added to the area in 2002. The TMGWMA comprises the T.M. Goodwin Unit (3,682 acres) and the Broadmoor Marsh Unit (2,800 acres). Throughout this document, the two units will be collectively referred to as the TMGWMA and where appropriate, independently referred to as the Goodwin Unit and the Broadmoor Marsh Unit of TMGWMA.

In many ways, management of the TMGWMA mimics what were the natural floodplain marsh fluctuations of the St Johns River. A system of strategically designed and hydrologically engineered ditches, canals, and numerous water control structures are used to manipulate the area's water levels to accomplish floodplain and waterfowl management goals. The resulting impoundments contain a mosaic of habitats including open water, aquatic bed, emergent marsh, and shrub marsh. Thus, the TMGWMA is managed by the FWC to provide a diversity of wintering and breeding habitats for various waterfowl species, as well as to benefit many species of wading and shore birds, and a number

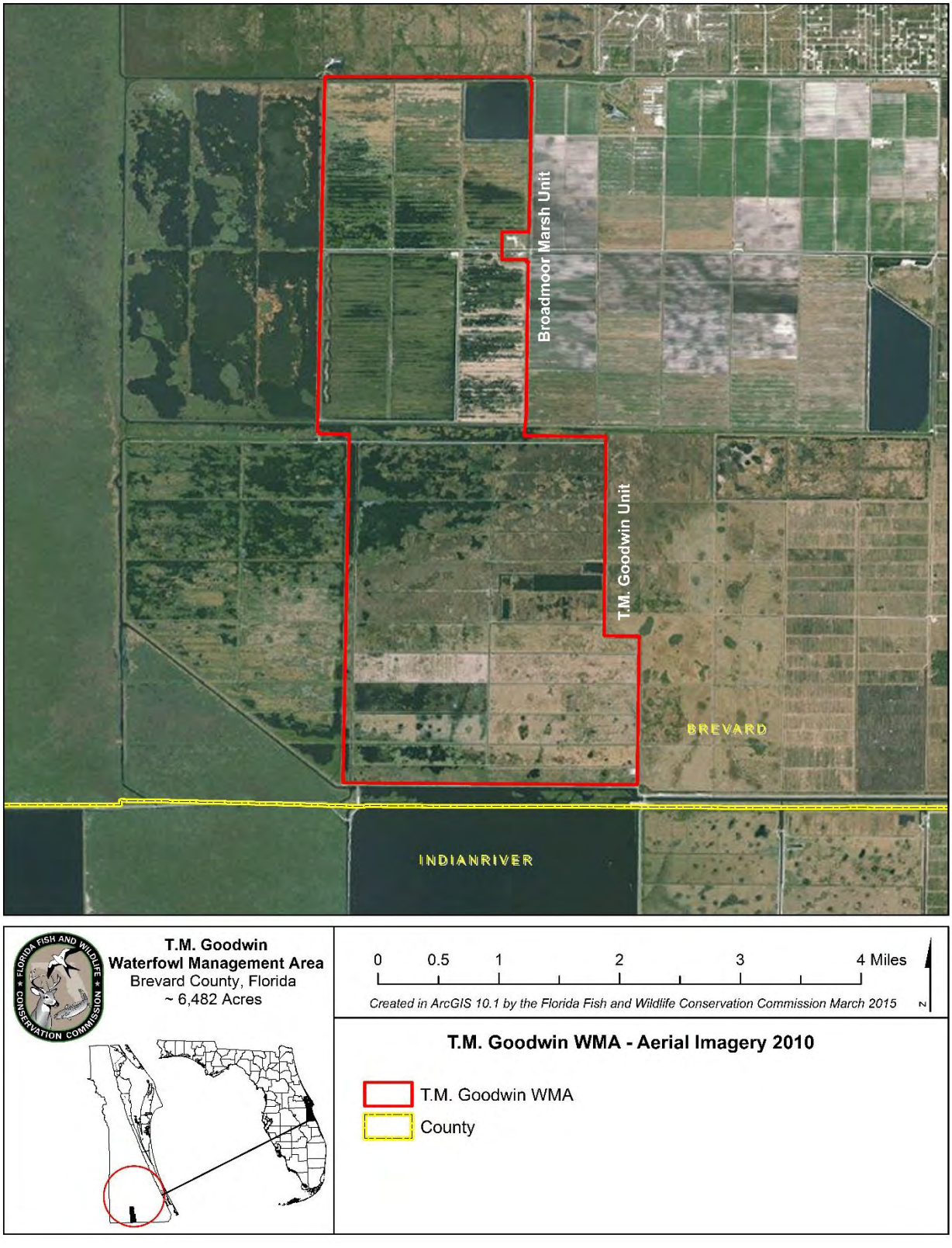


Figure 1. T.M. Goodwin Waterfowl Management Area - Aerial Imagery

of imperiled species; and to provide fish and wildlife based public outdoor recreational benefits, including hunting, birding, fishing, and environmental education.

1.1 Management Plan Purpose

This Management Plan serves as the basic statement of policy and direction for the management of TMGWMA. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and cultural resources found on TMGWMA. 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 TMGWMA's management for the next ten years.

This Management Plan is submitted for review to the Governing Board of the SJRWMD pursuant to Section 6 of Lease Agreement 90106 (Goodwin Unit) and Section 6 of Management Agreement 01183 (Broadmoor Marsh Unit) and to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) of the State of Florida through the Florida Department of Environmental Protection's Division of State Lands (DSL) and pursuant to Chapters 253 and 259, Florida Statutes (Fla. Stat.), and Chapters 18-2 and 18-4, Florida Administrative Code (FAC; Appendix 13.1). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of the DSL. Terms (Appendix 13.2) used in this Management Plan describing management activities and associated measurable goals and objectives conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

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

Further, TMGWMA is included on the list of FWC managed conservation lands that receive funding through the Conservation and Recreation Lands (CARL) land management funding formula. Moreover, in order for a public conservation area to continue to qualify to receive land management funding through the CARL land management funding formula, the area is required to have an ARC and Board of Trustees approved land management plan that

meets the State's management plan requirements for state-owned conservation lands. For these reasons, this Management Plan is submitted to the ARC and Board of Trustees for approval.

1.1.1 FWC Planning Philosophy

The FWC's planning philosophy includes emphasizing management recommendation consensus-building among stakeholders and input from user groups and the general public at the beginning of the planning process. The FWC engages stakeholders by convening a Management Advisory Group (MAG) and solicits additional input from user groups and the general public at a public hearing (Appendix 13.3). The FWC also engages area, district, and regional agency staff, as well as other FWC staff expertise, in developing this Management Plan, thereby facilitating area biologist and manager "ownership" of the Management Plan, and thus the development of meaningful management intent language, goals with associated measurable objectives, timelines for completion, and the identification of challenges and solution strategies for inclusion in the TMGWMA Management Plan (Sections 5 – 8).

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. 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 SJRWMD, the DSL and the ARC for review and consideration.

1.2 Location

As noted above, the TMGWMA is located in southern Brevard County near the County's border with Indian River County to the south. The TMGWMA is located approximately seven miles northwest of Fellsmere, Florida. Larger cities including Palm Bay, Melbourne, and Vero Beach are located approximately 11 miles northeast, 16 miles northeast and 23 miles southeast of the TMGWMA, respectively. The TMGWMA is surrounded by conservation lands on all sides. The SJRWMD's Three Forks Conservation Area is located to the north and west of TMGWMA. The SJRWMD's Blue Cypress Conservation Area and Fellsmere Water Management Area are located to the

TMGWMA entrance sign, *David Moynahan*

south in Indian River County. The Mary A. Ranch Mitigation Bank and Willowbrook Conservation Easement are located to the east of TMGWMA. Residential development associated with the cities of Palm Bay and Malabar extends northeast of TMGWMA towards the Indian River Lagoon.

The TMGWMA is located in Sections 4, 5, 8, 9, 16, 17, 20, 21, 22, 27, 28, 29, 32, 33, and 34 of Township 30 South, Range 36 East (Figure 2). Public access to the TMGWMA is available through the designated entrance off of Fellsmere Grade at the southwest corner of the area. Fellsmere Road is located along the southern border of the Goodwin unit and Levee 75 (L-75) borders the unit to the east and north. The L-75 is open to two-way traffic. Willowbrook Street bisects the Broadmoor Marsh unit and L-74 borders the unit to the west. The TMGWMA is not within or adjacent to an Area of Critical State Concern or an aquatic preserve.

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

Since the early 1900s and throughout much of the ensuing twentieth century, over approximately 70% of the floodplain marshes in the USJRB were diked and drained for urbanization and agriculture, including lands within the TMGWMA. At the time, these developments were largely unregulated and destroyed valuable wetlands, decreased water supply during the winter dry season, increased flood peaks, and created critical water quality problems.[1]

Consequently, beginning in the 1980s and continuing to the present day, the U.S. Army Corps of Engineers (ACOE) and the SJRWMD began engaging in an effort to reverse environmental degradation in the USJRB while considering past and ongoing agricultural uses of these lands. The main components of this effort include floodplain preservation and restoration through land acquisition and construction of agricultural irrigation and stormwater management reservoirs.

The C-54 Retention Area (now known as the Goodwin Unit) was purchased to provide 11,600 acre-feet of flood storage capacity within the USJRB, alleviate interbasin diversion and discharge to the Indian River Lagoon, and serve as a wetland restoration and conservation site. The Goodwin Unit was also acquired to provide a diversity of wintering and breeding habitats for various waterfowl species, wading and shore birds, and a number of imperiled species; and provide public recreational benefits, including hunting, birding, fishing, and environmental education. As described above, the SJRWMD and the Natural Resource Conservation Service (NRCS) purchased the Broadmoor Marsh Unit jointly as part of the SJRWMD's ongoing efforts to restore wetlands in the USJRB. Unlike the Goodwin Unit, however, the Broadmoor Marsh Unit was not acquired for flood storage. The Broadmoor Marsh Unit was acquired for wetland restoration and conservation and the management of waterfowl habitat and other wetland wildlife.

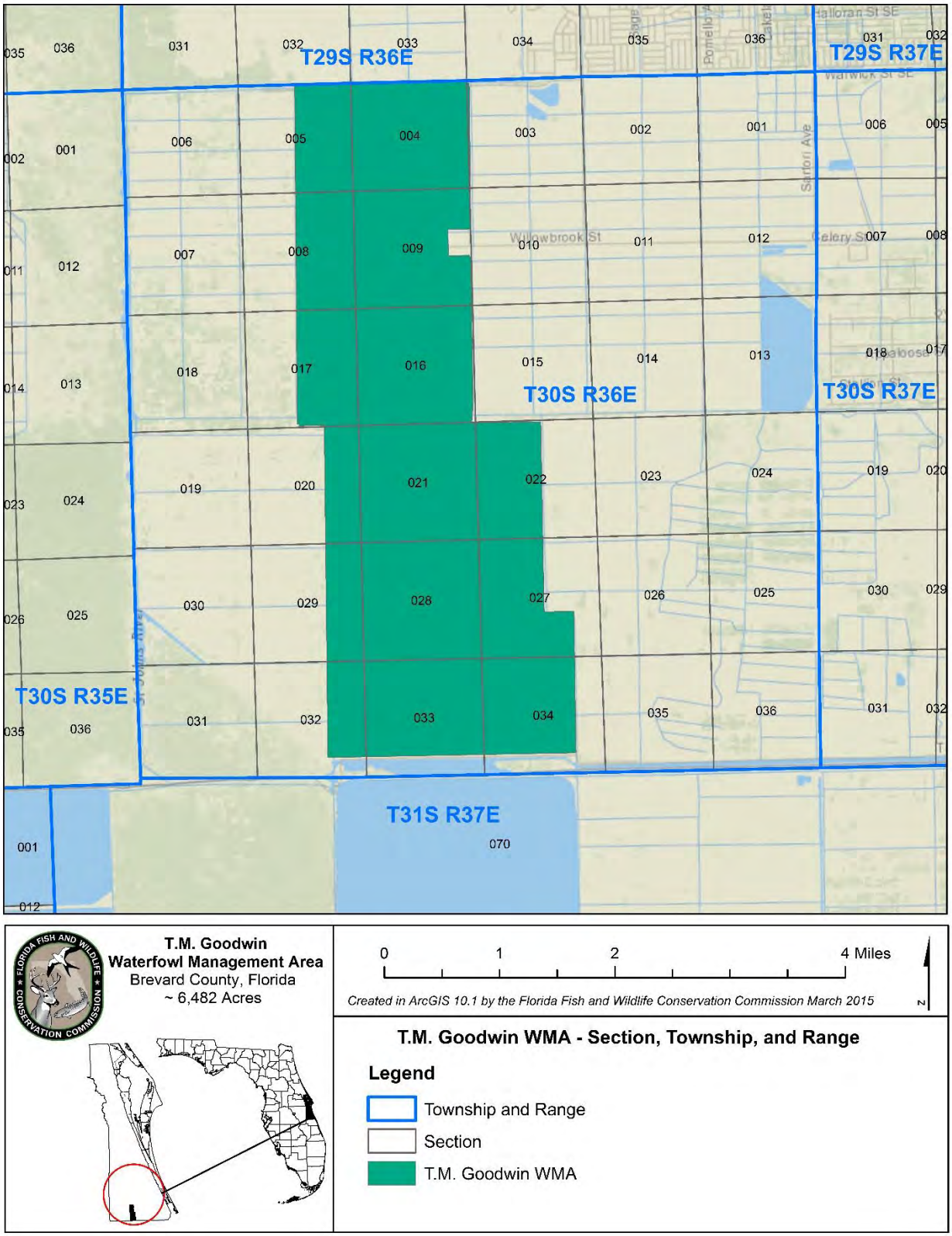


Figure 2. T.M. Goodwin WMA - Section, Township, Range

1.3.2 Acquisition History

In January 1988, the SJRWMD acquired the Goodwin Unit of TMGWMA from the Fellsmere Farm Company and subsequently named the tract the C-54 Retention Area in recognition of its intended purpose to serve as a water storage and flood control area within the USJRB Project. The SJRWMD acquired the Goodwin Unit for $6.3 million with funding from the State's Save Our Rivers (SOR) Program. The SJRWMD and the NRCS acquired the Broadmoor Unit in 1998 for approximately $11.5 million. The SJRWMD contributed $7.3 million toward the overall acquisition project cost using the State's Preservation-2000 Program funds and the NRCS contributed $4.2 million using federal Wetland Reserve Program (WRP) funds. The use of federal funds to acquire the Broadmoor Unit resulted in the NRCS obtaining a 30-year conservation easement on the unit.

TMGWMA, *David Moynahan*

Recreational users in the area recommended that the newly acquired properties should be available for public use. After discussing this subject with the FWC's Waterfowl Management Section, in April 1988, the SJRWMD endorsed the concept of managing one of the tracts for wetland wildlife. After evaluation of several options, the Waterfowl Management Section concluded that the C-54 Retention Area had the best potential for intensive wetland management. The SJRWMD's Governing Board approved the concept of the FWC managing the C-54 Retention Area in January 1989. A site-specific agreement to use MARSH funds from DU was signed in December 1990. State matching funds for development were approved by the 1990 Florida legislature. In May 1991, the FWC entered into an agreement with the SJRWMD thereby designating the FWC as the lead management agency.

During construction of the Broadmoor Marsh Unit, the SJRWMD and the NRCS expressed interest in having the FWC manage the Broadmoor Marsh Unit for wetland wildlife similar to its management of the Goodwin Unit. The SJRWMD and the NRCS provided cost-share funding for restoration activities for the first three years after development and the Florida legislature allotted funding for a full-time staff position for the Broadmoor Marsh Unit. In 2002, the FWC entered into a three-party agreement with the SJRWMD and the NRCS to designate the FWC as the lead management agency. Through the WRP, the NRCS allocated funding to modify the Broadmoor Marsh Unit's existing drainage system into a wetland management system similar to the Goodwin Unit's. In doing so, the NRCS consulted with FWC and SJRWMD staff for operational design and contracted with DU for the overall engineering design and project construction.

1.4 Management Authority

The FWC is the designated lead managing agency for the TMGWMA under the authority granted by Lease Numbers 90106 and 01183 from 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, 372, 375, 378, 379, 403, 487, 870, and 597 and of the Florida Statutes. These constitutional provisions and laws provide FWC the authority to protect, conserve, and manage the State's fish and wildlife resources.

1.5 Management Directives

The SJRWMD Lease Agreements Number 90106 and 01183 direct the FWC to manage the TMGWMA "for the purpose of the construction, establishment and operation of a waterfowl management area and associated wildlife management, habitat management, recreational, research, educational activities and other compatible uses as mutually agreed upon between [the SJRWMD and the FWC]."

1.6 Title Interest and Encumbrances

Title to the TMGWMA is vested in the SJRWMD. As described above, in May 1991, the Governing Board of the SJRWMD, entered into Lease Agreement Number 90106, a 30 year lease agreement, granting FWC management authority for the Goodwin Unit. In April 2002, the Governing Board of the SJRWMD entered in Management Agreement 01183 granting FWC management authority for the Broadmoor Marsh Unit. There is one encumbrance on the area, a NRCS Wetlands Reserve WRP easement placed on the Broadmoor Marsh Unit as part of the federal funding grant covenants to ensure the land is protected, conserved and managed for the original purposes of acquisition.

1.7 Proximity to Other Public Conservation Lands

As described above, the TMGWMA is located within close proximity to a large number of conservation lands (Figure 3), primarily other SJRWMD-owned properties. The strategic location of the TMGWMA and other public and private lands along the St. Johns River serves to protect the river corridor and its associated floodplain.

Tables 1 and 2 list the conservation lands and Florida Forever projects within a 10-mile radius of the TMGWMA, including conservation lands managed by public and private entities, that conserve cultural and natural resources within this region of Florida. Conservation lands immediately adjacent to TMGWMA include the Three Forks Conservation Area, Blue Cypress Conservation Area, Fellsmere Water Management Area, Mary A. Ranch Mitigation Bank and Willowbrook Conservation Easement. The nearest Florida Forever Project to TMGWMA is the Brevard Coastal Scrub Ecosystem - St. Sebastian-St. Johns River Greenway project unit located one mile east of the area.

Most of the conservation lands listed in Table 1 are owned in full-fee by a public entity; however, there are several conservation easements and a mitigation bank in close

proximity to TMGWMA. Conservation easements are a less-than-fee ownership classification where the land is owned and managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement on the land. Mitigation banks are areas that provide restoration and enhancement of wetlands onsite in advance of wetland impacts on other sites and earn compensatory mitigation credits that can be used to satisfy development mitigation requirements for future wetland impacts.

Table 1. Conservation Lands in the Vicinity (10 Miles) of TMGWMA

Federal Government	**Managing Agency**
Malabar Transmitter Annex	US DOD, Air Force

State of Florida	**Managing Agency**
Micco Expansion - Brevard Coastal Scrub	FWC
St. Sebastian River Preserve State Park	DEP, DRP
Ten Mile Ridge	FWC

Water Management District	**Managing Agency**
Blue Cypress Conservation Area	SJRWMD
Escape Ranch Conservation Easement	SJRWMD
Far Reach Ranch Conservation Easement	SJRWMD
Fellsmere Water Management Area	SJRWMD
Jane Green Creek Less-than-fee Easement	SJRWMD
Kempfer Property Conservation Easement	SJRWMD
Mills Ranch Conservation Easement	SJRWMD
Three Forks Conservation Area	SJRWMD
Willowbrook Conservation Easement	SJRWMD
Wolf Creek Ranch Conservation Easement	SJRWMD

City/County	**Managing Agency**
Fellsmere Trailhead Preserve	City of Fellsmere
Grant Flatwoods Sanctuary	Brevard County
Malabar Scrub Sanctuary	Brevard County
Micco Scrub Sanctuary	Brevard County
South Babcock	Brevard County
Valkaria Expansion	Brevard County
Valkaria Scrub Sanctuary	Brevard County

Private	**Managing Agency**
Mary A Ranch Mitigation Bank	BKI, Inc., Consulting Ecologists

Acronym Key

DEP - Department of Environmental Protection, DOD - US Department of Defense, DRP - Division of Recreation and Parks

Table 2. Florida Forever Projects in the Vicinity (10 Miles) of TMGWMA

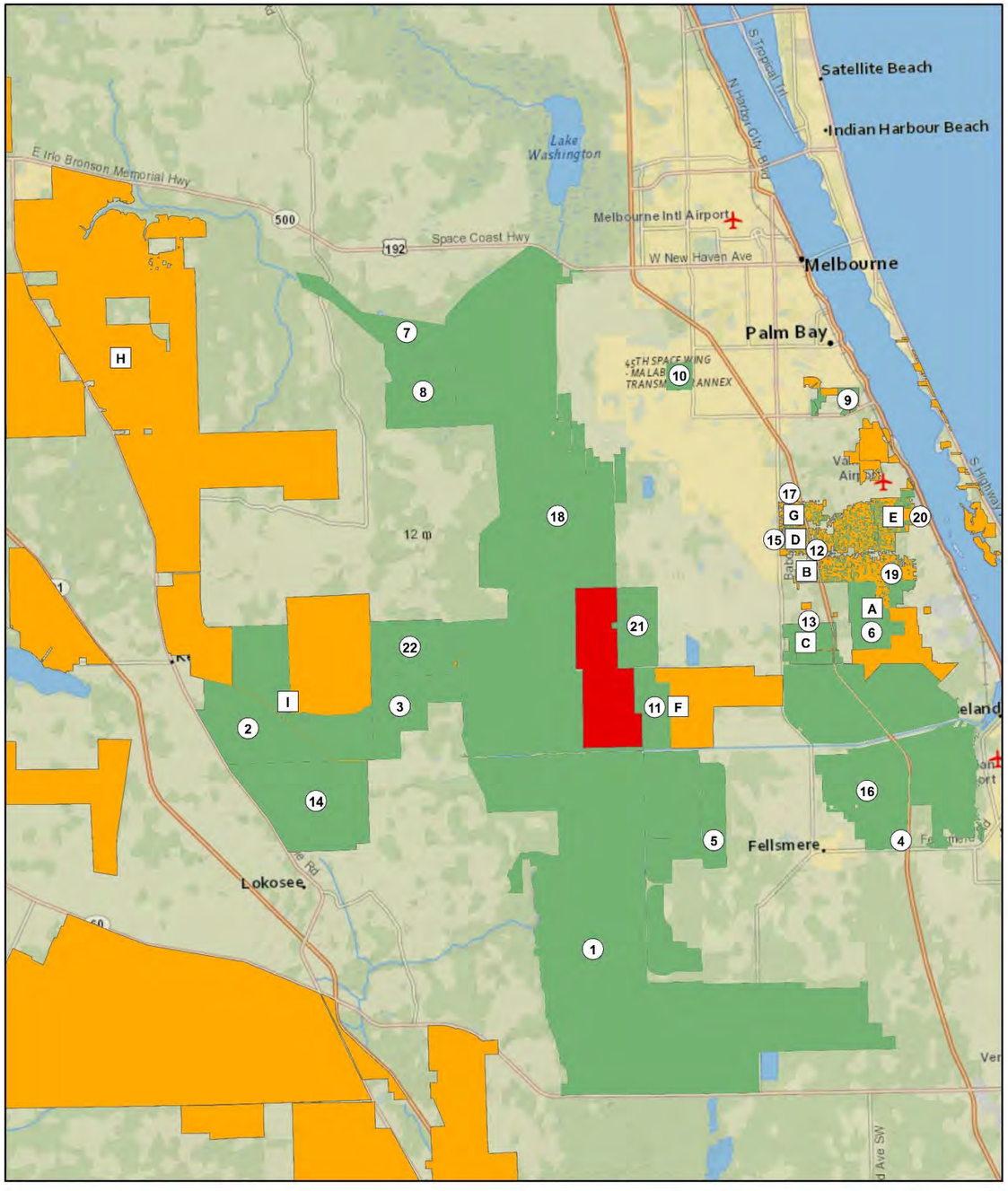
Project Name	GIS Acres
Brevard Coastal Scrub Ecosystem - St. Sebastian-St. Johns River Greenway	7,277
Brevard Coastal Scrub Ecosystem - Ten Mile Ridge	493
Brevard Coastal Scrub Ecosystem - Micco Expansion	824
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - Valkaria	1,622
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - South Babcock	619
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - Micco	1,277
Brevard Coastal Scrub Ecosystem - Malabar and Valkaria/Micco Expansions	10,682
Osceola Pine Savannas	46,628
Ranch Reserve	36,410

1.8 Adjacent Land Uses and Zoning

The zoning classification for TMGWMA in Brevard County is primarily GU (General Use), a classification that encompasses rural single-family residential development or unimproved lands for which there is no definite current proposal for development or lands in areas lacking specific development trends. Portions of the TMGWMA located in Sections 08 and 09, Township 30, South Range 36 East are zoned as AU (Agricultural Residential), a classification which encompasses lands devoted to agricultural pursuits and single-family residential development of spacious character.

As described above, the TMGWMA is surrounded by conservation lands on all sides. The SJRWMD's Three Forks Conservation Area is located to the north and west of TMGWMA. The SJRWMD's Blue Cypress Conservation Area and Fellsmere Water Management Area are located to the south in Indian River County. The Mary A. Ranch Mitigation Bank and Willowbrook Conservation Easement are located to the east of TMGWMA. The SJRWMD holds the conservation easement at Willowbrook Farm. In 1985, the SJRWMD entered into an easement agreement with the farm's owner, the Sartori family, for drainage across the area and for the storage of water in a reservoir on the northeastern portion of the Broadmoor Marsh Unit (Appendix 13.1). The Satori family works cooperatively with TMGWMA and SJRWMD staff to supply water to the three northern Broadmoor Marsh Unit impoundments when water levels are high on the farm and the water would otherwise be diverted to the St. Johns River. This situation is mutually beneficial to the Sartori Farm and to the northeastern impoundments on the area; because, due to the higher elevation of the three northern Broadmoor Marsh Unit impoundments relative to the other impoundments on TMGWMA and the locations of pump stations, it is difficult to maintain sufficient water levels that are necessary for optimal wetlands management without the input of water from the Sartori Farm's reservoir.

The zoning for the conservation lands surrounding TMGWMA in Brevard County is AU and GU. The current zoning for the Blue Cypress Conservation Area and Fellsmere Water



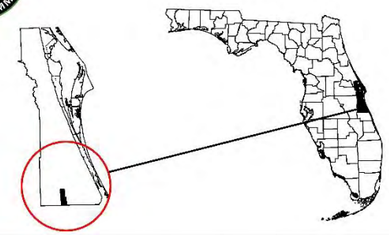
Conservation Lands and Florida Forever Projects

Conservation Land	Map Label
Blue Cypress Conservation Area	1
Escape Ranch Conservation Easement	2
Far Reach Ranch Conservation Easement	3
Fellsmere Trailhead Preserve	4
Fellsmere Water Management Area	5
Grant Flatwoods Sanctuary	6
Jane Green Creek Less-than-fee Easement Additions	7
Kempfer Property Conservation Easement	8
Malabar Scrub Sanctuary	9
Malabar Transmitter Annex	10
Mary A Ranch Mitigation Bank	11
Micco Expansion	12
Micco Scrub Sanctuary	13
Mills Ranch Conservation Easement	14
South Babcock	15
St. Sebastian River Preserve State Park	16
Ten Mile Ridge	17
Three Forks Conservation Area	18
Valkaria Expansion	19
Valkaria Scrub Sanctuary	20
Willowbrook Conservation Easement	21
Wolf Creek Ranch Conservation Easement	22

Florida Forever Project	Map Label
Brevard Coastal Scrub Ecosystem - Malabar Expansion & Valkaria/Micco Expansion	A
Brevard Coastal Scrub Ecosystem - Micco Expansion	B
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - Micco	C
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - South Babcock	D
Brevard Coastal Scrub Ecosystem - Scrub Jay Refugia - Valkaria	E
Brevard Coastal Scrub Ecosystem - St. Sebastian-St. Johns River Greenway	F
Brevard Coastal Scrub Ecosystem - Ten Mile Ridge	G
Osceola Pine Savannas	H
Ranch Reserve	I

0 4 8 16 Miles

T.M. Goodwin Waterfowl Management Area
Brevard County, Florida
~ 6,482 Acres



Conservation Lands and Florida Forever Projects in the Vicinity of TMGWMA

Legend

- T.M. Goodwin WMA
- Conservation Lands
- Florida Forever Projects

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

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Figure 3. Conservation Lands and Florida Forever Projects in the Vicinity of TMGWMA

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Management Area in Indian River County is Public Conservation Land, with a density restriction of zero dwelling units per acre. Residential development associated with the Port Malabar community of Palm Bay is located to the northeast of the TMGWMA, east of the Willowbrook Conservation Easement.

The future land use designation for TMGWMA is Pub-Con (public conservation). The future land use for the surrounding properties in Brevard County is also Pub-Con. The Mary A. Ranch Mitigation Bank's future land use is Agriculture. The future land use designation for the conservation lands surrounding TMGWMA in Indian River County is C-1 (Conservation), with a development restriction of zero dwelling units per acre.

The U.S. Census 2013 population estimate for Brevard County was 550,823 people. The 2013 population estimate for Fellsmere, the closest city to TMGWMA, was 5,338 people. Larger and more densely populated cities nearby include Palm Bay, Melbourne, and Vero Beach which had an estimated 104,898, 77,508, and 15,749 people in 2013, respectively. The Bureau of Business and Economic Research (BEBR) produces Florida's official state and local population estimates and projections. The BEBR's mid-range population projection for Brevard County in 2025 is 616,400 people.

1.9 Public Involvement

The FWC conducted the TMGWMA MAG Meeting in Palm Bay, Florida, on February 25, 2015, to obtain input from both public and private stakeholders regarding management of TMGWMA. The results of the TMGWMA MAG 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 TMGWMA MAG, as well as a listing of participants, is included as Appendix 13.3. Additionally, a public hearing, as required by Chapter 259.032(10), Fla. Stat., was held in Viera, Florida, on March 31, 2015. The report of that public hearing is also contained in Appendix 13.3. A website is also maintained for receipt of public input at http://myfwc.com/conservation/terrestrial/management-plans/develop-mps/. Additional public testimony and input is received at a public hearing held by the ARC when the TMGWMA Management Plan is considered for approval. Input received from all public involvement efforts has been considered in the development of this Management Plan.

2 Natural and Cultural Resources

2.1 Physiography and Topography

The TMGWMA is within the Eastern Valley physiographic provinces. It lies between the Ten Mile Ridge and Osceola Plain physiographic provinces. Natural ground elevation ranges from 17 to 20.5 feet National Geodetic Vertical Datum (NGVD) on the Goodwin Unit and 14 to 17.5 feet NGVD on the Broadmoor Marsh Unit.

The Broadmoor Marsh Unit's lower elevation may be due to previous intensive farming practices that contributed to a higher rate of subsidence as opposed to the Goodwin Unit, which was managed less intensively as an improved pasture. Natural landscape features include numerous low-lying, shallow depressions that occur throughout the area and vary in size from less than one acre up to about 10 acres in size.

The lowest elevations, about 6.1 feet NGVD, are found at the bottom of the drainage ditches while elevations up to 25.1 feet NGVD include the tops of some spoil levees. The top elevation of the perimeter levee varies between 25.7 and 30.1 feet NGVD.

2.1.1 Climate

Brevard County experiences a warm temperate climate, with long, relatively humid summers and mild winters.[2] The temperature for the city of Melbourne, approximately 16 miles from TMGWMA, during the period of 1937 to 2012 ranged from an average minimum 63 degrees Fahrenheit (F) to an average maximum of 81 degrees F. January had the lowest average temperature per year at 61.3 degrees F.[3] The highest temperatures occur in August, which had an average temperature of 81.6 degrees F over the period of record. The average annual temperature for the period of record was 72.3 degrees F.

Average total annual precipitation during the period of 1937 to 2012 was 50 inches, during which period rainfall was highest during the month of September (7.7 inches) and lowest in January (2.16). The driest months were January, April (2.18 inches) and December (2.18 inches). The wet season normally extends from June (6.39 inches) through September (7.7 inches), while spring and fall are normally considered drier seasons.[3]

2.1.2 Soils

The NRCS soil maps displaying the TMGWMA's soil series and depth to water table are presented as Figures 4 and 5. Soils series descriptions and maps were developed using NRCS geographic information system (GIS) data for TMGWMA and are included as Appendix 13.4. Soils of the Broadmoor Marsh Unit consist of Canova mucky peat (undrained), Everglades mucky peat (drained), Micco mucky peat (drained), and Micco mucky peat (frequently flooded). The soil coverage in the Broadmoor Marsh Unit is 89.8% Everglades mucky peat, which is a common component on depressions on marine terraces on coastal plains. Micco mucky peat (drained) covers 8.9% of the Goodwin Unit follow by 0.7% Micco mucky peat (frequently flooded), and 0.6% Canova mucky peat.

Soils of the Goodwin Unit consist of Canova muck (drained), Everglades mucky peat (drained), Micco mucky peat (drained), Micco mucky peat (frequently flooded) and Oldsmar sand. Canova muck (drained), Everglades mucky peat (drained), Micco mucky peats (drained) and Micco mucky peats (frequently flooded) are very poorly drained. Oldsmar sand is poorly drained. The soil coverage in the Goodwin Unit is 29.1% Canova muck (drained), 37.4% Everglades mucky peat (drained), 30.9% Micco mucky peat (drained), 1.8% Micco mucky peat (frequently flooded), and 0.7% Oldsmar sand.

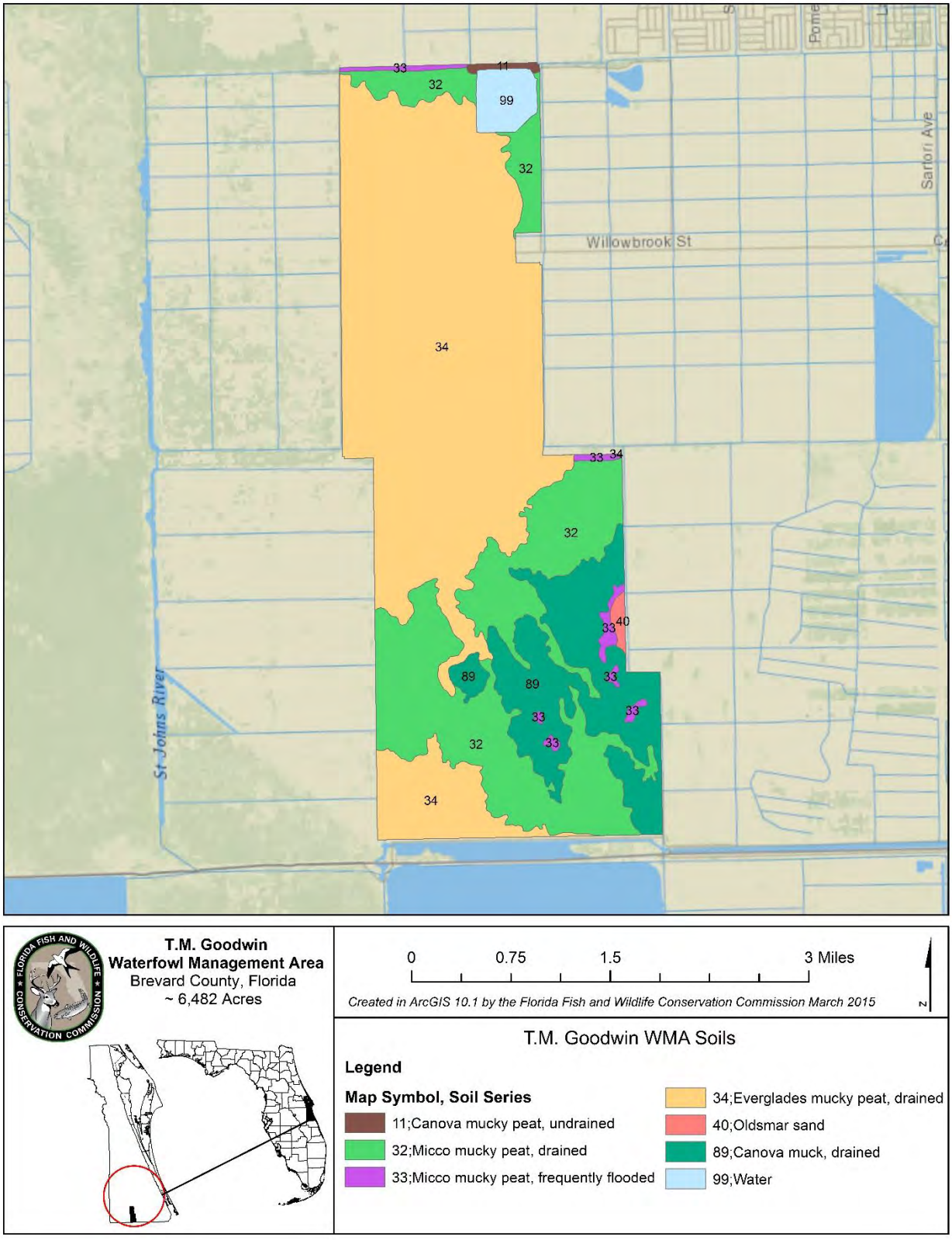

Figure 4. T.M. Goodwin WMA - Soils

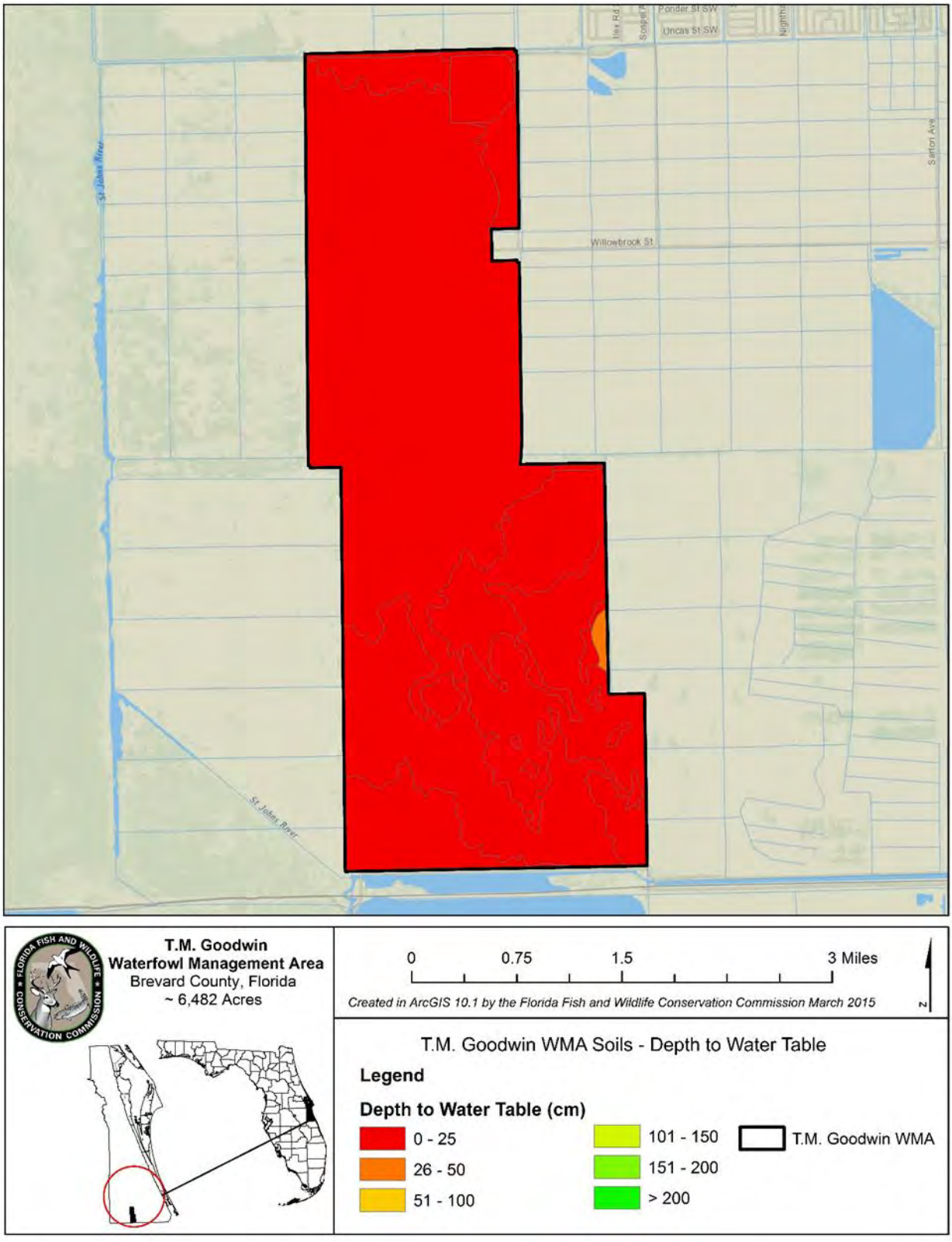

Figure 5. T.M. Goodwin WMA Soils - Depth to Water Table

The Brevard County Soil Survey describes the Canova series as consisting of nearly level, very poorly drained soils that have an organic surface layer and loamy subsoil. These soils occur in broad areas on flood plains. The Micco series consists of nearly level, very poorly drained peat soils in board depressions and in freshwater marshes and swamps. These soils formed in the remains of fibrous nonwoody materials over sand and loamy marine sediments. The Oldsmar Series consists of nearly level, poorly drained sandy soils on low ridges in the flatwoods and on low knolls on the flood plains. These soils were formed in sandy marine sediments over loamy material.[2]

2.1.3 Geologic Conditions

The geology of TMGWMA consists of one major formation at the surface.[4,5] This formation consists of Holocene sediments and was formed between 11,700 years ago to present. The Holocene sediments in Florida occur near the present coastline at elevations generally less than 5 feet above NGVD. The sediments include quartz sands, carbonate sands and muds, and organics. The lithology of this formation consists of beach sand, clay or mud, and biogenic sediment.[4,5]

2.2 Vegetation

Through the services of the Florida Natural Areas Inventory (FNAI), TMGWMA's current and historic natural communities were mapped in 2012 (Table 3, Figure 6). The FNAI utilized aerial photography from 1943 that was geo-rectified and merged together to create a mosaic that covered all of the property and some of the surrounding lands. This mosaic was utilized in the delineation of the historic natural communities. The FNAI mapped two historic natural communities on the area, consisting of floodplain marsh and South Florida bayhead, a variant of baygall.

Canal at TMGWMA, *David Moynahan*

One altered community type, impoundment, was mapped as presently occurring at the TMGWMA. The FNAI defines an impoundment as a stream, river or watershed that contains artificial structures that retain water at unnatural levels. The TMGWMA contains numerous ditch and water control structures to manipulate water levels with the goal of waterfowl management. The impoundment contains a patchwork of habitats including open water, aquatic bed, emergent marsh, and shrub marsh that were all included in the overall FNAI classification as "impoundment." Biologists from the FWC, along with contracted surveys through the FNAI, have documented native plant species and several exotic plant species at TMGWMA (Tables 4 and 5). To date, no imperiled plant species have been documented on the area.

Table 3. FNAI Mapped Natural and Altered Communities of TMGWMA

Community Type	Acres	Percentage*
Impoundment	6,526	100%

* Percentage based on total FNAI mapped acres

Table 4. Native Plant Species of TMGWMA

Common Name	Scientific Name
American cupscale	*Sacciolepis striata*
American waterfern	*Azolla filiculoides*
American white waterlily	*Nymphaea odorata*
Bald-cypress	*Taxodium distichum*
Beggarticks	*Bidens* spp.
Big carpetgrass	*Axonopus furcatus*
Bladderwort	*Utricularia* sp.
Bluestem	*Andropogon* sp.
Bog hemp	*Boehmeria cylindrica*
Broadleaf cattail	*Typha latifolia*
Bulltongue arrowhead	*Sagittaria lancifolia*
Bulrush	*Scirpus* sp.
Cabbage palm	*Sabal palmetto*
Coastalplain willow	*Salix caroliniana*
Common arrowhead	*Sagittaria latifolia*
Common buttonbush	*Cephalanthus occidentalis*
Common duckweed	*Spirodela polyrhiza*
Creeping cucumber	*Melothria pendula*
Crowngrass	*Paspalum* sp.
Danglepod	*Sesbania herbacea*
Dog fennel	*Eupatorium capillifolium*
Dotted smartweed	*Polygonum punctatum*
Egyptian paspalidium	*Paspalidium geminatum*
Fall panicgrass	*Panicum dichotomiflorum*
False daisy	*Eclipta prostrata*
Fireweed	*Erechtites hieraciifolius*
Fragrant flatsedge	*Cyperus odoratus*
Frog's bit	*Limnobium spongia*
Greenwhite sedge	*Carex albolutescens*
Groundsel tree	*Baccharis halimifolia*
Hairypod cowpea	*Vigna luteola*
Handsome Harry	*Rhexia virginica*
Jamaica swamp sawgrass	*Cladium jamaicense*
Knotroot foxtail	*Setaria geniculata*

Table 4. Native Plant Species of TMGWMA

Common Name	Scientific Name
Limpograss	*Hemarthria altissima*
Loosestrife	*Lythrum* sp.
Maidencane	*Panicum hemitomon*
Manyflower marshpennywort	*Hydrocotyle umbellata*
Manyspike flatsedge	*Cyperus polystachyos*
Marsh fern	*Thelypteris* sp.
Mock bishopsweed	*Ptilimnium capillaceum*
Pickerelweed	*Pontederia cordata*
Pigweed	*Amaranthus* sp.
Poorland flatsedge	*Cyperus compressus*
Red maple	*Acer rubrum*
Saber mudmidget	*Wolffiella oblonga*
Soft rush	*Juncus effusus*
Southern cattail	*Typha domingensis*
Southern waternymph	*Najas guadalupensis*
Spotted water hemlock	*Cicuta maculata*
St. John's-wort	*Hypericum* sp.
Stiff marsh bedstraw	*Galium tinctorium*
Sweetscent	*Pluchea odorata*
Taperleaf waterhorehound	*Lycopus rubellus*
Tropical flatsedge	*Cyperus surinamensis*
Turkey tangle fogfruit	*Phyla nodiflora*
Virginia buttonweed	*Diodia virginiana*
Virginia saltmarsh mallow	*Kosteletzkya pentacarpos*
Viviparous spikerush	*Eleocharis vivipara*
Waterhyssop	*Bacopa* sp.
Water-spider orchid	*Habenaria repens*
Wax myrtle	*Myrica cerifera*
Whitemouth dayflower	*Commelina erecta*
Whorled marshpennywort	*Hydrocotyle verticillata*
Wild millet	*Echinochloa* spp.
Yellow pondlily	*Nuphar advena*

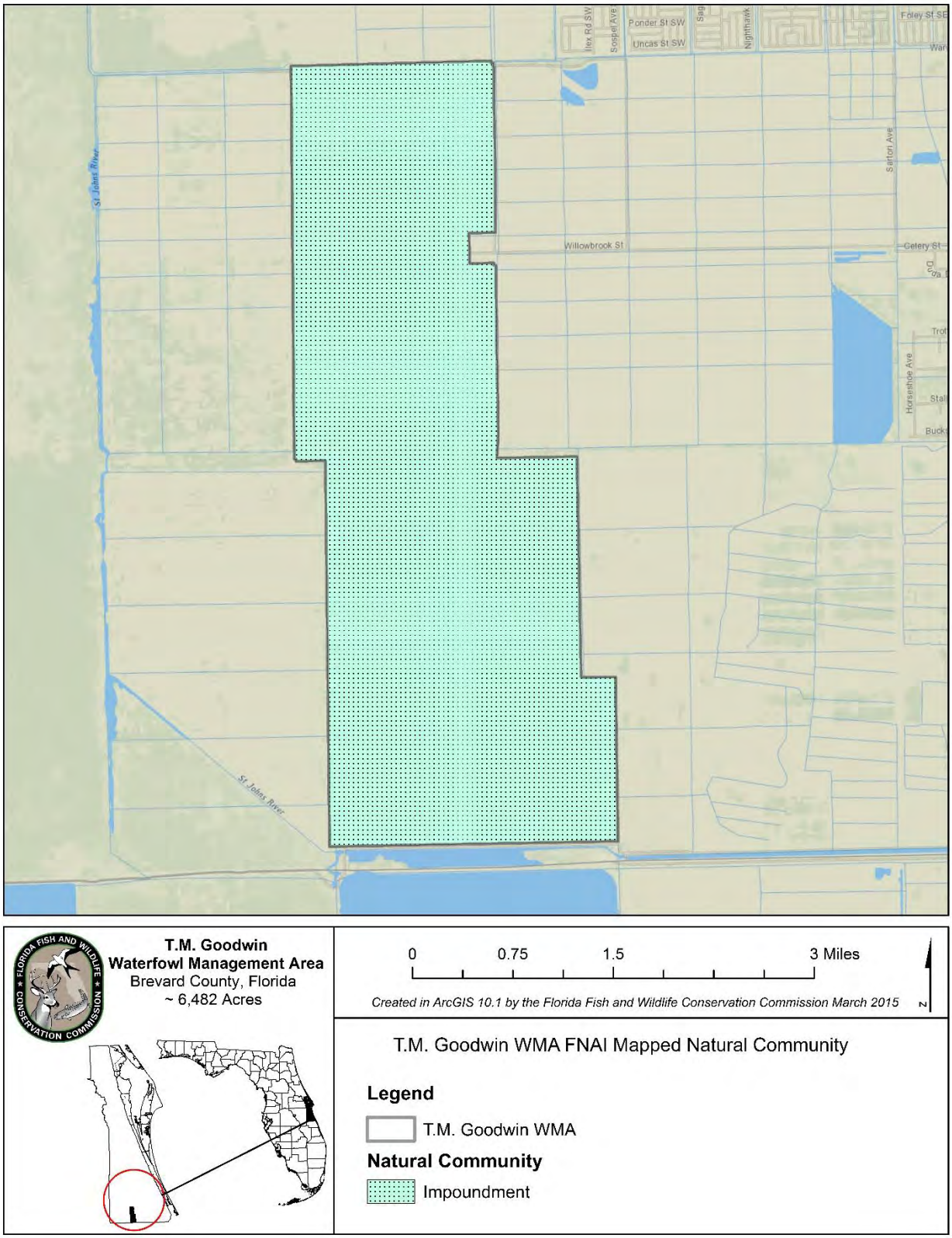

Figure 6. FNAI Mapped Natural Community at TMGWMA

Table 5. Exotic Plant Species of TMGWMA

Common Name	Scientific Name
African bermudagrass	*Cynodon nlemfuensis*
Alligatorweed	*Alternanthera philoxeroides*
Bahiagrass	*Paspalum notatum*
Bermudagrass	*Cynodon dactylon*
Brazilian pepper	*Schinus terebinthifolius*
Centipedegrass	*Eremochloa ophiuroides*
Cogongrass	*Imperata cylindrica*
Common water-hyacinth	*Eichhornia crassipes*
Cuban bulrush	*Oxycaryum cubense*
Hydrilla	*Hydrilla verticillata*
Paragrass	*Urochloa mutica*
Peruvian primrosewillow	*Ludwigia peruviana*
Torpedograss	*Panicum repens*
Water spangles	*Salvinia minima*
Water-lettuce	*Pistia stratiotes*

2.2.1 FNAI Natural Community Descriptions

Impoundment

An impoundment is a stream, river or watershed that contains artificial structures that retain water at unnatural levels. The TMGWMA is located entirely in the floodplain of the St Johns River. The TMGWMA contains numerous hydrology alterations such as ditch and water control structures to manipulate water levels with the goal of waterfowl management. The impoundment contains a patchwork of habitats including open water, aquatic bed, emergent marsh, and shrub marsh.

