

A Management Plan for
Aucilla
Wildlife Management Area
2016 - 2026



Jefferson and Taylor counties, 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

August 23, 2016

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

RE: Aucilla Wildlife Management Area - Lease #3590

Dear Mr. Cochran:

On **August 19, 2016**, the Acquisition and Restoration Council recommended approval of the **Aucilla Wildlife Management Area** management plan. Therefore, the Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Aucilla Wildlife Management Area** management plan. The next management plan update is due August 19, 2026.

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,

A handwritten signature in cursive script that reads "Joseph Wilson".

Joseph Wilson
Office of Environmental Services
Division of State Lands

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**A Management Plan
for the
Aucilla Wildlife Management Area**

Jefferson and Taylor Counties, Florida

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



May 2016

Approved

Thomas Eason
for

Thomas Eason
Director, Division of Habitat and Species Conservation

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

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

Common Name of Property: Aucilla Wildlife Management Area

Location: Jefferson and Taylor counties, Florida

Acreage Total: 50,471 acres

Acreage Breakdown:

<u>Land Cover Classification</u>	<u>Acres</u>	<u>Percent of Total Area</u>
Artificial pond	65	0.1%
Basin swamp	7,305	16.1%
Baygall	3,443	7.6%
Clearing/regeneration	13	0.0%
Depression marsh	39	0.1%
Developed	12	0.0%
Dome swamp	894	2.0%
Floodplain swamp	380	0.8%
Hydric hammock	16,766	37.0%
Mesic flatwoods	447	1.0%
Mesic hammock	72	0.2%
Pasture - improved	4	0.0%
Pine plantation	5,236	11.6%
Restoration mesic flatwoods	7,044	15.5%
Restoration wet flatwoods	1,138	2.5%
Restoration wet prairie	41	0.1%
Road	38	0.1%
Scrubby flatwoods	3	0.0%
Sinkhole	1	0.0%
Spring-run stream	256	0.6%
Upland hardwood forest	1,763	3.9%
Utility corridor	34	0.1%
Wet flatwoods	304	0.7%

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

Lease/Management Agreement No.: 3590 (Appendix 13.1)

Use: Single

Multiple X

Management Responsibilities:

Agency FWC

Responsibilities

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

Designated Land Use: Wildlife Management Area

Sublease (s): None

Encumbrances: List: None known

Type Acquisition: CARL, Preservation 2000, Florida Forever, and SRWMD

Unique Features: Natural: Wacissa and Aucilla Rivers, multiple springs and streams, karst geologic features

Archaeological/Historical: 328 known sites; 28 known sites with human remains.

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: 28,321 acres FWC Additions and Inholdings list; 17,464 acres of the Wacissa-Aucilla River Sinks Florida Forever project remain to be acquired. (Figure 2).

Surplus Lands/Acreage: None

Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 13.2)

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

ARC Approval Date _____ BTIITF Approval Date: _____

Comments: _____

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	ii, 1
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	ii, 4
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	ii, 6
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	1, 3
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	1, 10, 90
6	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide Information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	64
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i>	18-2.021	ii, 93
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	8
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)	4
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	6-8, 11, 57

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	62
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	59
13	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	62-63
14	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	5
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	14, 58

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	125
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)	85-88
18	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent “balanced public utilization,” specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	126
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	408
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	63
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	63, 121
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	41, 105, 363-575
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	63

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

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	8-14, 153-218
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)	163
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	8, 153
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	153-162
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	216
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	341-354
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	341-354
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	NA

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	14-59, 219
33	Insert FNAI based natural community maps when available.	ARC consensus	42
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	14-59

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	ii, 58-59
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	58
37	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	58
38	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	18-54
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, 52-53
40	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	18-41, 220
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)	74-76, 89
42	Habitat Restoration and Improvement	259.032(10) & 253.034(5)	76-80
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.	↓	76-80, 99 99, 112
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.		99, 112
42-C.	The associated measurable objectives to achieve the goals.		99-100
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>		355-362
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.		121-125
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	363-575
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	77, 79, 89, 105

44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		105
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		105
44-C.	Measurable objectives (see requirement for #42-C).		105, 115
44-D.	Related activities (see requirement for #42-D).		105, 115
44-E.	Budgets (see requirement for #42-E).		121-125, 276
45	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5)	76-82
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	100
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		100, 113
45-C.	Measurable objectives (see requirement for #42-C).		100, 113
45-D.	Related activities (see requirement for #42-D).		100, 113
45-E.	Budgets (see requirement for #42-E).		121-125, 276
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	18, 25
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	290-294
48	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5)	84-85
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	102-103
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		102-103
48-C.	Measurable objectives (see requirement for #42-C).		102-103, 114
48-D.	Related activities (see requirement for #42-D).		102-103, 114
48-E.	Budgets (see requirement for #42-E).		121-125, 276

Section E: Water Resources			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	57

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	57
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	26-41, 57
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	88-89
53	Hydrological Preservation and Restoration	259.032(10) & 253.034(5)	88-89
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	104, 576-589
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		104
53-C.	Measurable objectives (see requirement for #42-C).		104, 115
53-D.	Related activities (see requirement for #42-D).		104, 115
53-E.	Budgets (see requirement for #42-E).		121-125, 276

Section F: Historical, Archeological and Cultural Resources			
Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i>	18-2.018, 18-2.021 & per DHR's request	1, 4, 58-59
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	
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	58-59
57	Cultural and Historical Resources	259.032(10) & 253.034(5)	58-59, 89-90, 253-275
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	105-107
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		105-107
57-C.	Measurable objectives (see requirement for #42-C).		105-107
57-D.	Related activities (see requirement for #42-D).		116
57-E.	Budgets (see requirement for #42-E).		121-124

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

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. <i>See footnote.</i>	253.034(5)	85-89
59	Capital Facilities and Infrastructure	259.032(10) & 253.034(5)	107
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	107
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		107
59-C.	Measurable objectives (see requirement for #42-C).		107, 117
59-D.	Related activities (see requirement for #42-D).		107, 117
59-E.	Budgets (see requirement for #42-E).		121-124
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	611-664
61	Public Access and Recreational Opportunities	259.032(10) & 253.034(5)	85-88
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	103-105
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		103-105
61-C.	Measurable objectives (see requirement for #42-C).		103-108, 118
61-D.	Related activities (see requirement for #42-D).		618-671
61-E.	Budgets (see requirement for #42-E).		121-124

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	iv-xi
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	ii-iii
64	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	64-74
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	74-97

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)	121-124, 276-289
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)	276-289
68	A statement of gross income generated, net income and expenses.	18-2.018	121-124, 276-289