Historically, TMGWMA, like much of the adjacent lands in the USJRB, were classified as floodplain marsh with numerous shrub/tree islands. The islands would be classified as the South Florida bayhead variant of baygall. The development of these vegetation communities is not known, but they are quite distinct on the historically aerial photography and were given significance in the historic map. Currently, only remnants of these islands remain.

The TMGWMA is located entirely in the floodplain of the St Johns River. The TMGWMA contains numerous hydrology alterations such as ditch and water control structures to manipulate water levels with the goal of waterfowl management. The impoundment contains a patchwork of habitats including open water, aquatic bed, emergent marsh, and shrub marsh.

On TMGWMA, common shrubs include groundsel tree and coastalplain willow that occur in a wide variety of densities across the entire site. Herbaceous vegetation is common throughout, with the exception of relatively permanent deep water habitats. Common herbs include common water-hyacinth, viviparous spikerush, fireweed, manyflower marshpennywort, whorled marshpennywort, yellow pondlily, crowngrass, dotted smartweed, pickerelweed, bulltongue arrowhead, common arrowhead, danglepod, southern cattail, paragrass, and bladderwort. Invasive exotic plant presence is evident throughout much of the area.

Broadmoor Marsh Unit Reservoir, *FWC*

2.2.2 Forest Resources

There are no timber resources on the TMGWMA. As a result, the FWC and the FFS have determined that a professional forest assessment for the TMGWMA is unnecessary. The FWC will cooperate with the FFS or a qualified professional forestry consultant regarding any forestry management activities should they become necessary or appropriate.

2.3 Fish and Wildlife Resources

2.3.1 Integrated Wildlife Habitat Ranking System

The FWC has developed the Integrated Wildlife Habitat Ranking System (IWHRS) as a GIS-based assessment tool that incorporates a wide variety of land cover and wildlife species data. The IWHRS evaluates the Florida landscape based upon the habitat needs of wildlife as a way to identify ecologically significant lands in the state, and to assess the potential impacts of management and land-use changes. The IWHRS was developed to provide technical assistance to various local, regional, state, and federal agencies, and entities interested in wildlife needs and conservation in order to: (1) determine ways to avoid or minimize project impacts by evaluating alternative placements, alignments, and transportation corridors during early planning stages, (2) assess direct, secondary, and cumulative impacts to habitat and wildlife resources, and (3) identify appropriate parcels for public land acquisition for wetland and upland habitat mitigation purposes. The IWHRS (2009) indicates that TMGWMA has a high mean wildlife value of 7.3 (Figures 7).

Sandhill cranes at TMGWMA, *David Moynahan*

2.3.2 Imperiled Species

For the purposes of this Management Plan, the term "Imperiled Species" refers to plant and animal species that are designated as Endangered, Threatened, or a Species of Special Concern by FWC, or that are designated as Endangered or Threatened by the U.S. Fish and Wildlife Service. This designation is also commonly known as "listed species" (Table 6).

On November 8, 2010, new threatened species rules approved by the FWC were implemented. All federally listed species that occur in Florida will now be included on Florida's list as federally-designated Endangered or federally-designated Threatened species. In addition, the state has implemented a listing process to identify species that are not federally listed, but that may be at risk of extinction. These species will be called state-designated Threatened. All previous state-designated imperiled species were grandfathered on the list and are currently undergoing status reviews. The FWC will continue to maintain a separate Species of Special Concern category until all the former imperiled species have been reviewed and those species are either determined to be state-designated Threatened or removed from the list. The FWC has developed Species Action Plans (SAPs) for imperiled species which describe individual species threats and conservation needs. The SAPs will be submitted for approval to the FWC's Commissioners in 2015 and are considered to be final drafts prior to Commission approval. Development of the SAPs is a critical part of moving toward FWC's final goal of developing a single, comprehensive Imperiled Species Management Plan. For more information about the SAPs and individual plans see http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/.

Roseate spoonbill at TMGWMA, *David Moynahan*

Table 6. Rare and Imperiled Species Documented at TMGWMA

Common Name	Scientific Name	Status
Birds		
Black skimmer	*Rynchops niger*	SSC
Florida sandhill crane	*Grus canadensis pratensis*	ST
Least tern	*Sternula antillarum*	ST
Limpkin	*Aramus guarauna*	SSC
Little blue heron	*Egretta caerulea*	SSC
Reddish egret	*Egretta rufescens*	SSC
Roseate spoonbill	*Platalea ajaja*	SSC
Snail kite	*Rostrhamus sociabilis plumbeus*	FE
Snowy egret	*Egretta thula*	SSC

Table 6. Rare and Imperiled Species Documented at TMGWMA

Common Name	Scientific Name	Status
Tricolored heron	*Egretta tricolor*	SSC
White ibis	*Eudocimus albus*	SSC
Whooping crane	*Grus americana*	FXN
Wood stork	*Mycteria americana*	FE
Reptiles		
American alligator	*Alligator mississippiensis*	FT(S/A)

Abbreviations: Listed by the State of Florida as Federally-designated Endangered (FE), Federally-designated Threatened because of similarity of appearance [FT(S/A)], Federal non-essential experimental population (FXN) State-designated Threatened (ST), or State Species of Special Concern (SSC).

2.3.3 FWC Wildlife Observations and FNAI Element Occurrences

GIS data maintained by the FNAI (Element Occurrences) indicates that TMGWMA has numerous documented occurrences of wildlife and a diverse assemblage of animal species that occur on and in the vicinity of the area (Figure 8). An FNAI Element Occurrence data usage letter is included as Appendix 13.5. Tables 7- 12 display the variety of wildlife species documented or expected to occur on TMGWMA. Objectives to collect additional wildlife species occurrences on the area to enhance the existing species lists are included in Section 6 of this Management Plan.

Anhinga at TMGWMA, *David Moynahan*

Table 7. Mammal Species of TMGWMA

Common name	Scientific Name
Bobcat	*Lynx rufus*
Coyote	*Canis latrans*
Marsh rabbit	*Sylvilagus palustris*
Raccoon	*Procyon lotor*
River otter	*Lontra canadensis*
Round-tailed muskrat	*Neofiber alleni*
Virginia opossum	*Didelphis virginiana*
White-tailed deer	*Odocoileus virginiana*

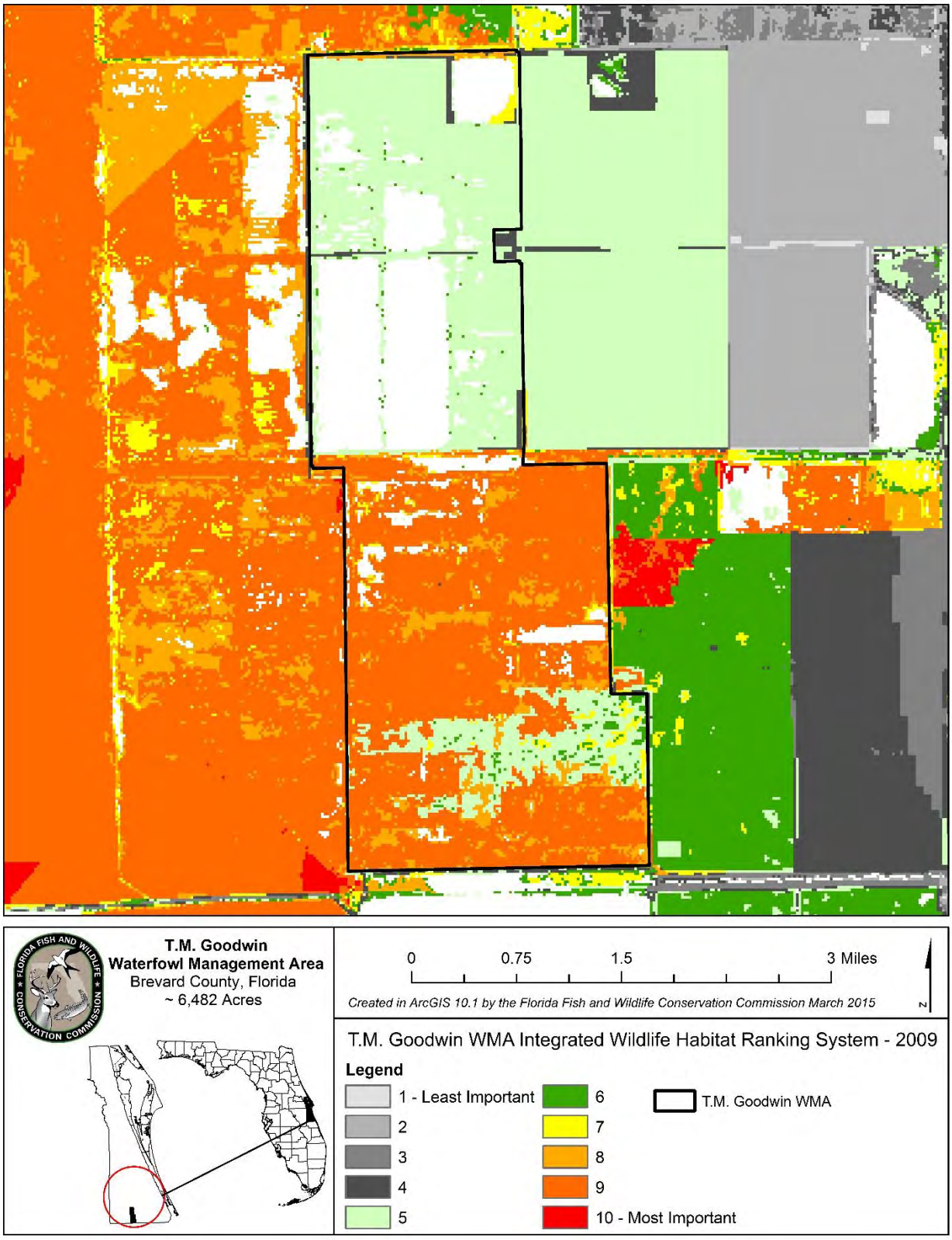

Figure 7. T.M. Goodwin WMA - Integrated Wildlife Habitat Ranking System 2009

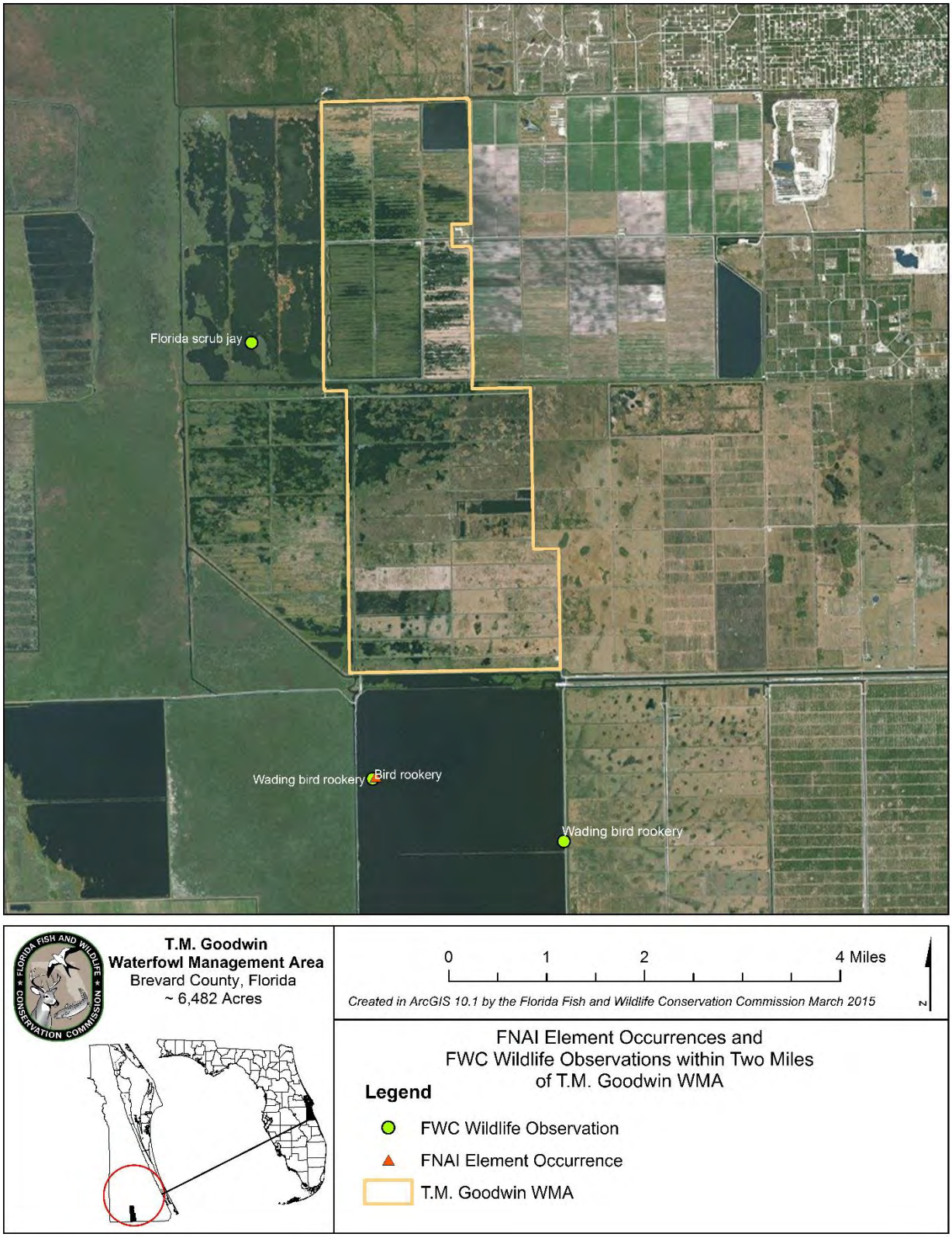

Figure 8. T.M. Goodwin WMA - Element Occurrences and Wildlife Observations

Table 8. Avian Species Documented at TMGWMA

Common Name	Scientific Name
American avocet	*Recurvirostra americana*
American bittern	*Botaurus lentiginosus*
American black duck	*Anas rubripes*
American coot	*Fulica americana*
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American pipit	*Anthus rubescens*
American redstart	*Setophaga ruticilla*
American robin	*Turdus migratorius*
American white pelican	*Pelecanus erythrorhynchos*
American wigeon	*Anas americana*
Anhinga	*Anhinga anhinga*
Bald eagle	*Haliaeetus leucocephalus*
Baltimore oriole	*Icterus galbula*
Bank swallow	*Riparia riparia*
Barn owl	*Tyto alba*
Barn swallow	*Hirundo rustica*
Barred owl	*Strix varia*
Belted kingfisher	*Megaceryle alcyon*
Black skimmer	*Rynchops niger*
Black vulture	*Coragyps atratus*
Black-and-white warbler	*Mniotilta varia*
Black-bellied plover	*Pluvialis squatarola*
Black-bellied whistling-duck	*Dendrocygna autumnalis*
Black-crowned night heron	*Nycticorax nycticorax*
Black-necked stilt	*Himantopus mexicanus*
Blue grosbeak	*Passerina caerulea*
Blue jay	*Cyanocitta cristata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Blue-headed vireo	*Vireo solitarius*
Blue-winged teal	*Anas discors*
Boat-tailed grackle	*Quiscalus major*
Bobolink	*Dolichonyx oryzivorus*
Brown pelican	*Pelecanus occidentalis*
Brown thrasher	*Toxostoma rufum*
Brown-headed nuthatch	*Sitta pusilla*
Bufflehead	*Bucephala albeola*
Canada goose	*Branta canadensis*
Canvasback	*Aythya valisineria*

Table 8. Avian Species Documented at TMGWMA

Common Name	Scientific Name
Carolina wren	*Thryothorus ludovicianus*
Caspian tern	*Hydroprogne caspia*
Cedar waxwing	*Bombycilla cedrorum*
Chipping sparrow	*Spizella passerina*
Cinnamon teal	*Anas cyanoptera*
Cliff swallow	*Petrochelidon pyrrhonota*
Common gallinule	*Gallinula galeata*
Common grackle	*Quiscalus quiscula*
Common ground dove	*Columbina passerina*
Common merganser	*Mergus merganser*
Common myna	*Acridotheres tristis*
Common nighthawk	*Chordeiles minor*
Common snipe	*Gallinago gallinago*
Common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
Crested caracara	*Caracara cheriway*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Dunlin	*Calidris alpina*
Eastern kingbird	*Tyrannus tyrannus*
Eastern meadowlark	*Sturnella magna*
Eastern phoebe	*Sayornis phoebe*
Eastern towhee	*Pipilo erythrophthalmus*
Eastern wood-pewee	*Contopus virens*
Fish crow	*Corvus ossifragus*
Florida sandhill crane	*Grus canadensis pratensis*
Forster's tern	*Sterna forsteri*
Fulvous whistling-duck	*Dendrocygna bicolor*
Gadwall	*Anas strepera*
Glossy ibis	*Plegadis falcinellus*
Grasshopper sparrow	*Ammodramus savannarum*
Gray catbird	*Dumetella carolinensis*
Great black-backed gull	*Larus marinus*
Great blue heron	*Ardea herodias*
Great crested flycatcher	*Myiarchus crinitus*
Great egret	*Ardea alba*
Great horned owl	*Bubo virginianus*
Greater yellowlegs	*Tringa melanoleuca*
Green heron	*Butorides virescens*

Table 8. Avian Species Documented at TMGWMA

Common Name	Scientific Name
Green-winged teal	*Anas crecca*
Herring gull	*Larus argentatus*
Hooded merganser	*Lophodytes cucullatus*
Horned grebe	*Podiceps auritus*
House sparrow	*Passer domesticus*
House wren	*Troglodytes aedon*
Indigo bunting	*Passerina cyanea*
Killdeer	*Charadrius vociferus*
King rail	*Rallus elegans*
Laughing gull	*Leucophaeus atricilla*
Least bittern	*Ixobrychus exilis*
Least sandpiper	*Calidris minutilla*
Least tern	*Sternula antillarum*
Lesser scaup	*Aythya affinis*
Lesser yellowlegs	*Tringa flavipes*
Limpkin	*Aramus guarauna*
Little blue heron	*Egretta caerulea*
Loggerhead shrike	*Lanius ludovicianus*
Long-billed dowitcher	*Limnodromus scolopaceus*
Mallard	*Anas platyrhynchos*
Marsh wren	*Cistothorus palustris*
Merlin	*Falco columbarius*
Mottled duck	*Anas fulvigula*
Mourning dove	*Zenaida macroura*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Northern gannet	*Morus bassanus*
Northern harrier	*Circus cyaneus*
Northern mockingbird	*Mimus polyglottos*
Northern pintail	*Anas acuta*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Northern shoveler	*Anas clypeata*
Northern waterthrush	*Parkesia noveboracensis*
Nothern bobwhite	*Colinus virginianus*
Orange-crowned warbler	*Oreothlypis celata*
Osprey	*Pandion haliaetus*
Ovenbird	*Seiurus aurocapilla*
Painted bunting	*Passerina ciris*
Palm warbler	*Setophaga palmarum*

Table 8. Avian Species Documented at TMGWMA

Common Name	Scientific Name
Pectoral sandpiper	*Calidris melanotos*
Peregrine falcon	*Falco peregrinus*
Pied-billed grebe	*Podilymbus podiceps*
Pileated woodpecker	*Dryocopus pileatus*
Pine warbler	*Setophaga pinus*
Prairie warbler	*Setophaga discolor*
Purple gallinule	*Porphyrio martinicus*
Purple martin	*Progne subis*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-breasted merganser	*Mergus serrator*
Reddish egret	*Egretta rufescens*
Redhead	*Aythya americana*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-billed gull	*Larus delawarensis*
Ring-necked duck	*Aythya collaris*
Roseate spoonbill	*Platalea ajaja*
Royal tern	*Thalasseus maximus*
Ruby-crowned kinglet	*Regulus calendula*
Ruddy duck	*Oxyura jamaicensis*
Ruddy turnstone	*Arenaria interpres*
Sandwich tern	*Thalasseus sandvicensis*
Savannah sparrow	*Passerculus sandwichensis*
Sedge wren	*Cistothorus platensis*
Semipalmated plover	*Charadrius semipalmatus*
Semipalmated sandpiper	*Calidris pusilla*
Sharp-shinned hawk	*Accipiter striatus*
Short-billed dowitcher	*Limnodromus griseus*
Smooth-billed ani	*Crotophaga ani*
Snail kite	*Rostrhamus sociabilis plumbeus*
Snow goose	*Chen caerulescens*
Snowy egret	*Egretta thula*
Solitary sandpiper	*Tringa solitaria*
Song sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted sandpiper	*Actitis macularius*
Stilt sandpiper	*Calidris himantopus*

Table 8. Avian Species Documented at TMGWMA

Common Name	Scientific Name
Swallow-tailed kite	*Elanoides forficatus*
Swamp sparrow	*Melospiza georgiana*
Tree swallow	*Tachycineta bicolor*
Tricolored heron	*Egretta tricolor*
Turkey vulture	*Cathartes aura*
Vermilion flycatcher	*Pyrocephalus rubinus*
Virginia rail	*Rallus limicola*
Western sandpiper	*Calidris mauri*
White ibis	*Eudocimus albus*
White-eyed vireo	*Vireo griseus*
White-winged dove	*Zenaida asiatica*
Whooping crane	*Grus americana*
Wild turkey	*Meleagris gallopavo osceola*
Willet	*Tringa semipalmata*
Wilson's snipe	*Gallinago delicata*
Wilson's warbler	*Cardellina pusilla*
Wood duck	*Aix sponsa*
Wood stork	*Mycteria americana*
Yellow warbler	*Setophaga petechia*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-crowned night heron	*Nyctanassa violacea*
Yellow-rumped warbler	*Setophaga coronata*
Yellow-throated warbler	*Setophaga dominica*

Table 9. Reptilian Species of TMGWMA

Common Name	Scientific Name
American alligator	*Alligator mississippiensis*
Brown water snake	*Nerodia taxispilota*
Common snapping turtle	*Chelydra serpentina*
Cottonmouth	*Agkistrodon piscivorus*
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*
Eastern coral snake	*Micrurus fulvius*
Eastern corn snake	*Pantherophis guttatus*
Eastern diamondback	*Crotalus adamanteus*
Florida softshell turtle	*Apalone ferox*
Garter snake	*Thamnophis sirtalis*
Peninsula cooter	*Pseudemys peninsularis*
Southern black racer	*Coluber constrictor priapus*
Striped mud turtle	*Kinosternon baurii*

Table 10. Amphibian Species of TMGWMA

Common Name	Scientific Name
Greater siren	*Siren lacertina*
Green tree frog	*Hyla cinerea*
Pig frog	*Lithobates grylio*
Southern leopard frog	*Lithobates sphenocephalus*

Table 11. Fish Species of TMGWMA

Common Name	Scientific Name
Atlantic needlefish	*Strongylura marina*
Black crappie	*Pomoxis nigromaculatus*
Bluefin killifish	*Lucania goodei*
Bluegill	*Lepomis macrochirus*
Bluespotted sunfish	*Enneacanthus gloriosus*
Bowfin	*Amia calva*
Brook silverside	*Labidesthes sicculus*
Brown bullhead	*Ameiurus nebulosus*
Chain pickerel	*Esox niger*
Flagfish	*Jordanella floridae*
Florida gar	*Lepisosteus platyrhincus*
Gizzard shad	*Dorosoma cepedianum*
Golden shiner	*Notemigonus crysoleucas*
Lake chubsucker	*Erimyzon sucetta*
Largemouth bass	*Micropterus salmoides*
Least killifish	*Heterandria formosa*
Longnose gar	*Lepisosteus osseus*
Redbreast sunfish	*Lepomis auritus*
Redear sunfish	*Lepomis microlophus*
Seminole killifish	*Fundulus seminolis*
Spotted sunfish	*Lepomis punctatus*
Threadfin shad	*Dorosoma petenense*
Warmouth	*Lepomis gulosus*
Western mosquitofish	*Gambusia affinis*
White catfish	*Ameiurus catus*

Table 12. Exotic Animal Species of TMGWMA

Common Name	Scientific Name
Birds	
Cattle egret	*Bubulcus ibis*
Eurasian collared-dove	*Streptopelia decaocto*

Table 12. Exotic Animal Species of TMGWMA

Common Name	Scientific Name
European starling	*Sturnus vulgaris*
Purple swamphen	*Porphyrio porphyrio*
Rock pigeon	*Columba livia*
Amphibians	
Cuban tree frog	*Osteopilus septentrionalis*
Mammals	
Feral hog	*Sus scrofa*
Nine-banded armadillo	*Dasypus novemcinctus*
Fish	
Blue tilapia	*Oreochromis aureus*
Brown hoplo	*Hoplosternum littorale*
Vermiculated sailfin catfish	*Pterygoplichthys disjunctivus*
Walking catfish	*Clarias batrachus*

2.4 Native Landscapes

Though TMGWMA was altered for agricultural and grazing operations prior to its acquisition by the SJRWMD, the area has been restored and managed to function as wetland habitat for a variety of wildlife. Seasonal water level manipulations are designed to follow natural water cycles and are aligned to provide quality habitat for migrating waterfowl, wading birds, and shorebirds. A description of the native landscapes, including flora and fauna, can be found in Sections 2.2 Vegetation and Section 2.3 Fish and Wildlife of this Management Plan.

2.5 Water Resources and Management

The surface waters of the St. Johns River and its tributaries from Lake Washington Dam south to the Brevard/Indian River County line are classified by the DEP as Class I - Potable Water Supplies. Class I waters include 14 general areas throughout the state including: impoundments and associated tributaries, certain lakes, rivers, or portions of rivers, used as a source of potable water (62-302.400, F.A.C.). The two primary water sources in Brevard County are the Floridan aquifer system and the surficial aquifer system.[6] Southern Brevard County is a Floridan Aquifer discharge area and provides no recharge to this aquifer.[7]

At TMGWMA, water resources include the shallow water impoundments, Goodwin Lake, and a reservoir on the Goodwin Unit and Broadmoor Marsh Unit. The TMGWMA was designed to allow for the movement of water from the reservoirs to the impoundments as drawdowns and re-watering are needed to achieve management objectives. Two water

control structures (WCS) are installed in each impoundment; one being connected to the central canal and the other connected to a canal extending around the Goodwin Unit's perimeter. In addition, two-10,000 gallon per minute (gpm), electric, bi-directional pumps are located on the southern end of the central canal to move and control water.

The northern half of the Goodwin Unit is used as a reservoir to store water for managing the impoundments. The reservoir is directly connected to the canal extending around the perimeter of the impoundments on the southern half. Two WCS also connect the reservoir to the central canal; one on the northern end of the central canal, and the other on the southern end of the central canal, adjacent to the electric pump station.

Pump station at TMGWMA, *FWC*

The Broadmoor Marsh Unit is divided into ten impoundments, each averaging about 214 acres. A central canal bisects the Unit with eight impoundments to the north and two impoundments plus an 875-acre reservoir to the south. Previous farming practices on the property dictated the need for numerous lateral drainage ditches, oriented in an east-west direction and spaced approximately 220 feet apart, for precise water level manipulations within each impoundment. The ditches have been left intact and are used to facilitate the conveyance of water. Two WCS are installed in each impoundment. The WCS convey water to a slightly deeper secondary drainage ditch that is connected to the central canal and the pump station.

The water levels in the Goodwin Unit and the Broadmoor Marsh Unit reservoirs are managed to maintain a semi-permanent flooded marsh, with water level ranging between 24 to 36 inches. The Goodwin Unit serves as a storm water retention area for use by the SJRWMD so water levels in its reservoir cannot exceed an overall mean elevation of 22.0 feet NGVD. Maintaining water levels at or below this elevation will provide approximately 11,610 acre-feet of floodwater storage when the Goodwin Unit is flooded to an elevation of 25.0 feet NGVD. No water level restrictions exist for the Broadmoor Marsh Unit.

2.6 Beaches and Dunes

There are no beaches or dunes located at TMGWMA.

2.7 Mineral Resources

Mineral operations in Brevard County have included mining of limestone-coquina, sand, gravel, fill, clay, stone, heavy metals, aluminum, phosphates, Fluorine-Fluorite, Iron, magnesite, uranium and titanium.[8,9] No minerals are commercially mined at TMGWMA.

There is a 184-acre borrow pit on the east-central portion of the Goodwin Unit, south of Goodwin Lake. The SJRWMD retains the right for use of borrow material in maintaining and constructing levees in the USJRB Project and allows the FWC to use fill material for maintenance of levees on the TMGWMA.

2.8 Cultural Resources

The Florida Department of State's Division of Historical Resources (DHR) observations are broken down into seven categories: Florida sites, Florida structures, resource groups, historical structures, historic bridges, historic cemeteries and field surveys. There is one record listed as a Florida site and two resources groups at TMGWMA (Appendix 13.6). The site is a prehistoric midden (BR01614) which contains ceramic artifacts, primarily pottery fragments. The two resource groups are associated with canal developments (BR02569 and BR01957). There have been three field surveys documented on or near TMGWMA. The FWC will submit subsequently located cultural sites on the TMGWMA to the DHR for inclusion in their Master Site file. The FWC will continue to consult with the DHR in an attempt to locate and preserve any features on the area.

2.9 Scenic Resources

The TMGWMA is part of the USJRB Project, which is a unique, important resource management effort that has ecological, agricultural, and historical significance. As a result of the project, wetland restoration and protection in the USJRB has provided excellent wildlife habitat at TMGWMA and many forms of recreational activities for the public. Scenic resources at TMGWMA include views of wetland habitat and the variety of wildlife it supports including waterfowl, wading birds, and shorebirds. The TMGWMA is part of the Great Florida Birding and Wildlife Trail and visitors can expect to observe between 50-60 different bird species on the area during fall and spring migrations. Visitors can observe wildlife in the impoundments and reservoirs from the area's network of levees or from a three-tier observation tower located on the Goodwin Unit.

Sunset at TMGWMA, *David Moynahan*

3 Uses of the Property

3.1 Previous Use and Development

Prior to European settlement, the landscape of Florida, including this area of the Florida peninsula, was settled and used by a variety of aboriginal peoples whose culture relied

mainly on hunting, fishing, and subsistence agriculture. In particular, the USJRB in which TMGWMA is located, has been extensively used by Native Americans for thousands of years due to its rich abundance of fish and wildlife and fertile lands. Though some land alteration occurred during this period of time, only minor alteration of the landscape is thought to have taken place until the advent of European settlement beginning with the Spanish occupation of Florida in the sixteenth century.

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

During the 1960s, Gulf Western Food Products, a division of Gulf Western Industries, purchased approximately 58,000 acres of fresh water marshlands, including present day TMGWMA, from South Puerto Rican Sugar Corporation. Most of this land was within Brevard and Indian River counties. Gulf Western Industries began draining much of this land for agricultural purposes, primarily citrus, sod, and cattle production. Between 1972 and 1980, the Goodwin Unit was quarter-drained, which involved dredging lateral ditches in an east-west direction every one-quarter mile. These ditches connect to larger, slightly deeper ditches dredged in a north-south direction every mile. This facilitated the quick removal of surface and shallow ground water, which was pumped offsite to keep the area relatively dry. The area was planted with numerous pasture grasses (i.e., bahiagrass, paragrass, and bermudagrass) and stocked with cattle at a rate of about one cow per two acres for a total of about 2,000 head of cattle.

In January 1988, the SJRWMD acquired the property from the Fellsmere Farm Company and subsequently named the tract the C-54 Retention Area in recognition of its intended purpose within the USJRB Project. Like the Goodwin Unit, the Broadmoor Marsh Unit was quarter-drained beginning in the mid-1950s by the Sottile family. In the late-1970s, the Sartori family bought the property, known as Willowbrook Farms, which included the present day Broadmoor Marsh Unit. The Broadmoor Marsh Unit was not farmed until 1981, when the Sartori family began clearing the area and constructing additional lateral drainage ditches for row crop production, primarily feed corn for dairy cows. In the mid- to late-1980s, portions of the Broadmoor Marsh Unit were leased to A. Duda and Sons for vegetable production. The Broadmoor Marsh Unit was farmed until the SJRWMD and the NRCS purchased the property in March 1998 as part of wetland restoration efforts in the

USJRB.

3.2 Current Use of the Property

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

Current and anticipated resource uses of the property are diverse. Hunting continues to be a popular recreational activity on TMGWMA. The area also offers excellent opportunities for bird watching, especially for waterfowl, wading birds, and shorebirds. The diversity of vegetation not only harbors a variety of bird species but also provides good opportunities for mammalian wildlife viewing including white-tailed deer and otters. Other uses include hiking, photography, bicycling, sightseeing, and horseback riding.

Due to the proximity of population centers in Brevard and Indian River counties, public use can be expected to increase as public awareness of the area's fish and wildlife based public outdoor recreational opportunities increases. The FWC administers hunts during waterfowl and snipes seasons, which accounted for 2,312 user days in the 2014-2015 season. Though, it should be noted that access to the area is dependent upon and managed in cooperation with the SJRWMD and the ACOE to ensure that the level and types of public access do not comprise the integrity of the areas levees and their primary purpose of flood control.

View from the TMGWMA observation tower, *David Moynahan*

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 TMGWMA, and contribute to the overall economy for central Florida region. In Fiscal Year 2013-2014 (July 1, 2013 through June 30, 2014, an estimated 19,017 people visited the TMGWMA. Primarily, as a result of this visitation and use of the area, FWC economic analysis estimates indicate that

the TMGWMA generated an estimated annual economic impact of $2,172,692 in retails sales for the State and the central Florida region. This estimated annual economic impact has aided in the support or creation of an estimated 38 jobs.

Further revenue generating potential of the TMGWMA will depend upon future uses described in this Management Plan. Additional revenue from environmental lands such as the TMGWMA 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 TMGWMA will continue to be managed under the multiple-use concept as a Waterfowl Management Area. The TMGWMA will provide fish and wildlife resource based public outdoor recreation and educational opportunities, while protecting the natural and cultural resources found on the area. Any natural and cultural resources of TMGWMA will be managed under the guidance of the SJRWMD, the ARC, the DHR, and 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 TMGWMA. Uses classified as “Approved” are considered to be in accordance with the purposes for acquisition, as well as with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals and objectives as expressed in the Agency Strategic Plan (Appendix 13.7). Uses classified as "Conditional" indicate that the use may be acceptable but will be allowed only if approved through a process other than the management plan development and approval process (e.g., special-use permitting, managed-area regulation and rule development). Uses classified as “Rejected” are not considered to be in accordance with the original purpose of acquisition or one or more of the various forms of guidance available for planning and management:

	Approved	**Conditional**	**Rejected**
Apiaries		✓	
Astronomy		✓	
Bicycling		✓	
Cattle grazing		✓	
Citrus or other agriculture			✓
Ecosystem services and maintenance	✓		
Ecotourism		✓	

Environmental Education	✓		
First-responder training		✓	
Fishing		✓	
Geocaching		✓	
Hiking		✓	
Horseback riding		✓	
Hunting		✓	
Linear facilities			✓
Military training		✓	
Preservation of cultural sites	✓		
Preservation of historical sites	✓		
Primitive camping			✓
Protection of imperiled species	✓		
Off-road vehicle use			✓
Shooting Sports Park			✓
Soil and water conservation	✓		
Timber harvest	✓		
Wildlife observation	✓		

3.3.2 Incompatible Uses and Linear Facilities

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

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

3.4 Acreage Recommended for Potential Surplus Review

The SJRWMD holds title to the lands managed by the FWC within the TMGWMA. 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, the 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 Fla. Stat.), as well as surplus restrictions for lands acquired through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or through other federal grant programs. Moreover, since title to the TMGWMA lands is vested in the SJRWMD, along with a NRCS Conservation Easement on the Broadmoor Marsh Unit, the SJRWMD, and the NRCS to the degree applicable, have the sole authority for any potential surplus review and designation as potential surplus

The evaluation of TMGWMA by the FWC has determined that all portions of the area are considered essential for the provision of wetland habitat for waterfowl and other associated wetland dependent wildlife species within the USJRB and continue to meet their original purposes for acquisition. The TMGWMA continues to be managed and operated for the original purposes of acquisition and continues to provide high quality fish and wildlife resource based public outdoor recreational opportunities. Therefore, no portion of the TMGWMA is recommended for potential surplus review.

4 Accomplished Objectives from the TMGWMA Management Plan 2004 – 2014

The following **Resource Management Goals and Objectives** from the 2004 – 2014 TMGWMA Management Plan describe the planned activities for TMGWMA during this period. The degree to which FWC was able to accomplish the planned activities during this period is reflected as **Percent Accomplished** for each associated Objective. Accomplishments for TMGWMA during the previous planning timeframe are further discussed in more comprehensive detail throughout **Section 5 Management Activities and Intent** of this Management Plan.

Objectives Accomplished from the 2004 T.M. Goodwin Waterfowl Management Area Including the Broadmoor Marsh Unit

Goals and Objectives	Percent Accomplished	Comments
Goal 1: Control invasive exotic pasture grasses (i.e., paragrass).		

Objective 1: Continue implementing effective wetland management techniques (e.g., control burning following a freeze) (ongoing).	100%	Ongoing
Objective 2: Utilize chemical treatments followed by prescribed burning and mechanical manipulations to reduce biomass (ongoing).	100%	Ongoing
Objective 3: Implement management recommendations from ongoing paragrass research project by 2006.	100%	Results of the University of Florida's (UF) research project were used to develop and implement paragrass management and control techniques including herbicide, prescribed burning, and flooding as the basis of FWC's paragrass control program on the area.
Goal 2: Improve water management system to allow for proper drainage and flooding of impoundments.		
Objective 1: Improve drainage by clearing existing drainage ditches and creating new drainage ditches where necessary (ongoing).	100%	Ongoing
Objective 2: Maintain or increase efficiency of pump stations to maximize pumping capabilities and minimize energy consumption (ongoing).	100%	All Goodwin Unit and Broadmoor Marsh Unit main pumps are operational.
Objective 3: Ensure all water control structures provide adequate water level control capabilities by fall 2004.	100%	Ongoing
Goal 3: Ensure adequate staffing and financial resources are available for continued long-term management of the WMA.		
Objective 1: Continue to seek additional funds as needed to support ongoing management and research through legislative budget requests and other funding sources (e.g., grants and cooperative partnerships) (ongoing).	100%	Ongoing. The FWC continues to cooperate with DU, UF, Wildlife Foundation of Florida, United Waterfowlers of Florida, and others to enhance management of the TMGWMA.

Objective 2: Justify management and operational costs with the District as per item #3 in the Broadmoor Lease Agreement (Appendix B) by December 2005.	100%	Ongoing
Objective 3: Ensure adequate staffing needs are addressed and provided for as the result of the Commission's re-organization by 2005.	100%	
Goal 4: Continue to restore, enhance and maintain wetland habitat for waterfowl and other wetland wildlife using integrated wetland management techniques.		
Objective 1: Manage wetland habitat using integrated wetland management techniques such as water level manipulation, control burning, selected mechanical techniques, herbicide application, and other scientifically accepted techniques to create a diversity of habitat conditions (ongoing).	100%	Ongoing
Objective 2: Manage the WMA to maintain and enhance wetland habitat conditions suitable to a variety of wetland wildlife including those species that are listed as endangered, threatened, or species of special concern (ongoing).	100%	Ongoing
Goal 5: Continue to provide consumptive and non-consumptive recreational opportunities to the general public at levels that minimize environmental impacts and detrimental disturbance to wildlife.		
Objective 1: Ensure adequate public access is provided to and within the WMA to accommodate limited, controlled public use (ongoing).	100%	Ongoing. Access to the area is limited and controlled based on cooperative management agreement requirements with the SJRWMD and ACOE.

Objective 2: Provide forms of consumptive use that are compatible with resource availability (ongoing).	100%	Ongoing. This objective referred to maintaining hunting and fishing use regulations that are compatible with conserving and protecting the resources of the area.
Objective 3: Provide non-consumptive opportunities such as hiking and biking, birdwatching, canoeing, etc., and encourage environmental educational opportunities (ongoing).	100%	Ongoing. The area was added as a site on the Great Florida Birding and Wildlife Trail, a wildlife observation tower was constructed on the area, and the FWC continues to support environmental education groups and tours that utilize the area.
Goal 6: Continue to promote and conduct scientific research to control exotic pasture grasses and improve management techniques that encourage the growth of native wetland plants.		
Objective 1: Maintain and foster relationships with the University of Florida, other universities, and cooperating agencies to ensure future scientific research needs are met and adequately funded (ongoing).	100%	Ongoing. The FWC cooperated with the UF for a paragrass research project.
Objective 2: Expand upon techniques used to monitor vegetative structure over time using aerial photogrammetry (ongoing).	100%	The FWC continues to monitor vegetative cover through a variety of techniques. The FWC considered the use of aerial photogrammetry but it was determined to be cost prohibitive and less effective than other less costly monitoring methods.
Objective 3: Monitor and document vegetative response to management (ongoing).	100%	Ongoing. The FWC reports vegetative responses to management activities in annual and quarterly reports to the SJRWMD and also in the FWC Land Management Information System (LMIS).

5 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve or otherwise use fragile natural resources and nonrenewable cultural resources. In general, the FWC management intent for TMGWMA is to restore and maintain wetland habitat for various waterfowl species, as well as for the benefit of wading and shorebirds, and rare and more common wildlife species. In conjunction with this primary emphasis, it is FWC's intent to provide quality fish and wildlife resource based public outdoor recreational opportunities on TMGWMA. 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 Adaptive Management

Adaptive management is "learning by doing";[10] 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.[10,11] 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.[11,12] 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.[11,12]

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

5.1.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of TMGWMA. 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.[11]

For natural communities, FWC's monitoring protocols are generally established through Objective-Based Vegetation Management (OBVM) program based on vegetation surveys which monitor how specific vegetative attributes are responding to FWC management. However, at a variation of OBVM is implemented on TMGWMA which is further described in Section 5.2.1. Area staff may monitor fish and wildlife species when deemed appropriate. Exotic and invasive plant and animal species (Section 5.4) are also monitored as needed and appropriate. Recreational uses are monitored through FWC's Public Access and Wildlife Viewing program, and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 5.5.3). Cultural and historical resources (Section 5.8) are monitored with guidance from the DHR.

The FWC may implement additional monitoring activities for imperiled species at TMGWMA after the assessment to determine additional monitoring needs described in Section 6.2 is completed. Area staff monitor water level and rainfall data on a weekly basis for all managed impoundments and the two reservoirs. Water level monitoring of the area's impoundments is used to determine management actions and the timing and amount of drawdowns to create optimal habitat and conditions for vegetation treatments. Other monitoring on TMGWMA includes monitoring for exotics species, recreational impacts and cultural resources.

5.1.2 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.

5.1.3 Implementation

The TMGWMA Management Plan serves as the guiding framework to implement this adaptive management process. It serves as the underpinning for the integration of management programs (Public Access and Wildlife Viewing, Recreation Master Plans, etc.)

underway to accomplish needed conservation actions that are planned to manage the natural resources of TMGWMA, 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.

5.2 Habitat Restoration and Improvement

On TMGWMA, FWC will focus on managing for native habitat diversity, emphasizing maintenance of early successional predominately wetland plant communities to provide habitat and food sources for waterfowl, shorebirds, and other wetland wildlife species. Restoration and maintenance may be achieved through the use of prescribed fire, water level management, and mechanical and chemical vegetation management activities. Water level management is the primary habitat management tool used on the area. Habitat management is accomplished by manipulating water levels in the impoundments to promote the production of native, moist-soil, wetland plants. The FWC will continue to manage and protect the marsh, open water, and aquatic bed within the area's impoundments and reservoirs through the use of integrated wetland management techniques.

5.2.1 Modified Objective-Based Vegetation Management

The FWC uses a comprehensive resource management approach to managing FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. Normally, the FWC uses Objective-based Vegetation Management (OBVM) to monitor how specific vegetative attributes are responding to FWC management. However, due to the specific composition of habitat and the associated management objectives at TMGWMA to manage the area's habitat for waterfowl and other wetland species, a variation of OBVM is implemented on the area. The following generally describes both the regime the FWC uses to implement OBVM on its managed areas as well as the distinct variation of vegetation management implemented on TMGWMA.

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 the 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 the FNAI, is a distinct and recurring assemblage of populations of plants, animals, fungi and microorganisms naturally associated with each other and their physical environment. The FNAI mapped TMGWMA in 2012, and classified the entire area as impoundment. The impoundment classification includes the TMGWMA's open water, aquatic bed, emergent marsh, shrub marsh, levees, and managed impoundments. Using aerial photography from 1943 that was geo-rectified and merged together to create a mosaic covering all of the property and some of the surrounding lands,

the FNAI mapped two historic natural communities on the area, consisting of floodplain marsh and South Florida bayhead, a variant of baygall.

After natural communities have been mapped, management units are delineated. Delineating management units takes into account the distribution and extent of the current and/or historic mapped natural communities, existing and proposed infrastructure, and other management considerations. FWC land managers then identify the predominant current or historic natural community within each management unit that guides the type and frequency of management activities that should be applied. Instead of focusing management activities to restore the historic natural communities that occurred at TMGWMA, FWC staff uses moist soil management techniques to establish and perpetuate pre-emergent aquatic wetland vegetation to provide a diversity of wintering and breeding habitats for various waterfowl species, wading and shore birds.

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 the FNAI to identify 'reference sites' for each actively managed natural community and applied the OBVM monitoring methodology at these reference sites to determine what attribute values occur in a high-quality community (http://www.fnai.org/reference-natural-communities.cfm). FWC staff considers the reference site attribute values when setting area-specific desired future conditions for natural communities.

Vegetation monitoring samples the selected attributes, with the results being compared to the established desired future conditions. All monitoring performed under OBVM is completed using the program's Standard Operating Procedures.

Consistent, long-term monitoring of managed natural communities will quantify changes in habitat conditions, provide information on the cumulative effects of management activities, and measure progress towards meeting management objectives for desired habitat conditions. Measured changes in vegetation condition are intended to be used to inform future land management actions.

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

altered communities to functioning natural communities.

As described above, because the TMGWMA is composed entirely of impoundment, the area is intensively managed for waterfowl and wetland habitat. Therefore a variation of OBVM is implemented through quarterly vegetation surveys on the area. Management units on the area consist of the impoundments and reservoirs on the Goodwin and Broadmoor Marsh Units. Area staff assess the current vegetation in each impoundment and reservoir, including documenting plant species by impoundment and reservoir. Staff then develop management actions by impoundment that are needed to achieve the desired vegetative conditions and composition as well as ideal water level. These actions include water level manipulation, chemical and manual treatment of exotic vegetation, roller chopping, disking, and prescribed burning. Through these management regimes, the area's aquatic vegetation normally regenerates naturally without any reseeding necessary to provide abundant pre-emergent aquatic vegetation for waterfowl and wading birds as well as other fish and wildlife species that occur on the area.

5.2.2 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. As noted earlier, prior to acquisition by the SJRWMD, the TMGWMA was used for agriculture and pasture land which involved installing water control structures, ditches, and levees to facilitate conditions favorable for farming and grazing. Site preparation, drainage, and lack of fire have all combined to alter the plant species composition of the area and had inhibited the natural fire return interval for area's freshwater marshes. Since the area was acquired by the SJRWMD and leased to the FWC, the FWC has been engaged in site-specific combinations of prescribed fire, mechanical and chemical vegetation control, and restoration of natural water regimes to restore and maintain the area's network of marsh, open water, and varying vegetative cover.

Prescribed burn at TMGWMA marsh, *FWC*

Prescribed burn at TMGMWA, *FWC*

The FWC employs a fire management regime to increase both species and habitat diversity and will continue a prescribed burning program on the TMGWMA in accordance with vegetative management objectives. As fire moves

across a landscape, some areas carry fire better than others. Areas with higher vegetative fuel loads typically burn more evenly and with greater intensity. Areas with lower vegetative fuel loads or wetland areas inundated with water typically will not carry fire as evenly, and usually burn at a lower intensity. Employing a burning program with different burning frequencies, intensities, and seasonality (dormant season vs. growing season) of prescribed burns create habitat diversity and a mosaic of vegetation patterns. This mosaic is designed to have both frequently burned and infrequently burned aspects. Prescribed burning at TMGWMA is generally conducted throughout the late winter and spring months to set back plant succession and control noxious and exotic vegetation.

Whenever possible, the FWC uses existing firebreaks such as roads and trails, as well as natural breaks such as creeks and wetlands, to define burning compartments. At TMGWMA, the network of levees and canals are used as firebreaks.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan will be developed and implemented for TMGWMA. This plan will include, but not be limited to, delineation of burn management units, detailed descriptions of prescribed fire methodology, safety, and smoke management guidelines. Upon completion, the TMGWMA Prescribed Burning Plan will be implemented to facilitate habitat improvement on the area and will be included as Appendix 13.8 in the Management Plan.

5.2.3 Habitat Restoration

As described earlier, the natural vegetative community on TMGWMA was severely altered due to past drainage practices and previous land use. However, since acquisition by the SJRWMD, wetland management activities conducted on the area have restored a majority of the native vegetative communities. Previous and ongoing restoration activities include application of prescribed fire on the area's fresh water marshes, water level management, removal and treatment of exotic vegetation, and mechanical vegetation treatment to control plant succession and maintain the marsh in an early successional state.

Herbiciding at TMGWMA, *FWC*

Every aspect of the day to day operation of the area has wetland habitat restoration and enhancement as its primary goal. For example, culvert maintenance, properly functioning pumps and structures, and ditches clear of vegetation all aid in water level manipulation and movement. The quicker and more efficient water can move around the area, the higher the quality and quantity of habitat staff can provide.

Continuing a rigorous exotic plant control program on the area has proved extremely beneficial in reclaiming native habitat that was lost by previous management activities prior to SJRWMD acquisition. Chemical treatments of exotics coupled with follow-up burning, disking, chopping or a combination of the three and followed by flooding has greatly increased the amount of usable acres by waterfowl and wading birds on the area.

Finally, the most important aspect of habitat restoration at TMGWMA is maintenance. By maintaining a proper fire return interval and performing mechanical treatment such as disking and chopping, TMGWMA staff ensures a robust and diverse vegetative composition in the restored areas. While in drawdown, spot spraying of exotics will continue to be a standard operating procedure, but the overall management goal is to use high water level manipulation, prescribed fire, and mechanical soil disturbance to promote native vegetation.

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

5.3.1 Fish and Wildlife

Due to the active wildlife and moist soil management practices at TMGWMA, a diversity of wildlife, including waterfowl, rare, imperiled, game, and non-game species, can be found on the area. In managing for wildlife species, an emphasis is placed on migrating, wintering, and resident waterfowl.

Wood stork, *FWC*

The size, location, and management of TMGWMA creates a habitat mosaic for a wide variety of wildlife species. The diverse habitats range from mud flats to moist-soil and shallow water impoundments to more deeply flooded marsh. Resident wildlife will be managed for optimum species richness, diversity and abundance. In addition to resident wildlife, TMGWMA provides resources critical to many migratory birds including waterfowl, passerines, raptors, shorebirds and others. Habitats important to migratory species will be protected, maintained or enhanced. Water management schedules for selected impoundments are specifically designed to provide shallow feeding areas (one to three inches) and exposed mud flats during migratory periods.

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. Hunting opportunities are regulated through quotas 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.

The primary emphasis of wildlife management at TMGWMA is on managing habitat for waterfowl and other wetland wildlife species. The FWC also places an emphasis on documenting the occurrence and abundance of rare and imperiled species on the TMGWMA as well as some species of waterfowl. 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 will include prescribed burning, water level management, roller chopping, disking, and native and exotic vegetation treatment.

5.4 Exotic and Invasive Species Maintenance and Control

The FWC will continue to control the establishment and spread of Florida Exotic Pest Plant Council (FLEPPC) Category I or II plants on TMGWMA. Control methods may include mechanical, chemical, biological, and other appropriate treatments. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices for their application.

Exotic and invasive plant species that occur on the TMGWMA and are treated annually by the FWC include paragrass, Cuban bulrush, water hyacinth, and water lettuce. Paragrass was established as a pasture grass on the Goodwin Unit prior to SJRWMD acquisition and unintentionally spread to the Broadmoor Marsh Unit. The FWC continues to implement a paragrass control program following a regime of herbicide spraying, prescribed burning, disking and deep flooding. On-site observations and published research indicate a combination of activities (herbicide spraying followed by deep flooding, for example) seem to be the most effective.

Water hyacinth treated on the Goodwin Unit, *FWC*

Exotic and invasive plant species occur at varying densities on approximately 2,265 acres of the TMGWMA. However, the FWC's methodology for determining the number of acres

"infested" with invasive exotic plants only represents a cumulative acreage, and does not reflect the degree of the invasive exotic occurrence. The degree of infestation among areas identified with invasive exotic plant occurrences often varies substantially by species, level of disturbance, environmental conditions, and the status of ongoing eradication and control efforts. The FWC will continue to focus treatments on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring. A tabulation of exotic plant species documented on the area is provided in Table 5. Section 6.4 outlines specific acreages for annual chemical and mechanical exotic treatments.

Additionally, the FWC will continue efforts to control the introduction of exotic and invasive species, as well as pests and pathogens on the TMGWMA by requiring contractors to clean their equipment before it is brought onto the area. 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 exotic pests and pathogens to the area.

Feral hogs, *FWC*

An exotic animal species of concern on the TMGWMA 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). Signs of feral hog damage to natural communities at TMGWMA have been documented and the FWC will continue to monitor for signs of resource damage. The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate feral hog control measures as necessary. Currently, there are no hunting opportunities for feral hogs on TMGWMA. The FWC has included an objective in Section 6.4 of this Management Plan to control the hog population through hunting and or trapping on the area.

5.5 Public Access and Recreational Opportunities

5.5.1 Americans with Disabilities Act

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

primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA[13] where:

1. Compliance will cause harm to cultural or historic sites, or significant natural features and their characteristics.

2. Compliance will substantially alter the nature of the setting and therefore the purpose of the facility.

3. Compliance would not be feasible due to terrain or prevailing construction practices.

4. Compliance would require construction methods or materials prohibited by federal or state statutes, or local regulations.

5.5.2 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 TMGWMA. To accomplish this, the FWC will work with recreational stakeholders and the general public to develop a Recreation Master Plan for TMGWMA that will be used to further design and develop appropriate infrastructure that will support the recreational use of the area by the public. This Recreation Master Plan will include planning for parking and area resource interpretation and will be completed by 2017.

5.5.3 Public Access Carrying Capacity

Baseline carrying capacities for users on FWC-managed lands are established by conducting a site specific sensitivity analysis using available data for the site. The intent of the carrying capacity analysis is to minimize wildlife and habitat disturbance and provide the experience of being "immersed in nature" that visitors to FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing, and fish and wildlife resource based public outdoor recreation opportunities. Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, FWC has determined that TMGWMA can currently support 341 visitors per day.

However, it is important to note that public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the respective area in order to protect the natural and cultural resources on TMGWMA 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.

5.5.4 Wildlife Viewing

Wildlife viewing is excellent at TMGWMA, particularly for waterfowl, wading birds, and shorebirds. The area is part of the Great Florida Birding and Wildlife Trail, a 2,000-mile, self-guided highway trail that connects and unifies 515 birding and wildlife viewing sites throughout Florida. Visitors can expect to observe between 50-60 different bird species on the area during fall and spring migrations. Marshlands next to the levees are good spots to observe snowy egrets, great blue herons, white ibis, great egrets, night herons, osprey, bald eagles, and alligators. Visitors can view the area's wildlife by following the series of levees around the impoundments and from a three-tier observation tower located on the southern end of the property, approximately two miles north of the FWC field office.

Observation tower at TMGWMA, *David Moynahan*

5.5.5 Hunting

The TMGWMA is one of the premier duck hunting locations in Florida. Late fall through winter its open marsh habitat, mudflats, and impoundments contain the full spectrum of duck species including blue-winged teal, ring-neck, green-winged teal, American widgeon, pintail, wood duck, mottled duck, fulvous whistling-duck, and black-bellied whistling-duck. Hunting opportunities at TMGWMA include seasons for waterfowl and snipe. Alligator hunting is also allowed on the area. An evaluation of the hunting opportunities offered on TMGWMA is performed periodically by the FWC. Additional information about the current hunting opportunities and regulations on the area may be found at: http://myfwc.com/media/2527476/TM-Goodwin-SGA.pdf

Blue-winged teal, *David Moynahan*

5.5.6 Fishing

Fishing is permitted year-round at TMGWMA. Bank fishing on Goodwin Lake is allowed daily. Additional information about the current fishing opportunities and regulations on the area may be found at: http://myfwc.com/media/2527476/TM-Goodwin-SGA.pdf

5.5.7 Boating and Paddling

Goodwin Lake is open to boats on Mondays and Thursdays, with two boats allowed per day by permit only. Boating and paddling opportunities are also available on flooded impoundments and the Goodwin Unit and Broadmoor Marsh Unit reservoirs when water levels are adequately high. There is a boat ramp and dock at Goodwin Lake, a boat ramp in the northwest corner of the Goodwin Unit, and numerous unimproved boat ramps on the Broadmoor Marsh Unit.

5.5.8 Trails

Eight miles of the SJRWMD's Three Forks trail follow the western exterior levee of the Broadmoor Marsh Unit and the eastern exterior levee of the Goodwin Unit. Hiking, bicycling, and horseback riding are allowed on the area's levees. Horses and horseback riding are not permitted on L-75 and L-74 North.

5.5.9 Camping

Camping is prohibited at TMGWMA but camping opportunities are available in the vicinity in both public and private campgrounds.

5.5.10 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 FWC-managed lands is governed by specific guidelines. These guidelines may be found on the following FWC website: http://myfwc.com/media/1074886/FWC_Geocache_Guidelines.pdf .

5.5.11 Environmental Education

Currently, several environmental education groups visit the TMGWMA for birding and other wildlife viewing activities. Among those are the Environmental Learning Center which routinely provides environmental educational tours of the area for school children and Audubon Society guided birding tours on the area. Additionally, objectives to continue and expand educational programs and activities at TMGWMA are included in Section 6.5 and 6.12. Groups wishing to access the area by vehicle outside of the established Monday and Thursday vehicular access days are required to apply for a permit through MyFWC.com. Vehicle use guidelines are available at: http://myfwc.com/media/2527476/TM-Goodwin-SGA.pdf

5.6 Hydrological Preservation and Restoration

5.6.1 Hydrology and Water Level Management

As noted above, water level management is the primary habitat management tool used on TMGWMA. Habitat management is accomplished by manipulating water level in the impoundments to promote the production of native, moist-soil, wetland plants. Moist soil conditions created during the growing season promote the establishment of native seed producing plants such as panic grass, smartweed, wild millet, and sedges. The timing, speed and length of the drawdowns, and subsequent reflooding influence the species of plants that respond and grow in moist soil conditions. Different manipulations among the impoundments promote specific types of plant response, provide diverse habitat, and result in favorable conditions for a variety of wetland wildlife. Shallow reflooding occurs in late summer followed by a gradual increase in water levels up to about 18 inches in the fall and winter.

The manipulation of water levels in the impoundments is accomplished either by adding or removing flashboards from the WCS or by raising or lowering a screwgate on the WCS to permit the gravity flow of water into or out of the impoundments. If gravity flow is not possible, the pump station is operated to facilitate gravity flow within the central canal. For instance, if water level in the reservoir pool and the central canal are too low to permit the flooding of an impoundment, the pump station will be operated to discharge water from the reservoir pool into the central canal. The appropriate WCS can then be adjusted to permit the gravity flow of water from the central canal into the selected impoundments. Conversely, if water level in the reservoir and the central canal are too high to permit the dewatering of an impoundment, water from the central canal can be discharged into the reservoir pool. By either opening the screwgate or removing flashboards from the selected WCS, water can then gravity flow from the impoundment into the central canal. Excess water in the central canal is then discharged into the reservoir.

The precise manipulation of water level within each impoundment is the most important technique used to effectively manage plant communities. Water levels in and among the impoundments vary seasonally, particularly during the growing season and range from about zero to 18 inches. As a general guide, the impoundments are flooded at the higher end of the range (approximately nine to 18 inches) from late fall through the winter, and at the lower end of the range (approximately zero to nine inches) during the spring and summer season.

For the reservoirs, water level will fluctuate based on the amount of rainfall the TMGWMA receives and management of water levels in the impoundments. Generally, water level is typically highest during the summer as a result of seasonal rainfall and lower water levels maintained in the impoundments. Water level in the reservoir is typically lowest during the spring when evapotranspiration exceeds rainfall. The water levels in the Goodwin Unit

and the Broadmoor Marsh Unit reservoirs are managed to maintain a semi-permanent flooded marsh, with water level ranging between 24 to 36 inches.

5.6.2 Water Resource Monitoring

Currently, the FWC collects weekly data on water levels in each of the area's impoundments. Area staff also collect weekly rainfall data. In addition, the FWC will continue to cooperate with the SJRWMD and implement any necessary surface water quality and quantity monitoring protocols for TMGWMA. In this capacity, the FWC will primarily rely on the expertise of the SJRWMD to facilitate these monitoring activities. As necessary, the FWC may independently conduct or contract for water resource monitoring, as guided by the SJRWMD and the DEP.

5.7 Forest Resource Management

There are no timber resources on the TMGWMA. As a result, the FWC and the FFS have determined that a professional forest assessment for the TMGWMA is unnecessary. The FWC will cooperate with the FFS or a qualified professional forestry consultant regarding any forestry management activities should they become necessary or appropriate.

5.8 Cultural and Historical Resources

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

To date, the DHR Master Site File indicates one known cultural site and two resource groups on TMGWMA. The site is a prehistoric midden (BR01614) which contains ceramic artifacts, primarily pottery fragments. In cooperation with the DHR, this site has been identified as meeting the DHR's special criteria for annual monitoring and reporting. Therefore, the FWC will continue to monitor and report on this site annually. The two resource groups are associated with canal developments (BR02569 and BR01957). There have been three field surveys documented on TMGWMA. The FWC will submit subsequently located cultural sites on TMGWMA to the DHR for inclusion in their Master Site File.

5.9 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 (Figure 9) on TMGWMA include:

- The Broadmoor Marsh Unit pole barn

- L-75 water control structure and pump (maintained by the SJRWMD)

- L-75 boat ramp

- Goodwin Lake boat ramp

- Wildlife observation tower and picnic shelter

- FWC office and equipment storage compound

- Entrance sign

- Persons with disabilities duck blind

- Three pump stations maintained by the FWC

- Approximately 30.5 miles of levees

Observation tower and picnic shelter, *David Moynahan*

Boat ramp at TMGWMA, *David Moynahan*

As described in Section 5.5.1 of this Management Plan, for any public facilities that are developed on areas managed by FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336).

5.10 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.

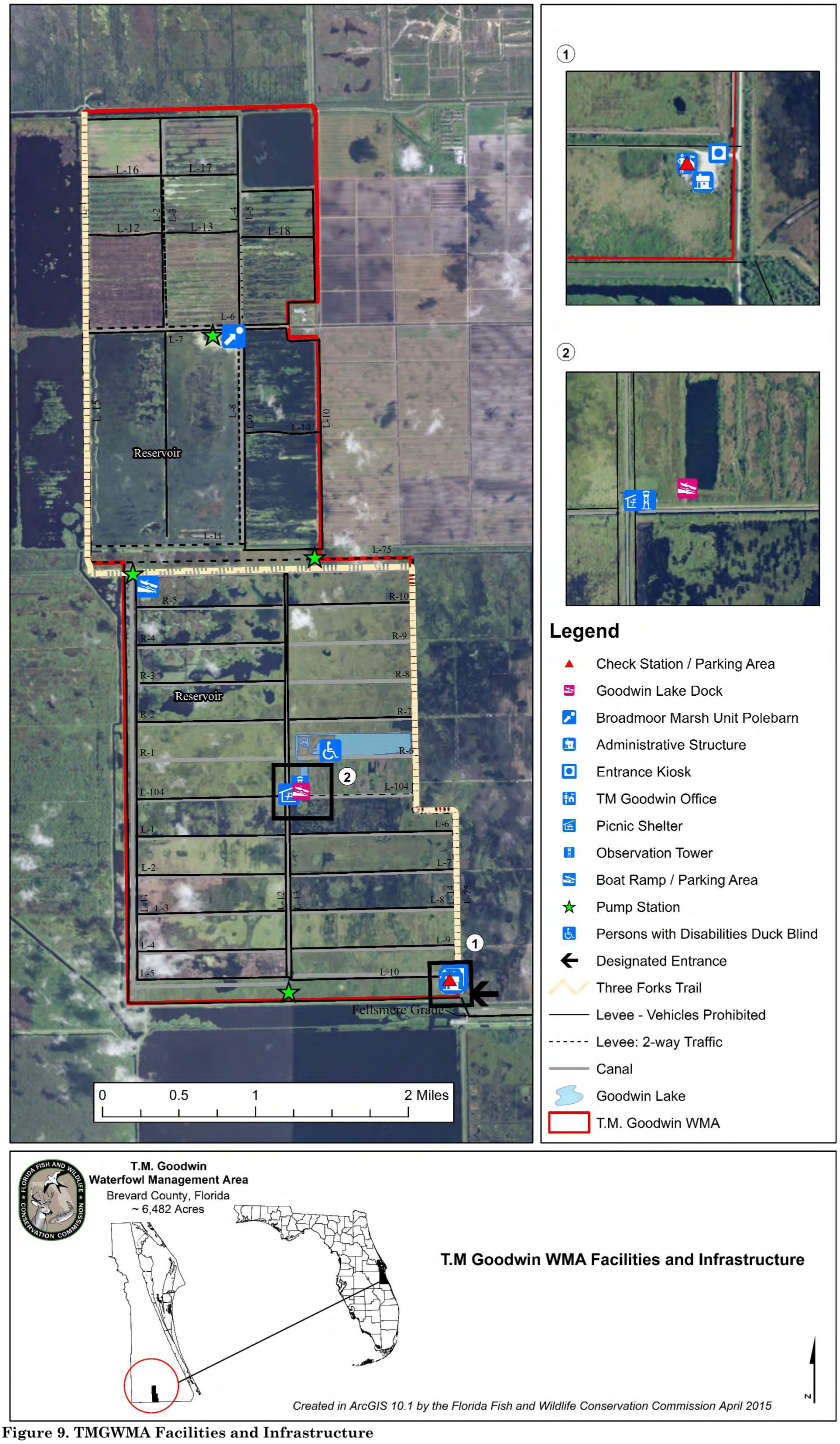

Figure 9. TMGWMA Facilities and Infrastructure

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5.10.1 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.

5.10.2 Optimal Conservation Planning Boundary

The second tier is known as the OCPB (Figure 10). The OCPB combines the regional natural resources identified in the ORB, as well as regional and local area conservation planning, including habitat conservation and restoration, habitat linkages, management challenges, land use and zoning issues, infrastructure including roads and developments, improving access, eliminating inholdings, providing prescribed burn buffers, resolving boundary irregularities, water resource protection, and conserving other important natural and cultural resources.

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

5.10.3 Conservation Action Strategy

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

Primary components of the CAS may include:

- FWC Landowner Assistance Program (LAP)
- 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 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/ .

5.10.4 FWC Florida Forever Additions and Inholdings Acquisition List

Currently, there are no parcels contained within FWC's Florida Forever Additions and Inholdings acquisition list for TMGWMA. However, the remainder of the Brevard Coastal Scrub Ecosystem Florida Forever Project St. Sebastian – St. Johns River Greenway is included within the OCPB for TMGWMA. Excluding the acreage contained in the Mary A. Ranch Mitigation Bank, there are approximately 5,243 acres of the Brevard Coastal Scrub Ecosystem St. Sebastian – St. Johns River Greenway Florida Forever project remaining to be acquired. Upon completion of the CAS, additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended.

5.11 Research Opportunities

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

5.12 Cooperative Management and Special Uses

5.12.1 Cooperative Management

The FWC is responsible for the overall management and operation of TMGWMA as set forth in the lease agreements with 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 DHR to

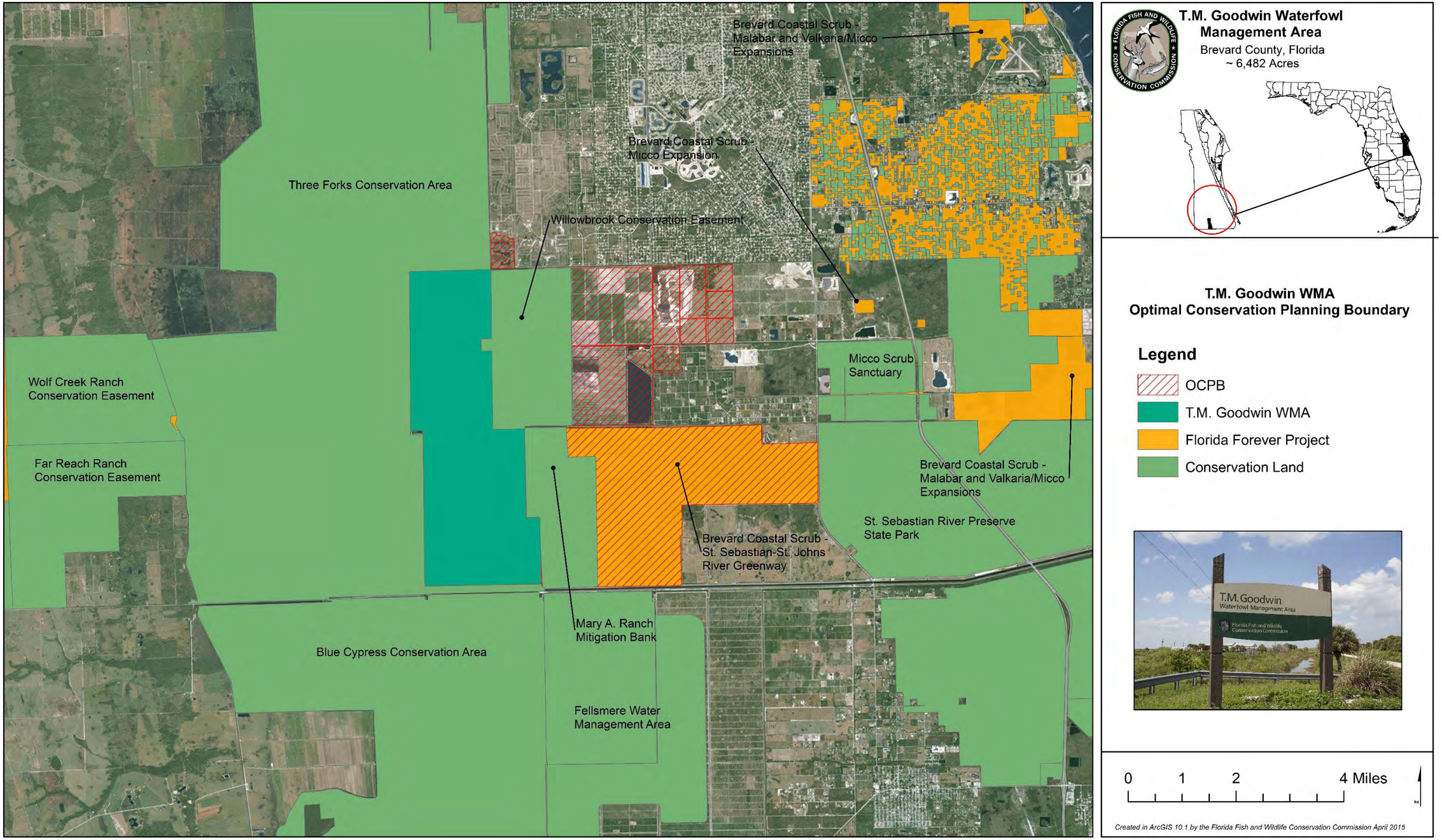

Figure 10. TMGWMA Optimal Conservation Planning Boundary

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ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 13.6) are followed with regard to any ground-disturbing activities. 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 TMGWMA. The FWC cooperates with owner of Willowbrook Farms for the storage and drainage of water across the TMGWMA, per the easement agreement described in Section 1.7.

The FWC will continue to cooperate with the SJRWMD, the NRCS, and the ACOE in the continuing management of the TMGWMA. The SJRWMD is responsible for maintenance of all the Goodwin Unit's perimeter levees, roads, canals, water control structures, pumps, and the pump station in northwest corner of the Unit. The SJRWMD is also responsible for aquatic weed control on the western canal of the Goodwin Unit and on Goodwin Lake. On the Broadmoor Marsh Unit, the SJRWMD is responsible for maintaining the north, south, and west exterior boundary levees and maintaining external pumps. The FWC maintains internal pumps on the TMGWMA. The FWC will continue to cooperate with other governmental agencies including Brevard County, the DEP, and the nongovernmental agencies such as DU in the continuing management of the TMGWMA. In addition, the FWC will continue to cooperate with the Environmental Learning Center, the Audubon Society, and other groups that may wish to offer environmental educational opportunities or guided tours on the area.

Does at TMGWMA, *FWC*

5.12.2 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 TMGWMA. 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 TMGWMA, 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 TMGWMA. 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 SJRWMD Governing Board, the DSL, and the ARC for approval consideration prior to authorization.

5.12.3 Apiaries

Currently, there are no apiaries operating on TMGWMA. However, use of apiaries is conditionally approved for TMGWMA and is deemed to be consistent with purposes for acquisition, is in compliance with the Conceptual State Lands Management Plan, and is consistent with the FWC agency mission, goals, and objectives as expressed in the agency Strategic Plan and priorities document (Appendix 13.7). Location, management, and administration of apiaries on TMGWMA will be guided by the FWC Apiary Policy (Appendix 13.9).

5.13 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.[14]

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;[15, 16, 17] more frequent invasions and outbreaks of exotic invasive species;[18]and loss of habitat in coastal areas due to sea level rise.[19] 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.[20] 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 exotic 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.

The potential loss of habitat may result in the loss of species using that habitat, including migrating and nesting birds. Storm events also cause considerable physical damage to native vegetation along vulnerable shorelines, impacting nesting habitat for sea life and shorebirds. Climate change may amplify and hasten these effects, potentially at rates that exceed the normal resiliency of plant communities to recover, shift or adapt accordingly.[21, 22] Elements of climate change that may potentially affect TMGWMA include alteration in migration of waterfowl and other birds, more frequent and more potent storm events, alteration of vegetation reproductive cycles, and changes in the fire regime. Sea-level rise potential inundation scenarios at TMGWMA for one to six meters are shown in Figure 11. The TMGWMA would only be directly impacted by a sea level rise of six meters.

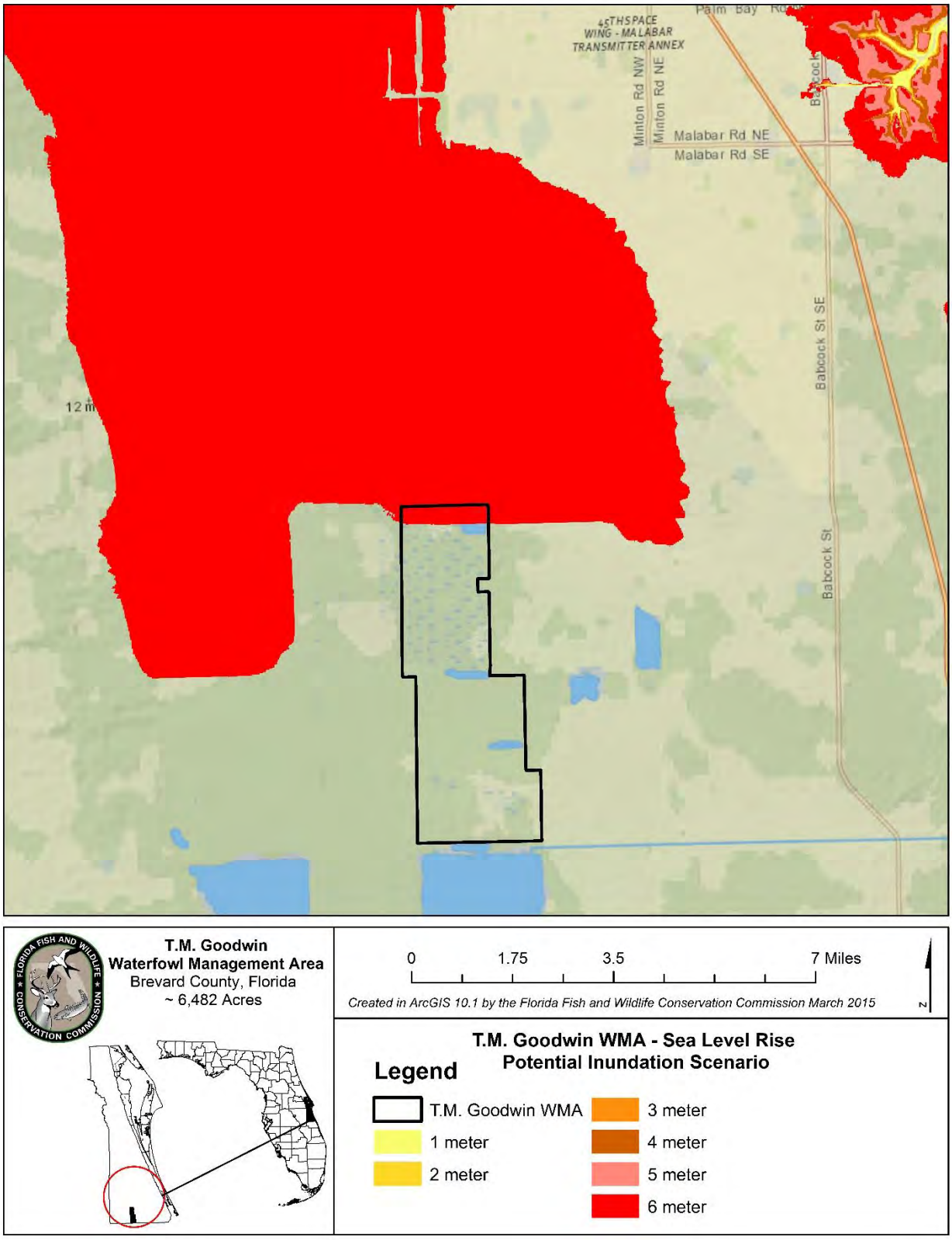

Figure 11. Sea Level Rise Potential Inundation Scenario - TMGWMA

To address the potential impacts of climate change on the TMGWMA, Goals and Objectives have been developed as a component of this Management Plan (Section 6.13). 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 TMGWMA Management Plan in the future.

5.14 Soil and Water Conservation

Soil disturbing activities will be confined to areas that have the least likelihood of experiencing erosion. 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. Water conservation is accomplished through water level management, water re-use, and monitoring as described in Sections 2.5 and 5.6 above.

Alligator and roseate spoonbills at TMGWMA, *David Moynahan*

6 Resource Management Goals and Objectives

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

6.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Short-term

6.1.1 Conduct prescribed burning on at least 750 acres of fresh water marsh on the area per year as weather conditions allow.

6.1.2 Maintain 3,787 acres of fire adapted communities (100% of the area's fire adapted

communities) within a 2 - 5 year fire return interval as weather permits.

6.1.3 Develop and implement a prescribed burning plan for the area**.**

6.1.4 Conduct habitat/natural community improvement through roller chopping on 800 acres on the area per year to control plant succession and maintain the marsh in an early successional state.

6.1.5 Conduct habitat/natural community improvement through disking on 100 acres per year to control plant succession and maintain the marsh in an early successional state.

6.1.6 Remove vegetation that impedes water movement from up to eight miles of ditches per year.

Long-term

6.1.7 Continue to conduct prescribed burning on at least 750 acres of fresh water marsh per year as weather conditions allow.

6.1.8 Maintain 3,787 acres of fire adapted communities (100% of the area's fire adapted communities) within a 2 - 5 year fire return interval as weather permits.

6.1.9 Continue to implement the prescribed burning plan for the area.

6.1.10 Continue to conduct habitat/natural community improvement through roller chopping on 800 acres per year to control plant succession and maintain the marsh in an early successional state.

6.1.11 Continue to conduct habitat/natural community improvement through disking on 100 acres per year to control plant succession and maintain the marsh in an early successional state.

6.1.12 Remove vegetation that impedes water movement from the 80 miles of ditches within the area's impoundments by 2025.

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

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

Short-term

6.2.1 Continue to collect opportunistic imperiled wildlife species occurrence data on the area.

6.2.2 Monitor for imperiled plant species occurrences on the area.

6.2.3 Conduct an imperiled species assessment on the area to determine additional monitoring and management needs**.**

Long-term

6.2.4 Continue to collect opportunistic imperiled species occurrence data on the area.

6.2.5 Continue to monitor for imperiled plant species occurrences on the area.

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

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

Short-term

6.3.1 Continue to collect biological harvest data at the area's check station on all harvested game species.

6.3.2 Continue to manage water levels within the area's impoundments to maintain and enhance habitat for waterfowl, wading birds, and shorebirds.

6.3.3 Install and maintain 10 wood duck boxes throughout the area.

6.3.4 Continue to collect opportunistic game and more common wildlife species occurrences as feasible.

Long-term

6.3.5 Continue to collect biological harvest data at the area's check station on all harvested game species.

6.3.6 Continue to manage water levels within the area's impoundments to maintain and enhance habitat for waterfowl, wading birds, and shorebirds.

6.3.7 Install and maintain 20 additional wood duck boxes throughout the area.

6.3.8 Continue to collect opportunistic game and more common wildlife species occurrences on the area as feasible.

6.4 Exotic and Invasive Species Maintenance and Control

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

Short-term

6.4.1 Chemically treat at least 1,000 acres per year of EPPC Category I and Category II invasive exotic plant species (e.g. paragrass, water hyacinth, and Cuban bulrush).

6.4.2 Continue to document exotic animal species occurrences and implement control measures as appropriate.

6.4.3 Consider controlling feral hogs through hunting and trapping as appropriate.

6.4.4 Mechanically treat approximately 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g. Cuban bulrush) per year.

6.4.5 Conduct vegetation surveys every quarter of the calendar year to monitor exotics.

6.4.6 Document and control as necessary Nile monitor, tegu, Cuban tree frogs, green iguanas, knight anoles, etc.

Long-term

6.4.7 Continue to chemically treat at least 500 acres per year of EPPC Category I and Category II invasive exotic plant species (e.g. paragrass, water hyacinth, and Cuban bulrush) on the area.

6.4.8 Mechanically treat approximately 35 acres of EPPC Category I and Category II invasive exotic plant species (e.g. Cuban bulrush) per year.

6.4.9 Continue to document exotic animal species occurrences and implement control measures as appropriate.

6.4.10 Continue vegetation surveys every quarter of the calendar year to monitor exotics.

6.4.11 Document and control as necessary Nile monitor, tegu, Cuban tree frogs, green iguanas, knight anoles, etc.

6.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term

6.5.1 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 341 visitors per day.

6.5.2 Continue to provide a website, a kiosk, and the Great Florida Birding and Wildlife Trail TMGWMA website for interpretation and education.

6.5.3 Develop a bird list, a two panel kiosk, a recreation map, and an expanded website for

the area.

6.5.4 Maintain eight miles of designated trail as part of the SJRWMD's Three Forks trail (Figure 12).

6.5.5 Develop and implement a Recreation Master Plan for the area.

6.5.6 Monitor trails annually for visitor impacts.

6.5.7 Continue to provide hunting opportunities during waterfowl and snipe seasons.

6.5.8 Continue to provide paddling opportunities on Goodwin Lake and on appropriate water bodies.

6.5.9 Continue to provide fishing opportunities.

6.5.10 Assess the need to increase the number of boats permitted on Goodwin Lake per day (Figure 12).

6.5.11 Consider the feasibility of establishing hog hunts.

Long-term

6.5.12 Continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 341 visitors per day.

6.5.13 Continue to monitor trails annually for visitor impacts.

6.5.14 Reassess recreational opportunities every three years.

6.5.15 Continue to provide a website, a kiosk, and the Great Florida Birding and Wildlife Trail TMGWMA website for interpretation and education.

6.5.16 Continue to maintain eight miles of designated trail on the area as part of the SJRWMD's Three Forks trail (Figure 12).

6.5.17 Continue to provide hunting opportunities during waterfowl and snipe seasons.

6.5.18 Continue to provide paddling opportunities on Goodwin Lake and other appropriate water bodies.

6.5.19 Continue to provide fishing opportunities.

6.5.20 Cooperate with the SJRWMD, Brevard County, other agencies, stakeholders, and regional landowners to investigate other regional recreational opportunities for the area including linking hiking, and multi-use trail systems between adjacent public areas.

6.5.21 Continue to cooperate with the Environmental Learning Center, Audubon Society, and other groups to provide environmental educational opportunities on the area.

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

6.6 Hydrological Preservation and Restoration

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

Short-term

6.6.1 To maintain and enhance natural hydrological functions, install and maintain culverts as appropriate.

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

6.6.3 Continue to collect water level and rainfall data.

6.6.4 Monitor and maintain the area's levees and ditches.

6.6.5 Continue to operate and maintain three pump stations (Figure 12).

Long-term

6.6.6 To enhance natural hydrological functions, continue to install and maintain culverts as appropriate.

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

6.6.8 Continue to collect water level and rainfall data.

6.6.9 Monitor and maintain the area's levees and ditches.

6.6.10 Continue to operate and maintain three pump stations (Figure 12).

6.6.11 Explore the feasibility of increasing the hydroperiod in the northern impoundments of the Broadmoor Marsh Unit (Figure 12).

6.6.12 Conduct a levee assessment of the northern Broadmoor Marsh Unit levees.

6.7 Forest Resource Management

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

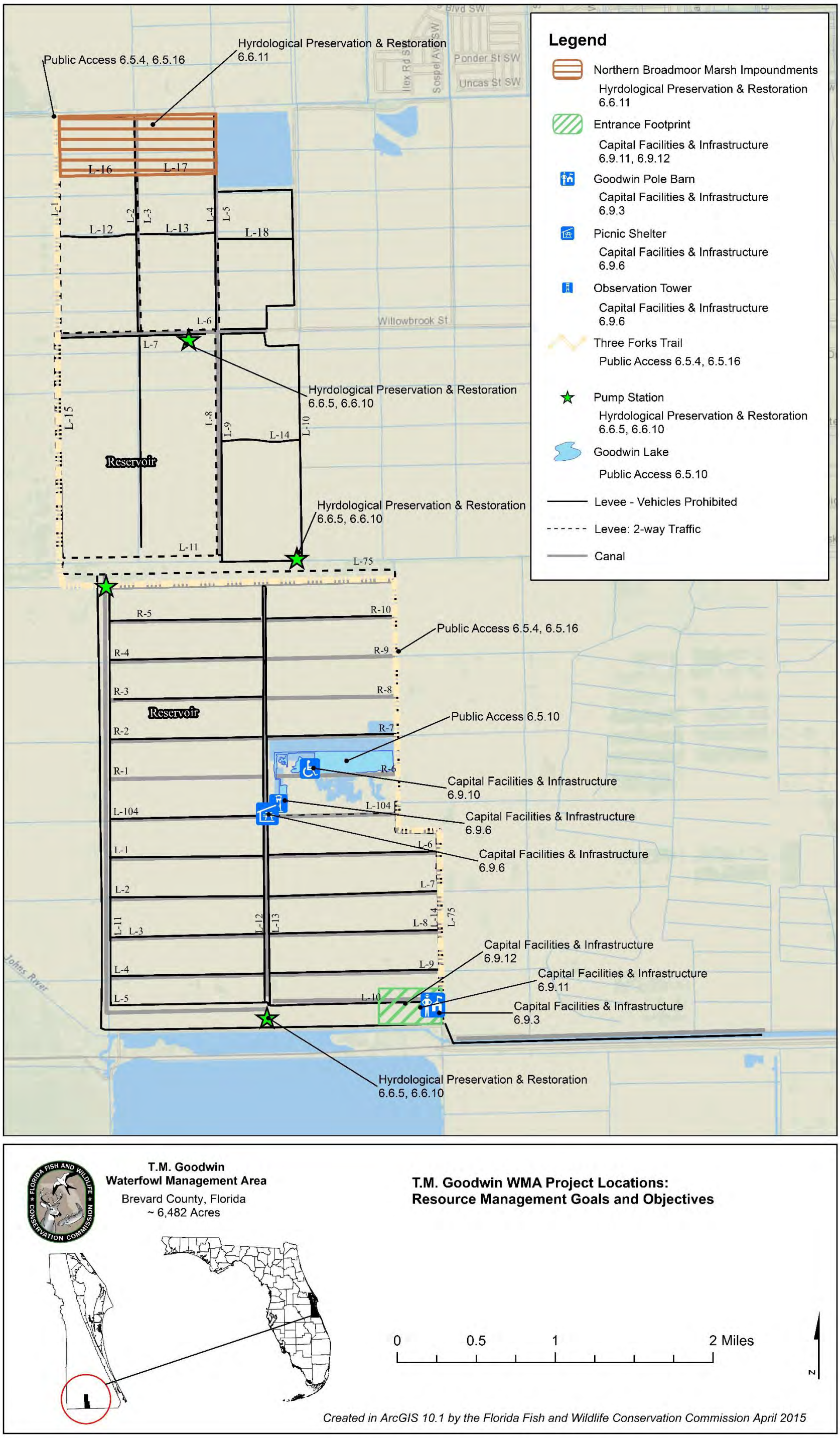

Figure 12. TMGWMA Project Locations

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There are no forest resources on the TMGWMA.

6.8 Cultural and Historical Resources

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

Short-term

6.8.1 Ensure all known sites are recorded in the DHR's Master Site file.

6.8.2 Continue to monitor, protect, and preserve as necessary one identified site.

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

6.8.4 Coordinate with the DHR for cultural resource management guideline staff training.

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

6.8.6 Cooperate with the DHR to manage and maintain known existing cultural resources.

Long-term

6.8.7 Cooperate with the DHR in designing site plans for development of infrastructure.

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

6.8.9 Continue to monitor, protect, and preserve as necessary one identified site.

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

6.9 Capital Facilities and Infrastructure

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

Short-term

6.9.1 Continue to maintain seven facilities located on the area (Broadmoor Marsh Unit pole barn, Goodwin Lake boat ramp, L-75 boat ramp, observation tower and picnic shelter, FWC office and equipment storage compound, entrance sign, and the persons with disabilities duck blind).

6.9.2 Maintain approximately 30.5 miles of levees located.

6.9.3 Enclose a section of the pole barn for secure storage. (Figure 12).

6.9.4 Improve or repair 12 miles of levees on the area's Goodwin Unit.

6.9.5 Monitor the area's levees and infrastructure weekly.

6.9.6 Renovate the area's observation tower and picnic shelter (Figure 12).

Long-term

6.9.7 Continue to monitor the area's levees and infrastructure weekly.

6.9.8 Continue to maintain seven facilities located on the area (Broadmoor Marsh Unit pole barn, Goodwin Lake boat ramp, L-75 boat ramp, observation tower and picnic shelter, FWC office and equipment storage compound, entrance sign, and the persons with disabilities duck blind) as well as planned new facilities listed below.