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

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Management Plan Acronym Key

Management Plan Acronym Key	
ADA	Americans with Disabilities Act
AMSL	Above Mean Sea Level
ARC	Acquisition and Restoration Council
ARM	Archaeological Resources Management
ARSA	Apalachicola Regional Stewardship Alliance
AWMA	Aucilla Wildlife Management Area
BBSAP	Big Bend Seagrasses Aquatic Preserve
BOT	Board of Trustees
CARL	Conservation and Recreation Lands Program
CAS	Conservation Action Strategy
DACS	Department of Agriculture and Consumer Services
DEO	Department of Economic Opportunity
DEP	Department of Environmental Protection
DOD	Department of Defense
DSL	Division of State Lands
EDRR	Early Detection and Rapid Response
EMSB	Equipment Maintenance Storage Building
FAC	Florida Administrative Code
FFS	Florida Forest Service
FLEPPC	Florida Exotic Pest Plant Council
FNAI	Florida Natural Areas Inventory
FNST	Florida National Scenic Trail
FS	Florida Statute(s)
FTA	Florida Trail Association
FWC	Florida Fish and Wildlife Conservation Commission
FWC LE	Florida Fish and Wildlife Conservation Commission-Law Enforcement
FWRI	Fish and Wildlife Research Institute
GIS	Geographic Information Systems
GPS	Geographic Positioning System
GRASI	Gulf Regional Airspace Initiative
IMPP	Internal Management Policies and Procedures
IMPP	Internal Management Policies and Procedures
IPCC	Intergovernmental Panel on Climate Change
IWHRS	Integrated Wildlife Habitat Ranking System
LAP	Landowner Assistance Program
LiDAR	Light Detection and Ranging
LMR	Land Management Review
MAG	Management Advisory Group
MOA	Memo of Agreement

NPS	National Park Service
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Services
NWFWMD	Northwest Florida Water Management District
NWR	National Wildlife Refuge
OBVM	Objective-Based Vegetation Management
OCPB	Optimal Conservation Planning Boundary
OFW	Outstanding Florida Waters
ORB	Optimal Resource Boundary
ORV	Off-Road Vehicle
P&G	Proctor and Gamble, Inc.
P-2000	Preservation 2000
PAST	Panhandle Archaeological Society at Tallahassee
SaMP	Sampling and Monitoring Protocol Database
SJC	St. Joe Timberland Company
SMA	Strategic Management Areas
SR	State Road
SRWMD	Suwannee River Water Management District
STORET	U.S. Environmental Protection Agency-Storage and Retrieval Database
TNC	The Nature Conservancy
US	United States Highway
USAF	United States Air Force
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WCPR	Wildlife Conservation Prioritization and Recovery

1 Introduction and General Information

Perched along the northern flank of a nearly unbroken corridor of public conservation lands spanning from the St. Marks River to the Suwannee River along Florida's Nature Coast, the Aucilla Wildlife Management Area (AWMA) conserves approximately 50,471 acres of public conservation land within the interior of Jefferson County and the western portion of Taylor County. Both the tannin colored waters of the Aucilla River and the sparkling clear waters of the Wacissa River navigate a network of verdant forests, swamps, and marshes before joining together to flow into the Gulf of Mexico.

Encompassing the Aucilla River Sinks section of the Aucilla River, a black water stream, and the spring-fed Wacissa River, the AWMA protects the water quality of these rivers and their tributary creeks. Additionally, the AWMA protects and harbors a rich diversity of natural communities, unique geological features, important archaeological sites, and wildlife habitats.

The AWMA protects the water shed and water quality of the Wacissa and Aucilla Rivers along with dozens of pristine freshwater creeks and springs that wind through the area on their meandering flow to the coast. Floodplain swamp along the Wacissa River helps filter and regulate water flow of the stream-fed Wacissa River and Aucilla River into the bay. Conserving this important watershed also aids in the protection of the water quality of the vital fisheries and aquatic habitat of the Aucilla and Wacissa Rivers, as well as the estuarine systems at the mouth of the Aucilla River flowing into nearby Apalachee Bay and the Big Bend Seagrasses Aquatic Preserve (BBSAP).



The pine flatwoods, swamps, marshes, and rivers within the AWMA provide habitat for a diverse array of imperiled and other native flora and fauna. Both rare and imperiled wildlife species, and more commonly found species thrive in the area's marshy woodlands, including the Florida black bear, swallow-tailed kite, bald eagle, and the limpkin, a state species of special concern. Other rare and imperiled species found in AWMA include the gopher tortoise, Eastern indigo snake, wood stork, little blue heron, and white ibis, as well as many rare invertebrates and turtles.

The rich diversity of resources on the area also includes significant cultural and historical resources. Ancient Native American sites are known along both rivers. Twelve thousand

year-old mastodon tusks documented from the Aucilla River vicinity are among the oldest evidence of butchering in North America among the ancient Native Americans, who were also attracted to the superlative natural resources found in this diverse riverine ecosystem.

The nationally designated Florida National Scenic Trail (FNST) traverses a portion of these unique and diverse native habitats. The Aucilla River Sinks, a unique geological feature where the Aucilla River alternately flows through subterranean passages and reappears at the surface, is one of the high-points of the FNST as it courses its way through the area.

As noted above, the area established as the AWMA is approximately 50,471 acres. The total approximate acreage owned by the State of Florida, titled to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Board of Trustees) is approximately 46,261 acres. The Florida Fish and Wildlife Conservation Commission (FWC) is the lead management agency on lands titled to the Board of Trustees. The Suwannee River Water Management District (SRWMD) owns other lands currently leased to FWC, and established as a part of AWMA. The SRWMD lands comprise approximately 4,210 acres of the established AWMA. On SRWMD owned lands, FWC maintains a cooperative management agreement with the SRWMD to provide hunting and fishing opportunities, and to provide technical assistance and consultation regarding the conservation and protection of fish and wildlife resources.

This comprehensive management plan pertains only to those lands on which FWC is the lead managing agency.

1.1 Management Plan Purpose

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

This Management Plan is submitted for review to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees of the State of Florida through the Florida Department of Environmental Protection's Division of State Lands (DSL), in compliance with paragraph seven of Lease No. 3590 (Appendix 13.1) and pursuant to Chapters 253 and 259, Florida Statutes (FS), and Chapters 18-2 and 18-4, Florida Administrative Code (FAC). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of DSL. Terms (Appendix 13.5) used in this Management Plan describing management activities and associated measurable goals and objectives conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

1.1.1 FWC Planning Philosophy

The FWC’s planning philosophy includes emphasizing management recommendation consensus-building among stakeholders and input from user groups and the general public at the beginning of the planning process. The FWC engages stakeholders by convening a Management Advisory Group and solicits additional input from user groups and the general public at a public hearing (Appendix 13.2). 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 AWMA Management Plan (Sections 5 – 8).

Further management planning input is received through Land Management Reviews (LMR) conducted every five years, which includes a review of the previous Management Plan, as well as a field review of AWMA. The LMR report (Section 5.1, Appendix 13.11) provides FWC staff with important information and guidance provided by a diverse team of land management auditors, and communicates the recommendations of the LMR team to FWC so they may be adequately addressed in this Management Plan, and thus guide the implementation of the LMR team recommendations on the AWMA.