6.9.9 Continue to maintain 30.5 miles of roads located on the area.

6.9.10 Improve or repair the persons with disabilities duck blind (Figure 12).

6.9.11 Construct a new equipment maintenance storage facility (Figure 12).

6.9.12 Construct an entrance facility to include a kiosk, ADA compliant parking, and related signage (Figure 12).

6.10 Land Conservation and Stewardship Partnerships

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

Short-term

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

6.10.2 Identify and develop conservation stewardship partnerships.

6.10.3 Identify and pursue conservation acquisition needs.

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

6.10.5 Develop a CAS for the area.

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

6.10.7 Determine which parcels, if any, should be added to the FWC acquisition list for the area.

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

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

6.10.10 Identify potential conservation easements donations.

Long-term

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

6.10.12 Continue to identify and develop conservation stewardship partnerships.

6.10.13 Continue to identify and pursue conservation acquisition needs for the area.

6.10.14 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for the FWC LAP and Land Acquisition Program.

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

6.10.16 As feasible, continue to periodically contact and meet with adjacent landowners for willingness to participate in the area's CAS, and coordinate landowner assistance/conservation stewardship partnership workshops as deemed appropriate.

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

6.10.18 Continue to identify potential conservation easements donations.

6.11 Research Opportunities

Goal: Explore and pursue cooperative research opportunities.

Short-term

6.11.1 Continue to explore and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute (FWRI), etc.

6.11.2 Continue to cooperate with researchers, universities, and others requesting to conduct research on the area as appropriate.

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

Long-term

6.11.4 Continue to explore and pursue cooperative research opportunities through universities, FWRI, etc.

6.11.5 Continue to cooperate with researchers, universities, and others requesting to conduct research as appropriate.

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

6.12 Cooperative Management and Special Uses

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

Short-term

6.12.1 Continue to work with FWC's Aquatic Habitat Restoration/Enhancement Section (AHRES), Invasive Plant Management Section (IPM), the Division of Freshwater Fisheries (FF), Division of Hunting and Game Management (HGM), FWRI, and other Sections within FWC on projects beneficial to the management of the area.

6.12.2 Continue to work with the SJRWMD on projects involving land management issues and water level management.

6.12.3 Continue to cooperate with the Environmental Learning Center, the Audubon Society, and other organizations for cooperative education and management efforts on the area.

6.12.4 Continue to cooperate with DU for management of the area.

6.12.5 Continue to cooperate with the ACOE for the area's levee use, access, and maintenance.

Long-term

6.12.6 Continue to work with AHRES, IPM, Division of FF, Division of HGM, FWRI, and other sections within FWC on projects beneficial to the management of the area.

6.12.7 Continue to work with the SJRWMD on projects involving land management issues and water level management.

6.12.8 Continue to cooperate with the Environmental Learning Center, the Audubon Society, and other organizations for cooperative education and management efforts.

6.12.9 Continue to cooperate with DU for management of the area.

6.12.10 Continue to cooperate with the ACOE for the area's levee use, access, and maintenance.

6.13 Climate Change

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

Long-term

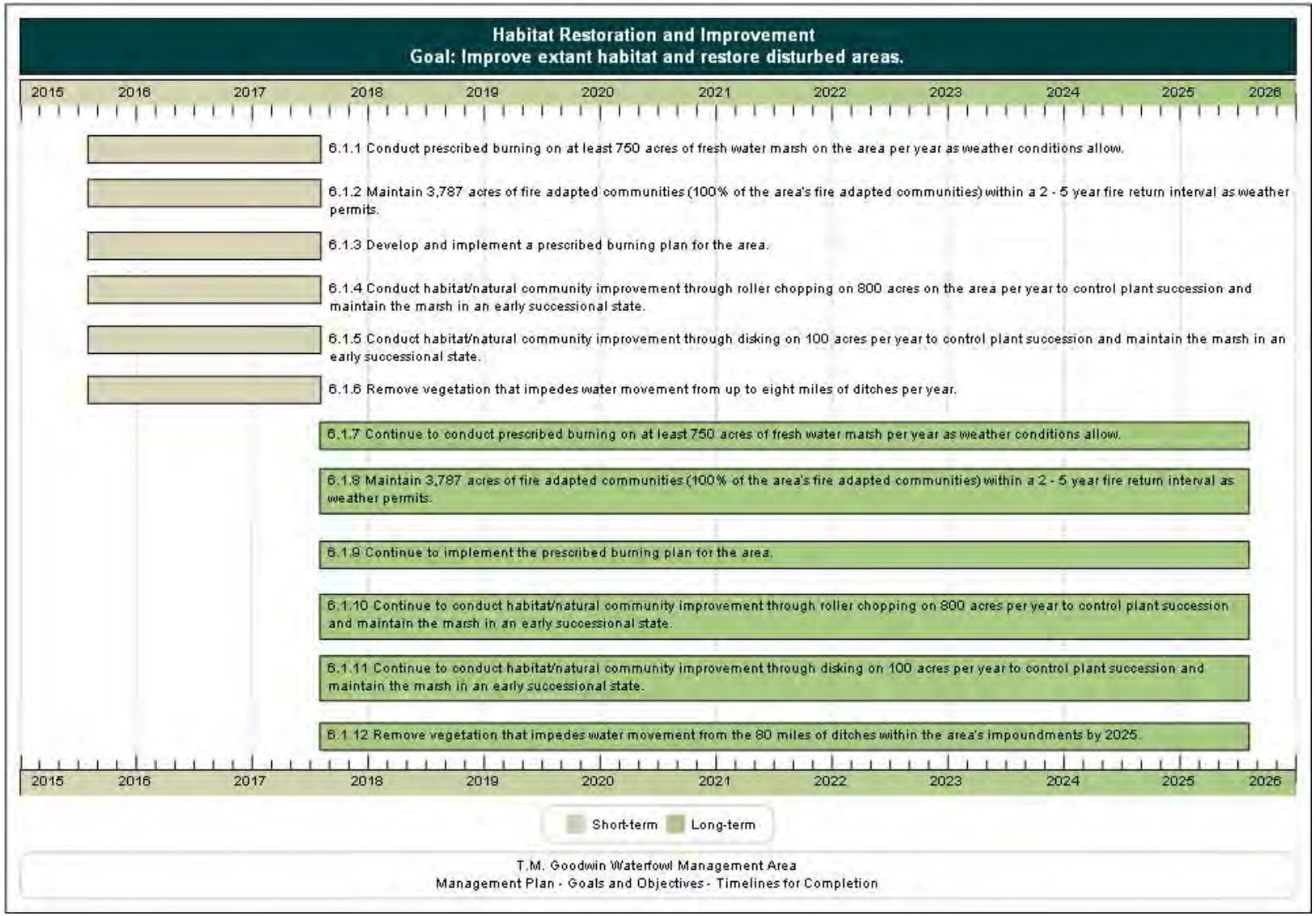
6.13.1 Coordinate with FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the TMGWMA.

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

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

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

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


Habitat Restoration and Improvement
Goal: Improve extant habitat and restore disturbed areas.
2015
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2024
2025
2026
6.1.1 Conduct prescribed burning on at least 750 acres of fresh water marsh on the area per year as weather conditions allow.
6.1.2 Maintain 3,787 acres of fire adapted communities (100% of the area's fire adapted communities) within a 2 - 5 year fire return interval as weather permits.
6.1.3 Develop and implement a prescribed burning plan for the area.
6.1.4 Conduct habitat/natural community improvement through roller chopping on 800 acres on the area per year to control plant succession and maintain the marsh in an early successional state.
6.1.5 Conduct habitat/natural community improvement through disking on 100 acres per year to control plant succession and maintain the marsh in an early successional state.
6.1.6 Remove vegetation that impedes water movement from up to eight miles of ditches per year.
6.1.7 Continue to conduct prescribed burning on at least 750 acres of fresh water marsh per year as weather conditions allow.
6.1.8 Maintain 3,787 acres of fire adapted communities (100% of the area's fire adapted communities) within a 2 - 5 year fire return interval as weather permits.
6.1.9 Continue to implement the prescribed burning plan for the area.
6.1.10 Continue to conduct habitat/natural community improvement through roller chopping on 800 acres per year to control plant succession and maintain the marsh in an early successional state.
6.1.11 Continue to conduct habitat/natural community improvement through disking on 100 acres per year to control plant succession and maintain the marsh in an early successional state.
6.1.12 Remove vegetation that impedes water movement from the 80 miles of ditches within the area's impoundments by 2025.
2015
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2021
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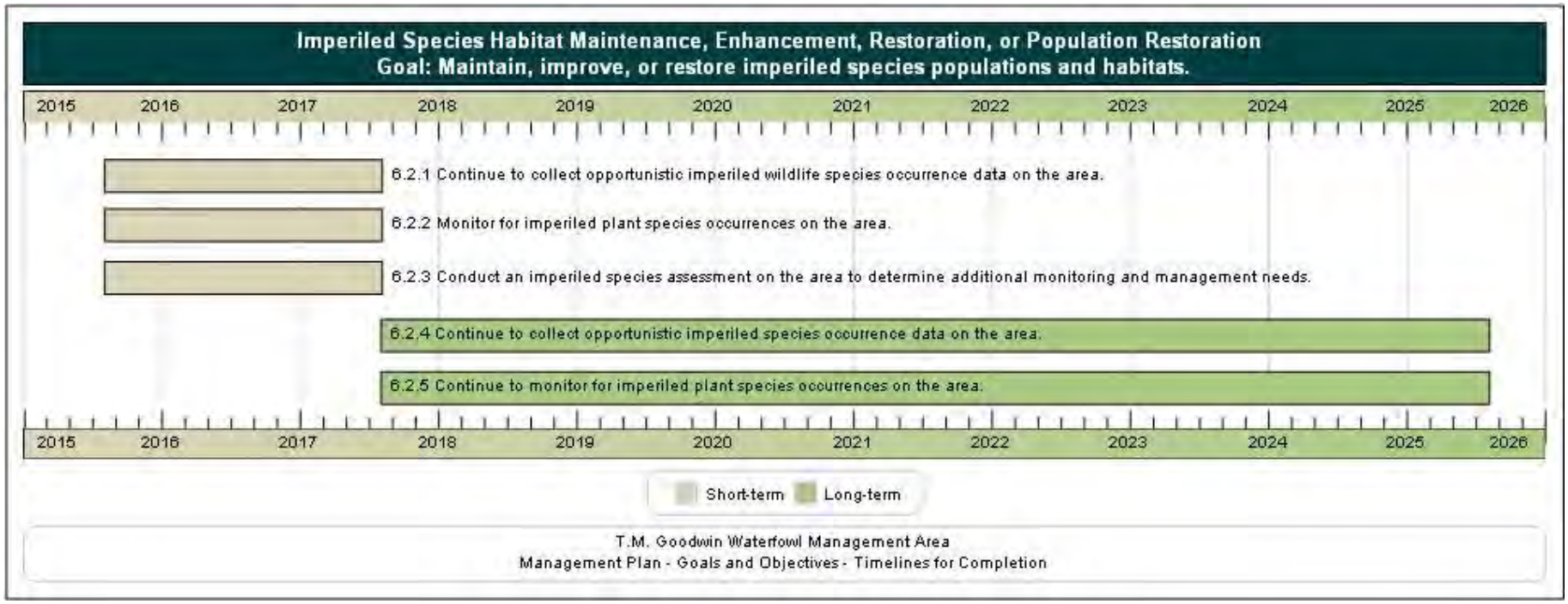
2025
2026
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration
Goal: Maintain, improve, or restore imperiled species populations and habitats.
2015
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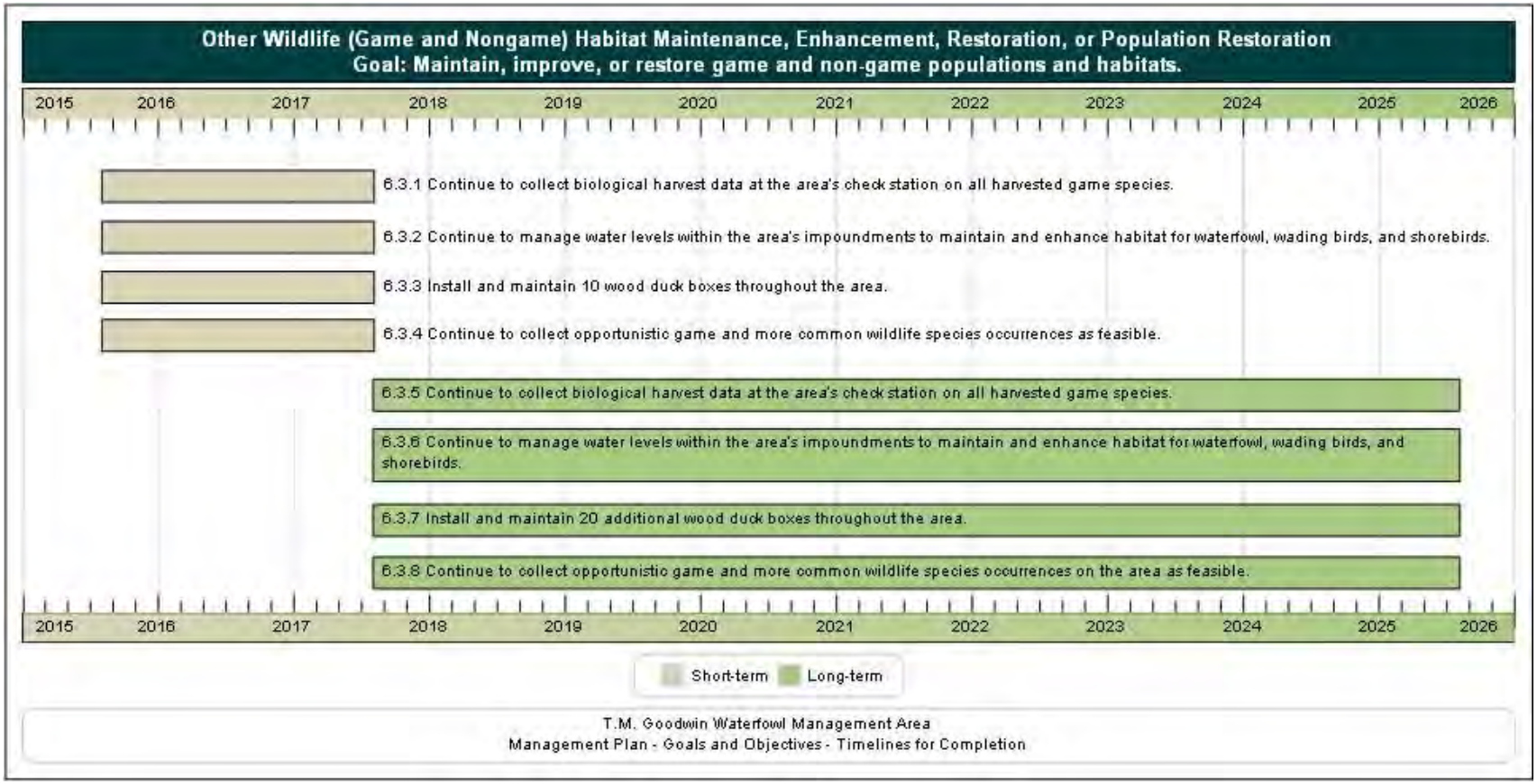
2021
2022
2023
2024
2025
2026
6.2.1 Continue to collect opportunistic imperiled wildlife species occurrence data on the area.
6.2.2 Monitor for imperiled plant species occurrences on the area.
6.2.3 Conduct an imperiled species assessment on the area to determine additional monitoring and management needs.
6.2.4 Continue to collect opportunistic imperiled species occurrence data on the area.
6.2.5 Continue to monitor for imperiled plant species occurrences on the area.
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration, or Population Restoration
Goal: Maintain, improve, or restore game and non-game populations and habitats.
2015
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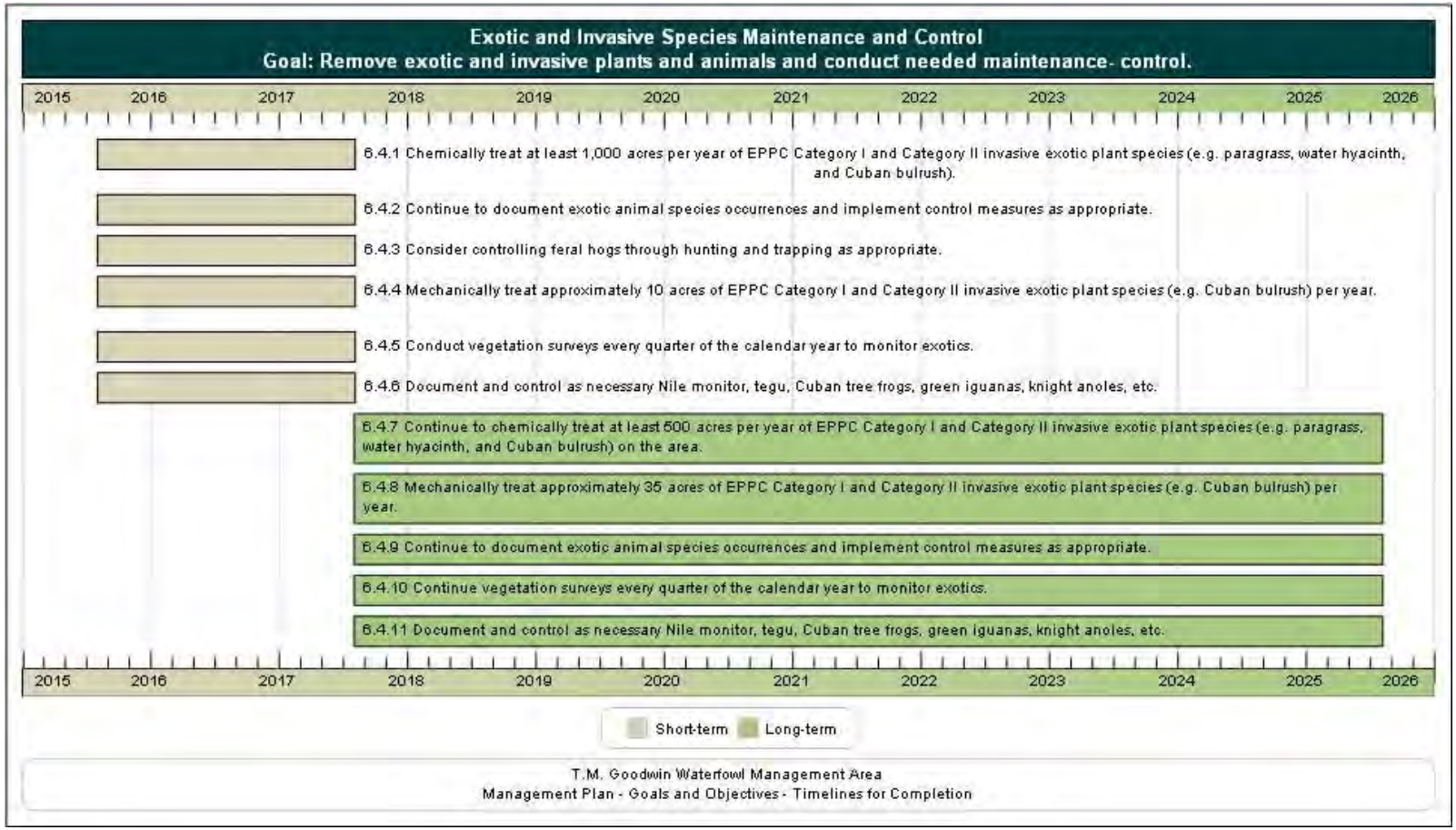
2021
2022
2023
2024
2025
2026
6.3.1 Continue to collect biological harvest data at the area's check station on all harvested game species.
6.3.2 Continue to manage water levels within the area's impoundments to maintain and enhance habitat for waterfowl, wading birds, and shorebirds.
6.3.3 Install and maintain 10 wood duck boxes throughout the area.
6.3.4 Continue to collect opportunistic game and more common wildlife species occurrences as feasible.
6.3.5 Continue to collect biological harvest data at the area's check station on all harvested game species.
6.3.6 Continue to manage water levels within the area's impoundments to maintain and enhance habitat for waterfowl, wading birds, and shorebirds.
6.3.7 Install and maintain 20 additional wood duck boxes throughout the area.
6.3.8 Continue to collect opportunistic game and more common wildlife species occurrences on the area as feasible.
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Exotic and Invasive Species Maintenance and Control
Goal: Remove exotic and invasive plants and animals and conduct needed maintenance- control.
2015
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2023
2024
2025
2026
6.4.1 Chemically treat at least 1,000 acres per year of EPPC Category I and Category II invasive exotic plant species (e.g. paragrass, water hyacinth, and Cuban bulrush).
6.4.2 Continue to document exotic animal species occurrences and implement control measures as appropriate.
6.4.3 Consider controlling feral hogs through hunting and trapping as appropriate.
6.4.4 Mechanically treat approximately 10 acres of EPPC Category I and Category II invasive exotic plant species (e.g. Cuban bulrush) per year.
6.4.5 Conduct vegetation surveys every quarter of the calendar year to monitor exotics.
6.4.6 Document and control as necessary Nile monitor, tegu, Cuban tree frogs, green iguanas, knight anoles, etc.
6.4.7 Continue to chemically treat at least 500 acres per year of EPPC Category I and Category II invasive exotic plant species (e.g. paragrass, water hyacinth, and Cuban bulrush) on the area.
6.4.8 Mechanically treat approximately 35 acres of EPPC Category I and Category II invasive exotic plant species (e.g. Cuban bulrush) per year.
6.4.9 Continue to document exotic animal species occurrences and implement control measures as appropriate.
6.4.10 Continue vegetation surveys every quarter of the calendar year to monitor exotics.
6.4.11 Document and control as necessary Nile monitor, tegu, Cuban tree frogs, green iguanas, knight anoles, etc.
2015
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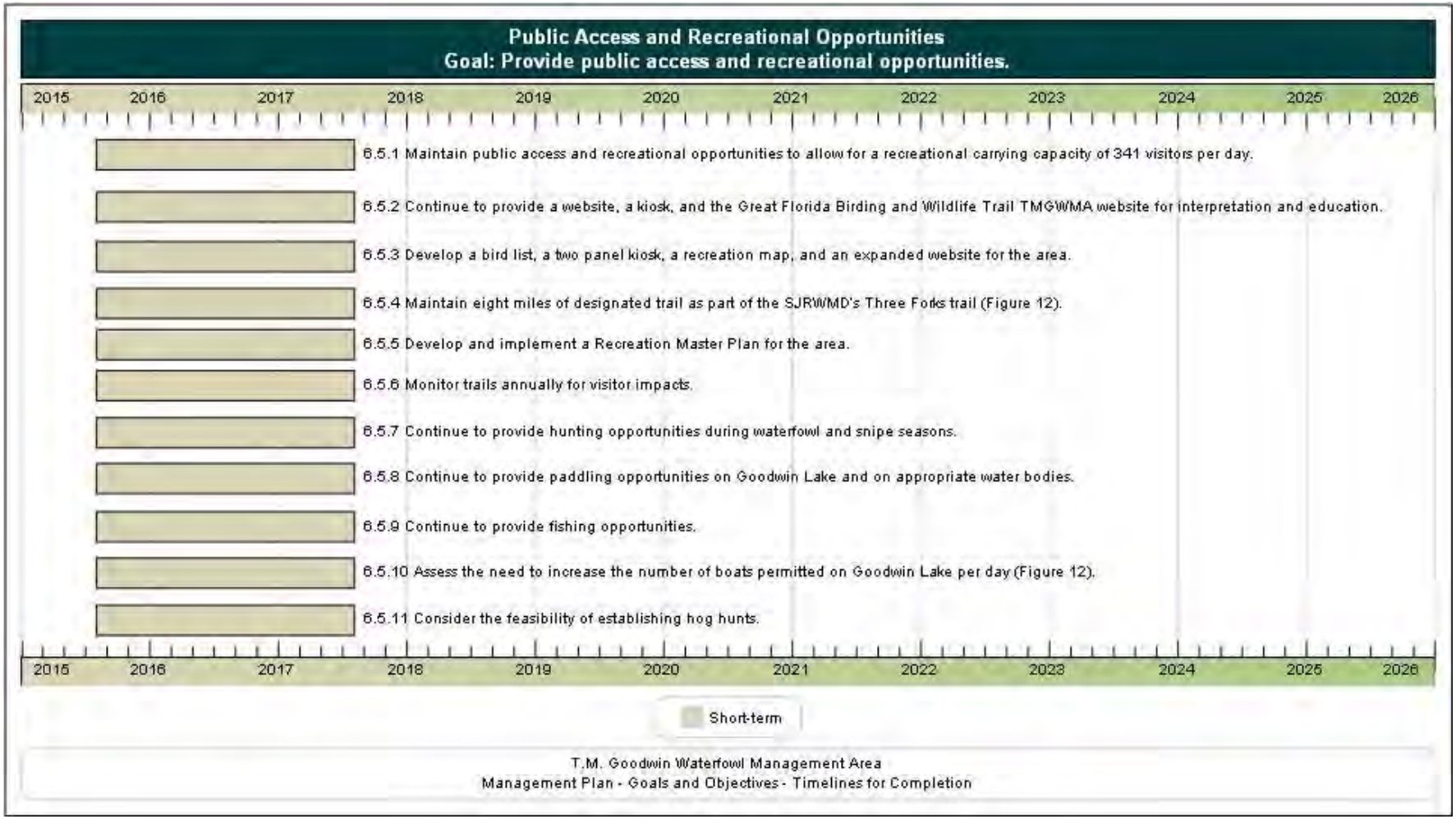
2026
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Public Access and Recreational Opportunities
Goal: Provide public access and recreational opportunities.
2015
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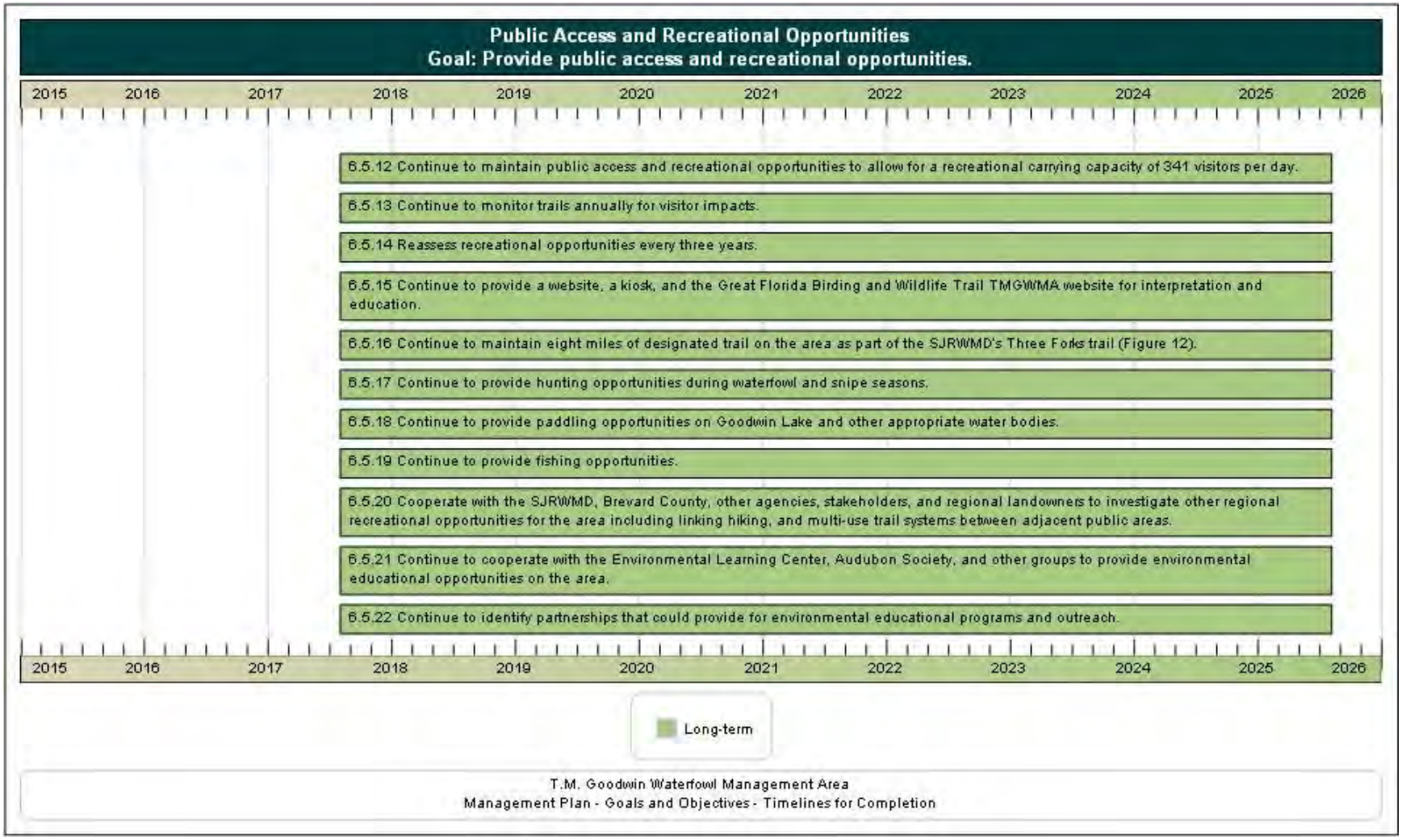
2021
2022
2023
2024
2025
2026
6.5.1 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 341 visitors per day.
6.5.2 Continue to provide a website, a kiosk, and the Great Florida Birding and Wildlife Trail TMGWMA website for interpretation and education.
6.5.3 Develop a bird list, a two panel kiosk, a recreation map, and an expanded website for the area.
6.5.4 Maintain eight miles of designated trail as part of the SJRWMD's Three Forks trail (Figure 12).
6.5.5 Develop and implement a Recreation Master Plan for the area.
6.5.6 Monitor trails annually for visitor impacts.
6.5.7 Continue to provide hunting opportunities during waterfowl and snipe seasons.
6.5.8 Continue to provide paddling opportunities on Goodwin Lake and on appropriate water bodies.
6.5.9 Continue to provide fishing opportunities.
6.5.10 Assess the need to increase the number of boats permitted on Goodwin Lake per day (Figure 12).
6.5.11 Consider the feasibility of establishing hog hunts.
Short-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Public Access and Recreational Opportunities
Goal: Provide public access and recreational opportunities.
2015
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2025
2026
6.5.12 Continue to maintain public access and recreational opportunities to allow for a recreational carrying capacity of 341 visitors per day.
6.5.13 Continue to monitor trails annually for visitor impacts.
6.5.14 Reassess recreational opportunities every three years.
6.5.15 Continue to provide a website, a kiosk, and the Great Florida Birding and Wildlife Trail TMGWMA website for interpretation and education.
6.5.16 Continue to maintain eight miles of designated trail on the area as part of the SJRWMD's Three Forks trail (Figure 12).
6.5.17 Continue to provide hunting opportunities during waterfowl and snipe seasons.
6.5.18 Continue to provide paddling opportunities on Goodwin Lake and other appropriate water bodies.
6.5.19 Continue to provide fishing opportunities.
6.5.20 Cooperate with the SJRWMD, Brevard County, other agencies, stakeholders, and regional landowners to investigate other regional recreational opportunities for the area including linking hiking, and multi-use trail systems between adjacent public areas.
6.5.21 Continue to cooperate with the Environmental Learning Center, Audubon Society, and other groups to provide environmental educational opportunities on the area.
6.5.22 Continue to identify partnerships that could provide for environmental educational programs and outreach.
2015
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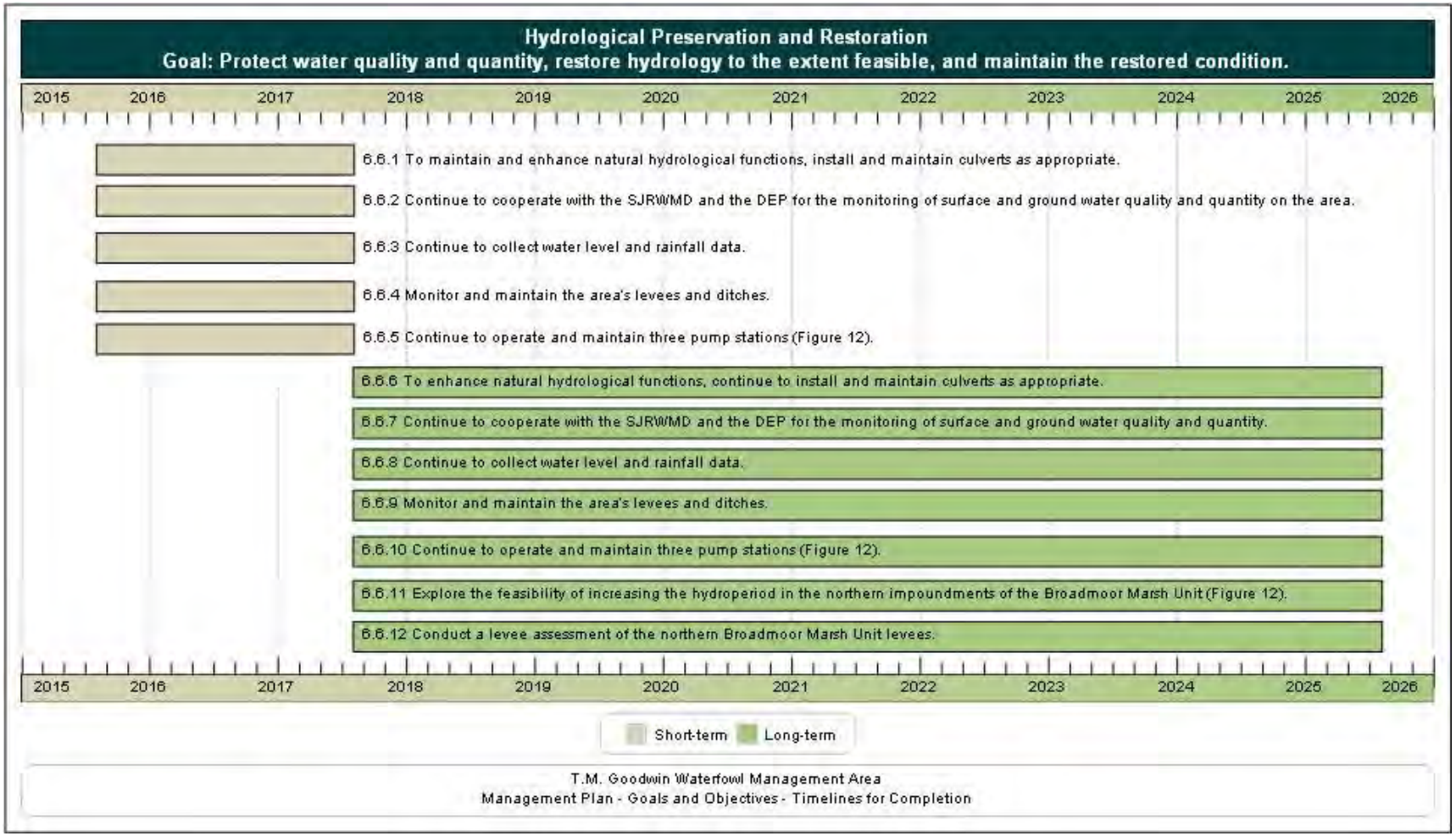
2026
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Hydrological Preservation and Restoration
Goal: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.
2015
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2022
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2026
6.6.1 To maintain and enhance natural hydrological functions, install and maintain culverts as appropriate.
6.6.2 Continue to cooperate with the SJRWMD and the DEP for the monitoring of surface and ground water quality and quantity on the area.
6.6.3 Continue to collect water level and rainfall data.
6.6.4 Monitor and maintain the area's levees and ditches.
6.6.5 Continue to operate and maintain three pump stations (Figure 12).
6.6.6 To enhance natural hydrological functions, continue to install and maintain culverts as appropriate.
6.6.7 Continue to cooperate with the SJRWMD and the DEP for the monitoring of surface and ground water quality and quantity.
6.6.8 Continue to collect water level and rainfall data.
6.6.9 Monitor and maintain the area's levees and ditches.
6.6.10 Continue to operate and maintain three pump stations (Figure 12).
6.6.11 Explore the feasibility of increasing the hydroperiod in the northern impoundments of the Broadmoor Marsh Unit (Figure 12).
6.6.12 Conduct a levee assessment of the northern Broadmoor Marsh Unit levees.
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Forest Resource Management
Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.
2015
2016
2017
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2021
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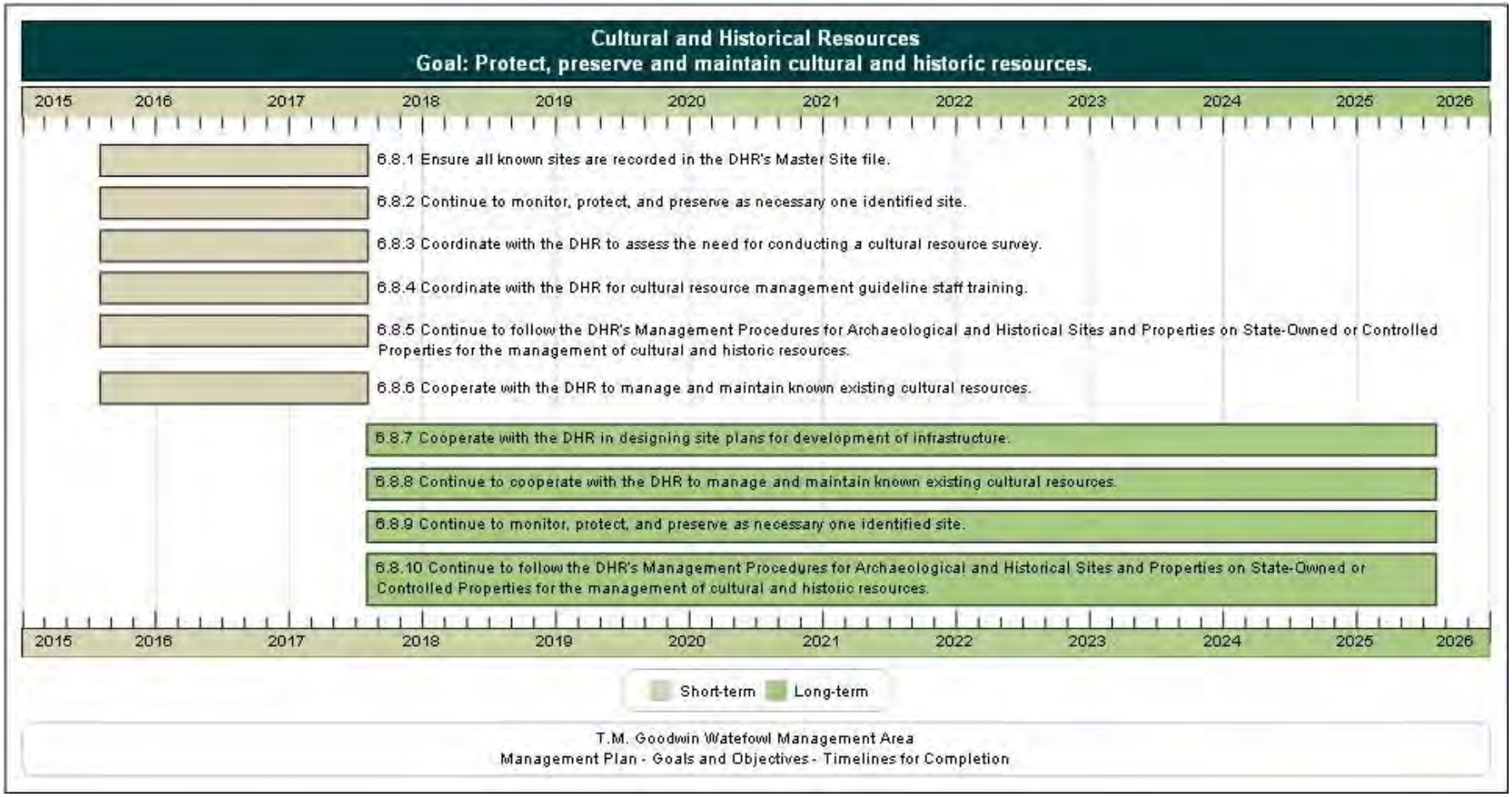
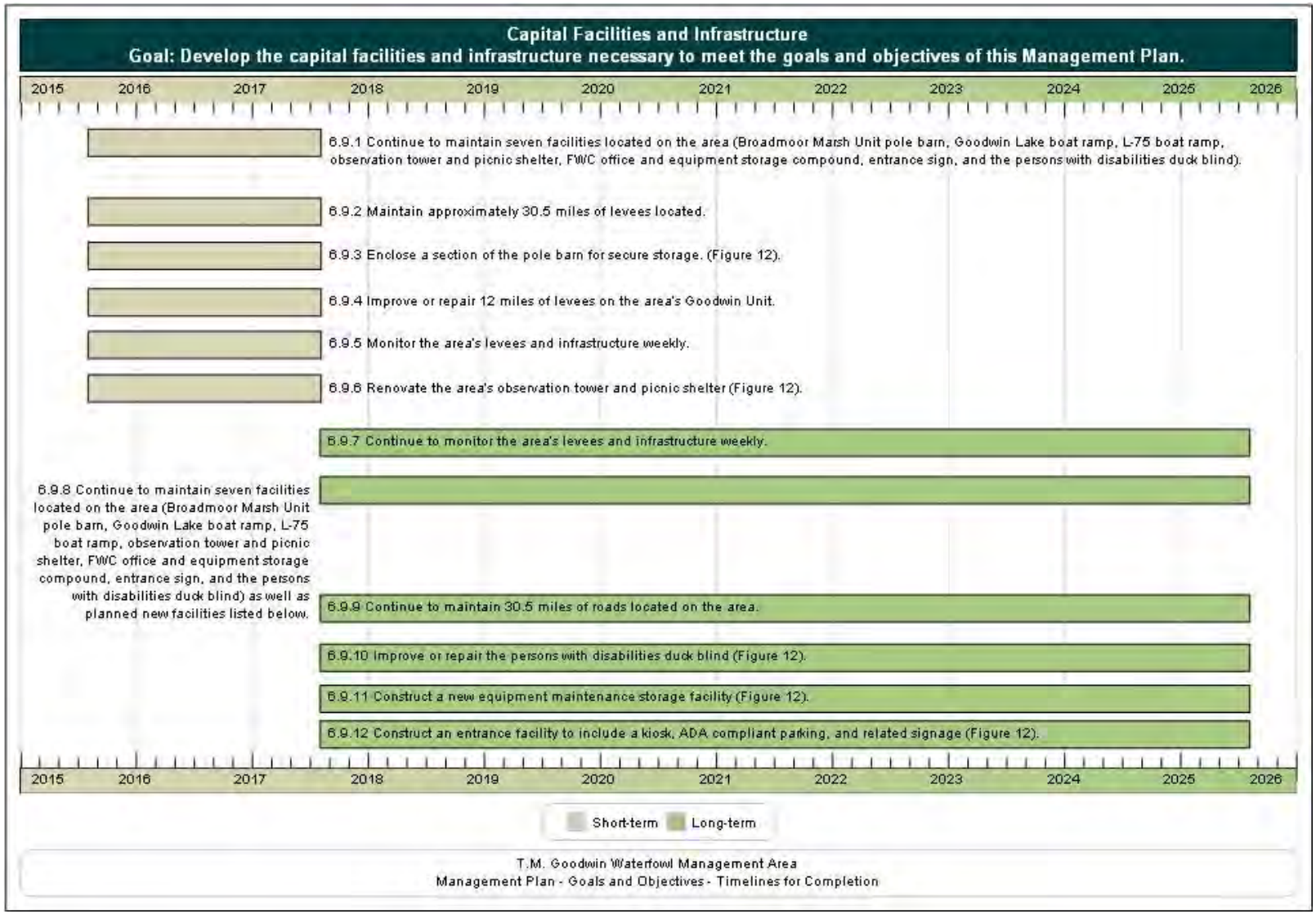
2026
There are no forest resources at TMGWMA.
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Cultural and Historical Resources
Goal: Protect, preserve and maintain cultural and historic resources.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.8.1 Ensure all known sites are recorded in the DHR's Master Site file.
6.8.2 Continue to monitor, protect, and preserve as necessary one identified site.
6.8.3 Coordinate with the DHR to assess the need for conducting a cultural resource survey.
6.8.4 Coordinate with the DHR for cultural resource management guideline staff training.
6.8.5 Continue to follow the DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.
6.8.6 Cooperate with the DHR to manage and maintain known existing cultural resources.
6.8.7 Cooperate with the DHR in designing site plans for development of infrastructure.
6.8.8 Continue to cooperate with the DHR to manage and maintain known existing cultural resources.
6.8.9 Continue to monitor, protect, and preserve as necessary one identified site.
6.8.10 Continue to follow the DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.
Short-term
Long-term
T.M. Goodwin Watefowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Capital Facilities and Infrastructure
Goal: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.
2015
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2017
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2019
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2021
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2023
2024
2025
2026
6.9.1 Continue to maintain seven facilities located on the area (Broadmoor Marsh Unit pole barn, Goodwin Lake boat ramp, L-75 boat ramp, observation tower and picnic shelter, FWC office and equipment storage compound, entrance sign, and the persons with disabilities duck blind).
6.9.2 Maintain approximately 30.5 miles of levees located.
6.9.3 Enclose a section of the pole barn for secure storage. (Figure 12).
6.9.4 Improve or repair 12 miles of levees on the area's Goodwin Unit.
6.9.5 Monitor the area's levees and infrastructure weekly.
6.9.6 Renovate the area's observation tower and picnic shelter (Figure 12).
6.9.7 Continue to monitor the area's levees and infrastructure weekly.
6.9.8 Continue to maintain seven facilities located on the area (Broadmoor Marsh Unit pole barn, Goodwin Lake boat ramp, L-75 boat ramp, observation tower and picnic shelter, FWC office and equipment storage compound, entrance sign, and the persons with disabilities duck blind) as well as planned new facilities listed below.
6.9.9 Continue to maintain 30.5 miles of roads located on the area.
6.9.10 Improve or repair the persons with disabilities duck blind (Figure 12).
6.9.11 Construct a new equipment maintenance storage facility (Figure 12).
6.9.12 Construct an entrance facility to include a kiosk, ADA compliant parking, and related signage (Figure 12).
2015
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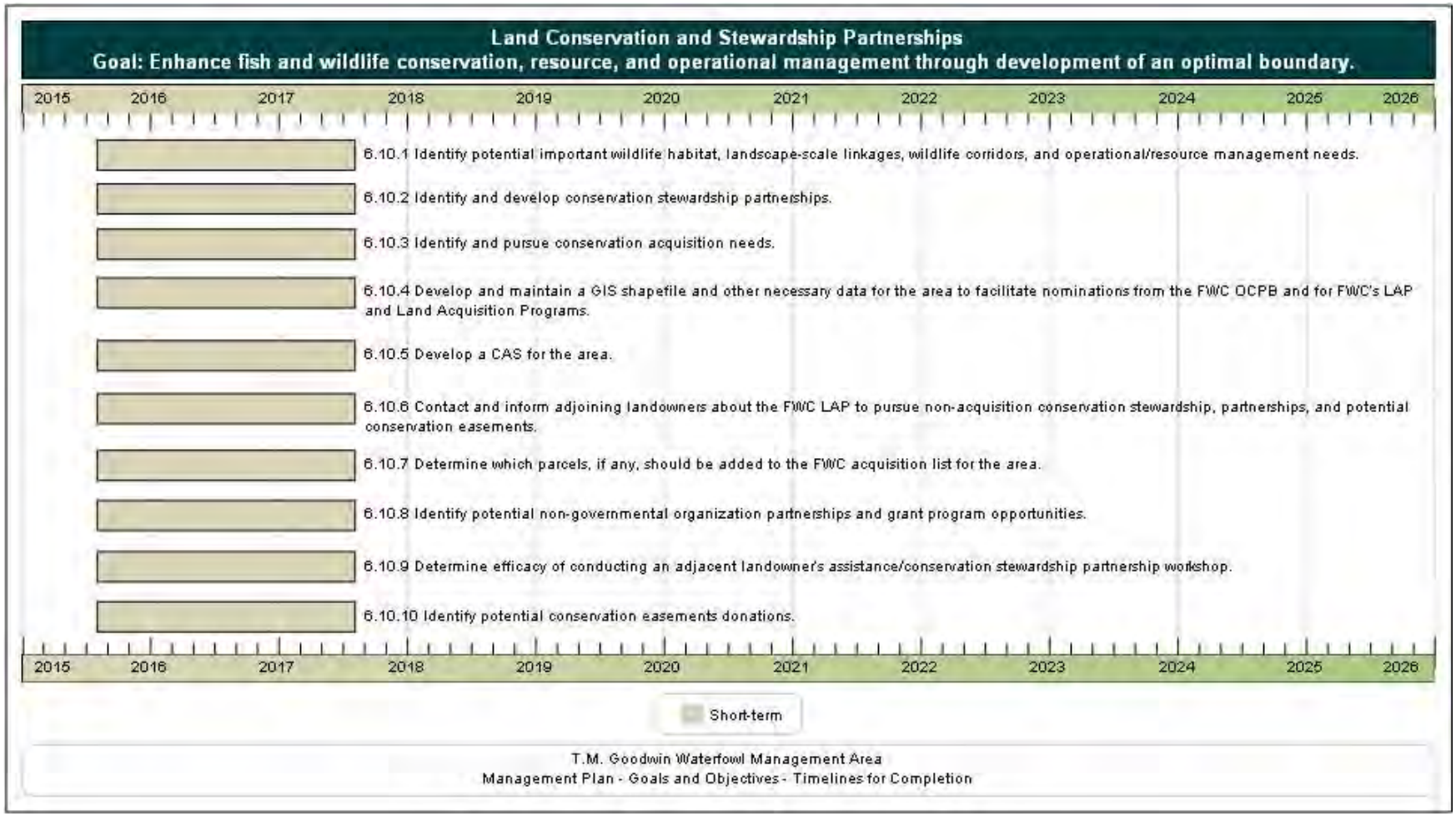
2026
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Land Conservation and Stewardship Partnerships
Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.
2015
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2017
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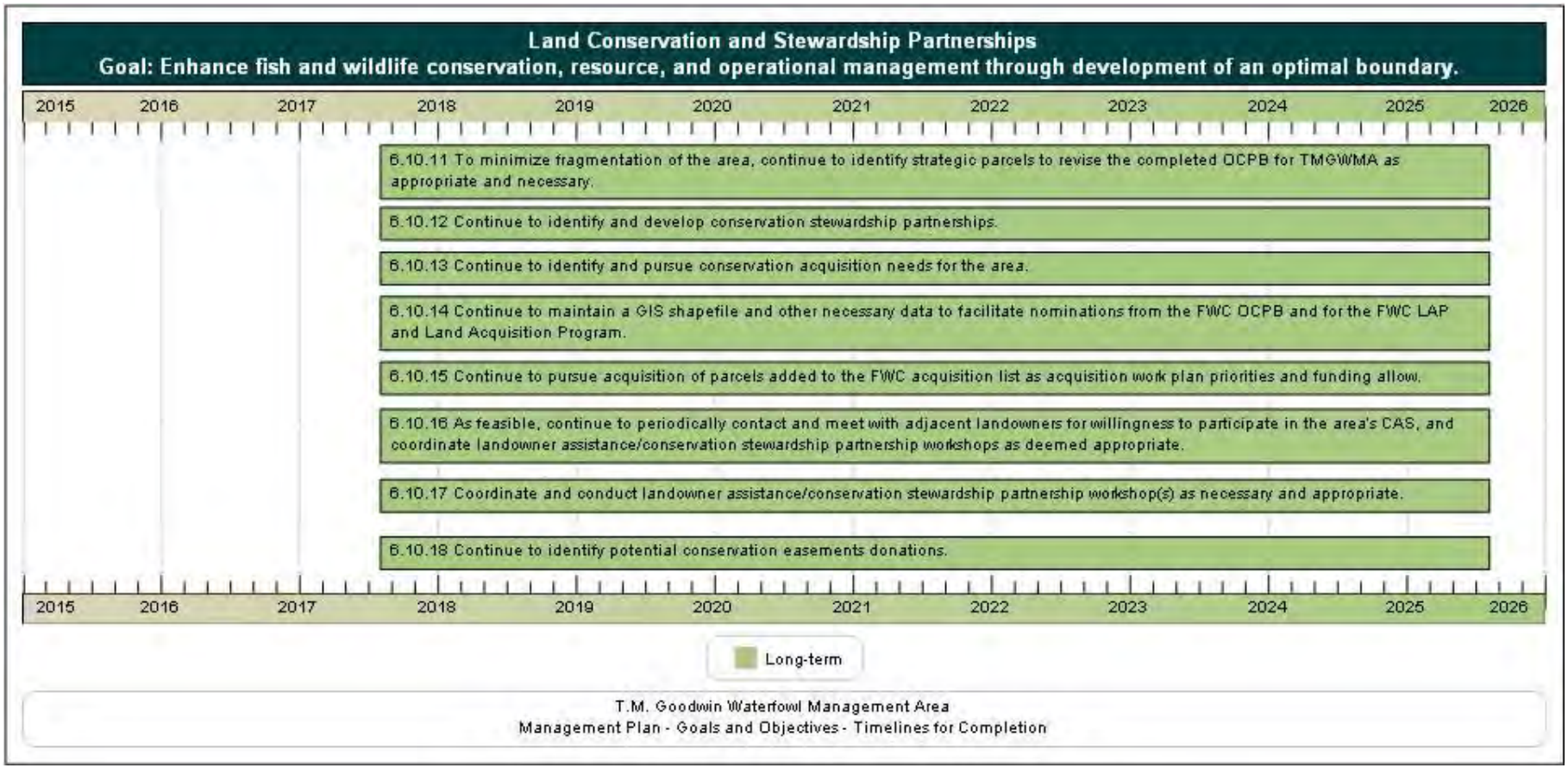
2019
2020
2021
2022
2023
2024
2025
2026
6.10.1 Identify potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational/resource management needs.
6.10.2 Identify and develop conservation stewardship partnerships.
6.10.3 Identify and pursue conservation acquisition needs.
6.10.4 Develop and maintain a GIS shapefile and other necessary data for the area to facilitate nominations from the FWC OCPB and for FWC's LAP and Land Acquisition Programs.
6.10.5 Develop a CAS for the area.
6.10.6 Contact and inform adjoining landowners about the FWC LAP to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements.
6.10.7 Determine which parcels, if any, should be added to the FWC acquisition list for the area.
6.10.8 Identify potential non-governmental organization partnerships and grant program opportunities.
6.10.9 Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop.
6.10.10 Identify potential conservation easements donations.
Short-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Land Conservation and Stewardship Partnerships
Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.
2015
2016
2017
2018
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2020
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2023
2024
2025
2026
6.10.11 To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed OCPB for TMGWMA as appropriate and necessary.
6.10.12 Continue to identify and develop conservation stewardship partnerships.
6.10.13 Continue to identify and pursue conservation acquisition needs for the area.
6.10.14 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for the FWC LAP and Land Acquisition Program.
6.10.15 Continue to pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow.
6.10.16 As feasible, continue to periodically contact and meet with adjacent landowners for willingness to participate in the area's CAS, and coordinate landowner assistance/conservation stewardship partnership workshops as deemed appropriate.
6.10.17 Coordinate and conduct landowner assistance/conservation stewardship partnership workshop(s) as necessary and appropriate.
6.10.18 Continue to identify potential conservation easements donations.
2015
2016
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2018
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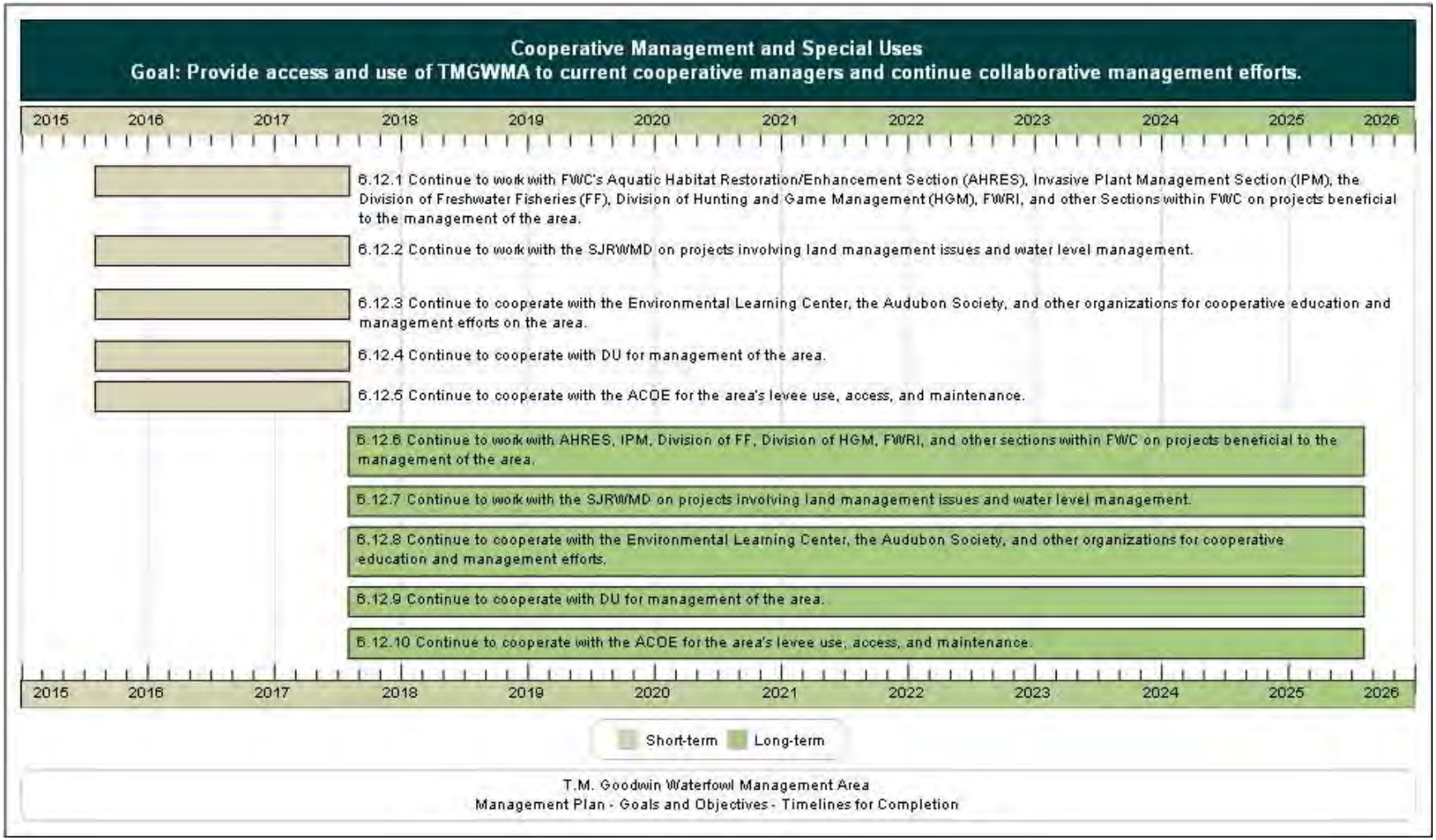
2021
2022
2023
2024
2025
2026
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Research Opportunities
Goal: Explore and pursue cooperative research opportunities.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.11.1 Continue to explore and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute (FWRI), etc.
6.11.2 Continue to cooperate with researchers, universities, and others requesting to conduct research on the area as appropriate.
6.11.3 Continue to assess the need for and pursue additional research and environmental education partnership opportunities as appropriate.
6.11.4 Continue to explore and pursue cooperative research opportunities through universities, FWRI, etc.
6.11.5 Continue to cooperate with researchers, universities, and others requesting to conduct research as appropriate.
6.11.6 Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate.
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Cooperative Management and Special Uses
Goal: Provide access and use of TMGWMA to current cooperative managers and continue collaborative management efforts.
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
6.12.1 Continue to work with FWC's Aquatic Habitat Restoration/Enhancement Section (AHRES), Invasive Plant Management Section (IPM), the Division of Freshwater Fisheries (FF), Division of Hunting and Game Management (HGM), FWRI, and other Sections within FWC on projects beneficial to the management of the area.
6.12.2 Continue to work with the SJRWMD on projects involving land management issues and water level management.
6.12.3 Continue to cooperate with the Environmental Learning Center, the Audubon Society, and other organizations for cooperative education and management efforts on the area.
6.12.4 Continue to cooperate with DU for management of the area.
6.12.5 Continue to cooperate with the ACOE for the area's levee use, access, and maintenance.
6.12.6 Continue to work with AHRES, IPM, Division of FF, Division of HGM, FWRI, and other sections within FWC on projects beneficial to the management of the area.
6.12.7 Continue to work with the SJRWMD on projects involving land management issues and water level management.
6.12.8 Continue to cooperate with the Environmental Learning Center, the Audubon Society, and other organizations for cooperative education and management efforts.
6.12.9 Continue to cooperate with DU for management of the area.
6.12.10 Continue to cooperate with the ACOE for the area's levee use, access, and maintenance.
2015
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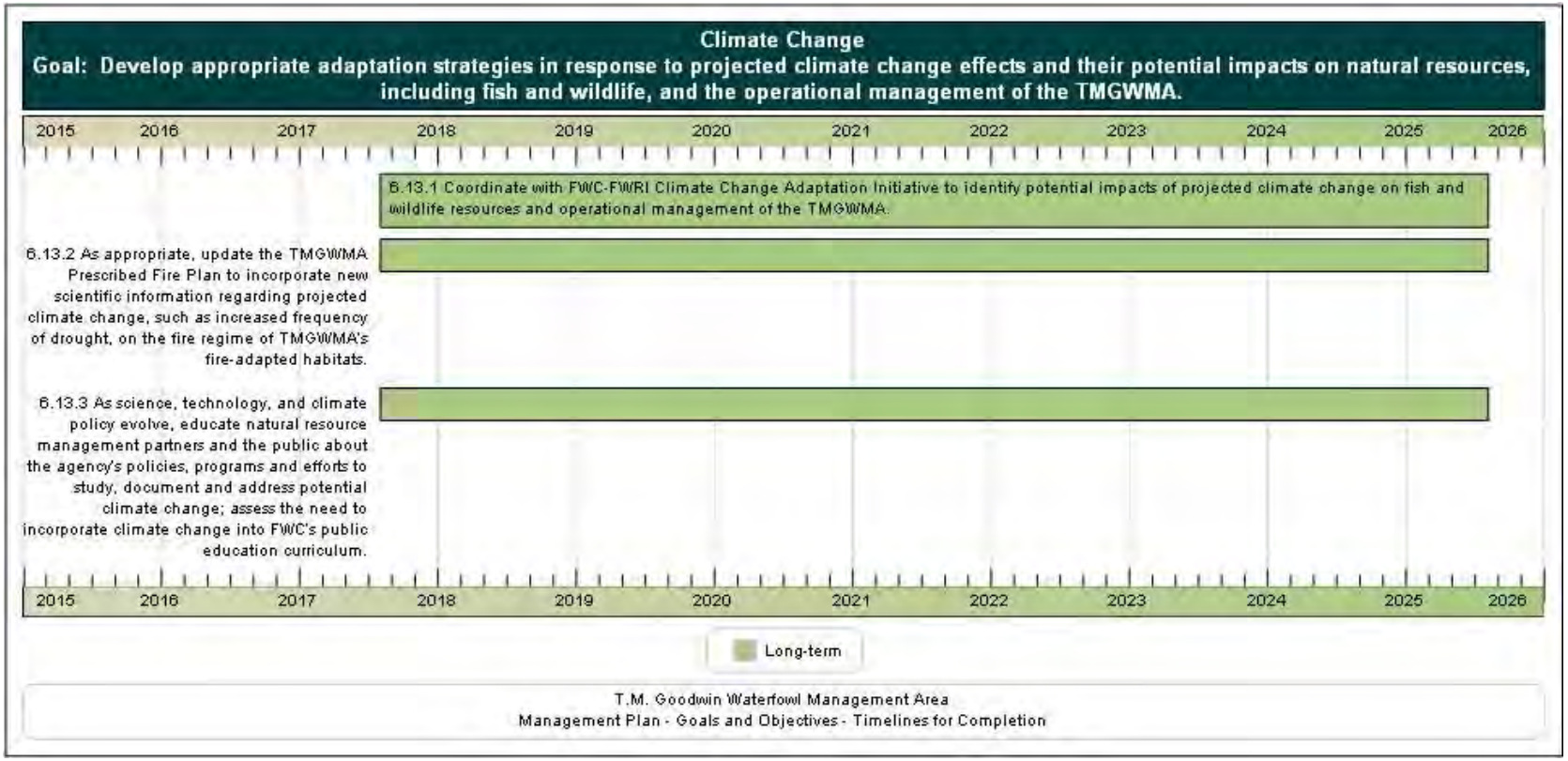
2026
Short-term
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion


Climate Change
Goal: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on natural resources, including fish and wildlife, and the operational management of the TMGWMA.
2015
2016
2017
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2021
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2026
6.13.1 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 TMGWMA.
6.13.2 As appropriate, update the TMGWMA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of TMGWMA's fire-adapted habitats.
6.13.3 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; assess the need to incorporate climate change into FWC's public education curriculum.
Long-term
T.M. Goodwin Waterfowl Management Area
Management Plan - Goals and Objectives - Timelines for Completion

8 Resource Management Challenges and Strategies

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

8.1 Challenge: Volunteers are underutilized at TMGWMA.

8.1.1 Strategy: Utilize volunteers to assist area staff during management activities.

8.2 Challenge: Currently, vehicular public access to the area is limited due to the unimproved network of levees and agreements with cooperators.

8.2.1 Strategy: Assess the viability of increasing the number of vehicular access days.

8.2.2 Strategy: Work with cooperators to determine if expanding the number of vehicular access days is compatible with the maintenance and operation of the area's levee system.

8.2.3 Strategy: Assess the possibility of improving the L-10 and L-12 levees on the Goodwin Unit to allow for public vehicle access.

8.3 Challenge: Rules and guidelines for vehicle access to the area need to be clarified, as the public has expressed confusion regarding access guidelines.

8.3.1 Strategy: Produce a recreation map delineating and clarifying the levees available for vehicular access and the days open to vehicle use.

8.3.2 Strategy: Expand the area's recreation website with more detailed information on public access regulations and guidelines.

9 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of TMGWMA. This cost estimate was developed using data developed by FWC and other cooperating entities, and is based on actual costs for optimal land management activities, equipment purchase and maintenance, and for development of fixed capital facilities. Funds needed to protect and manage the property and to fully implement the recommended program are derived primarily from the Land Acquisition Trust Fund and from State Legislative appropriations. However, private conservation organizations

may be cooperators with the agency for funding of specific projects. Alternative funding sources, such as monies available through mitigation, may be sought to supplement existing funding.

The cost estimate below, although exceeding what 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 TMGWMA. 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 TMGWMA Fiscal Year 2014-2015 Operational Plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 13.10.

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T.M. Goodwin WMA Management Plan Cost Estimate

Maximum expected one year expenditure

Resource Management	**Expenditure**	**Priority**
Exotic Species Control	$166,081	(1)
Prescribed Burning	$15,980	(1)
Cultural Resource Management	$315	(1)
Timber Management	$0	(1)
Hydrological Management	$110,337	(1)
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$119,667	(1)
Subtotal	**$412,381**	
Administration		
General administration	**$1,576**	(1)
Support		
Land Management Planning	$40,229	(1)
Land Management Reviews	$0	(3)
Training/Staff Development	$36,498	(1)
Vehicle Purchase	$434,924	(2)
Vehicle Operation and Maintenance	$66,156	(1)
Other (Technical Reports, Data Management, etc.)	$2,022	(1)
Subtotal	**$579,828**	
Capital Improvements		
New Facility Construction	$0	(2)
Facility Maintenance	$99,398	(1)
Subtotal	**$99,398**	
Visitor Services/Recreation		
Info./Education/Operations	**$22,056**	(1)
Law Enforcement		
Resource protection	**$5,920**	(1)
Total	**$1,121,160**	

Priority schedule:

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

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

T.M. Goodwin WMA Management Plan Cost Estimate

Ten-year projection

Resource Management	**Expenditure**	**Priority**
Exotic Species Control	$1,459,207	(1)
Prescribed Burning	$140,406	(1)
Cultural Resource Management	$2,770	(1)
Timber Management	$0	(1)
Hydrological Management	$969,434	(1)
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	$1,051,406	(1)
Subtotal	**$3,623,222**	
Administration		
General administration	**$13,848**	(1)
Support		
Land Management Planning	$353,452	(1)
Land Management Reviews	$15,650	(3)
Training/Staff Development	$320,673	(1)
Vehicle Purchase	$1,530,516	(2)
Vehicle Operation and Maintenance	$581,257	(1)
Other (Technical Reports, Data Management, etc.)	$17,764	(1)
Subtotal	**$2,819,312**	
Capital Improvements		
New Facility Construction	$509,407	(2)
Facility Maintenance	$873,323	(1)
Subtotal	**$1,382,730**	
Visitor Services/Recreation		
Info./Education/Operations	**$193,789**	(1)
Law Enforcement		
Resource protection	**$52,015**	(1)
Total	**$8,084,916**	*

Priority schedule:

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

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

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

The following management and restoration activities have been considered for outsourcing to private entities. It has been determined that items selected as "approved" below are those that 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			✓
• Vegetation inventories	✓		

11 Compliance with Federal, State, and Local Governmental Requirements

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

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

Uses planned for TMGWMA 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 13.7). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 372, 253, 259, 327, 370, 403, 870, 375, 378, 379, 487, and 597 FS.

The FWC has developed and utilizes an Arthropod Management Plan for TMGWMA in compliance with Chapter 388.4111 Fla. Stat. (Appendix 13.11). This plan was developed in cooperation with the local Brevard County arthropod control agency. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Brevard County, Florida, (Appendix 13.12).

12 Endnotes

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[3] Southeast Regional Climate Center. Melbourne, FL WSO. (n.d.). Retrieved from http://sercc.com/cgi-bin/sercc/cliMAIN.pl?fl5612

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

[13] Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas, Final Report (1999).

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[17] Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. Annual Review of Ecology, Evolution, and Systematics 37:637-669.

[18] 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.

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13 Appendices

13.1 Lease Agreements and Amendments

LEASE AGREEMENT

THIS LEASE AGREEMENT (hereinafter called the "AGREEMENT"), made and entered into this 8th day of May, 1991 by and between the Governing Board of the St. Johns River Water Management District, a public body existing under Chapter 373 of the Florida Statutes, whose mailing address is Post Office Box 1429, Palatka, Florida 32178-1429 (hereinafter referred to as the "DISTRICT"), and the Florida Game and Fresh Water Fish Commission, a public body created pursuant to Section 9, Article IV, of the Florida Constitution, whose mailing address is 620 South Meridian Street, Tallahassee, Florida 32399-1600, (hereinafter referred to as "COMMISSION").

W I T N E S S E T H :

WHEREAS, the DISTRICT is the fee simple owner of certain real property referred to as the C-54 Retention Area as depicted in Exhibit "A" attached hereto and by reference made a part hereof; and

WHEREAS, the COMMISSION is desirous of leasing the C-54 Retention Area for the purpose of establishing a waterfowl management area; and

WHEREAS, over 200,000 acres of wetlands have been lost in the upper basin of the St. Johns River, waterfowl populations have been declining due to loss of habitat, and the quality of remaining waterfowl habitat can be increased through management; and

WHEREAS, the waterfowl management area will provide a diversity of wintering and breeding habitats for various waterfowl species, as well as benefiting many species of wading and shore birds, and a number of endangered species; and

WHEREAS, the waterfowl management area will provide significant public recreational benefits, including hunting, birding, fishing, and environmental education.

NOW THEREFORE, for and in consideration of the premises, which are made a part of this Agreement, and the mutual covenants, terms and conditions hereinafter contained, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the DISTRICT and THE COMMISSION, each intending to be legally bound, do hereby agree as follows:

1. The Lease. Subject to the terms, conditions and limitations set forth in this Agreement, the DISTRICT hereby leases to THE COMMISSION and COMMISSION hereby leases from the DISTRICT that portion of the C-54 Retention Area as depicted in Exhibit "A" (hereinafter referred to as the "PROPERTY") for the purposes and in the manner hereinafter set forth.

2. Term. The initial term of the lease shall be for a period of thirty (30) years commencing on May 8, 1991, and terminating on May 7, 2021. Thereafter, the lease shall be renewable on a five (5) year basis unless said lease is terminated as set forth herein. Renewal of this lease after the initial term shall not be unreasonably withheld by the District.

3. Purpose.

   A. The DISTRICT and COMMISSION agree that the PROPERTY shall be used only for the purpose of the construction, establishment and operation of a waterfowl management area and associated wildlife management, habitat management, recreational, research, educational activities, and other compatible uses as

mutually agreed upon by both parties (hereinafter referred to as the "PROJECT"):

B. Notwithstanding any provision contained herein to the contrary, this Agreement is subject to:

(i.) the terms, conditions, restrictions and limitations set forth in this AGREEMENT; and

(ii.) all applicable federal laws, state statutes, local ordinances and the rules and regulations pertaining thereto which may be applicable to the PROJECT.

4. Limiting Conditions of Lease. Notwithstanding any provision contained herein to the contrary, this Agreement is subject to the following terms and conditions:

A. The C-54 Retention Area is an element of the Upper St. Johns River Basin portion of the Central and Southern Florida Flood Control Project, a federal flood control project locally sponsored by the DISTRICT, and any uses of the C-54 Retention Area contemplated herein by COMMISSION shall be consistent with the General Design Memorandum (GDM) and any amendments thereto as approved by the DISTRICT and the U.S. Army Corps of Engineers. In adopting any amendments to the GDM, the DISTRICT shall make a good faith effort to consider, and to the extent feasible, accommodate the interests of the COMMISSION hereunder.

B. The DISTRICT and COMMISSION agree that the primary purpose of the C-54 Retention Area is water storage; and all other uses, including intensive habitat management for waterfowl and other wetland wildlife, will be secondary.

C. The COMMISSION recognizes that the water conditions on the PROJECT may be affected by the Water Control Manual (WCM), yet to be agreed upon by the DISTRICT and the U. S. Army Corps of Engineers, and will accept the water conditions which may occur as a result of the DISTRICT adhering to the Manual. In developing the WCM, or adopting any amendments to the WCM, the DISTRICT shall make a good faith effort to consider and to the extent feasible, accommodate the interests of the COMMISSION hereunder. In addition, the DISTRICT will use its best effort to minimize the frequency, depth and duration of flooding on the Property as long as such minimization is consistent with the WCM and the defined purpose and utilization of said Property. If, when acting under the guidelines of the WCM, the DISTRICT desires to alter the hydrologic regime of the C-54 Retention Area, the COMMISSION will be notified immediately of the plans and be given adequate time to make appropriate adjustments on the interior water control structures, if any, provided however, that in the event of any emergency as determined by the DISTRICT, the District will make every reasonable effort to provide notice to the COMMISSION at its 24 hour dispatch center at the Regional Office in Ocala, at (904) 732-1225.

D. The DISTRICT cannot guarantee availability of water to the PROJECT, and the COMMISSION should rely on water storage and management within the area to insure water supply for the PROJECT. Provided, however, the DISTRICT will use its best effort to provide water for the Property which is consistent

with the WCM and the defined purpose and utilization of said Property.

E. The pump station on the NW corner of the PROPERTY will be maintained and operated by the DISTRICT to regulate high water stages within the C-54 Retention Area. Non-regulatory discharges, which are desired by the COMMISSION, will be made only after prior approval is given by the DISTRICT. The DISTRICT, however, will not unreasonably withhold such approval.

F. Development and construction of the PROJECT will not interfere with any DISTRICT construction project or the construction of the U. S. Army Corps of Engineers Federal Flood Control project, however, good faith will be used to coordinate and/or resolve any conflicts which may arise.

G. COMMISSION covenants and agrees that the PROJECT will be designed, constructed, operated and maintained in an environmentally acceptable manner, and in accordance with good management practices.

H. The COMMISSION shall submit a Master Site Plan, which shall include locations of water control structures, office and maintenance buildings, and any additional improvements necessary for the operation of the PROJECT, to the DISTRICT for approval. Any modification to the Master Site Plan shall be subject to prior approval by the DISTRICT. The design and construction of any structures, buildings, or improvements on the PROPERTY shall be subject to the prior written approval of the DISTRICT, which approval will not unreasonably be withheld.

The DISTRICT shall use its best efforts to promptly review any such submittals. THE COMMISSION shall make available to the DISTRICT any surveying assessments made of the property. The design and construction of any structure, buildings, and improvements shall not be modified without the prior written consent of the DISTRICT, which consent may not be unreasonably withheld.

I. COMMISSION acknowledges and agrees that the DISTRICT will use a portion of the PROPERTY to obtain borrow material for use in maintaining and constructing levees contained in the Upper St. Johns River Basin Federal Flood Control Project. Any overburden associated with removal of the borrow material may be used by the COMMISSION for waterfowl management area development. In obtaining borrow material from the Property, the DISTRICT shall make a good faith effort to consider, and to the extent feasible, accommodate the interests of the COMMISSION.

5. Non-Waiver of DISTRICT's Regulatory Powers.

A. Except with respect to the specific rights and duties set forth herein, nothing contained in this Agreement shall be construed as a waiver of or contract with respect to the regulatory or permitting authority of the DISTRICT as it now or hereafter exists under applicable laws, rules and regulations.

B. It shall be the responsibility of the COMMISSION, at its sole cost and expense, to obtain or renew any and all permits which may be required by the DISTRICT, the State of Florida Department of Environmental Regulation, and other applicable

governmental agencies for activities conducted by the COMMISSION hereunder.

6. Covenants and Obligations. The COMMISSION and DISTRICT hereby mutually agree as follows:

A. The COMMISSION shall submit a draft Conceptual Management Plan (CMP), which shall address the operational policies and management procedures of the PROJECT, to the DISTRICT within eighteen (18) months of the effective date of this Agreement. The DISTRICT shall have three months to review and provide input to the COMMISSION. The final CMP shall be submitted by the COMMISSION to the DISTRICT within twenty four (24) months of the effective date of the lease. The CMP shall not be in conflict with the DISTRICT'S Land Management Plan or the GDM. Although final decisions on resolution of conflicts will rest with the DISTRICT, a reasonable effort will be made to resolve such conflicts with the COMMISSION.

B. The COMMISSION shall have the right to manage the habitat on the PROPERTY for waterfowl and other wetland wildlife and take specific management actions including, but not limited to, construction of office and maintenance facilities, improving internal levees and ditch system, installation of internal water control facilities, on site water level manipulation, controlled burning, discing, planting and mowing, etc. as consistent with the CMP; provided, however that the construction and installation of internal water control facilities shall be subject to the provisions of Paragraph 4(H).

C. The COMMISSION shall have the right to regulate public use of the PROPERTY including establishment of hunting regulations and refuges for management purposes.

D. The COMMISSION shall provide the DISTRICT a quarterly report of activities and accomplishments on the area. Information in the quarterly report should include at a minimum: construction and management activities, results of surveys and on-going research, harvest and hunter use information, visitor use, water conditions (rainfall, water levels, discharges, etc.), as specified in the CMP, and future management and research plans. The quarterly report shall be submitted to the DISTRICT no later than fifteen (15) days after the end of each quarter.

E. All major signage, brochures, and pamphlets, prepared by the COMMISSION, relating to the PROJECT, shall include the name C-54 Retention Area and shall contain a prominent statement concerning the primary purpose of the PROJECT, and the probability of periodic adverse water conditions negatively affecting the PROJECT.

F. The DISTRICT shall be allowed to establish environmental educational facilities and programs on the Property which are consistent with the CMP and which shall include information on the Upper St. Johns River Basin Federal Flood Control Project.

G. The DISTRICT shall be responsible for the following maintenance and associated costs:

1. All perimeter levees, roads, and canals.

2. Water control structures and pumps which are necessary for the required operation of the C-54 Retention Area as specified in the DISTRICT'S water management plan.

3. The access road to the PROJECT.

4. Aquatic weed control.

5. Other such work as specifically contracted between the DISTRICT and COMMISSION.

H. The COMMISSION shall be responsible for the following maintenance and associated costs:

1. All interior water control structures and pumps, to include levees, dikes, ditches, canals, etc., except those associated with the DISTRICT'S borrow area located on the Property.

2. All interior roads.

3. All interior structures, buildings, etc.

I. The COMMISSION will not, as part of its habitat management program, introduce or encourage any exotic species of plant, including but not limited to hydrilla except those agricultural plants commonly used for wildlife management purposes as specified in the CMP.

J. The DISTRICT will coordinate with the COMMISSION regarding any aquatic weed control activities within the PROPERTY.

K. The DISTRICT will provide and maintain public access to the PROJECT for the duration of the lease.

L. COMMISSION shall pay all lawful debts incurred by it with respect to the PROPERTY and shall satisfy all liens of contractors, subcontractors, mechanics, laborers, and

materialmen in respect to any construction, alteration, improvements or repair in or on the PROPERTY authorized by the COMMISSION, its agents or employees. To the extent provided by and subject to the limitations specified in Section 768.28, F.S., COMMISSION shall indemnify the DISTRICT for all legal costs and charges, including reasonable attorney's fees on appeal, in any suit involving claims, liens, judgments or encumbrances suffered by the DISTRICT as a result of the use or occupancy of the PROPERTY by the COMMISSION, its agents or employees. Furthermore, the COMMISSION shall have no authority to create any mortages on the PROPERTY, and in any contract pertaining to work to be performed on the PROPERTY, the contractor shall be notified that they and any subcontractors, laborers or materialmen must look to the COMMISSION only to secure the payment of any bill or account for work done, materials furnished, or money owed during the term of this AGREEMENT.

M. All structures, improvements or personal property placed upon, or moved in or upon the PROPERTY shall be at the risk of COMMISSION and the DISTRICT shall not be liable for any damage to said personal property, structures or improvements unless each such damage results from the negligent or wrongful acts of the DISTRICT. The COMMISSION and the DISTRICT agree that the flooding of the Property by the DISTRICT shall not be construed or interpreted as negligent or wrongful acts or omissions of the DISTRICT.

N. All structures or improvements placed upon or moved in or upon the PROPERTY shall be deemed personal property of COMMISSION and shall not be considered attached to the land as a fixture.

O. COMMISSION through its agents, consultants and employees shall be authorized to enter upon the PROPERTY for the purposes of surveying, operation and maintenance of any COMMISSION structures and utilities on the PROPERTY, activities in connection with all permits, licenses and regulatory agency mandated actions, and for such other purposes as are reasonably consistent with the lease granted by this Agreement. Any agents, consultants or employees of COMMISSION and the DISTRICT shall be responsible to promptly close and lock any gates through which they pass in the exercise of such right of entry.

P. COMMISSION takes possession of the PROPERTY with full knowledge of the existing condition of the PROPERTY. COMMISSION agrees that it has inspected the PROPERTY and accepts the PROPERTY in "as is" condition. The DISTRICT makes no representations or warranties as to the fitness of the PROPERTY for any particular use.

Q. COMMISSION shall not assign or transfer this Agreement without prior written consent of the DISTRICT.

R. The COMMISSION is a public agency of the State of Florida. As such, it is self-insured by the Florida Casualty Insurance Risk Management Trust Fund (FUND) pursuant to Section 768.28 and Chapter 284, Part II, Florida Statutes. The COMMISSION shall maintain in force workers' compensation coverage prior to the COMMISSION commencing work on the Agreement. The DISTRICT

shall receive thirty (30) days written notice of any change or cancellation of the FUND of any of the required coverage, including the liability coverage.

S. COMMISSION shall maintain the PROPERTY in the following manner:

1. COMMISSION may construct fences around the perimeter of the project site as determined in site plan review.
2. COMMISSION, at its sole cost and expense, may install such utilities (telephone, electrical, water, sewage, etc.) as are needed on the PROPERTY for the operation of the PROJECT. Provided however, that there must be prior DISTRICT approval to the location of such utilities.
3. COMMISSION shall make every reasonable effort to protect the PROPERTY from uncontrolled fires (structural and woodland-brush fires) by employing appropriate management practices as specified in the approved CMP.
4. COMMISSION shall perform law enforcement services as needed for the PROPERTY to insure protection from vandalism, and trespassers to the best of their ability subject to fiscal and resource constraints.

T. COMMISSION acknowledges that the lease granted herein does not convey to COMMISSION fee title to the PROPERTY nor any interests, rights, or privileges other than those specified herein.

U. The DISTRICT shall bear no financial cost, expense or obligation to COMMISSION as a result of this Lease Agreement, except as otherwise specified herein. The COMMISSION shall be responsible for the payment of any and all taxes, fees or

special assessments, if any, levied or assessed against the Property by reason of the COMMISSION'S use or occupancy of same during the term of this Agreement.

7. Termination and Surrender.

A. In the event of default of this Agreement by the COMMISSION, the DISTRICT may, at its option, declare this Agreement terminated; provided however, that DISTRICT shall give the COMMISSION written notice of the default and allow COMMISSION sixty (60) days from receipt of such notice to cure the default. After notice and failure of COMMISSION to cure the default, DISTRICT shall have the right, without further notice, to enter upon and take possession of the PROPERTY and, thereupon, this Lease Agreement and everything contained under DISTRICT'S behalf to be done and performed shall cease and be null and void. In addition to the foregoing remedy, DISTRICT reserves to itself all other remedies provided at law or in equity and DISTRICT shall be entitled to collect from COMMISSION any and all costs, including resonable attorney's fees, to which the DISTRICT may be legally entitled by reason of COMMISSION'S default.

B. In the event of default of this Agreement by the DISTRICT, the COMMISSION may, at its option, declare this Agreement terminated, provided however, that COMMISSION shall give the DISTRICT written notice of the default and allow DISTRICT sixty (60) days from receipt of such notice to cure the default. After notice and failure of DISTRICT to cure the default, without further notice, this Agreement and everything contained under COMMISSION'S behalf to be done and performed shall cease and be null and void. In addition to the foregoing remedy, COMMISSION reserves to itself all other remedies provided at

law or in equity and COMMISSION shall be entitled to collect from DISTRICT any and all costs, including reasonable attorney's fees, to which the COMMISSION may be legally entitled by reason of DISTRICT'S default.

C. All personal property, equipment and improvements owned by COMMISSION and located on or about the PROPERTY and not removed within one hundred-twenty (120) days after the termination of this Lease Agreement shall, at the option of DISTRICT, become the property of DISTRICT.

D. In the event of termination of this Agreement, COMMISSION shall deliver possession of the PROPERTY to DISTRICT in substantially the same condition as originally existed prior to the execution of this Agreement, reasonable wear and tear and alterations pursuant to the approved Master Site Plan and Conceptual Management Plan excepted.

E. In the event that the COMMISSION'S ability to meet their objectives for this project are jeopardized by constraints imposed by the final GDM, LMP, or WCM or their amendments, the COMMISSION may terminate the Agreement without default.

F. In the event that an initial engineering assessment of the PROJECT reveals that intensive wetland habitat management is not feasible, the COMMISSION may terminate this Agreement without default and this Agreement shall cease and be null and void.

8. DISTRICT'S Right of Entry. COMMISSION shall deposit with the DISTRICT a duplicate key for each lock barring access to any part of the PROPERTY other than structures for storage of equipment

materials and supplies, in order that the DISTRICT or its duly authorized agents shall have access to inspect the PROPERTY. Should any lock be added, changed, replaced or removed, COMMISSION shall immediately notify the DISTRICT in writing, and forward to the DISTRICT the new duplicate key.

9. Notices. All notices, consents, approvals, waivers and elections which any party shall be required or shall desire to make or give under this Agreement shall be in writing and/or shall be sufficiently made or given only when mailed by Certified Mail, postage prepaid, return receipt requested, addressed as follows to the parties listed below or to such other address as any party hereto shall designate by like notice given to the other parties hereto:

DISTRICT: ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
P. O. BOX 1429
PALATKA, FL 32078-1429
ATTENTION: DIRECTOR
DIVISION OF LAND ACQUISITION

COMMISSION: FLORIDA GAME AND FRESH WATER FISH COMMISSION
620 S. MERIDIAN STREET
TALLAHASSEE FLORIDA 32399-1600
ATTENTION: DIRECTOR, DIVISION OF WILDLIFE

Notices, consents, approvals, waivers and elections given or made as aforesaid shall be deemed to have been given and received on the date of the mailing thereof as aforesaid.

10. Entire Agreement, Amendment. This Agreement contains the complete agreement between the COMMISSION and the DISTRICT and, as of the effective date hereof, shall supersede all other agreements, communications or representations, either verbal or written,

between the COMMISSION and the DISTRICT. The COMMISSION and the DISTRICT stipulate that neither of them has made any representations except such representations as are specifically contained within this Agreement and each party acknowledges reliance on its own judgement in entering into this Agreement. The COMMISSION and the DISTRICT further acknowledge that any payments or any representations that may have been made outside of those specifically contained herein are of no binding effect and have not been relied upon by either party in its dealings with the other in entering into this Agreement.

11. Governing Law. This Agreement shall be construed and interpreted according to the laws of the State of Florida.

12. Construction of Agreement. This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by Counsel for one of the parties, it being recognized that both the DISTRICT and COMMISSION have contributed substantially and materially to the preparation hereof.

13. Effective Date. For all purposes of this Agreement, the Effective Date hereof shall mean the date when the last of the COMMISSION or the DISTRICT has executed the same, and that date shall be inserted at the top of the first page hereof.

14. The COMMISSION'S obligations under this Agreement are subject to legislative appropriation and availability of funding.

15. The DISTRICT and COMMISSION reserve the right to unilaterally cancel this Agreement for refusal by either to allow public access

to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the DISTRICT and the COMMISSION in conjunction with this Agreement.

16. As a condition of this Agreement the DISTRICT and COMMISSION hereby covenant and agree not to discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring pursuant to this Agreement.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement, on the date and year first above written.

GOVERNING BOARD OF THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

ATTEST:

By: _____
MERRITT C. FORE, Secretary

_____
SAUNDRA H. GRAY, Chairman

(SEAL)

Executed on May 8, 1991

FLORIDA GAME AND FRESH WATER FISH COMMISSION

ATTEST:

By: _____
ANN SINGSTER-DOERRER
Agency Clerk

_____
COLONEL ROBERT M. BRANTLY
Executive Director

Executed on May 3, 1991

STATE OF FLORIDA
COUNTY OF PUTNAM

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared Saundra H. Gray and Merritt C. Fore, to me known to be the Chairman and Secretary of ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, who being duly authorized, executed the foregoing document, and they acknowledged before me that they executed the same on behalf of ST. JOHNS RIVER WATER MANAGEMENT DISTRICT.

WITNESS my hand and official seal this 8th day of May, 1991.

(NOTARIAL SEAL)

Notary Public
My Commission Expires:
NOTARY PUBLIC, STATE OF FLORIDA
MY COMMISSION EXP.RES: OCT. 29, 1992
BONDED THRU NOTARY PUBLIC UNDERWRITERS

STATE OF FLORIDA
COUNTY OF Leon

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared Colonel Robert M. Brantly and Ann Singster-Doerrer, to me known to be the Executive Director and Agency Clerk of the FLORIDA GAME AND FRESH WATER FISH COMMISSION, who being duly authorized, executed the foregoing document, and they acknowledged before me that they executed the same on behalf of the FLORIDA GAME AND FRESH WATER FISH COMMISSION.

WITNESS my hand and official seal this 3rd day of May, 1991.

(NOTARIAL SEAL)

Notary Public
My Commission Expires:
Notary Public, State of Florida
My Commission Expires Oct. 26, 1991
Bonded Thru Troy Fain - Insurance Inc.

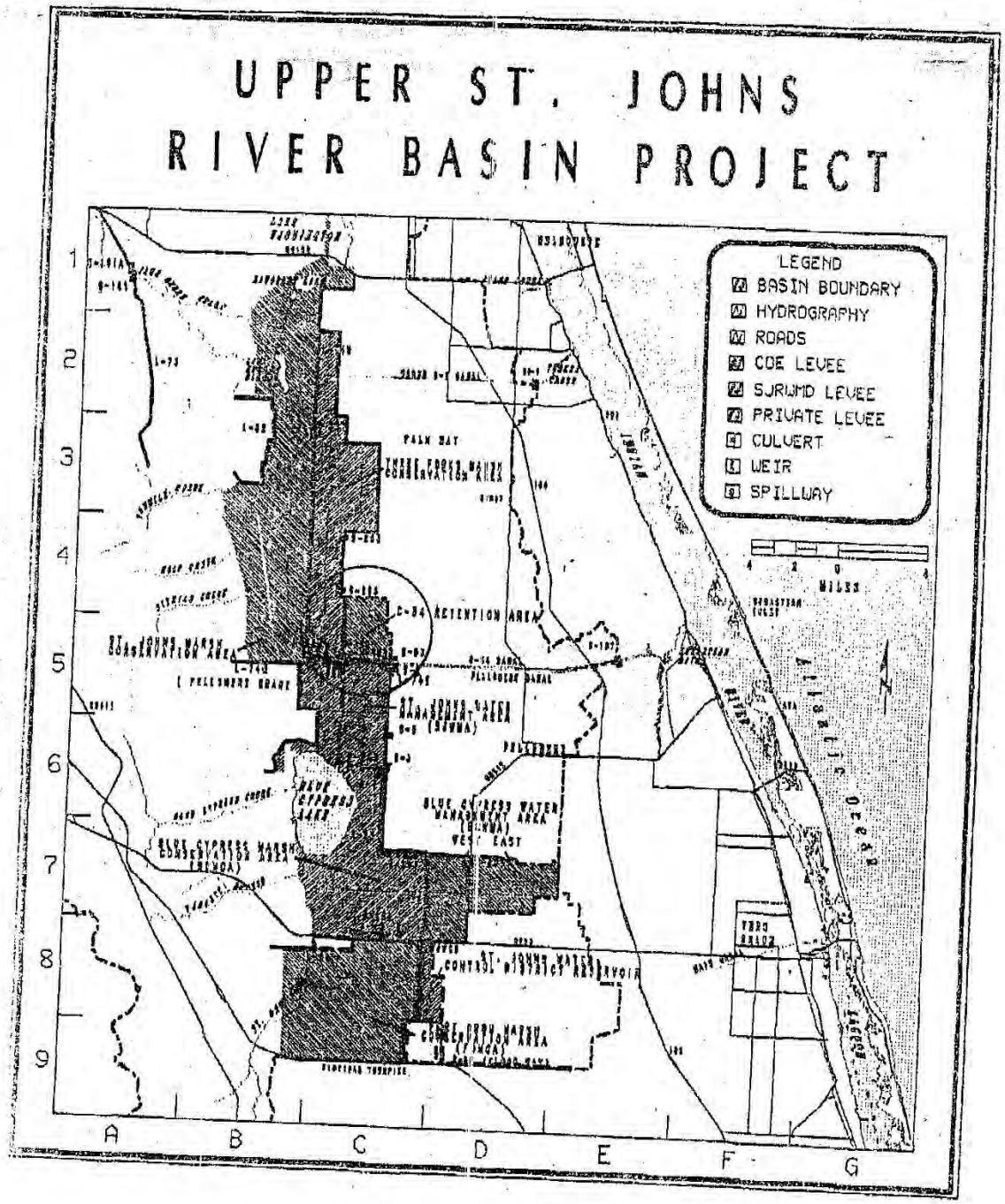
APPROVED AS TO FORM:

JOHN W. WILLIAMS
Office of General Counsel
S.J.R.W.M.D.