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

1.2 Location

The AWMA is primarily located in southern Jefferson County, Florida at the junction of State Road (SR) 59 and United States Highway (US) 98. A relatively small portion, comprising approximately 1,297 acres, of the AWMA is located in western Taylor County. From the AWMA’s furthest point north to the furthest point south, it extends around 15 miles. From east to west, the AWMA spans about 8 miles. Public access to the AWMA is available from US 98, SR 59, Thomas City-Walker Springs Road, and Goose Pasture Road.

The city of Tallahassee is 15 miles northwest of the Wacissa headwaters at the north end of the AWMA. From the Western Sloughs entrance, the town of Perry is 27 miles east, and the town of Wakulla is 15 miles west. SR 59 runs along its western boundary.

Approximately 3,644 acres of the AWMA is located south of US 98. The AWMA is located in multiple Sections within Townships 02S- 04S, and Ranges 03E-04E (Figure 1).

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

As described earlier, the purpose for acquiring the AWMA was to protect the water shed and water quality of the Wacissa and Aucilla Rivers along with dozens of pristine freshwater creeks and springs that wind through the area on their meandering flow to the coast, and the unique geological features of the area. Conserving this important watershed also aids in the protection of the water quality of the vital fisheries and aquatic habitat of the Aucilla and Wacissa Rivers, as well as the estuarine systems at the mouth of the Aucilla River flowing into nearby Apalachee Bay and the BBSAP. Additional purposes of these acquisitions within the Wacissa-Aucilla Sinks Florida Forever Acquisition Project, that now comprise the AWMA, included protecting the area’s significant cultural and historical resources, and to provide natural resource-based public outdoor recreation.

Project Assessment Documents prepared for the State of Florida’s Conservation and Recreation Lands Program (CARL) program, now encapsulated within the Florida Forever Program, prior to purchase of the AWMA indicate: “The primary uses of this Project should continue to be hunting and fishing. Local residents have become accustomed to using this land for these purposes. The vast majority of the property could be managed and maintained as wildlife management areas.”

The 50-year Board of Trustees’ lease agreement with FWC directs the agency to “manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 253.023(11), F.S.” The lease agreement further directs FWC to “implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.004(1) (d), FAC, which have been selected, developed, or approved for the protection and enhancement of the leased premises.”

The FWC also consults with the SRWMD with regard to management, restoration, and protection of hydrological resources, and manages portions of the AWMA that the SRWMD holds title to as a wildlife management area.

The AWMA represents a significant conservation land acquisition accomplishment for the State of Florida. As noted above, the acquisition of these lands for conservation has helped to link a discontinuous 200-mile stretch of coast already in public conservation ownership in Florida’s Big Bend region to ensure its protection. Public conservation lands within this corridor includes the St. Mark’s National Wildlife Refuge (NWR), Big Bend Wildlife Management Area, and the Lower Suwannee NWR. The purchase of the Wacissa Tract

insured protection of the geologically unique Aucilla River Sinks, as well as the Wacissa River and its associated floodplains.

1.3.2 Acquisition History

Through series of acquisitions under three distinct State conservation acquisition programs, the AWMA was acquired by the State of Florida in six individual acquisitions occurring between 1988 and 2010 within the Wacissa Springs-Aucilla Sinks Florida Forever Acquisition Project (formerly a CARL and Preservation 2000). The first acquisitions occurred in 1986 through 1988 when the State acquired 15,485 acres through the State of Florida's CARL Program. Some lands comprising what is now the AWMA were acquired from Proctor and Gamble, Inc. (P&G) by The Nature Conservancy (TNC). The State of Florida purchased these lands from TNC through the CARL program, and received the fee-simple title in January of 1988.

The first addition to the area occurred in 2000, when approximately 8,867 acres were acquired by the DEP through the State's Preservation 2000 Program (P-2000) from the St. Joe Timberland Company (SJC). This acquisition added former SJC lands along the upper Wacissa River.

In 2003, an additional 13,917.18 acres of land were acquired from the SJC by the DEP through the P-2000 and Florida Forever Program. This added much of what is now the western tract of the AWMA, including portions that bordered SR 59, and on the AWMA's southwest corner, along U.S. Highway 98. In 2004, 4,692.94 acres were acquired through the Florida Forever Program along the northeast portion of the AWMA. In 2006, another 80 acres were acquired through the Florida Forever Program and added to the northern portion of AWMA. The last acquisition for the area was in 2010, when the FWC acquired 2,849 acres that was part of the Flint Rock WMA from TNC through the FWC Florida Forever Inholdings and Additions Acquisition Program. This area was incorporated into the southwest portion of the area and is typically referred to as the Pinhook tract. Much of these lands had previously been leased to the FWC by the SJC and were established as part of the AWMA or Flint Rock WMA while they were still under ownership by the SJC prior to being purchased by the State of Florida.

1.4 Management Authority

The FWC is the designated lead managing agency for the AWMA under the authority granted by Lease Number 3590 from the Board of Trustees agent, DSL. Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 870, and 597 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 50-year Board of Trustees' Lease Agreement Number 3590 with FWC directs FWC to "manage the leased premises only for the conservation and protection of natural and

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

1.6 Title Interest and Encumbrances

As noted above, the area established as the AWMA encompasses approximately 50,471 acres. The total approximate acreage owned by the State of Florida, titled to the Board of Trustees is approximately 46,261 acres. The SRWMD owns other lands currently leased to FWC, and established as a part of AWMA. The SRWMD lands comprise approximately 4,210 acres of the established AWMA. The FWC is the lead management agency on lands owned by the Board of Trustees. On SRWMD owned lands, FWC maintains a cooperative management agreement with the SRWMD to provide hunting and fishing opportunities, and to provide assistance and consultation regarding the conservation and protection of fish and wildlife resources. In May, 1986, the DSL, as staff to the Board of Trustees, entered into Lease Agreement Number 3590 a 50 year lease agreement, granting FWC lead management authority for the initial lands acquired by the State and titled to the Board of Trustees within the Wacissa-Aucilla Sinks Florida Forever Acquisition Project and the original lands within AWMA. Subsequent additions to the area that have been acquired under the CARL, P-2000, and Florida Forever Program by the DEP and FWC were added to the AWMA in a series of amendments to Lease Number 3590 (Appendix 13.1). There appear to be no known encumbrances on the title to the property that pose any impediments to management of the lands within the AWMA.

1.7 Proximity to Other Public Conservation Lands

The AWMA is surrounded by a myriad of conservation lands, including the St. Mark’s National Wildlife Refuge to the south, the Big Bend WMA and Econfina River State Park to the east, the Oak Hill Conservation Easements to the northeast, and the Wakulla State Forest, Apalachicola National Forest and Flint Rock WMA to the west. Conservation lands near the AWMA’s boundary are listed in Table 1, and shown in Figure 2. The surrounding lands include conservation areas managed by the U.S. Fish and Wildlife Service (USFWS), Florida DEP, the FWC, the Northwest Florida Water Management District (NFWFMD), the SRWMD, Jefferson County, Leon County, and other private and public conservation organizations, such as The Nature Conservancy (TNC), Inc., Tall Timbers Research, Inc., and Westervelt Ecological Services.