APPROVED BY:

COMMISSION ATTORNEY

Exhibit A


UPPER ST. JOHNS
RIVER BASIN PROJECT
LEGEND
BASIN BOUNDARY
HYDROGRAPHY
ROADS
COE LEVEE
SJRWMD LEVEE
PRIVATE LEVEE
CULVERT
WEIR
SPILLWAY
MILES
PALM BAY
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COOPERATIVE MANAGEMENT AGREEMENT

Broadmoor Marsh

THIS COOPERATIVE MANAGEMENT AGREEMENT is made and entered into this 15th day of April, 2002, between the Governing Board of the **ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**, a public body existing under Chapter 373, Florida Statutes, whose mailing address is P.O. Box 1429, Palatka, Florida 32178-1429 (hereinafter called the "DISTRICT") and the **FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION**, a public body of the State of Florida, whose mailing address is Farris Bryant Building, 620 South Meridian Street, Tallahassee, FL 32399-1600 (hereinafter called the "COMMISSION"),

WITNESSETH

WHEREAS, the DISTRICT is the fee simple owner of certain real property, hereinafter referred to as the "PROPERTY," in southern Brevard County approximately six miles west of Babcock Street (State Road/County Road 507) identified as the Broadmoor Marsh and as depicted in Exhibit "A" attached hereto and by reference made a part hereof; and

WHEREAS, the COMMISSION is desirous of managing the PROPERTY for the purpose of establishing a waterfowl management area; and

WHEREAS, the waterfowl management area will provide a diversity of wintering and breeding habitats for various waterfowl species, as well as benefiting many species of wading and shore birds, and a number of endangered species; and

WHEREAS, the DISTRICT and the COMMISSION recognize that the PROPERTY has potential for multiple uses if properly managed; and

WHEREAS, the COMMISSION possesses the personnel, ability, interest, and willingness to manage the PROPERTY under the multiple-use concept, based on sound ecological principles; and

WHEREAS, the DISTRICT and the COMMISSION recognize the value of close cooperation and mutual support in providing for public use and enjoyment of the PROPERTY.

NOW, THEREFORE, the parties hereto, for and in consideration of the premises and the mutual covenants, terms and conditions hereinafter contained, hereby covenant and agree as follows:

1. Subject to the terms, conditions and limitations set forth in this Agreement, the DISTRICT hereby conveys management responsibilities to the COMMISSION and the COMMISSION hereby accepts management responsibilities from the DISTRICT of the PROPERTY depicted in Exhibit "A" for the purposes and in the manner hereinafter set forth.
2. The initial term of this Agreement is for a period of five (5) years, commencing on April 15, 2002, and ending on April 14, 2007. Thereafter, this

Agreement shall be automatically renewed in five-year increments, unless terminated as otherwise set forth herein.

3. The COMMISSION shall be compensated by both the DISTRICT and the United States Department of Agriculture Natural Resource Conservation Service (NRCS) under a project agreement between the DISTRICT and the NRCS (the "NRCS Agreement") attached as Exhibit "B" in the sum of $346,000 over the first three years of this Agreement. Total payments to the COMMISSION for the management and restoration of the PROPERTY over the first three years of this Agreement shall not exceed $334,500 as set forth on Exhibit "C" attached hereto and by this reference made a part hereof (the "Budget"). Management and restoration includes water level manipulation, mowing, roller chopping, and project management. Once the $346,000 dollars in management funds from both the DISTRICT and NRCS has been expended, the DISTRICT shall continue to reimburse yearly management costs to the COMMISSION at a level acceptable to both parties. The DISTRICT and NRCS shall pay the COMMISSION as depicted below:
    a. The DISTRICT agrees to provide total matching funds in the amount of 25% or $86,500 over the first three full fiscal years (July 1–June 30) of this Agreement, which funding shall not exceed $25,000 per year for resource management and $11,500 in inkind services (administrative work) over the three years.
    b. Pursuant to the Agreement between the NRCS and the DISTRICT, funds shall be provided by the NRCS in the amount of 75% or $259,500 of Wetlands Reserve Program (WRP) funding over the first three full fiscal years of this Agreement, with a major portion of the funding to be spent in the first year to purchase a tractor.
    c. The DISTRICT shall maintain a detailed account of the inkind services provided by the DISTRICT.
    d. An invoice in a format approved by the DISTRICT shall be provided by the COMMISSION to the DISTRICT no later than June 30 of each full fiscal year of the Agreement, detailing costs incurred throughout the previous year. The DISTRICT shall pay all expenses up to $25,000 per year. The remainder of the amount of the invoice shall be obtained from the NRCS as long as it does not exceed $259,500 over three years.
    e. The DISTRICT shall forward each approved invoice to the NRCS according to the NRCS Agreement, documenting the share paid by the DISTRICT and the amount remaining to be paid by the NRCS.
    f. Pursuant to the NRCS Agreement, the DISTRICT shall make direct payment to the COMMISSION of the share of each invoice attributable to the DISTRICT, and the NRCS shall make direct payment to the COMMISSION of the share of each invoice attributable to the NRCS.
4. The purpose of this Agreement shall be to designate the COMMISSION as the lead management entity. The COMMISSION shall have the right to manage the habitat on the PROPERTY for waterfowl and other wetland wildlife and take specific

management actions including, but not limited to, construction of office and maintenance facilities, improving internal levees, on site water level manipulation, controlled burning, discing, and planting and mowing, along with other allowable uses as described herein and in the Management Plan (the "Plan") to be developed pursuant to this Agreement.

5. Notwithstanding any provision contained herein to the contrary, this Agreement is subject to:
   a. The terms, conditions, restrictions and limitations set forth in this Agreement; and
   b. All applicable laws, state statutes, local ordinances and the rules and regulations pertaining thereto which may be applicable to the operation of the PROPERTY.
6. A Land Management Plan ("Plan") for the PROPERTY shall be written by the COMMISSION and approved by the DISTRICT. The Plan shall include a component for development of recreational opportunities, location of all water control structures, office and maintenance buildings, and any additional improvements necessary for operation of the waterfowl management area. The Plan shall be updated every five years. Amendments to the approved Plan may be proposed by either party to this Agreement at any time; however, both parties must agree in writing to the amendments. The Plan shall be submitted to the DISTRICT for approval within eighteen (18) months of execution of this Agreement.
7. The COMMISSION shall assume primary management responsibilities that are consistent with the approved Plan, and shall include the following:
   a. An annual report due on or before June 30. This report shall include a list of expenditures by management activity for the prior year, construction and management activities, results of surveys and on-going research, harvest and hunter use information, visitor use, and future management and research plans.
   b. A revised Budget shall be included with the annual report that covers the planned activities for the upcoming years and any changes or modifications from the previous years' projections.
   c. Post the boundary of the PROPERTY and provide routine surveillance and security for the PROPERTY.
   d. Provide passive recreational opportunities such as hiking, biking and horseback riding and regulate their use on the PROPERTY including establishment of hunting regulations and refuges for management purposes.
   e. All major signage, brochures, and pamphlets, prepared by the COMMISSION, relating to the PROPERTY, shall include the DISTRICT logo and be reviewed by the DISTRICT prior to distribution or installation.
   f. Maintain interior levees that are located within the exterior boundary levee.
   g. Operate internal pumps, and obtain the appropriate permits for discharge, and for bringing water into the PROPERTY.
   h. Develop a Land Management Plan for the PROPERTY, as identified in paragraph 6.
   i. Control wildfires by employing appropriate management practices.
   j. Control exotic and invasive plants, including aquatic weeds at maintenance levels.

8. The DISTRICT shall be responsible for the following:
    a. Mowing the north, south, and west exterior boundary levees, and the east levee south of the maintenance area that remains in private ownership.
    b. Maintaining external pumps.
    c. Preparing an operating manual for the COMMISSION that shall address pump operation during flood conditions.
    d. Obtaining approval from the USDA to implement a restoration plan for the PROPERTY including addressing any possible contamination due to prior land use activities.
    e. Providing public access by securing and maintaining levees that are the District's responsibility and negotiating with the United States Army Corp of Engineers to allow public vehicles on the levee, which is the western boundary (L74N) of the PROPERTY.
9. Nothing contained in this Agreement shall be construed as a waiver of or contract with respect to the regulatory or permitting authority of the DISTRICT as it now or hereafter exists under applicable laws, rules and regulations.
10. It shall be the responsibility of the COMMISSION for a COMMISSION-initiated Project, and the DISTRICT for a DISTRICT-initiated Project, at its sole cost and expense, to obtain or renew any and all permits which may be required by the St. Johns River Water Management District, the State of Florida Department of Environmental Protection, and other applicable governmental agencies for activities conducted by such initiating party hereunder.
11. The COMMISSION acknowledges that the use authorized herein does not convey to COMMISSION any real property rights or interests to the PROPERTY nor any interests, rights, or privileges other than those specified herein.
12. The COMMISSION shall pay all lawful debts incurred by it with respect to the PROPERTY and shall satisfy all liens of contractors, sub-contractors, mechanics, laborers, and materialmen in respect to any construction, alteration and repair ordered by it in and on the PROPERTY, and any improvements thereon. Furthermore, the COMMISSION shall not have authority to create any mortgages on the PROPERTY or liens for labor or material on or against the PROPERTY and all persons contracting with the COMMISSION for the construction or removal of any structure, or for the erection, installation, alteration or repair of any structure or improvement on the PROPERTY, including all materialmen, contractors, mechanics and laborers involved in such work, shall be notified that they must look to the COMMISSION only to secure the payment of any bill or account for work done, material furnished, or money owed during the term of this Agreement.
13. All structures, improvements or personal property placed upon, or moved in or upon the PROPERTY by the COMMISSION shall be at the sole risk of the COMMISSION and the DISTRICT shall not be liable for any damage to said personal property, structures or improvements, unless said damage is due to the actions of the DISTRICT.
14. All structures and improvements currently existing on the PROPERTY or placed upon the PROPERTY by the DISTRICT shall remain the property of the DISTRICT. All new structures or improvements placed upon or moved in or upon the

PROPERTY by the COMMISSION shall be deemed personal property of the COMMISSION and shall not be considered attached to the land as a fixture unless otherwise agreed upon in writing between the parties.

15. The COMMISSION takes possession of the PROPERTY with full knowledge of the existing condition of the PROPERTY and accepts the PROPERTY in "as is" condition. The DISTRICT makes no representations or warranties as to the fitness of the PROPERTY for any particular use.
16. The COMMISSION possesses no knowledge of or expertise in the state of any pollutants, if they exist on the PROPERTY. Therefore, not withstanding any other provision hereof, the COMMISSION shall in no way be liable for any claims or damages based, in whole or in part on the presence of pollutants or toxins, of any sort, on the PROPERTY.
17. The COMMISSION and other governmental agencies or organizations involved in management related activities on the PROPERTY shall, throughout the term of this Agreement, provide, maintain, and keep in force a program of insurance or self-insurance covering its liabilities as prescribed by Section 768.28, Florida Statutes. The COMMISSION agrees to maintain participation in the state insurance program or any similar insurance program enacted during the term of this Agreement for the duration of this Agreement. In addition, nothing contained herein shall be construed as a waiver of limitations of liability which may be enjoyed by the DISTRICT as a landowner providing land to the public for outdoor recreational purposes, as provided in Section 373.1395, F.S., or any other law providing limitations on claims against the landowner.
18. This Agreement and any and all rights and privileges contained herein are for the sole use of the DISTRICT and the COMMISSION and shall not be assigned or transferred to another party without the written consent of both the DISTRICT and the COMMISSION.
19. The DISTRICT's obligation to provide funding in connection with this Agreement and the provision for partial funding from NRCS, shall be contingent upon appropriate DISTRICT approval for such funding.
20. The COMMISSION shall not use or permit the PROPERTY to be used in violation of any valid present or future laws, ordinances, rules or regulations of any public or governmental authority at any time applicable thereto relating to sanitation or the public health, safety or welfare, or relating to the COMMISSION's activities in, and use of, the PROPERTY. It is understood and agreed by the parties that there shall be no facilities constructed or placed on the PROPERTY except those directly related to the operation and maintenance of the PROPERTY for public recreational purposes or as set forth in the approved Management Plan and future restoration plan.
21. The DISTRICT reserves the right for itself, its agents, consultants and employees, to enter upon the PROPERTY for the purpose of inspecting the PROPERTY, conducting other water management activities, and determining compliance with the terms of this Agreement, so long as such entry or use does not unreasonably interfere with the COMMISSION'S use of the PROPERTY for the purposes set forth herein.
22. Either party may terminate this Agreement, with or without cause, at any time upon ninety (90) days written notice to the other party.

23. All notices, consents, approvals, waivers and elections which any party shall be required or shall desire to make or give under this Agreement shall be in writing and/or shall be sufficiently made or given only when mailed by Certified Mail, postage prepaid, return receipt requested, addressed as follows to the parties listed below or to such other address as any party hereto shall designate by like notice given to the other parties hereto:

DISTRICT: ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
P.O. BOX 1429
PALATKA, FL 32178-1429
ATTENTION: DIRECTOR
DIVISION OF LAND MANAGEMENT

COMMISSION: FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
FARRIS BRYANT BUILDING
620 SOUTH MERIDIAN STREET
TALLAHASSEE, FL 32399-1600
ATTENTION: MR. TIMOTHY E. O'MEARA

Notices, consents, approvals, waivers and elections given or made as aforesaid shall be deemed to have been given and received on the date of the mailing thereof as aforesaid.

24. Wherever used herein, the terms "DISTRICT" and "COMMISSION" include all parties to this instrument, their employees, legal representatives and assigns of individuals, and the successors and assigns of corporations, partnerships, public bodies, and quasi-public bodies.
25. This Agreement constitutes the entire agreement of the parties, and there are no understandings dealing with the subject matter of this Agreement other than those contained herein. This Agreement may not be modified, changed or amended, except in writing signed by the parties hereto or their authorized representatives.
26. This Agreement shall be construed and interpreted according to the laws of the State of Florida.
27. As a condition of this Agreement the DISTRICT and COMMISSION hereby covenant and agree not to discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring pursuant to this Agreement.
28. The DISTRICT and COMMISSION reserve the right to unilaterally cancel this Agreement for refusal by either to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the DISTRICT and the COMMISSION in conjunction with this Agreement.
29. This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the parties, it being recognized that both the DISTRICT and COMMISSION have contributed substantially and materially to the preparation hereof.
30. Nothing contained in this Agreement or the Plan prepared pursuant to this Agreement shall be construed as a waiver of or contract with respect to the regulatory or

permitting authority of the DISTRICT or COMMISSION as it now or hereafter exists under applicable laws, rules and regulations.

31. For all purposes of this Agreement, the Effective Date hereof shall mean the date when the last of the DISTRICT or the COMMISSION has executed the same, and that date shall be inserted at the top of the first page hereof.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement, on the date and year first above written.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Kirby B. Green III
Executive Director
By authority of Section 373.083 (5), Florida Statutes, and SJRWMD Policy Number 90-16 (Cooperative Agreements).

(SEAL)

Executed on April 15, 2002

APPROVED:

John W. Williams, Esquire
Office of General Counsel
SJRWMD

STATE OF FLORIDA
COUNTY OF PUTNAM

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared Kirby B. Green III, to me personally known and known to me to be the Executive Director of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, who being duly authorized, executed the foregoing document, and he acknowledged before me that he executed the same on behalf of ST. JOHNS RIVER WATER MANAGEMENT DISTRICT.

WITNESS my hand and official seal this 15th day of April 2002.

Notary Public SHARON G. CARLIN
My Commission Expires: 10/29/04

(NOTARIAL SEAL)

SHARON G. CARLIN
MY COMMISSION # CC 961051
EXPIRES: October 29, 2004
Bonded Thru Notary Public Underwriters

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Victor J. Heller
FOR Allan L. Egbert, Ph.D.
Executive Director

Executed on 1-April, 2002

APPROVED BY:

Preston T. Robertson
Office of General Counsel
Florida Fish and Wildlife Conservation Commission

STATE OF FLORIDA
COUNTY OF LEON

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared Victor J. Heller, to me personally known and known to me to be the Assistant Executive Director of the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, who being duly authorized, executed the foregoing document, and acknowledged before me that he executed the same on behalf of the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION.

WITNESS my hand and official seal this 1st day of April, 2002

Jimmie C. Bevis
MY COMMISSION # DD077239 EXPIRES
December 28, 2005
BONDED THRU TROY FAIN INSURANCE, INC.

(NOTARIAL SEAL)

Jimmie C. Bevis
Notary Public JIMMIE C. BEVIS
My Commission Expires:

Jimmie C. Bevis
MY COMMISSION # DD077239 EXPIRES
December 28, 2005
BONDED THRU TROY FAIN INSURANCE, INC.

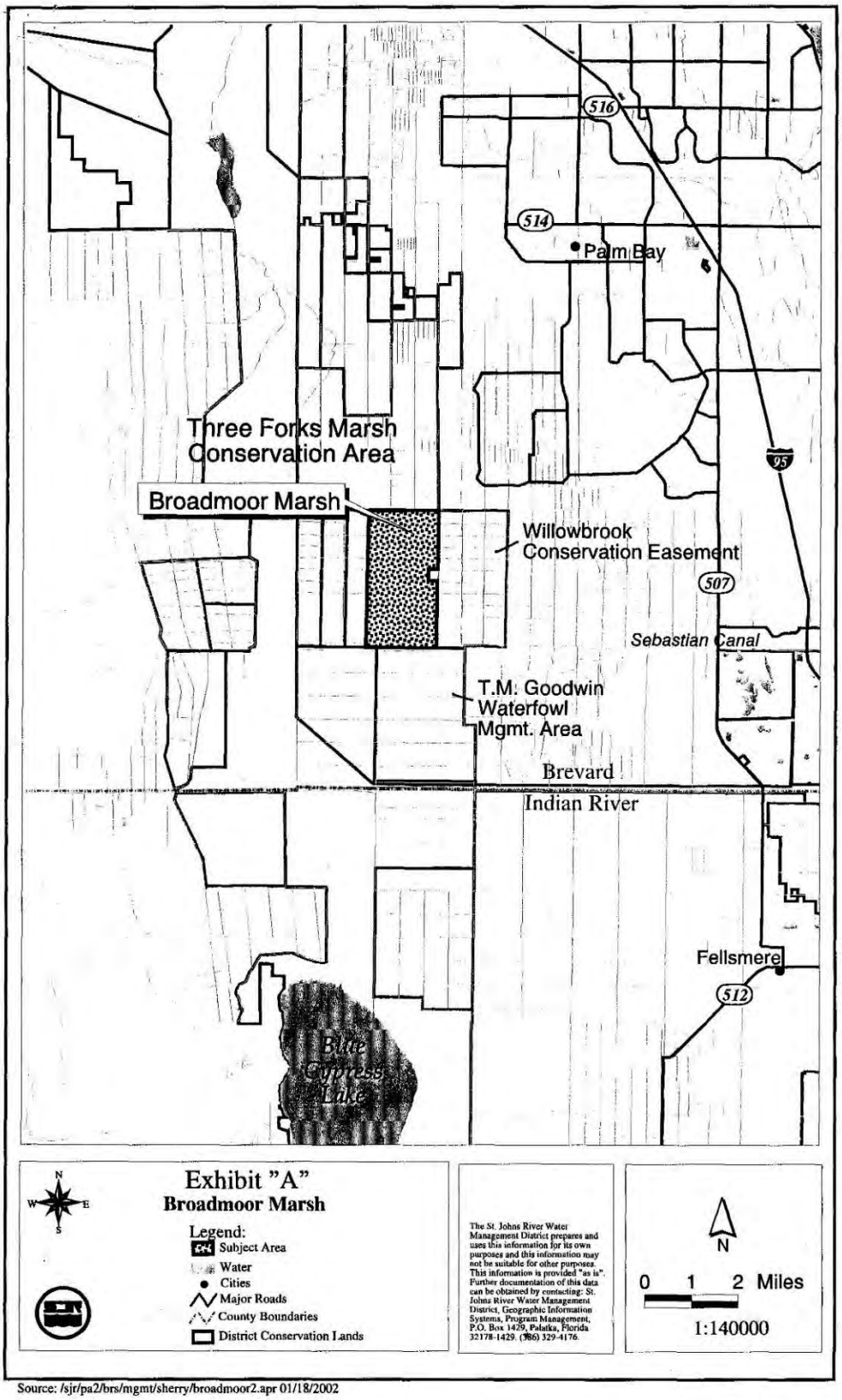

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EXHIBIT "A"

FEE ACQUISITION PARCEL

A PARCEL OF LAND LYING IN THE AMMONIATE PRODUCTS CORPORATION'S SUBDIVISION OF UNSURVEYED TOWNSHIP 30 SOUTH, RANGE 36 EAST, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 5, PAGE 11, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, AND ALSO BEING A PORTION OF A PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2237, PAGE 0362, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, INCLUDING CANALS AND ROAD RIGHTS-OF-WAY LYING WITHIN OR ADJACENT TO THE FOLLOWING DESCRIBED LOTS AND BEING DESCRIBED AS FOLLOWS:

THOSE PORTIONS OF THE EAST ONE-HALF OF LOTS 105, 205, 305, 405, 505, 605, 705, 805, 905, 1005, 1105 AND 1205, LYING EAST OF THE WESTERLY EDGE OF AN EXISTING CANAL, LOTS 106, 206, 306, 406, 506, 606, 706, 806, 906, 1006, 1106, 1206, 107, 207, 307, 407, 507, 607, 707, 807, 907, 1007, 1107, 1207, 108, 208, 308, 408, 508, 608, 708, 808, 908, 1008, 1108, 1208, 109, 209, 309, 409, 509, 609, 709, 809, 909, 1009, 1109, 1209, 110, 210, 310, 410, 510, 810, 910, 1010, 1110, 1210 AND A PORTION OF LOTS 610 AND 710, AND THOSE PORTIONS OF THE WEST ONE-HALF OF LOTS 111, 211, 311, 411, 511, 611, 711, 811, 911, 1011, 1111 AND 1211 LYING WEST OF THE EAST TOE OF SLOPE OF AN EXISTING LEVEE AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS DESCRIPTION AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF TOWNSHIP 30 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA; THENCE NORTH 89°53'53" EAST, ALONG THE NORTH LINE OF SAID TOWNSHIP 30 SOUTH, SAID NORTH LINE ALSO BEING THE NORTH LINE OF THE AFORESAID AMMONIATE PRODUCTS CORPORATION'S SUBDIVISION, A DISTANCE OF 8052.20 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUING ALONG SAID NORTH LINE, NORTH 89°53'53" EAST, A DISTANCE OF 7901.33 FEET; THENCE, DEPARTING SAID NORTH LINE, SOUTH 00°00'09" EAST, A DISTANCE OF 157.51 FEET; THENCE NORTH 89°59'51" EAST, A DISTANCE OF 28.97 FEET, TO THE EAST TOE OF SLOPE OF AN EXISTING LEVEE; THENCE SOUTHERLY ALONG SAID EAST TOE OF SLOPE, THE FOLLOWING COURSES AND DISTANCES:

THENCE SOUTH 01°11'22" WEST, A DISTANCE OF 1701.31 FEET; THENCE SOUTH 00°01'17" WEST, A DISTANCE OF 1115.45 FEET; THENCE SOUTH 00°41'41" WEST, A DISTANCE OF 1170.38 FEET; THENCE SOUTH 01°20'11" WEST, A DISTANCE OF 1089.90 FEET; THENCE SOUTH 00°54'18" WEST, A DISTANCE OF 1437.00 FEET; THENCE, DEPARTING THE AFORESAID EAST TOE OF SLOPE, NORTH 89°59'42" WEST, A DISTANCE OF 1042.40 FEET; THENCE SOUTH 00°00'07" WEST, A DISTANCE OF 1288.60 FEET; THENCE SOUTH 89°59'47" EAST, A DISTANCE OF 1022.12 FEET; TO THE AFORESAID EAST TOE OF SLOPE; THENCE, ALONG SAID EAST TOE OF SLOPE, THE FOLLOWING COURSES AND DISTANCES:
SOUTH 00°54'13" WEST, A DISTANCE OF 268.52 FEET; THENCE SOUTH 00°39'29" WEST, A DISTANCE OF 1057.99 FEET; THENCE SOUTH 00°42'18" WEST, A DISTANCE OF 1098.48 FEET; THENCE SOUTH 00°38'28" WEST, A DISTANCE OF 1065.15 FEET; THENCE SOUTH 00°14'40" WEST, A DISTANCE OF 1030.12 FEET; THENCE SOUTH 00°25'08" WEST, A DISTANCE OF 2153.27 FEET; THENCE SOUTH 05°13'01" WEST, A DISTANCE OF 907.09 FEET, TO THE CENTERLINE OF A 60 FOOT PLATTED RIGHT-OF-WAY, SAID PLATTED RIGHT-OF-WAY LYING SOUTHERLY OF AND COINCIDENT WITH THE SOUTH LINE OF TRACTS 1200 THROUGH 1222 AS SHOWN ON SAID PLAT OF THE AMMONIATE PRODUCTS SUBDIVISION; THENCE NORTH 89°32'55' WEST , ALONG SAID CENTERLINE, A DISTANCE OF 7934.98 FEET; THENCE NORTH 00°59'25" EAST, ALONG THE AFORESAID WESTERLY EDGE OF AN EXISTING CANAL, A DISTANCE OF 15461.46 FEET, TO THE POINT OF BEGINNING.

CONTAINING 2800.00 ACRES, MORE OR LESS.

CFN 98061170
OR Book/Page: 3821 / 3043

EXHIBIT "B"

State: Florida
Agreement No.:
Page 1 of 3

PROJECT AGREEMENT

Between

ST JOHNS RIVER WATER MANAGEMENT DISTRICT

and the

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Authority: Public Law 46-74, 16 U.S.C. (590 a-f)

THIS AGREEMENT, made and entered into this August 27th 2001 by and between the St Johns River Water Management District (hereinafter called the "SJRWMD"), whose address is P.O. Box 1429, Palatka, FL 32178-1429, and the United States Department of Agriculture Natural Resources Conservation Service (hereinafter called the "Service"), whose address is P.O. Box 141510, Gainesville, FL 32614-1510.

The SJRWMD and the Service have the common objective of helping to bring about the conservation, development, and wise use of land, water and related resources.

Whereas, under the provisions of the Wetlands Reserve Program (WRP) the SJRWMD and the Service have agreed to provide for the restoration of properties described as the Broadmoor Marsh Conservation Area to be detailed in specific site restoration plans and treatments subsequent to this agreement,

Therefore, the SJRWMD and the Service deem it mutually advantageous to cooperate in this undertaking, and hereby agree as follows:

A. The SJRWMD Agrees:

1. To provide matching funds in the amount of 25% or $86,500.00 of the overall restoration cost estimated to be $346,000.00

2. The SJRWMD Project Manager shall be Robert Christianson. The Project Manager shall be responsible for coordinating all matters relating to this agreement.

B. The Service Agrees:

1. To provide funds in the amount of 75% or $259,500.00 in WRP in support of the overall restoration cost estimated to be $346,000.00.

2. To provide a Service professionals for coordination as required.

C. It is mutually understood and agreed:

1. TERM. This agreement shall commence August 21, 2001 and shall continue until September 30, 2005, provided that such continuation does not extend the agreement beyond the fiscal year in which the work is completed.

2. METHOD OF PAYMENT. The Service and the SJRWMD shall negotiate and execute cooperative agreements with detailed plans of work, schedules, and budgets subsequent to this agreement. These agreements shall detail payment procedures for funds obligated by this agreement. The following list provides the anticipated project activities, and their anticipated costs to be completed:

Broadmoor Marsh Conservation Area – Total Cost : $346,000.00

Water Level Manipulation	$	21,000.00
Mowing	$	13,500.00
Roller Chopping	$	225,000.00
Project Management	$	86,500.00

3. INTENT TO COOPERATE. It is the intent of the Service and the SJRWMD to fulfill their obligations under this agreement. However, commitments cannot be made beyond the period for which funds have been appropriated. In the event funds from which the Service or the SJRWMD may fulfill their obligations are not appropriated, the agreement will automatically terminate. Reimbursement will then be for work completed that is otherwise eligible for reimbursement prior to the effective date of termination.

4. TERMINATION. This agreement may be terminated by either party giving a thirty (30) day advance written notice to the other party. Either party may unilaterally cancel this agreement for refusal by the other party to allow public access to documents or other materials related to this agreement for compliance with the provisions of the Freedom of Information Act or Chapter 119, Fla. Stat. as amended. Each party shall comply with their own statutes with consideration of any conflicting requirements.

5. MODIFICATION. This agreement may be modified by amendment duly executed by authorized officials of the SJRWMD and the Service, provided such modification does not extend this agreement beyond the close of the fiscal year in which the work is completed.

6. ADMINISTRATION. This agreement shall be administered in accordance with the provisions of OMB circulars A-87, A-102, and A-128, 7 CFR 3015, and 7 CFR 3016.

7. OFFICIALS NOT TO BENEFIT. No member of Congress or Resident Supervisor shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom; but this shall not be construed to extend to this agreement if made with a corporation for its general benefit.

8. RECORDS. Each party agrees that the other party or their duly authorized representative shall have access to the other party's books, papers, documents, and records relative to this agreement for a period of three (3) years after the final expenditure of funds under this agreement.

9. PROJECT MANAGERS. Designated project managers shall be responsible for overall coordination and oversight of all matters relating to this agreement. The project manager for SJRWMD is Robert Christianson. The Project Manager for the Service is Ken Murray. The parties agree to direct all matters arising in connection with this agreement to the project managers for attempted resolution or action. All notices regarding this agreement shall be reduced to writing and shall be sent via certified mail to the project managers and shall be considered delivered upon receipt.

10. NON-DISCRIMINATION. The program or activities conducted under this agreement will be in compliance with the non-discrimination provisions contained in the Titles VI and VII of the Civil Rights Act of 1964, as amended; the Civil Rights Restoration Act of 1989 (Public Law 100-259); and other non-discrimination statutes; namely, section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendment of 1972, and the Age Discrimination Act of 1975. They will also be in accordance with the regulation of the Secretary of Agriculture (7 CRF-15, Subparts A and B), which provide that no person in the United States shall on the grounds of race, color, national origin, age, sex, religion, marital status, or handicapped be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial and/or technical assistance from the Department of Agriculture of any agency thereof. This shall satisfy the requirements of Chapter 760 Fla. Stat.

11. DRUG-FREE WORKPLACE. Certification Regarding Drug-Free Work Place Requirements (Grants) For Alternative I – For Grantees Other Than Individuals, Form AD-1049, is attached and made a part of this agreement.

This Agreement was approved by the St Johns River Water Management District on August 27, 2001.

St Johns River
Water Management District

By: _____
Executive Director

United States
Department of Agriculture
Natural Resources
Conservation Service

By: T. Niles Glasgow
T. Niles Glasgow
State Conservationist

Approved

Deputy General Counsel
Office of General Counsel

FIRST AMENDMENT

TO

COOPERATIVE MANAGEMENT AGREEMENT FOR BROADMOOR MARSH

THIS FIRST AMENDMENT is made and entered into this 19th day of October, 2005, between the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, whose mailing address is P.O. Box 1429, Palatka, Florida 32178-1429 (hereinafter called the "DISTRICT") and the **FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION**, a public body of the State of Florida, whose mailing address is Farris Bryant Building, 620 South Meridian Street, Tallahassee, FL 32399-1600 (hereinafter called the "COMMISSION").

WITNESSETH

WHEREAS, on April 15, 2002, the DISTRICT entered into a cooperative management agreement ("Agreement") with the COMMISSION, designating the COMMISSION as lead manager of Broadmoor Marsh (the "Property"), which consists of approximately 2,800 acres, more specifically described in Exhibit "A," attached hereto and by this reference made a part hereof.

WHEREAS, the DISTRICT agreed to provide $25,000 per year for three years and then continue to reimburse yearly management costs at a level acceptable to both the DISTRICT and COMMISSION; and

WHEREAS, the three-year period has ended and the DISTRICT and COMMISSION have agreed on a yearly management contribution in the amount of $30,000 per year; and

WHEREAS, the DISTRICT and COMMISSION wish to amend the Agreement so as to provide for long-term annual management contributions, subject to budget approval.

NOW, THEREFORE, the parties hereto, for and in consideration of the premises, which are hereby made a part of the Agreement, and the mutual covenants, terms and conditions hereinafter contained, hereby covenant and agree as follows:

1. Paragraph 3 of the Agreement is hereby deleted in its entirety and replaced with the following:

The COMMISSION shall be compensated by the DISTRICT for management and restoration activities on the Property in the amount not to exceed $30,000 annually beginning with the year July 1, 2005 through June 30, 2006. Management and restoration includes: water level manipulation, mowing, roller chopping and project management.

RECEIVED
OCT 13 2005
FWC Bureau of Accounting Services

a. An invoice in a format approved by the DISTRICT shall be provided by the COMMISSION to the DISTRICT for the period ending June 30 of each full fiscal year of the Agreement, detailing costs incurred throughout the previous year. The DISTRICT shall pay all expenses up to $30,000 per year.

b. The DISTRICT shall make direct payment to the COMMISSION of each approved invoice not to exceed $30,000 annually, subject to annual budget approval.

2. All captioned terms used herein shall have the same meaning as that ascribed to them in the Agreement.
3. Except as specifically provided herein, the Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto have duly executed this FIRST AMENDMENT to become effective on the date and year first above written.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: _____
Kirby B. Green III
Executive Director
By authority of Section 373.083 (5), Florida Statutes, and SJRWMD Policy Number 90-16 (Cooperative Agreements).

APPROVED:

_____
for Stanley J. Niego Sr., Assistant General Counsel
Office of General Counsel
SJRWMD

STATE OF FLORIDA
COUNTY OF PUTNAM

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared Kirby B. Green III, to me personally known and known to me to be the Executive Director of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, who being duly authorized, executed the foregoing document, and he acknowledged before me that he executed the same on behalf of ST. JOHNS RIVER WATER MANAGEMENT DISTRICT.

WITNESS my hand and official seal this 28th day of Sept., 2005.

_____
Notary Public SHARON G. CARLIN
My Commission Expires: 10/29/08

(NOTARIAL SEAL) SHARON G. CARLIN MY COMMISSION # DD 336830 EXPIRES: October 29, 2008 Bonded Thru Notary Public Underwriters

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

for Kenneth D. Haddad
Executive Director

Executed on 19-Oct.-2005, 2005

APPROVED BY:

Office of General Counsel
Florida Fish and Wildlife Conservation Commission

STATE OF FLORIDA
COUNTY OF LEON

BEFORE ME, an officer duly authorized to take acknowledgments in the State and County aforesaid, personally appeared _____, to me personally known and known to me to be the Charles A. Shelfer of the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, who being duly authorized, executed the foregoing document, and acknowledged before me that he executed the same on behalf of the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION.

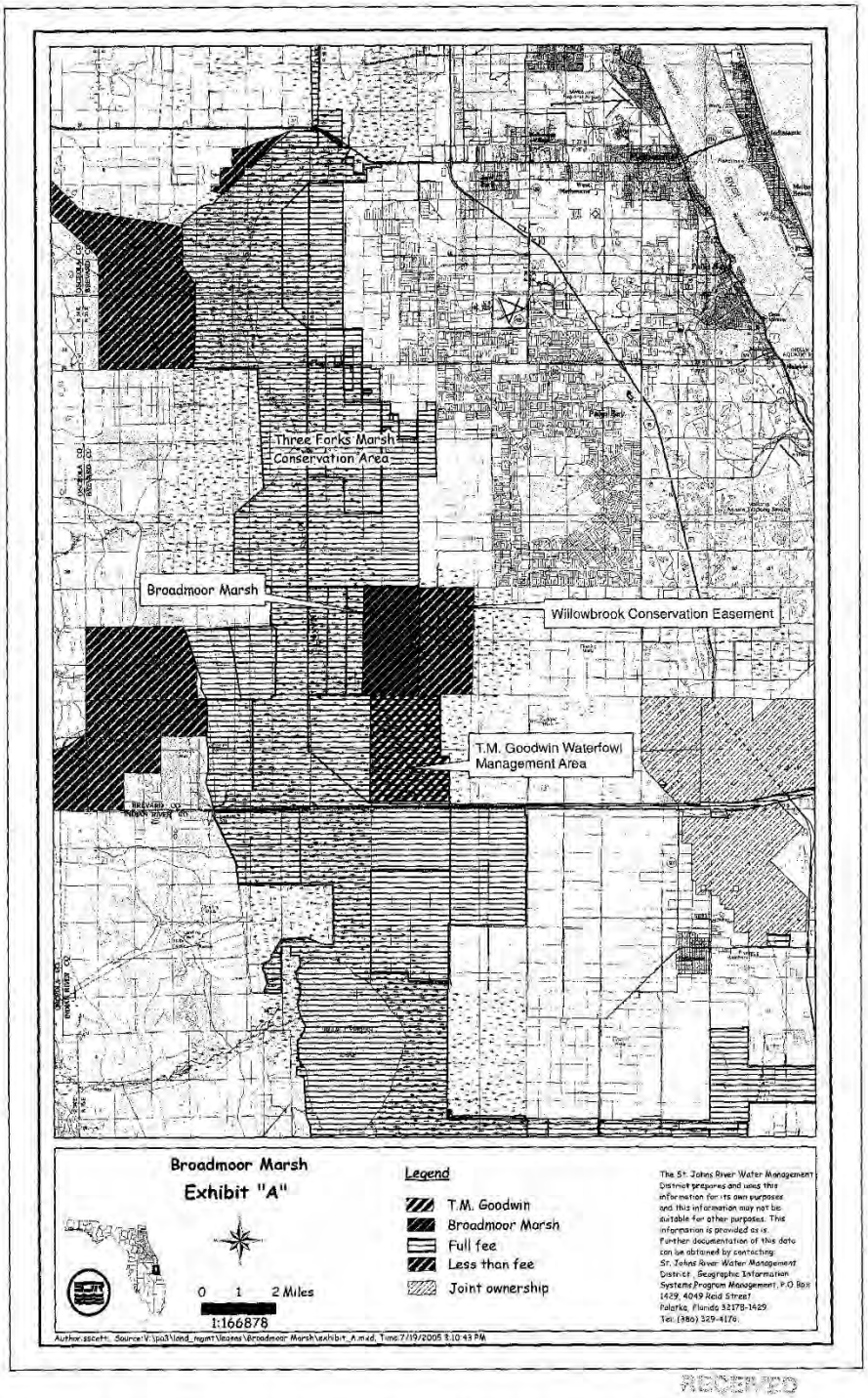
WITNESS my hand and official seal this 19th day of October 2005

Notary Public Jo Ann M. Fain
My Commission Expires: _____

(NOTARIAL SEAL)

Jo Ann M. Fain
MY COMMISSION EXPIRES June 1, 2006
#DD092821
Bonded thru Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

RECEIVED
OCT 13 2005



Amendment to Cooperative Agreement
Broadmoor Marsh

Page 4 of 5

FINAL

EXHIBIT "A"

LEGAL DESCRIPTION

FEE ACQUISITION PARCEL

A PARCEL OF LAND LYING IN THE AMMONIATE PRODUCTS CORPORATION'S SUBDIVISION OF UNSURVEYED TOWNSHIP 30 SOUTH, RANGE 36 EAST, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 5, PAGE 11, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, AND ALSO BEING A PORTION OF A PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2237, PAGE 0362, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, INCLUDING CANALS AND ROAD RIGHTS-OF-WAY LYING WITHIN OR ADJACENT TO THE FOLLOWING DESCRIBED LOTS AND BEING DESCRIBED AS FOLLOWS:

THOSE PORTIONS OF THE EAST ONE-HALF OF LOTS 105, 205, 305, 405, 505, 605, 705, 805, 905, 1005, 1105 AND 1205, LYING EAST OF THE WESTERLY EDGE OF AN EXISTING CANAL, LOTS 106, 206, 306, 406, 506, 606, 706, 806, 906, 1006, 1106, 1206, 107, 207, 307, 407, 507, 607, 707, 807, 907, 1007, 1107, 1207, 108, 208, 308, 408, 508, 608, 708, 808, 908, 1008, 1108, 1208, 109, 209, 309, 409, 509, 609, 709, 809, 909, 1009, 1109, 1209, 110, 210, 310, 410, 510, 810, 910, 1010, 1110, 1210 AND A PORTION OF LOTS 610 AND 710, AND THOSE PORTIONS OF THE WEST ONE-HALF OF LOTS 111, 211, 311, 411, 511, 611, 711, 811, 911, 1011, 1111 AND 1211 LYING WEST OF THE EAST TOE OF SLOPE OF AN EXISTING LEVEE AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS DESCRIPTION AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF TOWNSHIP 30 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA; THENCE NORTH 89°53'53" EAST, ALONG THE NORTH LINE OF SAID TOWNSHIP 30 SOUTH, SAID NORTH LINE ALSO BEING THE NORTH LINE OF THE AFORESAID AMMONIATE PRODUCTS CORPORATION'S SUBDIVISION, A DISTANCE OF 8052.20 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUING ALONG SAID NORTH LINE, NORTH 89°53'53" EAST, A DISTANCE OF 7901.33 FEET; THENCE, DEPARTING SAID NORTH LINE, SOUTH 00°00'09" EAST, A DISTANCE OF 157.51 FEET; THENCE NORTH 89°59'51" EAST, A DISTANCE OF 28.97 FEET, TO THE EAST TOE OF SLOPE OF AN EXISTING LEVEE; THENCE SOUTHERLY ALONG SAID EAST TOE OF SLOPE, THE FOLLOWING COURSES AND DISTANCES:

THENCE SOUTH 01°11'22" WEST, A DISTANCE OF 1701.31 FEET; THENCE SOUTH 00°01'17" WEST, A DISTANCE OF 1115.45 FEET; THENCE SOUTH 00°41'41" WEST, A DISTANCE OF 1170.38 FEET; THENCE SOUTH 01°20'11" WEST, A DISTANCE OF 1089.90 FEET; THENCE SOUTH 00°54'18" WEST, A DISTANCE OF 1437.00 FEET; THENCE, DEPARTING THE AFORESAID EAST TOE OF SLOPE, NORTH 89°59'42" WEST, A DISTANCE OF 1042.40 FEET; THENCE SOUTH 00°00'07" WEST, A DISTANCE OF 1288.60 FEET; THENCE SOUTH 89°59'47" EAST, A DISTANCE OF 1022.12 FEET; TO THE AFORESAID EAST TOE OF SLOPE; THENCE, ALONG SAID EAST TOE OF SLOPE, THE FOLLOWING COURSES AND DISTANCES:
SOUTH 00°54'13" WEST, A DISTANCE OF 268.52 FEET; THENCE SOUTH 00°39'29" WEST, A DISTANCE OF 1057.99 FEET; THENCE SOUTH 00°42'18" WEST, A DISTANCE OF 1098.48 FEET; THENCE SOUTH 00°38'28" WEST, A DISTANCE OF 1065.15 FEET; THENCE SOUTH 00°14'40" WEST, A DISTANCE OF 1030.12 FEET; THENCE SOUTH 00°25'08" WEST, A DISTANCE OF 2153.27 FEET; THENCE SOUTH 05°13'01" WEST, A DISTANCE OF 907.09 FEET, TO THE CENTERLINE OF A 60 FOOT PLATTED RIGHT-OF-WAY, SAID PLATTED RIGHT-OF-WAY LYING SOUTHERLY OF AND COINCIDENT WITH THE SOUTH LINE OF TRACTS 1200 THROUGH 1222 AS SHOWN ON SAID PLAT OF THE AMMONIATE PRODUCTS SUBDIVISION; THENCE NORTH 89°32'55' WEST , ALONG SAID CENTERLINE, A DISTANCE OF 7934.98 FEET; THENCE NORTH 00°59'25" EAST, ALONG THE AFORESAID WESTERLY EDGE OF AN EXISTING CANAL, A DISTANCE OF 15461.46 FEET, TO THE POINT OF BEGINNING.

CONTAINING 2800.00 ACRES, MORE OR LESS.

DRAINAGE (PARCELS C, D & E) EASEMENT AGREEMENT

THIS GRANT OF EASEMENT is made as of the 26th day of September, 1985, by **ST. JOHNS RIVER WATER MANAGEMENT DISTRICT,** a public body existing under Chapter 373 of the Florida Statutes, whose post office address is P.O. Box 1429, Palatka, Florida 32078-1429 (hereinafter referred to as "Grantor") in favor of **JAMES SARTORI,** individually (hereinafter "Sartori"), and **WILLOWBROOK COAL COMPANY,** a Pennsylvania general partnership d/b/a/ WILLOWBROOK FARMS in Florida (hereinafter "WF"), whose post office address is 3100 North Riverside Drive, Indialantic, Florida 32903 (Sartori and WF are hereinafter collectively referred to as "Grantee").

(Whenever used herein the terms "Grantor" and "Grantee" include all the parties to this instrument and the heirs, personal representatives, administrators, assigns and the successors in interest and title of said parties, be they individuals, corporations, governmental entities, or partnerships (including joint ventures).)

087120

1985 SEP 27 PM 12:49

R E C I T A L S:

WHEREAS, contemporaneously with the execution and delivery of this easement, WF has conveyed to Grantor fee simple title to those certain parcels of real property located in Brevard County, Florida, as more particularly described in Exhibit "A" attached hereto and made a part hereof and identified thereon as Parcels C, D and E (hereinafter cumulatively referred to as "the Premises"); and

WHEREAS, incident to the conveyance of the Premises by WF to Grantor, the Grantor has agreed to grant and convey to

THIS INSTRUMENT PREPARED BY:

Paul E. Rosenthal, Esq.
Foley & Lardner, van den Berg,
Gay, Burke, Wilson & Arkin
16 South Magnolia Avenue
Post Office Box 2193
Orlando, FL 32802-2193
(305) 423-7656

RETURN TO:

LAURA B. ALEXANDER
P.O. DRAWER E
WEST PALM BEACH, FL 33402

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2636

PAGE
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Grantee a non-exclusive perpetual easement for drainage purposes over, across and upon those certain lands located in Brevard County, Florida, as more particularly described in Exhibit "B" attached hereto and made a part hereof (hereinafter the "Easement Property"), said easement being for the specific and limited purposes hereinafter set forth.

NOW, THEREFORE, in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration not herein recited but hereby receipted for, the sufficiency of which consideration is hereby acknowledged, the parties hereto agree as follows:

1. The Recitals set forth above are true and correct and are incorporated herein by reference and made a part hereof as fully as if set forth herein verbatim.

2. Grantor hereby gives, grants, bargains, sells and conveys to Grantee a non-exclusive perpetual easement over, under, upon, across and through the Easement Property for the exclusive purpose of the drainage of lands adjacent to or nearby the Premises which are owned by Grantee as of the date hereof (hereinafter referred to as "the Benefited Lands") together with the non-exclusive right to use any and all flow-ways and structures now or hereafter existing, put or placed in or upon the Easement Property for the purpose of discharging water into the flow-ways situated upon Easement Property; provided, however, that all such discharging of water shall be subject to and in accordance with all applicable governmental statutes, ordinances, rules and regulations and all permits issued in accordance therewith, including but not limited to such permits as may from time to time be issued by the St. Johns River Water Management District. Grantor shall make such modifications necessary to maintain said flow-ways and structures on the Easement Property to the extent required to carry the legally authorized discharge from the Benefitted Lands which discharge and drain through the Easement Property so that such flow-ways will have a conveyance

OFF. REC. 2636 PAGE 0862

capacity such that the water level at the point of discharge east of the Easement Property will not exceed by more than one-half (.5) foot the water level immediately west of the eastern boundary of the Easement Property.