Several Florida Forever Projects are also located in the vicinity of the area (Figure 2). The L. Kirk Edwards Wildlife and Environmental Area and the St. Mark’s River Preserve State Park are located a few miles to the northwest of AWMA. BBSAP is a water conservation area located south of AWMA in Apalachee Bay. Florida Forever projects and conservation lands within a 10-mile radius of the AWMA (Tables 1 – 2) include lands managed by public

and private entities and contribute to the conservation of cultural and natural resources within this region of Florida. Some of the conservation lands within the vicinity of the AWMA are owned in full-fee by a public entity. While others are owned in full fee by a private not-for-profit entity. However, many of the nearby conservation areas fall within a less-than-fee ownership classification. These privately owned conservation lands are owned and being managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement and monitoring responsibility for the land. Others are simply owned by the private landowner, while public agencies or not-for-profit organizations manage the land. Some conservation lands may also be co-owned by multiple agencies.

Table 1. Conservation Lands within 10 miles of AWMA

Federal Government	Managing Agency
St. Mark's National Wildlife Refuge	USFWS
State of Florida	Managing Agency
Econfina River State Park	DEP
Natural Bridge Battlefield Historic State Park	DEP
San Marcos de Apalachee Historic State Park	DEP
St. Mark's River Preserve State Park	DEP
Tallahassee-St. Mark's Historic Railroad State Trail	DEP
Letchworth Mounds Conservation Easement	DEP
Big Bend Wildlife Management Area	FWC
L. Kirk Edwards Wildlife and Environmental Area	FWC
Water Management Districts	Managing Agency
Blueprint 2000 Conservation Easement	NWFWMD
Gerrell Conservation Easement	NWFWMD
Davidson Conservation Easement	SRWMD
Donald Bailey Conservation Easement	SRWMD
Econfina Conservation Area	SRWMD
Middle Aucilla Conservation Area	SRWMD
Moore Conservation Easement	SRWMD
Mount Gilead Conservation Easement	SRWMD
Wacissa Conservation Area	SRWMD
Walker Spring Conservation Easement	SRWMD
Whit Foster Conservation Easement	SRWMD
County/City	Managing Agency
Headwaters of the Wacissa River	Jefferson County
St. Mark's Headwaters	Leon County
Private/Public Conservation	Managing Agency
Avalon Plantation Conservation Easement	TNC
Fanlew Preserve	TNC

Flint Rock Tract	TNC
Turkey Scratch Plantation Conservation Easement	TNC
Crow Pond Conservation Easement	TTR
Lick Skillet Conservation Easements	TTR
Oak Hill Conservation Easements	TTR
Three Creeks Ranch Conservation Easement	TTR
St. Mark's Mitigation Bank	WES

Acronym Key	Agency Name
DEP	Florida Department of Environmental Protection
FWC	Florida Fish and Wildlife Commission
NFWFMD	Northwest Florida Water Management District
SRWMD	Suwannee River Water Management District
TNC	The Nature Conservancy
TTR	Tall Timbers Research, Inc.
WES	Westervelt Ecological Services
USFWS	US Dept. of Interior, Fish and Wildlife Service

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

Project Name	GIS Acres
Florida's First Magnitude Springs St. Marks Springs	223.61
St. Joe Timberland - Wacissa/Aucilla River Sinks	47,229.36
St. Joe Timberland Florida- St. Marks Springs	716.68
Upper St. Marks River Corridor Florida Forever BOT Project	14,569.66
Wacissa/Aucilla River Sinks Florida Forever BOT Project	33,080.89

1.8 Adjacent Land Uses

The current land use designations for areas in the vicinity of the AWMA is currently zoned agriculture and conservation. Jefferson County's land use codes indicate that recreation is allowed on these lands so are local public activities, food stands, and farming. The future land use of the county indicate that the properties surrounding the AWMA zoning ordinances will remain largely unchanged which mean the same activities are allowed on the property. The only change is a small chunk of property east of the AWMA which will be zoned mining.

Based on the location of the property and the current and future zoning ordinances for the property and the property surrounding it, the AWMA should not face many potential challenges in the foreseeable future. The closet cities to the conservation are small and rural with the exception of Tallahassee which is not close enough to effect the conservation. The AWMA should not face any problems in the near future.

1.9 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting in the town of Monticello in Jefferson County, Florida to obtain input from both public and private stakeholders regarding management of the AWMA. Results of this meeting were used by the FWC to develop management goals and objectives and to identify opportunities and strategies for inclusion in this Management Plan. A summary of issues and opportunities raised by the MAG, as well as a listing of participants, is included as Appendix 13.2. Further, a public hearing, as required by Chapter 259.032(10), FS, was held in Jefferson County, Florida on May 15, 2015. The report of that hearing is also contained in Appendix 13.2. A website is also maintained for receipt of public input at <http://myfwc.com/conservation/terrestrial/management-plans/develop-mps/>. Further testimony and input is received at a public hearing held by ARC. Input received from all public involvement efforts has been considered in the development of this Management Plan.



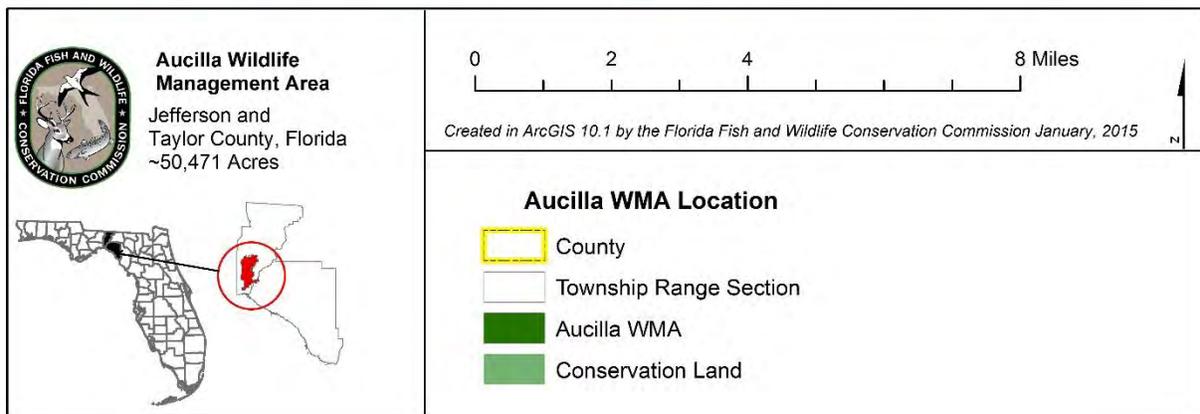
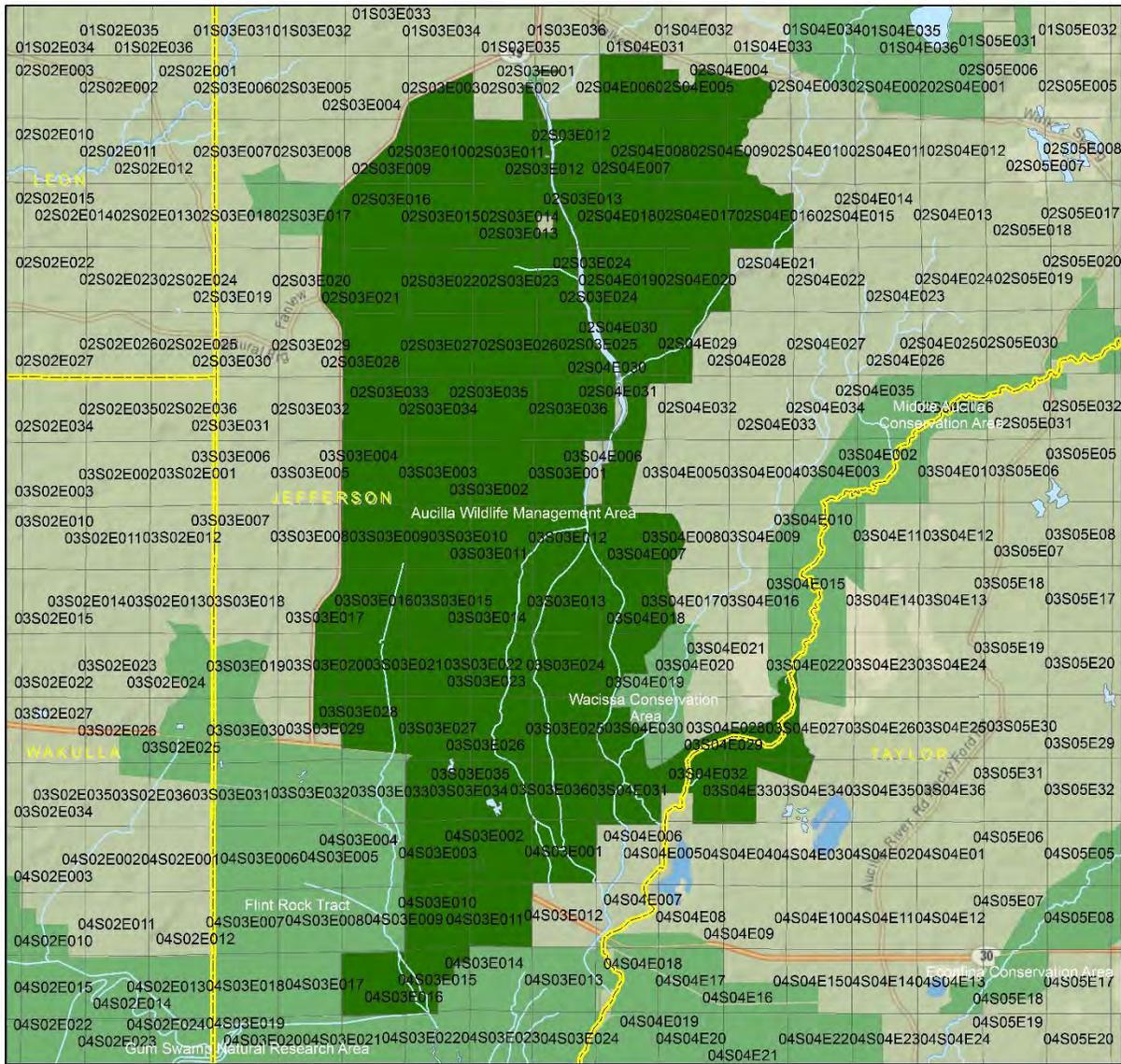


Figure 1. AWMA Proximity Map with Section, Township, and Rang

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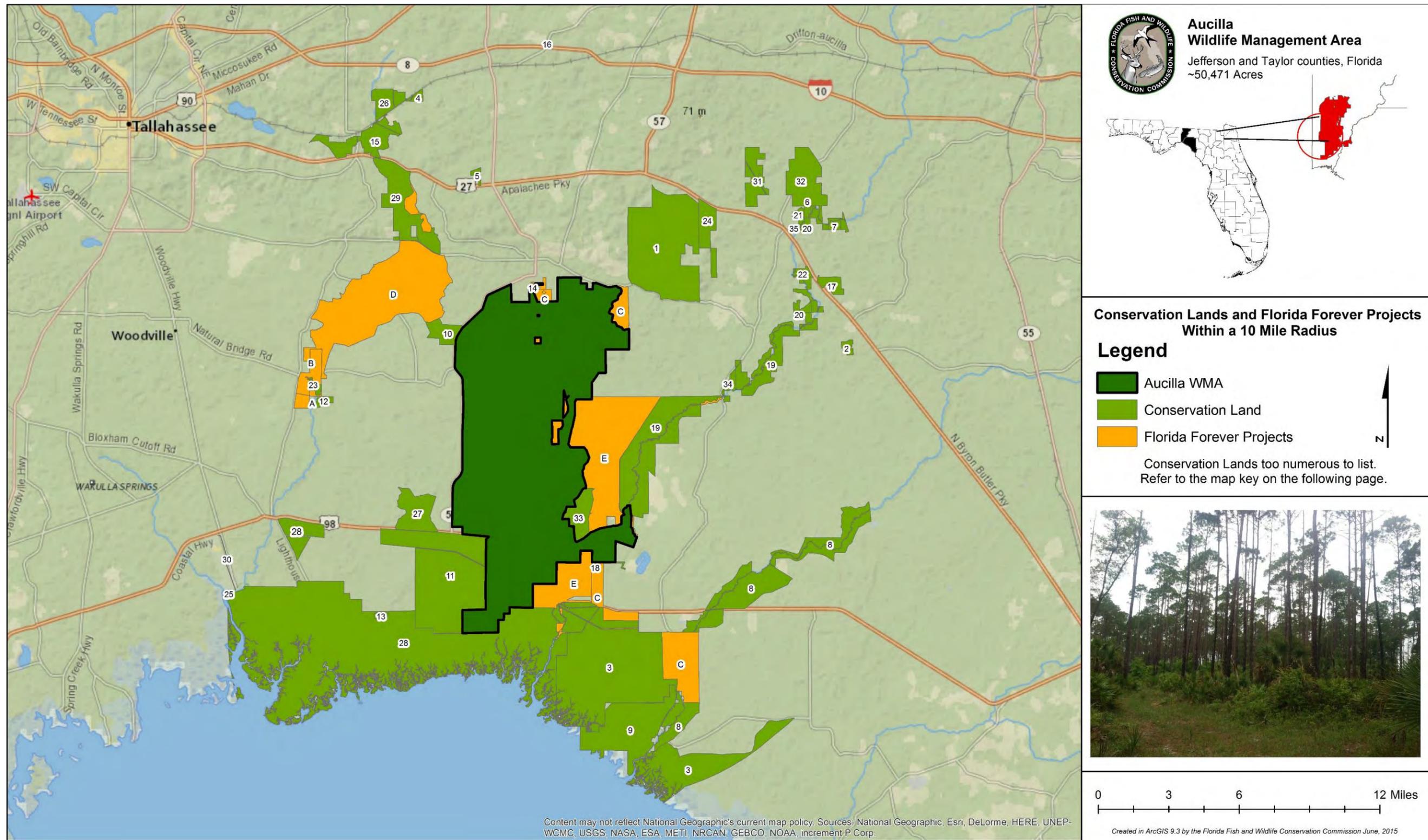