3. In the event Grantor builds a new levee across the flow-ways within or adjacent to the Premises or any portion thereof, Grantor covenants that it will properly design a conveyance system to accommodate through any such new levee the legally authorized discharge from all land whose water drains through such flow-ways, or portions thereof as of the date hereof, such flow-ways having a conveyance capacity through such new levee such that the water level at the point of discharge east of any such new levee will not exceed by more than one-half (.5) foot the water level immediately west of such new levee.

4. To the extent necessary to comply with the easements, covenants and agreements set forth in this Easement Agreement, Grantor agrees, at its expense, to clean and maintain the flow-ways and any structures now existing or hereafter erected on the Easement Property in order to accomodate the legally authorized discharge from all land whose water drains through such flow-ways or portions thereof as of the date hereof so that such flow-ways will have a conveyance capacity such that the water level at the point of discharge east of the Easement Property will not exceed by more than one-half (.5) foot the water level immediately west of the eastern boundary of the Easement Property.

5. Nothing contained in this Easement Agreement shall be construed as a waiver of or contract with respect to the regulatory and permitting authority of Grantor as it now or hereafter exists under applicable laws, rules and regulations.

6. Grantee shall be entitled to enforce the terms of this Easement Agreement by action for specific performance (or an action for injunctive relief) in the event Grantor

fails to comply with any of the covenants and agreements herein contained. To the extent permitted by law, Grantee shall also be entitled to recover from Grantor for all damages together with reasonable attorneys' fees and costs, which are suffered by Grantee as a result of Grantor's failure to comply with any of the covenants and agreements herein contained.

IN WITNESS WHEREOF, the parties named herein as Grantor and Grantee have executed and delivered this instrument and have intended the same to be and become effective as of the date and year first above written.

Signed, sealed and delivered in the presence of:

Sheryl S. Bray

GRANTOR

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: _____
Ralph E. Simmons, Chairman

ATTEST: _____
Lynn C. Capehart, Secretary

(SEAL)

LEGAL FORM AND CONTENT APPROVED:

FOLEY & LARDNER, van den BERG, GAY, BURKE, WILSON & ARKIN, Board Counsel

By: _____
Paul E. Rosenthal, Esq.

Eleanor Brawner

GRANTEE

_____ (SEAL)
JAMES SARTORI, individually

Eleanor Brawner

WILLOWBROOK COAL COMPANY, d/b/a WILLOWBROOK FARMS

By: _____ (SEAL)
James Sartori, General Partner

Eleanor Brawner

By: _____ (SEAL)
David Sartori, General Partner

OFF. REC. 2636 - 4 - PAGE 0864

STATE OF FLORIDA)
)
COUNTY OF Orange)

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State and County aforesaid to take acknowledgments, personally appeared JAMES SARTORI, well known to me to be a General Partner of **WILLOWBROOK COAL COMPANY,** doing business in Florida as **WILLOWBROOK FARMS,** and who, as such General Partner as well as in his individual capacity, executed the foregoing instrument and he acknowledged before me that he executed the same (individually and as such General Partner) for the uses and purposes therein expressed.

WITNESS my hand and official seal in the County and State last aforesaid this 26 day of September, 1985.

Eleanor Brawner
Notary Public - State of Florida
My commission expires:

(NOTARIAL SEAL)

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXPIRES NOV 5 1986
BONDED THRU GENERAL INSURANCE UND

STATE OF FLORIDA)
)
COUNTY OF Orange)

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State and County aforesaid to take acknowledgments, personally appeared **DAVID SARTORI,** well known to me to be a General Partner of **WILLOWBROOK COAL COMPANY,** doing business in Florida as **WILLOWBROOK FARMS,** and who, as such General Partner executed the foregoing instrument and he acknowledged before me that he executed the same for the uses and purposes therein expressed.

WITNESS my hand and official seal in the County and State last aforesaid this 26 day of September, 1985.

Eleanor Brawner
Notary Public - State of Florida
My commission expires:

(NOTARIAL SEAL)

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXPIRES NOV 5 1986
BONDED THRU GENERAL INSURANCE UND

STATE OF FLORIDA)
) ss:
COUNTY OF Putnam)

PERSONALLY APPEARED, before me that undersigned authority, Ralph E. Simmons, well known to me and known to me to be the Chairman of the Governing Board of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, and acknowledged before me that he executed the foregoing document on behalf of the Governing Board of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, as its true act and deed and that he was authorized so to do.

WITNESS my hand and official seal this 25th day of September, 1985.

Notary Public

My Commission Expires:

NOTARY PUBLIC, STATE OF FLORIDA
My Commission Expires Feb. 2, 1986

(NOTARIAL SEAL)

OFF. REC. 2636 - 5 - PAGE 0865

STATE OF FLORIDA)
) ss:
COUNTY OF Putnam)

PERSONALLY APPEARED, before me the undersigned authority, Lynne C. Capehart, well known to me to be the Secretary of the Governing Board of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, and acknowledged before me that she executed the foregoing document on behalf of the Governing Board of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, as its true act and deed and that she was authorized so to do.

WITNESS my hand and official seal this 25th day of September, 1985.

(NOTARIAL SEAL)

Notary Public

My Commission Expires:

NOTARY PUBLIC, STATE OF FLORIDA
My Commission Expires Feb. 2, 1986

OFF. REC.
2636

- 6 -

PAGE
0866

EXHIBIT "A"
(Page 1 of 3)

PARCEL "C":

A parcel of land lying in the Ammoniate Products Corporation's Subdivision of unsurveyed Township 30 South, Range 36 East, according to the plat thereof as recorded in Plat Book 5, page 11, Public Records of Brevard County, Florida, and also being a portion of a parcel described in Official Records Book 2237, page 0362, Public Records of Brevard County, Florida, including canals and road right-of-ways lying within the following described lots, and being described as follows:

A portion of the North one half (N 1/2) of the said Ammoniate Products Corporation's Subdivision, also described as;

Lots 100, 101, 200, 201, 300, 301, 400, 401, 500, 501, 600, 601, 700, 701, 800, 801, 900, 901, 1000, 1001, 1100, 1101, 1200, and 1201, all inclusive.
And the North 1/2 of a roadway adjoining the South boundary of lots 1200 and 1201.

The above-described parcel contains 984.64 acres, more or less.

Boundary as shown on attached maps.

This description prepared by Tommy C. Walters, Surveying Supervisor, St. Johns River Water Management District October 2, 1984.

Revised 11/8/84 (TCW)
Revised 12/6/84

OFF. REC.
2636

PAGE
0867

EXHIBIT "A"
(Page 2 of 3)

PARCEL "D":

A parcel of land lying in the Ammoniate Products Corporation's Subdivision of unsurveyed Township 30 South, Range 36 East, according to the plat thereof as recorded in Plat Book 5, page 11, Public Records of Brevard County, Florida, and also being a portion of a parcel described in Official Records Book 2237, page 0362, Public Records of Brevard County, Florida, including canals and road right-of-ways lying within the following described lots, and being described as follows:

A portion of the North one half (N 1/2) of the said Ammoniate Products Corporation's Subdivision, also described as;

Lots 102, 103, 202, 203, 302, 303, 402, 403, 502, 503, 602, 603, 702, 703, 802, 803, 902, 903, 1002, 1003, 1102, 1103, 1202, and 1203, all inclusive.
And the North 1/2 of a roadway adjoining the South boundary of lots 1202 and 1203.

The above-described parcel contains 975.07 acres, more or less.

Boundary as shown on attached maps.

This description prepared by Tommy C. Walters, Surveying Supervisor, St. Johns River Water Management District October 2, 1984.

Revised 11/8/84 (TCW)
Revised 12/6/84

OFF. REC.
2636

PAGE
0868

EXHIBIT "A"
(Page 3 of 3)

PARCEL "E":

A parcel of land lying in the Ammoniate Products Corporation's Subdivision of unsurveyed Township 30 South, Range 36 East, according to the plat thereof as recorded in Plat Book 5, page 11, Public Records of Brevard County, Florida, and also being a portion of a parcel described in Official Records Book 2237, page 0362, Public Records of Brevard County, Florida, including canals and road right-of-ways lying within the following described lots, and being described as follows:

A portion of the North one half (N 1/2) of the said Ammoniate Products Corporation's Subdivision, also described as;

Lots 104, 105, 204, 205, 304, 305, 404, 405, 504, 505, 604, 605, 704, 705, 804, 805, 904, 905, 1004, 1005, 1104, 1105, 1204, and 1205, all inclusive.

And the North 1/2 of a roadway adjoining the South Boundary of lots 1204 and 1205.

Less and except the portions of said roadways and the approximate East half (E 1/2) of Lots 105, 205, 305, 405, 505, 605, 705, 805, 905, 1005, 1105, and 1205, lying east of the westerly edge of an existing canal, said easterly boundary of the above real property lying along the west edge of said canal extending from the centerline of a roadway adjoining the South boundary of Lot 1205 to the North boundary of Lot 105.

The above-described parcel contains 843.59 acres, more or less.

Boundary as shown on attached maps.

This description prepared by Tommy C. Walters, Surveying Supervisor, St. Johns River Water Management District October 2, 1984.

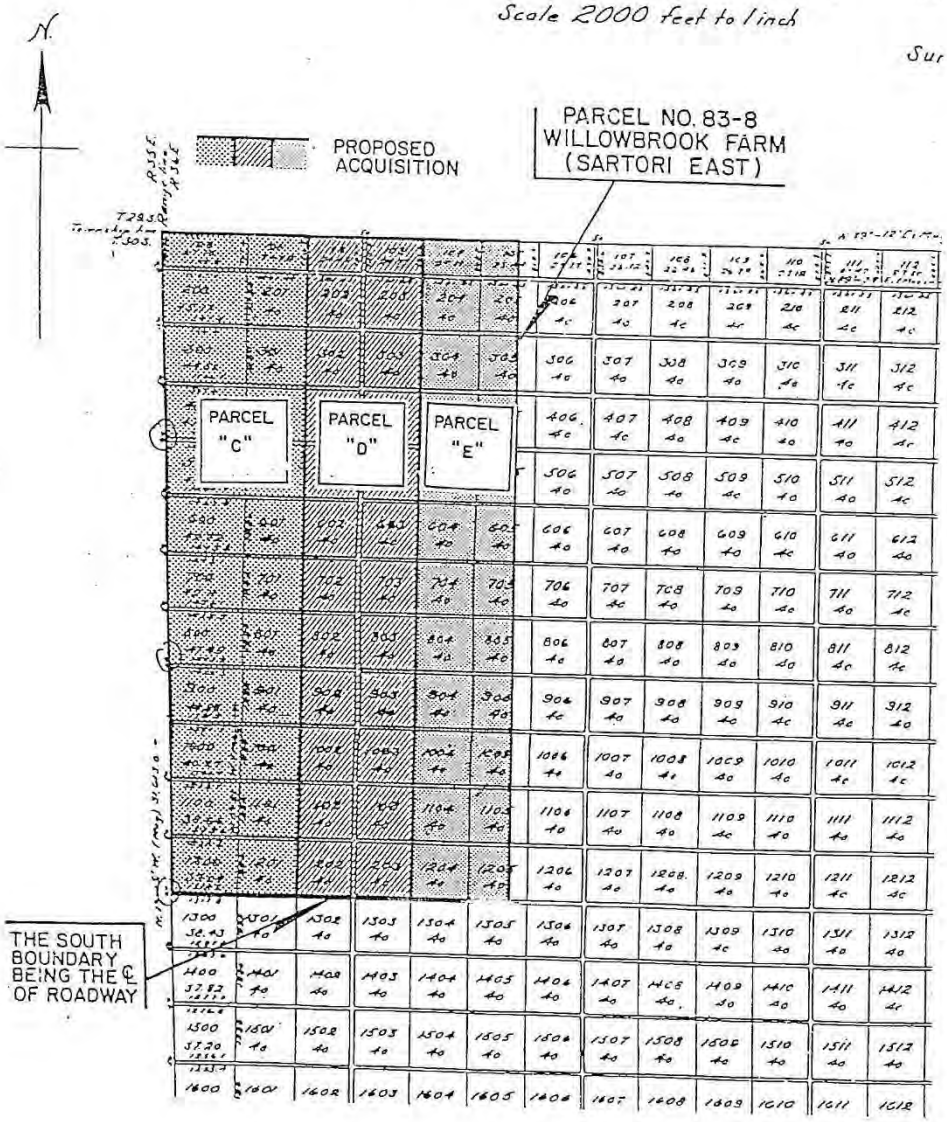
Revised 11/8/84 (TCW)
Revised 12/6/84

OFF. REC. 2636 PAGE 0869

MAP FOR
EXHIBIT "A"

AMMONIATE PRODUCTS CORP
OF
UNSURVEYED TOWNSHIP 30 SOUT
IN BREVARD COUNTY, S7
Scale 2000 feet to 1 inch

Sur



OFF. REC.
2636

PAGE
0870

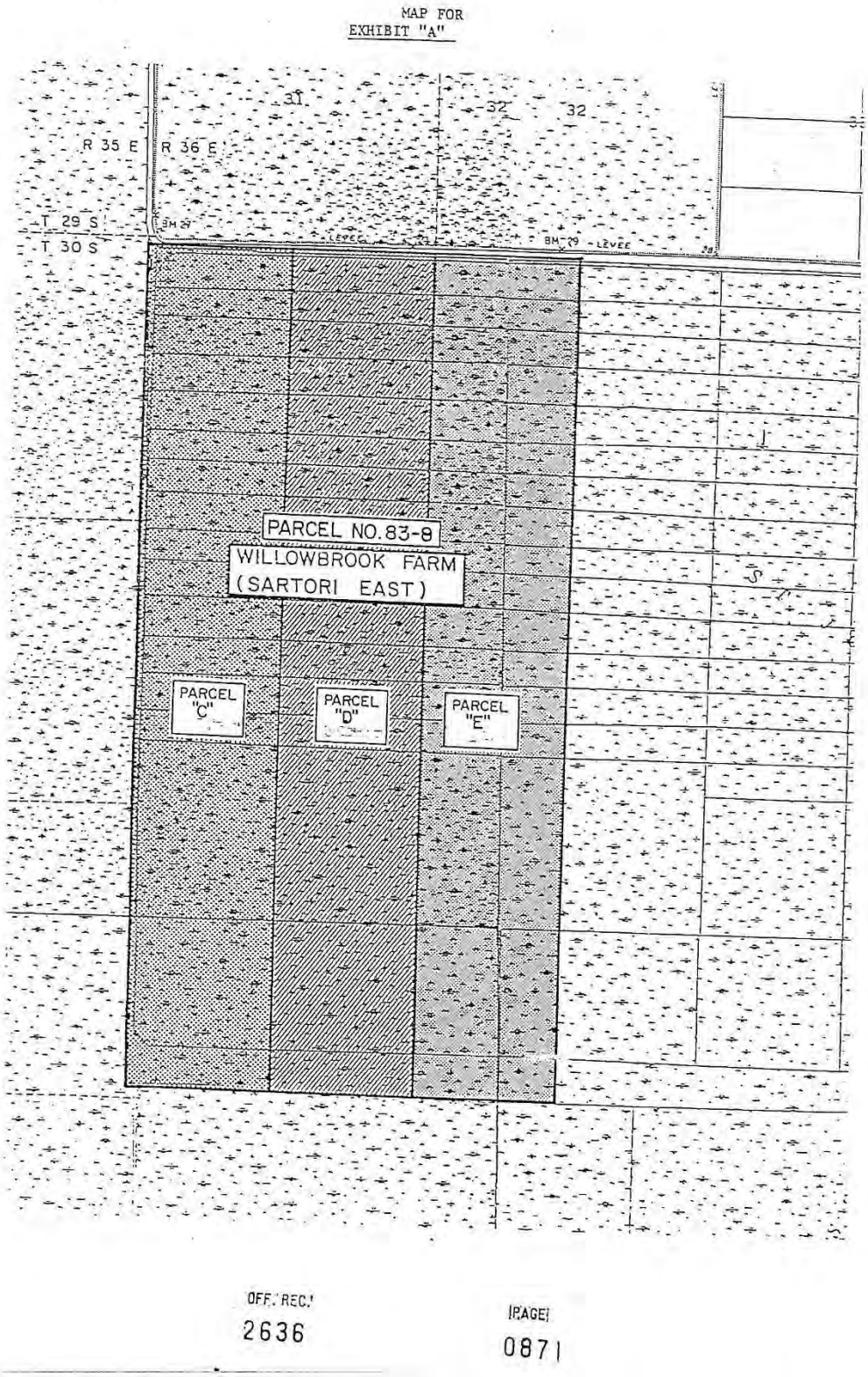

MAP FOR
EXHIBIT "A"
31
32
32
R 35 E
R 36 E
T 29 S
T 30 S
BM 29
LEVEE
BM 29 - LEVEE
PARCEL NO. 83-8
WILLOWBROOK FARM
(SARTORI EAST)
PARCEL "C"
PARCEL "D"
PARCEL "E"
OFF. REC.
2636
PAGE
0871

EXHIBIT "B"
(EASEMENT PROPERTY)

The currently existing east-west Flow-way located within and contiguous to the northerly boundary of the Premises and the currently existing east-west Flow-way located within and contiguous to the southerly boundary of the Premises. As used herein, the term "Premises" shall mean that certain real property described in Exhibit "A" to this Agreement.

OFF. REC.
2636

PAGE
0872

13.2 Land Management Uniform Cost Accounting Council Terms

Land Management Uniform Accounting Council 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.

4. Capital Improvements

a. 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.

b. 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.

5. 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 Accounting Council Categories and FWC Activity Codes

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

215 Hydrology management
216 Dams, dikes, levees
217 Canals
218 Water level management
194 Lake restoration

Other

185 GIS
186 Biometrics
200 RESOURCE MANAGEMENT
203 Tree and shrub planting
213 Wildlife management
214 Listed Species management
219 Upland restoration
282 Herbaceous seeding
283 Clearings
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
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
295 Biological data collection, analysis, and reporting
275 Permits and authorizations
276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
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

Support

Land Management Planning

103 Meetings C includes workshops, conferences, staff, and other meetings.

204 Resource planning

Land Management Reviews

209 Land Management Reviews

101 Project inspection C field inspections of projects.

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

721 Geospatial analysis techniques

191 Stamp design coordination

226 Human dimensions surveys

Capital 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

928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs
312 Informational signs
320 Outreach and education C attending or developing educational or informational materials or events for the public
327 Becoming an Outdoor Woman C enhancement
331 Wings Over Florida
339 Range safety operations
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

FWC Activity Code Numeric Listing

100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
101 Project inspection C field inspections of projects.
103 Meetings C includes workshops, conferences, staff, and other meetings.
104 Budget/purchasing/accounting
128 New Vehicle and Equipment Purchase
140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
141 Grant applications
145 Technical bulletin
150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.
180 SYSTEMS ADMINISTRATION AND MANAGEMENT
182 Data management
184 Metadata development and management
185 GIS
186 Biometrics
187 IT
188 Web development
191 Stamp design coordination
194 Lake restoration
200 RESOURCE MANAGEMENT
201 Cultural resource management
202 Timber management

203 Tree and shrub planting
204 Resource planning
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
209 Land Management Reviews
210 Exotic species control
211 Exotic plant control (mechanical)
212 Exotic plant control (chemical)
213 Wildlife management
214 Listed Species management
215 Hydrology management
216 Dams, dikes, levees
217 Canals
218 Water level management
219 Upland restoration
221 Animal surveys
226 Human dimensions 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
277 Relocation
278 CITES tags
281 Other resource management
282 Herbaceous seeding
283 Clearings
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
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
311 Boundary signs

312 Informational signs
320 Outreach and education C attending or developing educational or informational materials or events for the public
327 Becoming an Outdoor Woman C enhancement
331 Wings Over Florida
339 Range safety operations
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
721 Geospatial analysis techniques 740 EVALUATIONS AND ASSESSMENTS
750 URTD assessment
789 Site Preparation – GCR
790 Irrigation – GCR
791 Seed Collection – Hand
792 Seed Collection – Mechanical
793 Herbicide Maintenance Treatment
910 New facility construction C buildings/structures
912 New construction C roads/bridges
913 New construction C trails
914 New construction C fences
920 Facility and equipment maintenance (FEM) C buildings/structures
921 FEM C utilities
922 FEM C custodial functions
923 FEM C vehicles/equipment
925 FEM C boating access
926 FEM C roads/bridges
927 FEM C trails
928 FEM C fences

13.3 Public Involvement

T.M. Goodwin Waterfowl Management Area (TMGWMA)
Management Advisory Group (MAG)
Consensus Meeting Results

February 25, 2015 in Palm Bay, 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 25, 2015 at a St. Johns Water Management District Facility, in Palm Bay, Florida in Brevard County. The ideas found below were provided by stakeholders for consideration in the 2015 - 2025 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 Governing Board of the St. Johns River Water Management District, 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:

Rank	# of Votes	Score	Idea	
1.	[8]	[33]	29.	**Develop a vehicle and equipment replacement plan with adequate funding.** Develop a frame work for future equipment needs.

Rank	# of Votes	Score	Idea	
2.	[7]	[14]	1.	**Continue to maintain the water level manipulation system and infrastructure.** Moving water is very important. Need to keep the ditches clean, pumps maintained.
3.	[7]	[16]	9.	**Consider adding additional staff to the area.** The area needs additional staff FTE or OPS.
4.	[4]	[12]	10.	**Consider revising the process for issuing duck hunting permits on the area.** A better system is needed for the issue of permits. The system needs to be more like the STA lottery system.
5.	[4]	[13]	13.	**Consider adding a youth hog hunt to the area.** Feral hog problem can be helped with additional hunting opportunities. Youth hunts.
6.	[3]	[7]	7.	**Increase native herbaceous and aquatic marsh vegetation.** Enhance native plant species. Native species are easier to manage.
7.	[3]	[8]	19.	**Maintain prescribed burning within the optimum fire return intervals.** A tool which can be used to help eliminate the exotic invasive.
				"two items of equal rank"
8.	[3]	[10]	4.	**Control exotic invasive species on the area.** The following methods should be used for exotic plant control chemical, flooding and burning to help enhance the native vegetation.
	[3]	[10]	17.	**Manage the hydrology consistent with enhancing the overall Saint Johns River basin and watershed.** Partnership with others in the area. Coordinate with your neighbors to help each other.

9.	[3]	[11]	14.	**Improve, maintain and restore levees.** Over time levees degrade. Need to make sure the levees are kept in good shape.
10.	[2]	[2]	3.	**Balance waterfowl management and habitat with public recreational needs.** When we are trying to enhance an area we can reach a tipping point and start to harm the habitat.
11.	[2]	[3]	8.	**Manage habitat to support nesting colonial wading birds.** Tree Islands south of the managed area is a prime nesting area for wading birds. They depend on the managed area for forage during the nesting season.
				"two items of equal rank"
12.	[2]	[6]	12.	**Consider allowing Area Manager discretion to revise issuance of the number of hunting permits issued during hunting season.** Area Manager should be able to increase the number of hunters allowed on the area based upon habitat condition.
	[2]	[6]	23.	**Continue implementing water re-use and water sharing to maintain adequate water levels.** Continue working together.
13.	[1]	[1]	11.	**Optimize conditions and facilities for visitors and expand vehicle access to Broadmoor to Monday and Thursdays.** Need to provide additional facilities (bathroom). Update the bird list. Maybe have a on site educator/guide. Area is only available one day a week. Need to increase number of days available.

14.	[1]	[2]	24.	**Add list of Florida State holidays to the regulations brochure to provide information as to when an area is closed.** Self explanatory.
				"two items of equal rank"
15.	[1]	[3]	2.	**Consider adding water control structures on the northern end of the Broadmoor Unit.** Construct berms to increase water storage and help with water flow.
	[1]	[3]	20.	**Consider allowing snipe hunting during waterfowl season.** Snipe should be allowed to be hunted during the waterfowl season.
				"two items of equal rank"
16.	[1]	[4]	27.	**Clarify public access levees through the development of a map.** Develop a color coded map which reflects the road use in the area by day.
	[1]	[4]	28.	**Monitor and maintain the water levels and water quality on the area.** Store water for dry periods.
				"three items of equal rank"
17.	[1]	[5]	5.	**Increase fishing opportunities on Goodwin Lake.** Goodwin Lake is approximately 100 acres. You must apply for a permit and two are given per day. You can only fish on Tuesdays and Thursdays. The road to the boat ramp is a one lane road two vehicles cannot pass at the same time. The area should provide more fishing opportunities.

	[1]	[5]	6.	**Increase public awareness of the area.** Self explanatory.
	[1]	[5]	22.	**Continue to maintain, expand and enhance waterfowl, wading bird and shore bird habitat.** Continue to expand on what is being done on the managed area. 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.
				The following item received no votes. All ideas represent valuable input, and are considered indevelopment of the MP, but carry no rank with regard to the priority perceptions of the MAG.
18.	[]	[]	16.	**Considering adding cast netting information to the regulations brochure.** Update brochure
	[]	[]	18.	**Update species lists, especially FNAI element occurrence data.** Most of these issues will be worked out over time.
	[]	[]	25.	**Consider increasing volunteers to assist with managing the area.** Area manager needs the ability to over see the use of volunteers.
	[]	[]	26.	**Open L-74 North Levee for bicycling and hiking.** Water Management District needs to open the road.

T.M. Goodwin Waterfowl Management Area
MAG Meeting Participants

Name	Affiliation
Active Participants	
Dan Roberts	FWC Area Biologist
Officer Chase Platt	FWC Law Enforcement
Jim Sartori	Adjacent Private Landowner
Robin Sobrino	Brevard County Planning Department
Suzanne Valencia	Conradina Chapter of Florida Native Plant Society
Dave Grober	Angling Stakeholder
John Marshall	Florida Forest Service
Chris Matson	Department of Environmental Protection
David Simpson	Audubon Stakeholder
Carolyn Cimino	Environmental Learning Center
Joe Richter	United Waterfowlers of Florida
Len Schwenneker	Ducks Unlimited
Doug Voltolina	St. Johns River Water Management District
Supportive Participants	
Steve Glass	FWC HSC, District Biologist
Rich Noyes	FWC Office of Public Access and Wildlife Viewing Services (OPAWVS)
Tom M. Matthews	FWC OPAWVS
Mark McBride	FWC Division of Hunting and Game Management
Capt. Jeff Krayniik	Ducks Unlimited Guide
Tony Rushine	Ducks Unlimited
Andrea Boliek Walker	Public Hunting Area Biologist
Invited but Unable to Attend	
Major Paul Ouellette	FWC Law Enforcement
David Isnardi	Brevard County Commissioner, Chief of Staff
Mike Wisenbaker	DHR Archaeological Supervisor Public Lands
David C. Millard	NRCS
Dan Hipes	FNAI
Jerrie Lindsey	FWC OPAWVS
Alli Jones	FWC Trail Specialist
Mike Abbott	FWC HSC Regional Biologist
Travis Blunden	FWC HSC Conservation Biologist
Tim Towles	FWC Land Owner Assistance Program
Dan Sullivan	FWC HARP Program Coordinator
David Johnson	FWC WHM Assistant Section leader
Linda King	FWC Invasive Plant Management

Jon Fury	FWC Division of Freshwater Fisheries Management
Steve Rockwood	FWC Aquatic Habitat Conservation and Restoration
Beth Stys	FWC FWRI Climate Change
Kristen Sommers	FWC Exotic Species Selection
Rae Waddell	FWC Director, Florida Youth Conservation Centers
Bill Cline	FWC Section Leader, Hunter Safety and Public Shooting Ranges
Don Coyner	FWC Section Leader, Hunting & Game Management

FWC Planning Personnel

Gary Cochran	Land Conservation and Planning Administrator, Facilitator
Tom Houston	Recorder
Jennifer Tucker	Co-facilitator, Planner

NOTICE

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

PUBLIC HEARING

for the

T.M. Goodwin

Waterfowl Management Area

Management Plan

Brevard County, Florida

7:00 P.M. Tuesday March 31st, 2015
Brevard County Board of County Commissioners
2725 Judge Fran Jamieson Way
Viera, FL 32940

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Thomas M. Goodwin Waterfowl Management Area (TMGWMA). This hearing is being held EXCLUSIVELY for discussion of the DRAFT T.M. Goodwin 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/ or call (850) 487-1764.

A Management Prospectus for the T.M. Goodwin WMA is available upon request. For a copy, please contact Jennifer Tucker, Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9102.

The Florida Fish and Wildlife Conservation Commission (FWC) announce a PUBLIC HEARING for the FWC Lead Managed Portions of TM Goodwin Waterfowl Management Area located in Brevard County, Florida.

7:00 P.M. Tuesday, March 31st, 2015
Brevard County Commissioner's Commission Room
2725 Judge Fran Jamieson Way
Viera, FL 32940

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of TM Goodwin Waterfowl Management Area (TMWMA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT TM Goodwin 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 call (850) 487-1764.

A Management Prospectus for TM Goodwin WMA and copy of the agenda is available upon request from the Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning Group, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9102 or by e-mail at Jennifer.Tucker@MyFWC.com

Help plan the future of T.M. Goodwin Waterfowl Management Area

A 10-year plan for the T.M. Goodwin Waterfowl Management Area (TMGWMA) will be presented at a public hearing in Brevard County on Tuesday, March 31st, 2015.

People are invited to the 7:00 p.m. Public Hearing at the Brevard County Commissioner's Commission Room, 2725 Judge Fran Jamieson Way Viera, FL 32940.

Florida Fish and Wildlife Conservation Commission (FWC) staff will present the draft land management plan for the FWC-managed T.M. Goodwin 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 T.M. Goodwin WMA is located in the upper St. Johns River Basin in southern Brevard County. It offers many opportunities for outdoor recreation, including hunting, wildlife viewing, hiking, bicycling, paddling, horseback riding, fishing, and environmental education. The area is owned by the St. Johns River Water Management District and managed by the FWC as a waterfowl management area.

The T.M. Goodwin WAM provides habitat for a variety of wetland waterfowl, wading birds, and other wetlands species including ring-necked ducks, Florida sandhill cranes, roseate spoonbills, and American alligators. The T.M. Goodwin WMA was established as a wetland restoration project to create high-quality wetland habitat for wintering, migrating, and resident waterfowl, and other wetland life.

"TM Goodwin WMA was purchased to ensure the preservation of fish and wildlife resources, protect and conserve wetlands and the St. Johns River floodplain, and for

fish- and wildlife-based public outdoor recreation," said Jennifer Tucker, FWC land conservation planner and scientist. "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 draft land management prospectus for T.M. Goodwin WMA, call Dylan Imlah at 850-487-7063 or email Dylan.Imlah@MyFWC.com.

For more information and background on management plans and their goals, visit MyFWC.com/Conservation and select "Terrestrial Conservation Programs" then "Management Plans."

For more on the T.M. Goodwin WMA, go to MyFWC.com and select "Wildlife Viewing" then "Wildlife Management Areas."

PUBLIC HEARING REPORT

FOR THE

T.M. GOODWIN WATERFOWL MANAGEMENT AREA

MANAGEMENT PLAN

HELD BY THE

T.M. GOODWIN WATERFOWL MANAGEMENT AREA MANAGEMENT ADVISORY GROUP

AND THE

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

MARCH 31st, 2015 – BREVARD COUNTY, FLORIDA

The following report documents the public input that was received at the T.M. Goodwin Waterfowl Management Area (TMGWMA) Management Advisory Group's (MAG) Public Hearing for the update to the Management Plan for TMGWMA that was held at 7:00-9:00 PM, on March 31st, 2015, at the Brevard County Commissioner's Room in Viera, Florida.

TMGWMA Management Advisory Group Introduction:

The meeting was introduced by Mr. Len Schwenneker, a TMGWMA MAG participant, who represented Ducks Unlimited. Mr. Schwenneker indicated that he was one of 13 stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated TMGWMA MAG meeting held on February 25th, 2015. Mr. Schwenneker stated that the Draft Management Plan was being presented tonight by FWC staff, and that hardcopies of the draft plan and the TMGWMA MAG meeting report were available at the front door for the public's review. Mr. Schwenneker thanked everyone for attending and then introduced FWC staff Mr. Gary Cochran, Land Conservation and Planning Administrator, FWC, to facilitate and coordinate the presentation of an overview of TMGWMA; FWC's planning process, and the draft components of the TMGWMA Draft Management Plan.

Presentation on an Overview of TMGWMA and the FWC Planning Process: Mr. Gary Cochran welcomed everyone and thanked the public for their attendance. Mr. Cochran 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 TMGWMA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mr. Cochran then described the materials that were available at the door for public review, including the TMGWMA Draft

Management Plan and the MAG Meeting Report and Accomplishment Report. Mr. Cochran then presented the agenda for the Public Hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mr. Cochran then presented an overview and orientation of TMGWMA, including a description of the natural communities, data about TMGWMA visitors, 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 lands, acquisition history, etc. He also explained FWC's planning process and asked if there were any questions regarding that process.

Questions, Answers and Discussion on the TMGWMA Overview and FWC's Planning Process: Mr. Gary Cochran facilitated an informal question and answers session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mr. Cochran again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the Draft Management Plan for TMGWMA, 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 question or comments were received after the presentation for this part of the public hearing.

Presentation of the TMGWMA Draft Management Plan

At this point, Mr. Dan Roberts the TMGWMA Area Biologist/Manager began the presentation of the TMGWMA Draft Management Plan. Mr. Roberts, then completed and concluded the presentation of the TMGWMA Draft Management Plan.

Questions and Comments on the TMGWMA Draft Management Plan Presentation

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

Public Question 1: An unidentified person in the audience provided the following comments and questions.

I have a couple of questions, one is, you talk about the removal of vegetation that impedes water flow, what do you mean by removing the vegetation? How would you do that? Will you be spraying the vegetation and letting it die, or would you actually be scraping stuff up? I am just curious how you go about doing that.

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, responded.

We found the most effective way, in removing the vegetation out of the ditches, is by physically removing the vegetation. We have tried spraying, and on some vegetation types that does work, but we feel the most effective way is by mechanical removal.

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

What do you do with the vegetation once it is removed?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

We let it dry out and decompose so we can burn it, if we are burning at that time of the year. However, if we don't do anything with it, it pretty much turns into nothing. Sometimes we can gather it up to be sold, but once it dries out and starts to deteriorate, there is not much left.

Public Response: The same unidentified member of the audience provided additional comments and questions.

The other comment I have would be regarding your wood duck boxes. Seems to me that would be an excellent project for Eagle Scouts. Have the Eagle Scouts approached you with wanting to do something like that?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, responded.

I would say a couple of years ago, we had some cub scouts. The former waterfowl biologist's son was involved in that. I want to say they were going to build some wood duck boxes.

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

Well Eagle Scouts have to have a project, and I would say that sort of project is right up their alley. I know the Eagle Scouts put up some Osprey nests, and stuff like this down here at the Sebastian inlet. They put those nests in places such as telephone poles. So the wood duck boxes would be a lot easier for these kids to do. So if you are receptive to that idea, the Eagle Scouts would be a good move.

Public Question 2: An unidentified person in the audience provided the following comments and questions.

We know wood duck boxes attract bees like crazy, they are all useless right now because they are full of bees. A man came to you and had a hive guy who could take all of the bees out, and he said he couldn't do that because you wouldn't let him. What is the story on that?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, responded.

I recall a man coming to me wanting to get the bees out of the wood duck boxes. We let a guy get the bees out of the wood duck boxes we weren't using, but the ones that are in the reservoir, once they have bees in them, they can't do anything.

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

If you burn them and take them away, what is going to happen is next year they are just going to come back. In my opinion you should throw them away and build a new one.

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Yes, we have new ones built and we torch the old ones. If we put another box up there, in theory if we keep it cleaned, and keep an insecticide pad in there, the bees should stay out.

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

You have time to do this?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

That is something we are working on to do.

FWC Response: Kevin McBride, FWC Waterfowl Management Biological Scientist with Hunting and Game Management, provided an additional response.

Maintaining those wood duck boxes is one of my performance evaluations. So I have to have at least so many up and in working condition.

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

Have you ever seen anything catch up with the maintenance of the wood duck boxes?

FWC Response: Kevin McBride, FWC Waterfowl Management Biological Scientist with Hunting and Game Management, provided an additional response.

Yes we have, we have banded (placed identification bands on their legs) a lot of wood ducks that are first year birds in that reservoir.

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

Well, 6 or 7 years ago we had a ton of them.

FWC Response: Kevin McBride, FWC Waterfowl Management Biological Scientist with Hunting and Game Management, provided an additional response.

One year, that is probably the year that Jamie had a tough time getting out there and taking care of it. You know how wood ducks are, you can build the populations up. Which is why we want to slowly keep adding on to these boxes. I've maintained wood duck boxes in a few other places, but I have never done it down here in Florida where there is a bee problem.

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

Yes, you never know what is going to be in those boxes.

FWC Response: Kevin McBride, FWC Waterfowl Management Biological Scientist with Hunting and Game Management, provided an additional response.

Yes, we have had problems with rats, snakes, squirrels, raccoons. If you put the hood on them, that seems to eliminate snakes, but there is almost no point in putting up wood duck boxes if you don't have proper guards.

Public Question 3: An unidentified person in the audience provided the following comments and questions.

I have a question regarding the north end of these impoundments, where we pour water from Mr. Satori's (Jim Satori, Adjacent land owner to TMGWMA) land. I really have an inner fear that he has an impoundment that he can fill up. Can we not within our dyke system there, run water to the north on that? If not, could we not bring Ducks Unlimited in?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, responded.

Do you mean for us (Area Staff for TMGWMA) to pump water up there?

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

Well right now you are using the dykes and little canal systems running north and south, along the 5 northern impoundments, correct?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Yes

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

And those are the ones you are having a problem with on the North end?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Yes.

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

Who monitors how clean this water is? I don't want to see this pristine place we have now go to some place like Lake Apopka was years ago, by dumping stuff into our area that he hasn't been cleaned up enough. Who's to monitor the water coming in? How do you know how clean the water is coming in? I know he said he has to send in tests.

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Yes, he has to send them into St. John's River Water Management District (District).

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

Before you can get authorization to use it?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Well they do it for months, and he doesn't give us water very often.

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

Only to his benefit and when his reservoir is full.

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Well he coordinates with us as well and his contacts us before he does it.

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

I'm just concerned, is there another solution to that problem?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

He has to have St. John's (the St. Johns River Water Management District) green light it before he does it (pump water into an impoundment in the Broadmoor Unit of TMGWMA). I believe he has to have the water tested every couple of months.

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

St. Johns really does have the authority over Broadmoor, but do they as much over Goodwin?

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

They do have general authority, when it comes to water quality and control.

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

My concern is with the water quality that is coming in from his farms that are full of pesticides and fungicides, and whatever else he may use there. Then for it to get dumped into Goodwin and Broadmoor, maybe not Goodwin so much, but Broadmoor which now is outstanding.

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

Well I think, as Dan (Dan Roberts, Area Manager for TMGWMA) was saying, and from what I have learned from talking with District Staff, they continually test his water and we rely on him to tell us that it is clean enough to move into the unit once the District has given him the clearance to pump water onto TMGWMA. That whole area (Broadmoor Unit of TMGWMA) is under a USDA Natural Resources and Conservation Services (NRCS) Easement. So the whole purpose of the NRCS acquiring a conservation easement on that area from their perspective, and from the funding the federal government (USDA) put in there, was to restore those wetlands and restore the water quality. So I think everybody throughout that loop of management knows that we (District NRCS and FWC) do not allow water that doesn't meet the established water quality standards to be pumped into the Broadmoor Unit.

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

Do you get a report from them (the St. Johns River Water Management District) saying the water is ok to use?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

No, we are not provided a report from St. Johns (District).

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

Do you get some type of ok? How do you know?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

That the water is clean?

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

Yes, or is it just because he says so?

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

We could ask them (District) to send us a report.

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

I think that would be a safe policy to follow

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

I'm sure they (District) would be happy to send it to us.

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

Yes it would be great to have the water, but I just thought with the canals that we have running north and south on each side of those impoundments.

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

Well we get the buildup as the levees around the impoundment hold more water, when he pumps water up there.

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

Can we not pull water from what we already have and run it up and into those dykes?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, provided an additional response.

They are at a too high level elevation, in order for us to pump enough water into that, it causes flooding in the south end. That is why this has been such a big benefit, because last year if you went up there to see ducks, you would have a better chance of seeing quail or turkeys than you would ducks.

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

That's great for ducks, because what happens is when it goes dry, and then comes back again with water, you get all the little things the ducks feed on.

Public Question 4: An unidentified person in the audience provided the following comments and questions.

A few years back when they put the launching ramp in the Goodwin reservoir, which really expanded the public access of Goodwin, is there any thought of putting a launching ramp at the Broadmoor reservoir?

FWC Response: Mr. Dan Roberts, Area Biologist for TMGWMA, responded.

I have talked to the public boating access guys, and I believe that to be a possibility.

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

We would also have to cooperate and be in agreement with the District and the NRCS before we would put a boat ramp there, but it is something that we can follow up on.

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

I was under the impression that some guys showed up one day and said we have some extra cement do you want to put in a boat ramp. That's how the one ended up at the Goodwin reservoir. So I don't know if that's true or not.

FWC Response: Mr. Gary Cochran, Land Conservation and Planning Administrator with FWC, provided an additional response.

Suffice to say, that's not how we decide whether to and how to construct a boat ramp or anything else in our FWC programs now.

Public Comment 5: An unidentified person in the audience provided the following comments and questions.

Dan and his crew have been doing a really great job the past couple of years. This is one of my favorite areas in the State to go to.

Public Testimony on the TMGWMA Draft Management Plan: No member of the public audience submitted a speaker card indicating their intention to provide formal public testimony. Mr. Cochran again emphasized that the public hearing was for taking input regarding the TMGWMA Draft Management Plan.

No member of the audience offered any further comments.

Adjournment: Mr. Gary Cochran asked if there were any other members of the public that wished to give public testimony.

No other speakers offered further comments.

Then Mr. Cochran declared the public hearing adjourned.

13.4 Soil Series Descriptions

Map Unit Description

Brevard County, Florida

[Minor map unit components are excluded from this report]

Map unit: 11 - Canova mucky peat, undrained

Component: Canova, undrained (90%)

The Canova, undrained component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marine terraces on coastal plains, flood plains. The parent material consists of 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 frequently 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 55 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent. 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: 32 - Micco mucky peat, drained

Component: Micco, drained (90%)

The Micco, drained component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marshes on marine terraces on coastal plains. The parent material consists of organic material over sandy and loamy alluvium. 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 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 June, July, August, September, October. Organic matter content in the surface horizon is about 73 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds 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: 33 - Micco mucky peat, frequently flooded

Component: Micco, flooded (90%)

The Micco, flooded 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 organic material over sandy and loamy alluvium. 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 high. Shrink-swell potential is low. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 73 percent. This component is in the R155XY010FL 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: 34 - Everglades mucky peat, drained

Component: Everglades, drained (90%)

The Everglades, drained component makes up 90 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. 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 June, July, August, September, October. Organic matter content in the surface horizon is about 73 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds 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

Brevard County, Florida

Map unit: 40 - Oldsmar sand

Component: Oldsmar (85%)

The Oldsmar component makes up 85 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 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. This component is in the R155XY003FL South 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.

Map unit: 89 - Canova muck, drained

Component: Canova, drained (90%)

The Canova, drained component makes up 90 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 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 June, July, August, September, October. Organic matter content in the surface horizon is about 55 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent. 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.

13.5 FNAI Element Occurrence Data Usage Letter

FLORIDA
Natural Areas
INVENTORY

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

13.6 Management Procedures Guidelines - Management of Archaeological and Historical Resources and Master Site File List

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties

(revised March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6425
Toll Free: (800) 847-7278
Fax: (850) 245-6435

Environmental Resource Analysis

Cultural Resources

Analysis Shape Type: Polygon
Analysis Timestamp: 01202015 04:05:09
Shape Name: T.M. Goodwin Waterfowl Management Area
Boundary Area: 6526.09 acres
Buffer Area: 0 acres
Total Area: 6526.09 acres

Cultural Resources

Florida Sites

SITE NAME	SITEID	SITETYPE1	SITETYPE2	SITETYPE3	SITETYPE4	SITETYPE5	SITETYPE6	HUMANREMNS	Total Area (acres)	Percent of Area
T M GOODWIN WATERFOWL	BR01614	Land-terrestrial	Prehistoric midden(s)	Wetland-palustrine-usually dry					6.22	0.1 %
								TOTAL:	6.22	0.1 %

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

SITE NAME	SITEID	Total Area (acres)	Percent of Area
C-40 Canal	BR02569	17.97	0.28 %
Main Sottile Canal	BR01957	2.99	0.05 %
	TOTAL:	20.95	0.32 %

Field Survey

TITLE	Total Area (acres)	Percent of Area
Reconnaissance survey in the Upper St. Johns River Flood Control Project, Osceola, Brevard and Indian River Counties, Florida.	299.06	4.58 %
Cultural Resources Survey and Phase II Site Assessment, Three Forks Marsh Conservation Area, Brevard County, Florida	18.72	0.29 %
Phase I Cultural Resources Survey, Three Forks Marsh Conservation Area, Brevard County, Florida	11.02	0.17 %
TOTAL:	328.81	5.04 %

13.7 FWC Agency Strategic Plan

Florida Fish and Wildlife Conservation Commission
Agency
Strategic Plan

2014 – 2019

FWC Agency Strategic Plan
2014 – 2019

Contents

FWC Agency Strategic Plan
2014 – 2019

Introduction

Commissioners and staff of the Florida Fish and Wildlife Conservation Commission (FWC) developed this strategic plan 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. Fundamental to the success of this plan are the principles that conservation is a public trust responsibility and that FWC will need and seek active involvement from the citizens of Florida more than ever. This plan contains Commission Policy Focal Areas, Strategic Initiatives, Themes, Goals and Strategies; and includes significant work already underway and new areas for development.

Commissioners identified Policy Focal Areas to serve as a framework for adapting to changing conditions in Florida over the next 20 years. In reviewing and discussing these areas, Commissioners and staff assessed current conditions, and Commissioners provided long-range policy guidance for high-priority needs and opportunities. Staff used the Policy Focal Area guidance along with elements from other planning efforts to develop Strategic Initiatives. These initiatives emphasize areas where FWC needs to make significant progress over the next five to 10 years. The Themes, Goals and Strategies define the work required to achieve our mission and provide the context in which the Strategic Initiatives will be achieved.

The collaborative journey to create this plan involved the Commissioners, stakeholders and staff from across the agency. To achieve our long-term vision, we will continue to work collaboratively within the agency and with our partners and stakeholders.

Commission Policy Focal Areas

- **Future of Fish and Wildlife Conservation** – Continued support of fish and wildlife conservation is crucial to the long-term well-being and availability of these resources for public enjoyment. Looking forward, two areas stand out for priority attention: managing adverse human/wildlife impacts; and keeping people connected to Florida's outdoor environment.
    - **Expanding Participation in Conservation** – Connecting people with positive fish and wildlife oriented outdoor experiences lays the foundation for a lifetime of enjoyment and support for conservation.
    - **Wildlife Conflict** – Successful wildlife species conservation and population growth can put humans and wildlife in situations of conflict. Addressing these situations and keeping the public's experiences with wildlife positive will help to maintain support for conservation.