Figure 2. AWMA Proximity Map with Conservation Land and Florida Forever Projects

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Florida Forever Projects	Map Label
Florida's First Magnitude Springs - St. Marks Springs	A
St. Joe Timberland - Florida's First Magnitude Springs - St. Marks Springs	B
St. Joe Timberland - Wacissa/Aucilla River Sinks	C
Upper St. Marks River Corridor	D
Wacissa/Aucilla River Sinks	E
Conservation Lands	Map Label
Avalon Plantation Conservation Easement	1
Big Bend Wildlands Preserve Conservation Easement	2
Big Bend Wildlife Management Area	3
Blueprint 2000 Conservation Easement	4
Crow Pond Conservation Easement	5
Davidson Conservation Easement	6
Donald Bailey Conservation Easement	7
Econfina Conservation Area	8
Econfina River State Park	9
Fanlew Preserve	10
Flint Rock Tract	11
Gerrell Conservation Easement	12
Gum Swamp Research Natural Area	13
Headwaters of the Wacissa River	14
L. Kirk Edwards Wildlife and Environmental Area	15
Letchworth Mounds Conservation Easement	16
Lick Skillet Conservation Easements	17
Lower Aucilla Conservation Easement	18
Middle Aucilla Conservation Area	19
Middle Aucilla Conservation Easements	20
Moore Conservation Easement	21
Mount Gilead Conservation Easement	22
Natural Bridge Battlefield Historic State Park	23
Oak Hill Conservation Easements	24
San Marcos de Apalache Historic State Park	25
St. Marks Headwaters	26
St. Marks Mitigation Bank	27
St. Marks National Wildlife Refuge	28
St. Marks River Preserve State Park	29
Tallahassee-St. Marks Historic Railroad State Trail	30
Three Creeks Ranch Conservation Easement	31
Turkey Scratch Plantation Conservation Easement	32
Wacissa Conservation Area	33
Walker Spring Conservation Easement	34
Whit Foster Conservation Easement	35

2 Natural and Historical Resources

2.1 Physiography

The AWMA is located in the Gulf Coastal Lowlands Physiographic Province between the Tallahassee hills and the coastal swamps. The Gulf Coastal Lowlands is a geomorphological province in Florida. The province extends along the coast of the Gulf of Mexico from the western end of the Florida Panhandle to near Ft. Myers in southern Florida. The average width of the province is 40 km. While much of the province is less than 15 m AMSL, it rises to about 100 feet AMSL along its inland side. It is the largest geomorphological province in Florida. Due to its low elevation, the province was below sea level during warmer periods of the Pliocene and Pleistocene, and features such as ancient dunes and sand bars are found far inland.

2.1.1 Climate

Jefferson County experiences a warm temperate climate. The temperature for the City of Monticello during the period from 2/1/1904 to 4/30/2012 ranged from an average annual minimum 55.5 degrees Fahrenheit (F) to an average annual maximum of 78.8 degrees F. January had the lowest average temperature per year at 40.6 degrees F. The highest average temperature was in July at 90.8 degrees F. The average annual temperature for the period of record was 67.15 degrees F.

Average total precipitation during the period 1904 to 2012 was 55 inches during which period rainfall was highest during the month of July (7.13 inches) and the lowest in November (2.74 inches). The driest months were November (2.74 inches) and October (2.8 inches). The wet season normally extends from June (5.87 inches) through September (4.93 inches), while spring and fall are normally drier seasons.

The climate and rainfall data for Taylor County is very similar to those provided above.

2.1.2 Topography

As noted above, the AWMA is located in the Gulf Coastal Lowlands Physiographic Province. The elevation on the AWMA ranges from 0 to 42 feet above mean sea level (AMSL). The lowest elevations are located in the southern part of AWMA ranging from 0-10 feet. The central area of AWMA has elevations ranging from 12-20 feet AMSL. The northern portion of the AWMA has elevations ranging from 22-42 feet AMSL.

2.1.3 Soils

Most of the soils of the area are extremely sandy. More specifically, it is either Nutall-Tooles fine sands or Surrency fine sand that are frequently flooded. Other large soil percentages include Chaires fine sand and Tooles-Nutall complex.

The U.S. Department of Agriculture, Natural Resources Conservation Services (NRCS) defines a soil map unit as: “a collection of soil areas or non-soil areas (miscellaneous areas) delineated in a soil survey.” Soil map units may contain multiple soil components, which

are given names that are unique identifiers. Figure 3 provides aggregation data for the AWMA soils' map units, including a more complete listing of attributes and soil minor components. Figure 4 provides depth to water table information for the soil types found on the AWMA. The taxonomic and physical descriptions of the soil series found within the established boundary of the area are found in Appendix 13.3.

2.1.4 Geologic Conditions

The geology of AWMA is divided into three formations according to the geologic map of the state of Florida. The first is Suwannee Limestone. This formation covers 63.30% of AWMA. This formation is of the Oligocene. This formation covers the central and southern area of AWMA. The Suwannee Limestone, originally named by Cooke and Mansfield (1936), consists of a white to cream, poorly to well indurated, fossiliferous, vuggy to moldic limestone (grainstone and packstone). The dolomitized parts of the Suwannee Limestone are gray, tan, light brown to moderate brown, moderately to well indurated, finely to coarsely crystalline, dolostone with limited occurrences of fossiliferous (molds and casts) beds. Silicified limestone is common in Suwannee Limestone. Fossils present in the Suwannee Limestone include mollusks, foraminifers, corals and echinoids. The lithology of this formation consists of limestone and dolostone (dolomite).

The second geologic formation is undifferentiated sediments. This formation covers 27.86% of AWMA and is located on the north side of the management area. These sediments are of the Pleistocene and Holocene. The subdivisions of the Undifferentiated Quaternary Sediments are not lithostratigraphic units but are utilized in order to facilitate a better understanding of the State's geology. The siliciclastics are light gray, tan, brown to black, unconsolidated to poorly consolidated, clean to clayey, silty, unfossiliferous, variably organic-bearing sands to blue green to olive green, poorly to moderately consolidated, sandy, silty clays. Gravel is occasionally present in the panhandle. Organics occur as plant debris, roots, disseminated organic matrix and beds of peat. Freshwater carbonates, often referred to as marls in the literature, are scattered over much of the State. The lithology of this formation consists of clay or mud, beach sand, silt, gravel, peat, and sand.