- **Habitat Conservation and Management** – The future of fish and wildlife resources is dependent upon the quality and quantity of habitat available to maintain species populations and the public's accessibility to those resources.
    - **Priorities for habitat conservation** – Given limited resources, it is important to focus future conservation measures on habitat most critical to sustaining healthy and diverse fish and wildlife populations.
    - **Management – public/private** – To ensure the long-term sustainability of fish and wildlife resources, FWC will need to actively engage on public and private lands to help adapt habitat management practices to address the new and dynamic challenges facing Florida's fish and wildlife species.
    - **Sustainable access to fish and wildlife resources and public lands** – Providing public access to fish and wildlife resources is a crucial component of the public trust responsibilities of FWC. To accomplish this responsibility FWC will continue to work with other public land management partners to foster, support and facilitate safe and sustainable public access.

- **Innovative Management Tools** – Developing new and innovative ways to manage fish and wildlife resources is vital to effective conservation as pressures, threats and opportunities change in Florida. Given the pressures on marine fisheries and the importance of private lands to conservation, these two areas were chosen as initial priorities.
    - **Marine Fish Management** - Size limit, bag limits, and seasons are traditional tools used to manage marine species. Working with partners and stakeholders,

FWC will seek innovative ways to apply traditional tools and develop new tools and techniques that achieve conservation more efficiently and effectively with less complexity and less regulatory burden for those who utilize and enjoy these resources.

- **Incentives for Private Lands** – A significant portion of Florida's undeveloped landscape is in private ownership. Many of these private landowners have successfully managed their lands for generations in ways that support fish and wildlife and the habitat they depend upon. Development of effective conservation partnerships with and creative conservation incentives for private landowners will be essential to maintaining the state's fish and wildlife diversity.

Strategic Initiatives

- **Running the Business** – Establish an internal infrastructure (team and process) that identifies the areas of business operations and practices that represent high risk, prioritize them and modify them to address risks.

- **Imperiled Species Management Plan** – Complete the Imperiled Species Management Plan and begin implementing prioritized species actions and integrated conservation strategies by the end of 2015.

- **Expand Participation in Conservation** – Increase conservation participation among youth and families representing Florida's diverse population by expanding partnerships to implement FYCCN and other programs that promote fishing, hunting, boating, wildlife viewing, shooting sports, and conservation appreciation.

- **Conservation through Innovation** – Implement a comprehensive approach, using innovative conservation tools and strategies, focusing on incentives for private lands and marine fisheries management. Strategies may include enhancing partnerships, incentives, and streamlining regulations.

- **Conflict wildlife** – Ensure continued support and appreciation for fish and wildlife by implementing an integrated programmatic approach across FWC to minimize adverse impacts associated with native and non-native fish, wildlife and plants. Successful efforts should minimize human health and safety, environmental, social and economic impacts.

- **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.

Themes, Goals, Strategies and Objectives

Key for coding at end of Objectives

- **[#]** – current reference number for each unique objective. *(Note – one objective appears under more than one strategy)*
- [o-ref #] – *indicates the original unique reference number for each objective developed by objective planning teams. (Note – one objective appears under more than one strategy)*
- *[n-ref #] – indicates the unique reference number for a new objective added after the Objective Planning Teams completed their assignment.*
- [OPT top 10] – *indicates objective was chosen by an Objective Planning Team as one of their 'top 10' objectives.*
- [RLT rank] – *indicates the rank of the objective based on categorization, by five Regional Leadership Teams, of objective into high, medium and low. Rank ranges from 1 to 11, with 1 being the highest possible rank. 1 – all five RLTs ranked objective high. 2 – four RLT ranked the objective high and one RLT ranked it medium. 3 – three RLT ranked the objective high and two ranked it medium…. all the way down to 11 – all five RLTs ranked the objective low.*
- *[OPT #] – Objective Planning Team that originally drafted the objective.*

Theme One – Florida's Fish and Wildlife Populations and Their Habitats

Goal 1: Ensure the sustainability of Florida's fish and wildlife populations.

Strategies:

1. Manage listed species so they no longer meet Florida's endangered and threatened listing criteria.

    a. Complete the Imperiled Species Management Plan and initiate implementation of its prioritized species actions and integrated conservation strategies by the end of 2018. **[#1]** [o-ref #1] [OPT top 10] [RLT rank 1] [OPT #1]

    b. By the end of 2018, assess and prioritize FWC's participation in the recovery of federally listed species. **[#2]** [o-ref #2] [RLT rank 9] [OPT #1]

2. Manage species to keep them from meeting Florida's endangered and threatened listing criteria.

    a. By the end of 2018, all staff are aware of the State Wildlife Action Plan (SWAP), and as appropriate incorporate SWAP objectives into their work to support the integration of SWAP across FWC. **[#3]** [o-ref #4] [OPT top 10] [RLT rank 8] [OPT #1]

    b. By the end of 2019, increase resources of Florida Wildlife Legacy Initiative by 15% (e.g., funding and staff time) to support the implementation of the current 5 goals of the State Wildlife Action Plan, which includes actions to halt or reverse species declines. **[#4]** [o-ref #3] [RLT rank 10] [OPT #1]

3. Anticipate and address fish and wildlife species' conservation needs in light of adaptation to long-term environmental changes.

    a. By the end of 2019, identify and prioritize information gaps, and initiate development and implementation of fish, wildlife and habitat conservation plans to address changes to critical habitats from long-term environmental changes and short term changes that may result from natural or manmade catastrophic events. **[#5]** [o-ref #9] [OPT top 10] [RLT rank 9] [OPT #1]

4. Develop, acquire and apply the appropriate biological and sociological science to inform fish and wildlife conservation decisions.

    a. By the end of 2019, 100% of appropriate staff recognize when social science data are needed and know how to obtain assistance with identifying and collecting data, and use social science data appropriately to develop management actions. **[#6]** [o-ref #18] [OPT top 10] [RLT rank 8] [OPT #1]

    b. By the end of 2019, ensure all staff have access to all biological and sociological science relevant to their roles and responsibilities. **[#7]** [o-ref #16] [RLT rank 6] [OPT #1]

    c. By the end of 2019, have adaptive mechanisms in place that ensure 95% of research and monitoring activities effectively address priority management needs and information is provided to decision makers in a timely manner. **[#8]** [o-ref #8] [OPT top 10] [RLT rank 3] [OPT #1]

    d. By end of 2019, evaluate ongoing species and habitat monitoring efforts, identify threats to species and recommend enhancements to monitoring programs that improve our ability to accurately assess status of populations. **[#9]** [o-ref #5] [OPT top 10] [RLT rank 4] [OPT #1]

e. By the end of 2018, investigate, develop and implement techniques to foster innovation that will improve our ability to achieve species conservation. **[#10]** [o-ref #17] [RLT rank 11] [OPT #1]

f. By the end of 2019, develop and implement science-based risk assessments that consider stakeholder input, and have them embedded in management decision protocols to guide and prioritize management actions. **[#11]** [o-ref #19] [RLT rank 7] [OPT #1]

g. By the end of 2019, ensure that 100% of appropriate staff will understand the relevance of data standards and management, know when to involve the data standard and advisory implementation group in their projects and programs, and know of and how to access existing active databases that can inform conservation actions including monitoring, management decision making, stakeholder collaboration, and outreach. **[#12]** [n-ref #39] (Note – new objective, not ranked)

h. By the end of 2018 ensure that 100% of appropriate FWC employees are aware of biostatistical support services, recognize when those services are necessary, and know how to obtain assistance so that their research and monitoring informs conservation actions appropriately. **[#13]** [n-ref #40] (Note – new objective, not ranked)

i. By the end of 2019, 100% of appropriate staff will recognize when geographic information system (GIS) data and analyses are needed and how to obtain assistance with identifying and locating, collecting and entering, analyzing, and displaying GIS data appropriately to inform conservation actions including management decision making, stakeholder collaboration, and outreach. **[#14]** [n-ref #41] (Note – new objective, not ranked)

5. Inform and guide partners regarding how their regulations, policies, procedures and other actions affect fish and wildlife conservation.

   a. By the end of 2018, develop and implement an adaptive protocol to engage, assist and influence other regulatory agencies and other partners to ensure they consider how their regulations, rules, policies, procedures and other actions impact fish and wildlife conservation. **[#15]** [o-ref #26] [OPT top 10] [RLT rank 2] [OPT #2 & #3]

6. Protect fish and wildlife species through effective outreach and enforcement.

a. By the end of 2019, develop patrol expectations for FWC Law Enforcement staff that includes outreach and responsive enforcement to promote compliance of state and federal regulations for fish, wildlife and protected species. **[#16]** [n-ref #95] (Note – new objective, not ranked)

b. By the end of 2019, develop initiatives to enhance habitat and the protection of state lands through interagency cooperation and law enforcement activities. **[#17]** [n-ref #96] (Note – new objective, not ranked)

c. By the end of 2019, enhance intelligence and investigative capabilities to more effectively address resource protection needs and trends. **[#18]** [n-ref #97] (Note – new objective, not ranked)

d. By the end of 2019, work with landowners to develop and improve responsive resource and cultural protection for private lands. **[#19]** [n-ref #98] (Note – new objective, not ranked)

Goal 2: Ensure sufficient habitats exist to support healthy and diverse fish and wildlife populations.

Strategies:

1. Use science to determine quantity, quality and location of the habitats most critical to sustain healthy and diverse fish and wildlife populations.

    a. By the end of 2017, review and synthesize all available land-cover (aquatic and terrestrial) assessments (e.g., Conservation Blueprint); identify and prioritize for conservation and management, those areas that are most critical to sustaining healthy fish and wildlife populations in Florida. **[#20]** [o-ref #10] [OPT top 10] [RLT rank 4] [OPT #1]

    b. By the end of 2018, identify habitat conditions necessary to sustain healthy and diverse populations of fish and wildlife in areas most critical to sustaining those populations. **[#21]** [o-ref #11] [RLT rank 8] [OPT #1]

2. Protect lands and waters critical to sustaining healthy and diverse fish and wildlife populations through diverse incentive programs.

    a. By the end of 2019, develop and initiate adaptive plans to secure and maintain lands and waters critical (considering acreage, distribution and connectivity) to sustaining healthy fish and wildlife populations in Florida through fee-simple or less-than-fee-simple acquisition, incentive-based conservation or other measures. **[#22]** [o-ref #6] [OPT top 10] [RLT rank 1] [OPT #1]

b. Beginning in 2017, and each year thereafter, maintain and enhance existing and build new partnerships and agreements with government agencies and Non-Governmental Organizations that facilitate collaborative efforts in providing fish and wildlife habitats. **[#23]** [o-ref #15] [RLT rank 5] [OPT #1]

c. By January 2018, identify, develop and assess incentives, assurances and other methods for private landowners to enhance sustainable conservation through revenue generation and conservation value on their lands. **[#24]** [o-ref #14] [RLT rank 10] [OPT #1]

3. Manage habitats to sustain healthy and diverse fish and wildlife populations.

a. By the end of 2019, identify lands and waters in need of enhanced management that are necessary to sustain healthy and diverse populations of fish and wildlife, and develop and initiate adaptive plans to meet those needs. **[#25]** [o-ref #12] [OPT top 10] [RLT rank 1] [OPT #1]

b. By the end of 2019, through outreach, technical assistance and incentives increase by 10% the number of public and private landowners managing and enhancing their lands for fish and wildlife conservation. **[#26]** [o-ref #13] [OPT top 10] [RLT rank 6] [OPT #1]

Theme Two – Interactions with Fish and Wildlife, including Fishing, Hunting, Boating and Wildlife Viewing Opportunities

Goal 1: Provide residents and visitors with quality fishing, hunting, boating and wildlife viewing opportunities that meet their needs and expectations while providing for the sustainability of those natural resources.

Strategies:

1. Manage fish and wildlife populations to provide sustainable fishing, hunting and wildlife viewing opportunities.

    a. By the end of 2019, establish key metrics for focal species, critical habitats and user-related activities that will be used to evaluate, guide, and refine management efforts to sustain fishing, hunting and wildlife viewing opportunities. **[#27]** [o-ref #21] [OPT top 10] [RLT rank 7] [OPT #2]

2. Develop and maintain widely available, diverse and accessible fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of residents and visitors while providing for the sustainability of those resources and emphasizing partnerships with both public and private landowners.

    a. By the end of 2018, develop and implement an adaptive protocol to engage, assist and influence other regulatory agencies and other partners to ensure they consider how their regulations, rules, policies, procedures and other actions impact fishing, hunting, boating and wildlife viewing. **[#28]** [n-ref #99] (Note – new objective, not ranked)

    b. By the end of 2019, develop and implement an adaptive process to coordinate with partners on FWC management actions concerning fishing, hunting, boating and wildlife viewing. **[#29]** [o-ref #55] [RLT rank 10] [OPT #3

    c. By the end of 2019, based on understanding the attitudes and motivations of public and private landowners, establish, maintain or enhance incentives and other programs in collaboration with other agencies that result in manageable, sustainable and widely available fishing, hunting, boating and wildlife viewing opportunities that meet the expectations of user groups and eliminate duplicative or ineffective FWC programs. **[#30]** [o-ref #22] [OPT top 10] [RLT rank 3] [OPT #2]

    d. By the end of 2017, ensure user conflicts are minimized when designing fishing, hunting, boating and wildlife viewing opportunities. **[#31]** [o-ref #43] [RLT rank 10] [OPT #2]

3. Recruit and manage sustainable levels of resident and visitor participation in fishing, hunting, boating and wildlife viewing.

    a. By the end of 2019, develop, implement and evaluate a promotional and marketing strategy that highlights sustainable fishing, hunting, boating and wildlife viewing opportunities unique to Florida to increase the demographic diversity of users and to either maintain or increase participation of current and new users per category based on State and National Surveys (e.g., the U.S. Fish and Wildlife Service's 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation). **[#32]** [o-ref #42] [OPT top 10] [RLT rank 6] [OPT #2]

4. Provide targeted fishing, hunting, boating and wildlife viewing programs for youth, the disabled and veterans.

    a. By the end of 2018, develop and implement standardized youth conservation curricula designed to provide enjoyable experiences that create a conservation stewardship ethic while teaching safe fishing, hunting, boating and wildlife viewing skills. **[#33]** [o-ref #30] [OPT top 10] [RLT rank 2] [OPT #2 & #3]

    b. By the end of 2018, develop or maintain partnerships with state or nationally recognized youth organizations for the development of programs that foster youth interest in fishing, hunting, boating or wildlife viewing. **[#34]** [o-ref #44] [RLT rank 10] [OPT #2]

    c. By the end of 2019, provide and promote fishing, hunting, boating and wildlife viewing programs for veterans and the disabled. **[#35]** [n-ref #56] (Note – new objective, not ranked)

5. Develop, acquire and use the appropriate biological and sociological science necessary to provide sustainable fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of user groups while providing for the sustainability of those resources.

    a. By the end of 2019, use the social sciences to better understand attitudes, values and motivations that influence the types of experiences anglers, hunters, boaters and wildlife viewers prefer, and verify if we are meeting their expectations while safeguarding the resources. **[#36]** [o-ref #37] [OPT top 10] [RLT rank 3] [OPT #2]

    b. By the end of 2019, assess public and private landowners' attitudes and motivations for enrolling their lands in the Wildlife Management Area system, and refine and promote incentive programs that strengthen partnerships and contribute to either an increase in or no net loss of acreage open to residents

and visitors for fishing, hunting, boating and wildlife viewing. **[#37]** [o-ref #38] [RLT rank 11] [OPT #2]

c. By the end of 2019, develop and implement an adaptive process to incorporate biological and sociological information in management decisions involving fishing, hunting, boating and wildlife viewing activities. **[#38]** [o-ref #20] [OPT top 10] [RLT rank 4] [OPT #2]

Goal 2: Enhance the safety and outdoor experience of those who hunt, fish, boat and view wildlife.

1. Provide and promote opportunities for residents and visitors to learn safety practices for fishing, hunting, boating and wildlife viewing.

   a. By the end of 2019, create, enhance and maintain courses that incorporate how to effectively and safely participate in fishing, hunting, boating and wildlife viewing opportunities in Florida. **[#39]** [o-ref #29] [RLT rank 8] [OPT #2]

   b. By the end of 2018, develop and implement standardized youth conservation curricula designed to provide enjoyable experiences that create a conservation stewardship ethic while teaching safe fishing, hunting, boating and wildlife viewing skills. **[#33]** [o-ref #30] [OPT top 10] [RLT rank 2] [OPT #2 & #3]

   c. By the end of 2019, develop and implement an education and outreach campaign to communicate to residents and visitors how fishing, hunting, boating and wildlife viewing can be safe and compatible with each other. **[#40]** [o-ref #31] [RLT rank 11] [OPT #2]

2. Enhance the boating safety and waterway experience of residents and visitors through improved access, management, education and enforcement.

   a. By the end of 2016, and annually thereafter, update boating education programs and boating safety material with information learned from boating accident statistics and effectively provide this information to residents and visitors. **[#41]** [o-ref #34] [RLT rank 10] [OPT #2]

   b. By the end of 2016, and annually thereafter, create or enhance at least 10 boating access points and track public boating access improvements. **[#42]** [o-ref #32] [RLT rank 9] [OPT #2]

   c. By the end of 2019, and every year thereafter, review at least 10% of all state-established restricted access zones and associated markers to determine which are still needed and applicable for waterway management and recommend

removal for those that are no longer needed. **[#43]** [o-ref #33] [RLT rank 10] [OPT #2]

d. By the end of 2017, improve Florida's boating waterway experience and safety by creating and implementing a plan for prioritized removal of derelict vessels that are designated an immediate public safety or navigation hazard. **[#44]** [o-ref #35] [RLT rank 9] [OPT #2]

3. Promote Florida's outdoor environment as a safe and healthy recreational option for residents and visitors.

   a. By the end of 2019, develop and implement a promotional campaign to encourage residents and visitors to explore Florida's natural resources as a safe and healthy recreational option. **[#45]** [n-ref #60] (Note – new objective, not ranked)

   b. By the end of 2019, determine the types of outdoor opportunities that appeal to the wide variety of Florida's residents and visitors, and develop and promote outdoor programs that provide for those opportunities. **[#46]** [n-ref #65] (Note – new objective, not ranked)

4. Address the growing disconnect between people and nature by marketing and providing opportunities and education for diverse age, race, gender, ethnic and other demographic sectors.

   a. By the end of 2019, develop and promote education and outdoor opportunities designed to encourage a stronger connection between nature and people of diverse age, race, gender, ethnic and other demographic sectors. **[#47]** [n-ref #84] (Note – new objective, not ranked)

Goal 3: Use minimal regulations to manage sustainable fish and wildlife populations, manage access to fish and wildlife resources, and protect public safety.

Strategies:

1. Continually evaluate proposed and existing regulations, based on resource management benefits, public safety concerns, and economic and social impacts, to improve or eliminate regulations as warranted.

   a. By the end of 2019, develop and implement standards to collect, analyze and integrate economic and sociological information with the rule development process. **[#48]** [o-ref #28] [RLT rank 9] [OPT #2]

b. By the end of 2018, develop and implement an adaptive process to evaluate new and existing fish, wildlife and public safety regulations, that includes cross-Division and Office and stakeholder input, to determine whether they are still appropriate, effective and enforceable and by the end of 2019 improve or repeal regulations as warranted. **[#49]** [o-ref #7] [RLT rank 6] [OPT #1 & #2]

2. Coordinate with partners and stakeholders to ensure that appropriate authorities and regulations exist to maintain sustainable fish and wildlife populations.

    a. By the end of 2019, develop and implement performance measures for appropriate staff to ensure coordination with partners and stakeholders during the creation and/or revision of the authorities and regulations necessary to maintain sustainable fish and wildlife populations, and during the repeal of those regulations not needed. **[#50]** [o-ref #23] [RLT rank 11] [OPT #2]

3. Implement and enforce regulations in an informative, proactive and influential manner to enrich resident and visitors' outdoor experience while safeguarding the natural resources.

    a. By the end of 2019, develop and implement outreach programs and other methods to increase awareness and support of rules intended to help sustain fish and wildlife populations and their safe use. **[#51]** [o-ref #24] [RLT rank 10] [OPT #2]

    b. Identify and implement strategies to increase the number of proactive contacts between FWC law enforcement officers and those who hunt, fish, boat and view fish and wildlife by 2% annually. **[#52]** [o-ref #36] [OPT top 10] [RLT rank 8] [OPT #2]

    c. By the end of 2018, develop and implement programs for law enforcement agencies to discuss FWC regulations and enforcement approaches to ensure consistent enforcement of fish, wildlife and boating regulations. **[#53]** [o-ref #25] [RLT rank 9] [OPT #2]

Goal 4: Minimize adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants that are known, or have a potential, to cause adverse impacts.

Strategies:

1. Manage species and their habitats as well as species and human interactions to eliminate or reduce the adverse environmental, social, economic and health and safety impacts from native and non-native fish, wildlife, and plants.

a. By the end of 2019, develop a risk assessment process and necessary research and monitoring programs that will be used to examine potential environmental, social, economic, human health and safety risks posed by fish, wildlife and plants. **[#54]** [o-ref #68] [RLT rank 11] [OPT #1]

b. Beginning in 2019, develop and implement adaptive plans designed to proactively address adverse environmental, social, economic and health and safety impacts from fish, wildlife and plant species. **[#55]** [o-ref #62] [OPT top 10] [RLT rank 5] [OPT #1]

2. Effectively communicate to residents, visitors and businesses how to be safe and act responsibly when interacting with or possessing fish, wildlife and plants.

a. By January 2019, evaluate residents and visitors' attitudes, beliefs, motivations and values regarding adverse environmental, social, economic and health and safety impacts of native and non-native fish, wildlife and plants and periodically monitor residents and visitors' understanding of these topics. **[#56]** [o-ref #61] [RLT rank 11] [OPT #3]

b. By the end of 2019, develop and implement FWC-coordinated and adaptive educational campaigns for targeted audiences to disseminate information about potential environmental, social, economic and health and safety risks and how to act responsbly when interacting with fish, wildlife and plants. **[#57]** [o-ref #63] [OPT top 10] [RLT rank 9] [OPT #3]

3. Manage captive and non-native wildlife movement and trade through proactive and responsive enforcement, regulation and education, with an emphasis on species that pose a high risk to our native fish and wildlife.

a. By end of 2017, evaluate FWC's Law Enforcement inspection programs and identify gaps and needs for those programs in order to minimize risks to human health and safety and the environment from fish, wildlife and plants. **[#58]** [o-ref #67] [RLT rank 10] [OPT #1]

b. By January 2018, develop, distribute and promote FWC guidance that effectively demonstrates how to properly handle and manage captive fish and wildlife. **[#59]** [o-ref #66] [RLT rank 10] [OPT #3]

c. By the end of 2019, develop and implement improvements to managing captive and non-native wildlife movement and trade through proactive and responsive enforcement, regulation and education, with an emphasis on species that pose a high risk to human health and safety or native fish and wildlife. **[#60]** [n-ref #100] (Note – new objective, not ranked)

4. Enhance partnerships to address adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants and ensure a consistent and integrated approach with FWC.

    a. By January 2018, develop and implement an adaptive, integrated approach to strengthen participation and coordination with partners and volunteers to reduce adverse environmental, social, economic and health and safety impacts of fish, wildlife, and plants. **[#61]** [o-ref #64] [RLT rank 10] [OPT #3]

Theme Three – Sharing Responsibility for Fish and Wildlife Conservation and Management with an emphasis on developing conservation values in our youth

Goal 1: Ensure current and future generations support fish and wildlife conservation

Strategies:

1. Expand and promote the Florida Youth Conservation Centers Network through leveraging FWC programs and staff, and developing public and private partnerships and sponsorships.

    a. By January 2018, all staff will be aware of the Youth Conservation Initiative and all programs will provide support for youth conservation programs to the greatest extent feasible. **[#62]** [o-ref #46] [OPT top 10] [RLT rank 8] [OPT #3]

    b. By January 2019, develop and implement an adaptive engagement process to expand and strengthen partnerships, improve communications and provide more opportunities for partners to support the Youth Conservation Initiative and programs. **[#63]** [o-ref #48] [RLT rank 7] [OPT #3]

    c. By January 2019, expand the network of youth conservation centers to a combined minimum of 400 executed partnership agreements or sponsorships with public and private partners. **[#64]** [o-ref #45] [OPT top 10] [RLT rank 8] [OPT #3]

    d. By the end of 2019, develop and implement promotional campaigns that specifically target urban, suburban and rural communities to attract youth and families to youth conservation centers and programs to encourage them to participate in outdoor conservation-based activities. **[#65]** [o-ref #49] [RLT rank 7] [OPT #3]

2. Develop and deliver standardized youth conservation curricula and fishing, hunting, boating and wildlife viewing outdoor activity programs, and assist with adapting programs and curricula to meet the needs of diverse communities.

    a. By the end of 2018, develop and implement standardized youth conservation curricula designed to provide enjoyable experiences that create a conservation stewardship ethic while teaching safe fishing, hunting, boating and wildlife viewing skills. **[#33]** [o-ref #30] [OPT top 10] [RLT rank 2] [OPT #2 & #3]

b. By the end of 2019, develop and implement a plan to assist stakeholders to adapt components of the youth conservation curricula to address the socially and culturally diverse lifestyles of Florida's residents and visitors. **[#66]** [o-ref #47] [RLT rank 10] [OPT #3]

3. Foster stewardship and shared responsibility for fish and wildlife conservation through conservation education programs.

    a. By January 2018, develop and implement an adaptive plan to promote conservation education programs as a way to foster stewardship and shared responsibility for fish and wildlife conservation. **[#67]** [o-ref #50] [OPT top 10] [RLT rank 6] [OPT #3]

4. Expand marketing and outreach to reach diverse audiences, and engage all staff in priority outreach initiatives.

    a. By end of 2019, develop and implement an adaptive plan to expand marketing and outreach programs to reach diverse audiences, and engage all staff in priority outreach initiatives. **[#68]** [n-ref #101] (Note – new objective, not ranked)

Goal 2: Ensure residents, visitors, stakeholders, and partners are engaged in the processes of developing and implementing conservation programs.

Strategies:

1. Foster a common vision among partners and the FWC to maintain and enhance fish and wildlife populations and their habitats through interagency coordination, mutually beneficial goals and initiatives.

    a. By January 2018, work with partners to create a common vision to improve and maintain optimal species populations and their habitats through interagency coordination and mutually beneficial goals and initiatives. **[#69]** [o-ref #54] [RLT rank 7] [OPT #3]

2. Engage residents, visitors, stakeholders and partners to understand their perspectives, develop and implement conservation programs, and implement fishing, hunting, boating and wildlife viewing management activities.

    a. By the end of 2017, develop and implement a FWC-wide adaptive process to determine and understand resident, visitor, stakeholder and partner needs, attitudes, beliefs, motivations and values regarding fish and wildlife

conservation, fishing, hunting, boating and wildlife viewing, and monitor trends at appropriate intervals. **[#70]** [o-ref #51] [OPT top 10] [RLT rank 5] [OPT #3]

b. By the end of 2019, each Division and Office will assess, develop and implement coordinated and adaptive communication plan(s) to increase FWC's credibility and resident, visitor, stakeholder and partner's trust in FWC by providing education about; 1) FWC's role in protecting and conserving fish and wildlife and their habitats, 2) the value of fish and wildlife conservation, 3) how FWC programs benefit current and future generations and 4) the conservation needs of fish and wildlife. **[#71]** [o-ref #52] [OPT #5] [RLT rank 9]

c. By the end of 2019, each Division and Office will create and use coordinated and adaptive approaches to efficiently and effectively engage residents, visitors, stakeholders and partners in developing and implementing fishing, hunting, boating, wildlife viewing and conservation programs to ensure FWC is fulfilling its public trust responsibilities. **[#72]** [o-ref #53] [RLT rank 8] [OPT #3]

3. Use citizen science to enhance conservation programs.

a. By the end of 2019, fully implement an adaptive process to identify and implement fish and wildlife conservation activities that can be enhanced with citizen science and stewardship volunteers. **[#73]** [n-ref #102] (Note – new objective, not ranked)

b. By the end of 2019, working with partners, implement a volunteer support infrastructure to support citizen science and stewardship volunteers. **[#74]** [n-ref #103] (Note – new objective, not ranked)

Goal 3: Increase opportunities for residents and visitors, especially youth, to actively support and practice fish and wildlife conservation stewardship.

Strategies:

1. Inform residents and visitors about conservation stewardship and encourage their active involvement in achieving conservation of fish and wildlife.

a. By the end of 2019, develop and implement an adaptive campaign to inform residents and visitors about conservation stewardship, how they can be actively involved in achieving conservation of fish and wildlife, including how compliance with regulations benefits conservation. **[#75]** [o-ref #57] [OPT top 10] [RLT rank 5] [OPT #3]

2. Provide and promote opportunities for residents and visitors, especially youth, to participate in conservation stewardship activities, including FWC volunteer opportunities.

    a. By January 2019, all FWC public and youth programs will provide and promote at least one conservation stewardship activity. **[#76]** [o-ref #58] [RLT rank 11] [OPT #3]

    b. By January 2019, promote conservation stewardship and fishing, hunting, boating and wildlife viewing activities in all FWC youth education programs and provide those programs to all Florida Youth Conservation Centers Network partners and other stakeholders. **[#77]** [o-ref #59] [RLT rank 6] [OPT #3]

    c. By the end of 2019, increase by 15% the number of FWC volunteers. **[#78]** [n-ref #104] (Note – new objective, not ranked)

    d. By the end of 2019, increase by 15% the number of staff utilizing volunteers to assist with FWC programs. **[#79]** [n-ref #105] (Note – new objective, not ranked)

Goal 4: Encourage communities to conserve lands and waters critical to sustaining healthy and diverse fish and wildlife populations.

1. Provide communities with the necessary assistance to help them obtain the social and economic benefits of local conservation lands.

    a. By December 2018, develop and implement an adaptive plan to efficiently and effectively assist communities in realizing the social and economic benefits of nearby areas that are managed for fish and wildlife. **[#80]** [o-ref #75] [OPT top 10] [RLT rank 8] [OPT #4]

2. Provide residents and visitors with relevant information on the social and economic benefits of conservation, fishing, hunting, boating, and wildlife viewing.

    a. By the end of 2019, appropriate staff will recognize how residents and visitors receive information and use this knowledge to efficiently and effectively disseminate current and relevant information about the social and economic benefits of fishing, hunting, boating, wildlife viewing and wildlife conservation, to reach all demographics of the public. **[#81]** [o-ref #76] [OPT top 10] [RLT rank 2] [OPT #4]

    b. By January 2019, identify priority data needs regarding the social and economic benefits of wildlife conservation, fishing, hunting, boating and wildlife viewing and implement appropriate methods to fill data gaps with up-to-date information. **[#82]** [o-ref #79] [OPT top 10] [RLT rank 8] [OPT #4]

3. Support community events and programs that promote fish and wildlife conservation.

    a. By July 2018, each Division and Office will develop and implement adaptive plans to efficiently and effectively support external events and programs that enhance and/or support wildlife conservation and/or increase fishing, hunting, boating and wildlife viewing participation. **[#83]** [o-ref #71] [RLT rank 9] [OPT #3]

Theme Four – Responsive Organization and Quality Operations

Goal 1: Integrate our commitment to benefit the community and enhance the economy through our conservation efforts and public service.

Strategies:

1. Identify and implement ways to support Florida businesses and job growth while managing fish and wildlife.

    a. By the end of 2019, each Division and Office will develop and implement adaptive plans to support Florida businesses and job growth while effectively managing fish and wildlife. **[#84]** [o-ref #69] [RLT rank 10] [OPT #4]

2. Identify and promote opportunities for staff to benefit local communities through participation in approved activities where FWC resources can be used (for example, the Florida State Employees' Charitable Campaign, the Guardian ad Litem Program, mentoring programs, FWC Disaster Response Teams, and American Red Cross Disaster Services).

    a. By the end of 2019, develop and implement an adaptive plan for FWC to efficiently and effectively maintain current level of, identify new and promote opportunities for staff to benefit local communities through participation in approved activities where FWC resources can be used (for example, the Florida State Employees' Charitable Campaign, the Guardian ad Litem Program, mentoring programs, FWC Disaster Response Teams, and American Red Cross Disaster Services). **[#85]** [o-ref #70] [RLT rank 11] [OPT #4]

3. Provide residents and visitors with reliable and current information on Florida's fish and wildlife.

    a. By the end of 2019, appropriate staff will recognize how residents and visitors receive information and use this knowledge to efficiently and effectively disseminate current and relevant information about Florida's fish and wildlife to reach all demographics of residents and visitors. **[#86]** [n-ref #27] [OPT top 10] [RLT rank 2] [OPT #4]

4. Continue to attract visitors by providing top-quality fishing, hunting, boating and wildlife viewing opportunities.

    a. By the end of 2017 and annually thereafter, FWC, or in cooperation with other partners, will complete a minimum of 15 projects that increase access opportunities on public or private lands for fishing, hunting, boating or wildlife viewing participants. **[#87]** [o-ref #72] [RLT rank 11] [OPT #2]

    b. By the end of 2019, improve, promote and market quality fishing, hunting, boating and wildlife viewing opportunities to attract visitors and improve local and statewide economies. **[#88]** [o-ref #73] [OPT top 10] [RLT rank 4] [OPT #2]

    c. By the end of 2019, enhance coordination with state and local tourism entities to develop, support, promote, market, and encourage participation in fishing, hunting, boating and wildlife viewing community events that attract visitors and improve local economies. **[#89]** [o-ref #74] [RLT rank 10] [OPT #2]

Goal 2: Provide resources and support for the safety and protection of residents and visitors, our natural and cultural resources, and for emergency responses to critical incidents and environmental disasters.

Strategies:

1. Identify existing and emerging risks to the safety of residents and visitors and foster internal collaboration and external partnerships necessary to effectively manage, reduce or eliminate those risks.

    a. By January 2018, each Division and Office will implement adaptive processes that identify existing and emerging risks to the safety of residents and visitors, and will foster internal collaboration and external partnerships necessary to effectively manage, reduce or eliminate those risks. **[#90]** [o-ref #78] [OPT top 10] [RLT rank 9] [OPT #4]

2. Provide immediate and effective disaster response and recovery through mutual-aid efforts with local, state and federal partners.

    a. Continue to deliver efficient and effective, as determined by annual review, emergency response, through formal and informal mutual aid efforts with partner agencies. **[#91]** [o-ref #77] [RLT rank 8] [OPT #4]

3. Provide search, rescue, and recovery services in coordination with local, state and federal entities to ensure the safety of residents and visitors.

a. Continue to deliver efficient and effective, as determined by annual review, search, rescue, and recovery service with partner agencies. **[#92]** [n-ref #106] (Note – new objective, not ranked)

4. Protect natural and cultural resources through proactive and responsive enforcement efforts.

   a. By the end of 2019, enhance enforcement efforts to protect residents, visitors and natural resources through intelligence gathering, proactive law enforcement and patrols. **[#93]** [n-ref #107] (Note – new objective, not ranked)

   b. By the end of 2019, enhance training and improve our abilities to respond to and investigate calls for service, incidents, accidents and crimes. **[#94]** [n-ref #108] (Note – new objective, not ranked)

Goal 3: Ensure the FWC has highly effective and adaptive business practices.

Strategies:

1. Address emerging biological, social and economic trends, anticipate impacts and take advantage of opportunities to accomplish FWC's mission.

   a. By the end of 2019, develop and implement an adaptive plan to research, monitor, measure and evaluate emerging biological, social and economic trends; address anticipated impacts; and take advantage of opportunities to accomplish FWC's mission. **[#95]** [o-ref #94] [RLT rank 6] [OPT #5]

2. Expect each employee to be an ambassador for FWC and its mission to Florida's diverse residents and visitors.

   a. Develop and implement the resources and protocols necessary for employees to become successful ambassadors for FWC. **[#96]** [n-ref #109] (Note – new objective, not ranked)

3. Provide efficient and effective service to Florida's diverse residents, visitors, and FWC staff.

   a. By June 30, 2018, each Division and Office will develop and implement an adaptive plan to engage their internal and external customers to understand their changing needs. **[#97]** [o-ref #80] [OPT top 10] [RLT rank 10] [OPT #5]

   b. By June 2019, each Division and Office will develop and implement an adaptive improvement plan for efficient and effective internal and external customer service that takes into account customer needs, core customer service standards

and includes a process for gathering and responding to customer feedback. **[#98]** [o-ref #81] [OPT top 10] [RLT rank 4] [OPT #5]

4. Foster a diverse, accountable, responsive and skilled workforce who effectively serves Florida's residents and visitors.

    a. By the end of 2019, develop and implement an adaptive plan to enhance our ability to recruit, hire and retain highly effective applicants that better represent and serve the needs of Florida's diverse residents and visitors. **[#99]** [o-ref #82] [OPT top 10] [RLT rank 9] [OPT #5]

    b. By end of 2019, develop and implement an adaptive and comprehensive plan that requires multi-tiered training encompassing the concepts of the Public Trust Doctrine, the Agency Strategic Plan and the value of working collaboratively, which promotes an understanding of the individual's role in contributing to and achieving FWC's mission and enables them to enhance residents and visitors' understanding and support of FWC. **[#100]** [o-ref #86] [OPT top 10] [RLT rank 3] [OPT #5]

    c. By end of 2017, develop and implement quality training and professional-development opportunities, an effective leadership-development program, mentoring, and a succession plan. **[#101]** [o-ref #83] [RLT rank 7] [OPT #5]

    d. By the end of 2018, develop new FWC-wide methods of internal communications that promote, support and encourage face-to-face open dialog and creativity while fostering an environment of trust and accountability. **[#102]** [o-ref #85] [OPT top 10] [RLT rank 5] [OPT #5]

    e. By the end of 2018, develop and implement an FWC-wide program that ensures a healthy and safe work environment for all FWC employees. **[#103]** [o-ref #90] [OPT top 10] [RLT rank 7] [OPT #5]

5. Manage existing and secure additional resources necessary to achieve fish and wildlife conservation and meet residents, visitor and stakeholder needs.

    a. By the end of 2018, each Division and Office, in coordination with Finance & Budget, will develop and implement an adaptive plan to continually monitor and improve business and financial practices to ensure a high level of fiscal accountability, integrity, soundness, and risk-management principles. **[#104]** [o-ref #89] [RLT rank 10] [OPT #5]

    b. By the end of 2019, develop and implement an FWC-wide adaptive plan to identify, secure and use sustainable and diverse funding to support program

activities to achieve fish and wildlife conservation and meet customer needs. **[#105]** [o-ref #87] [RLT rank 7] [OPT #5]

c. By July 1, 2019, be fully engaged in aligning FWC resources to support FWC strategic priorities. **[#106]** [o-ref #88] [OPT top 10] [RLT rank 2] [OPT #5]

d. By January 1, 2019, develop and implement an adaptive plan to annually evaluate and address equipment, facilities and infrastructure needs to support fish and wildlife conservation and meet our customers' needs. **[#107]** [o-ref #91] [OPT top 10] [RLT rank 4] [OPT #5]

6. Create and maintain an effective business model that supports the FWC's mission by using continuous improvement approaches that foster a collaborative and professional culture.

a. By the end of 2017, to ensure FWC's core value of continuous improvement is being achieved identify and implement processes to monitor, measure and evaluate the way FWC does business. **[#108]** [o-ref #92] [OPT top 10] [RLT rank 9] [OPT #5]

b. By the end of 2019, develop and implement an adaptive plan to support continuous improvement by providing a work environment where innovation is encouraged and becomes part of the FWC culture. **[#109]** [o-ref #93] [RLT rank 8] [OPT #5]

13.8 TMGWMA Prescribed Burning Plan

PENDING

13.9 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

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

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

1

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.

3

- 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 is 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: _____

6

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.

    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.

7

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.

8

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

9

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: _____

11

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).

12

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

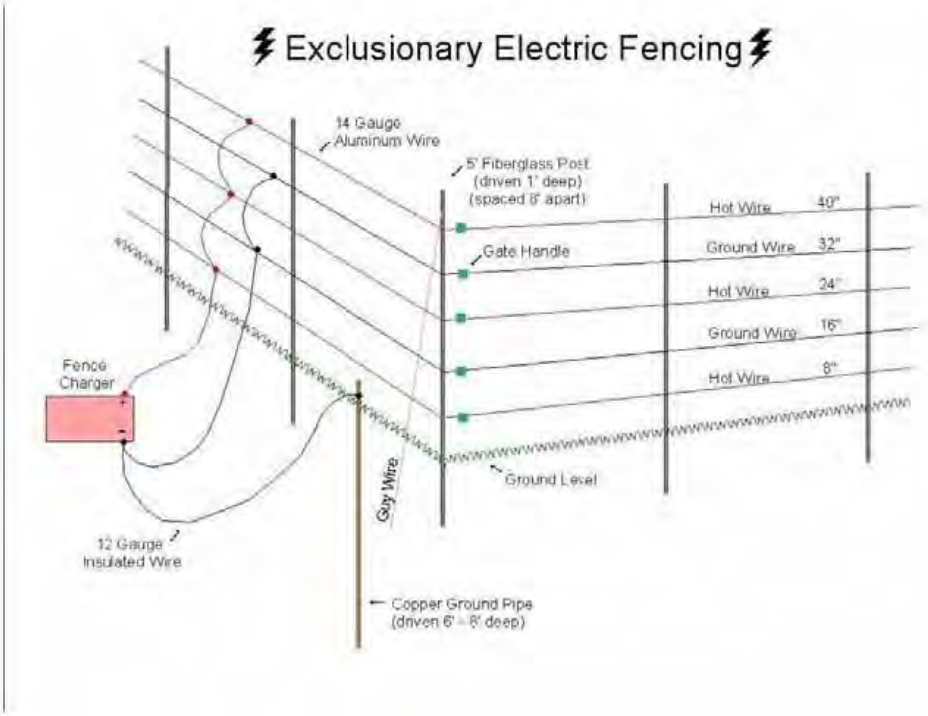
corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach 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.



16

AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

17

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.

Do you follow all recommended Best Management Practices from FDACS/DPI?:_____Yes _____No

If no, then please explain on a separate piece of paper.

18

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.

19

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.

20

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.

21

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.

22

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.

13.10 Operational Plan Fiscal Year 2014 – 2015

T.M. Goodwin WMA Operational Plan Cost Estimate Fiscal Year 2014-2015

Activity	Title	Staff Days	Salary	FuelCost	Other	Total
103	Meetings	5.00	$1,089.90	$91.25	$1,000.00	$2,181.15
104	Budget/purchasing/accounting	1.00	$217.98	$18.25	$0.00	$236.23
128	New Vehicle and Equipment Purchases	0.00	$0.00	$0.00	$0.00	$0.00
140	Report writing/editing/manuscript preparation	5.00	$1,089.90	$91.25	$0.00	$1,181.15
150	Personnel management	10.00	$2,179.80	$182.50	$20,000.00	$22,362.30
185	GIS	5.00	$1,089.90	$91.25	$0.00	$1,181.15
200	Resource Management	45.00	$9,809.10	$821.25	$4,000.00	$14,630.35
204	Resource planning	5.00	$1,089.90	$91.25	$25,000.00	$26,181.15
206	Prescribed burning - growing season	20.00	$4,359.60	$365.00	$2,500.00	$7,224.60
207	Prescribed burning - dormant season	60.00	$13,078.80	$1,095.00	$2,500.00	$16,673.80
212	Exotic plant control (chemical)	50.00	$10,899.00	$912.50	$106,792.00	$118,603.50
218	Water level management	10.00	$2,179.80	$182.50	$0.00	$2,362.30
221	Animal surveys	10.00	$2,179.80	$182.50	$0.00	$2,362.30
235	Vegetation and plant surveys	5.00	$1,089.90	$91.25	$0.00	$1,181.15
289	Native vegetation management (mechanical)	64.00	$13,950.72	$1,168.00	$5,000.00	$20,118.72
295	Biological data collection, analysis, and reporting	45.00	$9,809.10	$821.25	$0.00	$10,630.35
341	Public use administration (hunting)	5.00	$1,089.90	$91.25	$3,000.00	$4,181.15
350	Customer service support	5.00	$1,089.90	$91.25	$0.00	$1,181.15
920	FEM -- buildings/structures	10.00	$2,179.80	$182.50	$14,000.00	$16,362.30
921	FEM -- utilities	0.00	$0.00	$0.00	$5,000.00	$5,000.00
923	FEM -- vehicles/equipment	65.00	$14,168.70	$1,186.25	$27,000.00	$42,354.95
926	FEM -- roads/bridges	20.00	$4,359.60	$365.00	$45,000.00	$49,724.60
All	totals	445.00	$97,001.10	$8,121.25	$260,792.00	$365,914.35

13.11 Arthropod Management Plan

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

ADAM H. PUTNAM
COMMISSIONER

Section 388.4111, F.S.
Telephone: (850) 617-7997

For use in documenting an Arthropod Control Pan 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:
Thomas M. Goodwin Waterfowl Management Area

Is Control Work Necessary: ☐ Yes ☒ No

Location:
T.M. Goodwin Waterfowl Mgt. Office, 3200 TM Goodwin Road
Fellsmere, FL 32948

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

If "Other", please explain:

DACS-13668 11/09
Page 1 of 4

Arthropod Species for Which Control is Proposed:

Proposed Larval Control:

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ☐ Yes ☐ No

Biological Control of Larvae:

Might predacious fish be stocked: ☐ Yes ☐ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name:

☐ Ground ☐ Aerial

Rate of application:

Method of application:

DACS-13568 11/09
Page 2 of 4

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

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Proposed Notification Procedure for Control Activities:

Records:

Are records being kept in accordance with Chapter 388, F.S.

☐ Yes ☐ No

Records Location:

How long are records maintained:

DACS-13668 11/09
Page 3 of 4

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:

Include proposed operational schedules for water fluctuations:

List any periodic restrictions, as applicable, for example peak fish spawning times.

Proposed Modification of Aquatic Vegetation:

Land Manager Comments:

Arthropod Control Agency Comments:

5-29-15
Signature of Lands Manager or Representative Date

5-28-15
Signature of Mosquito Control Director / Manager Date

DACS-13668 11/09
Page 4 of 4

13.12 Brevard County Letter of Compliance with County Comprehensive Plan

Brevard COUNTY

BOARD OF COUNTY COMMISSIONERS

Planning & Development Department
2725 Judge Fran Jamieson Way
Building A, Room 114
Viera, Florida 32940

September 11, 2015

Ms. Dylan Imlah
Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Land Conservation and Planning
620 S. Meridian Street
Tallahassee, Florida 32399

SUBJECT: TM Goodwin WMA Management Plan

Dear Ms. Imlah:

We have reviewed the Management Plan and find it to be consistent with the policies of the Brevard County Comprehensive Plan and other applicable statutes and regulations. The WMA is designated as Public Conservation on the Future Land Use Map and is zoned GU General Use.

The TM Goodwin WMA is an asset to Brevard County in that it provides quality fish and wildlife resource based public recreational opportunities. The Management Plan provides for restoring and maintaining wetland habitat for various water fowl species as well as benefitting wading and shorebirds, and various wildlife species.

Thank you for the opportunity to participate in the development of the update to the TM Goodwin WMA Management Plan. Please feel free to contact me, if I may be of additional assistance.

Sincerely,

Robin M. Sobrino

Robin M. Sobrino, AICP
Director

Phone (321) 633-2069 • Fax (321) 633-2074
Website: www.brevardcounty.us/PlanningDev/Home