The final formation at the surface of AWMA is the St. Marks formation. This formation covers 8.83% of AWMA and is located on the western and northern edge of the management area. This formation is of the Miocene. The Lower Miocene St. Marks Formation, named by Finch (1823), is exposed in Wakulla, Leon and Jefferson Counties on the northwestern flank of the Ocala Platform. It is a white to yellowish gray, poorly to moderately indurated, sandy, fossiliferous (molds and casts) limestone (packstone to wackestone). Mollusk molds and casts are often abundant. The St. Marks Formation makes up the upper part of the Floridan aquifer system in part of the eastern panhandle. The lithology of this formation consists of limestone and sandstone.

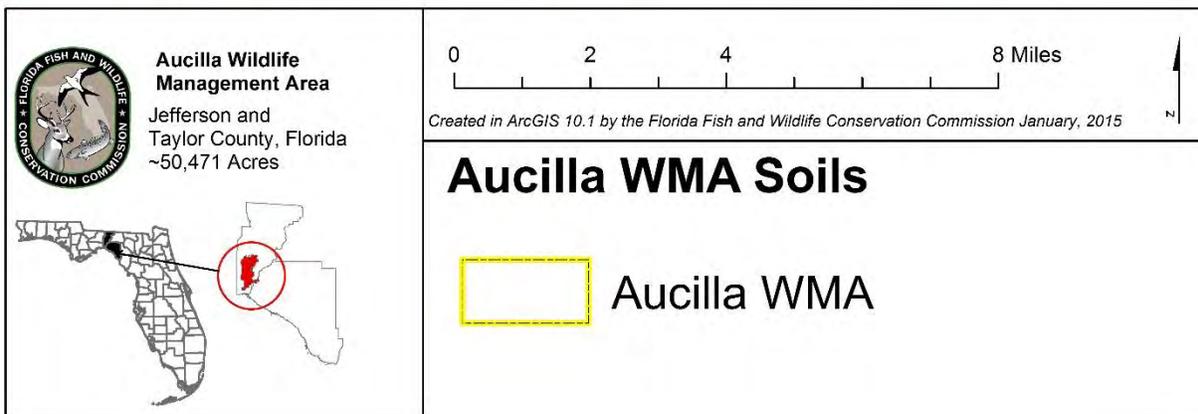
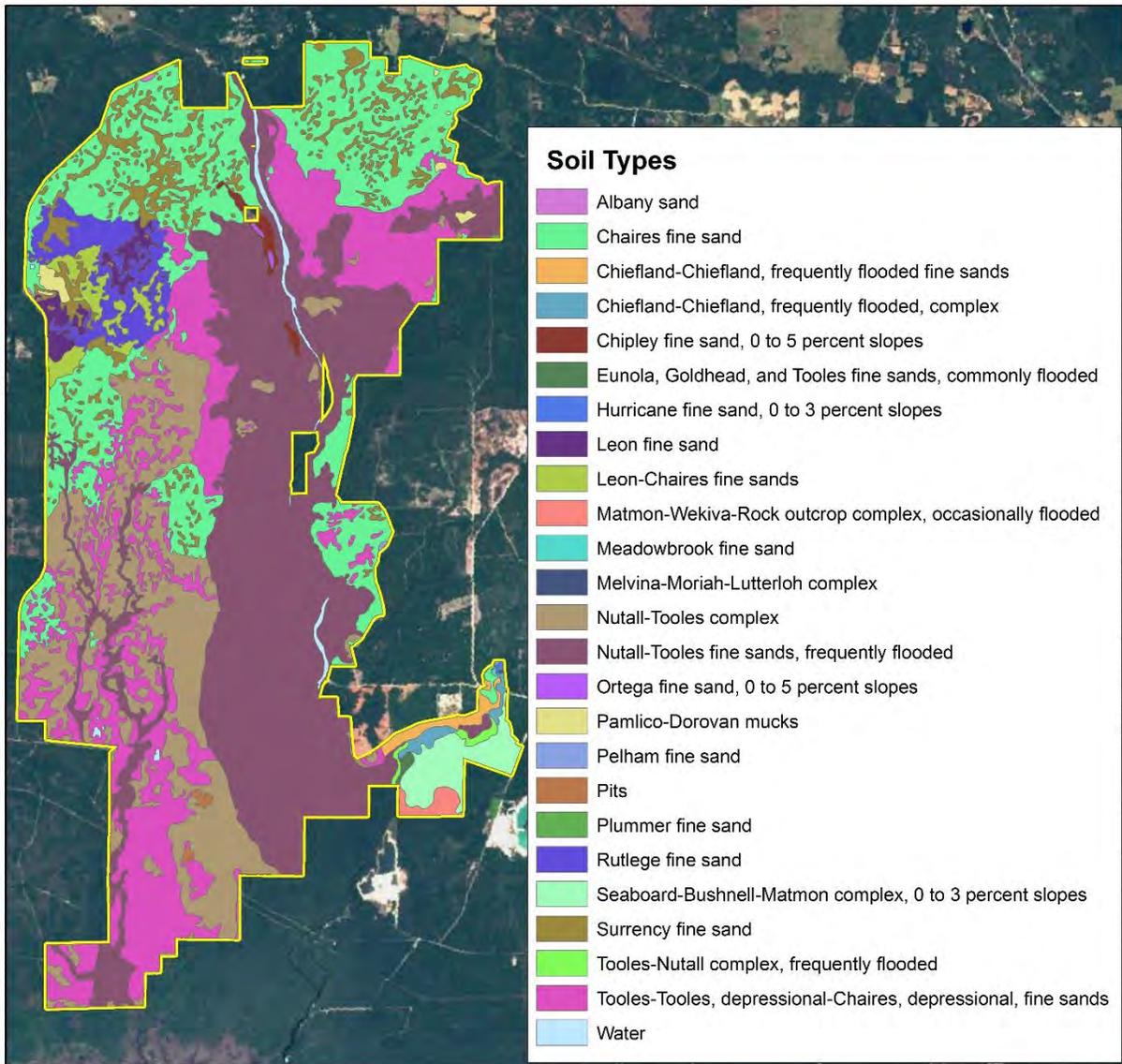


Figure 3. Soil types found at the AWMA

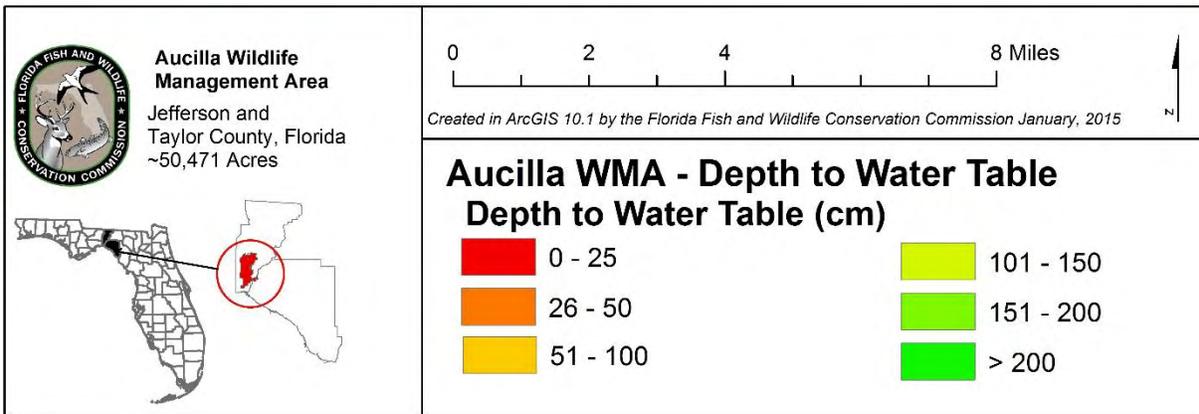
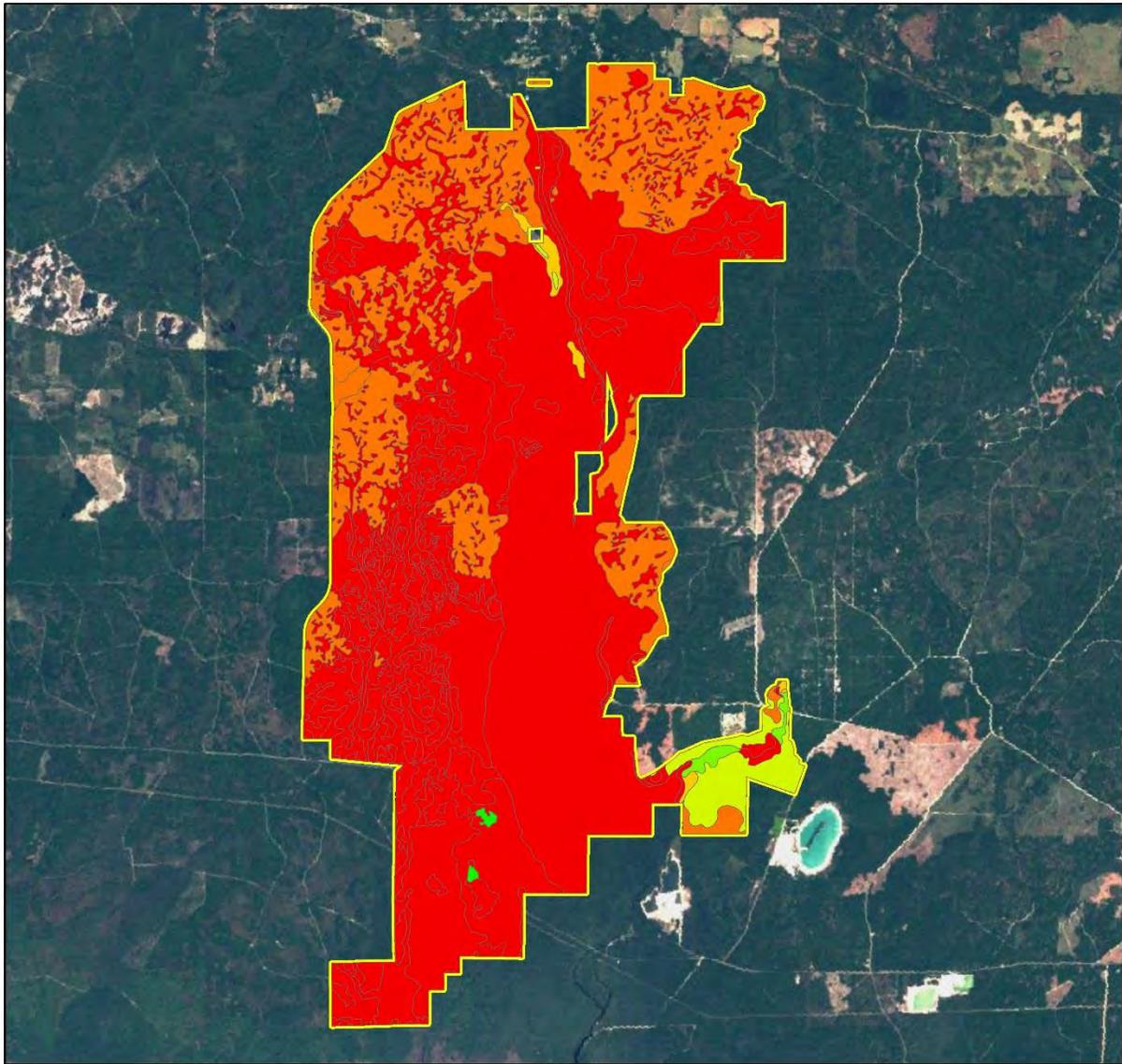


Figure 4. Soil Depths to Water Table at the AWMA

2.2 Vegetation

The AWMA is an expansive area of lush forests and swamps. Tannin-colored creeks, rivers, and springs snake through the AWMA's interior, including the Aucilla River and the Wacissa River. The two rivers merge before feeding into the Gulf, nourishing species and the natural community that they live in along the way. Hydric hammock and pine plantation are the largest vegetative communities of the area, with hydric hammock spanning almost 37%, and basin swamp at 16% of the AWMA.

The AWMA is characterized by a mixture of both wetland and upland areas. Near the Wacissa River, the area is mostly forested wetlands, featuring hardwood trees such as a variety of oaks, hickory, and magnolia. The area adjacent to the Aucilla River is mostly upland. Along State Road (SR) 59, in the west, and the northern boundary of the AWMA, the area is a mix of pine flatwoods and various wetland communities including basin swamp, dome swamp, hydric hammock, and baygall. The swamps along the Wacissa River, including the Western Sloughs, provide natural filtering and regulation of water flowing into the Wacissa and Aucilla Rivers and the Gulf of Mexico. The eastern AWMA that extends into Taylor County is drier than its Jefferson counterpart, with upland hardwood forest and pine flatwoods as its principal communities.



The FWC has completed historic and natural community mapping of AWMA through the work of the Florida Natural Areas Inventory (FNAI). Through this work, FNAI and area staff have identified and mapped a total of 23 natural and altered communities (including roads and utility corridors), 25 rare plants and 11 exotic invasive plants within the AWMA. The percentage breakdown of each habitat type is shown in Table 3. Following are tables listing rare, natural and exotic invasive plant species known or expected to occur on AWMA. Descriptions of the communities located on AWMA and shown in Figure 5 and are provided immediately following the plant species tables, presented in Tables 4, 5 and 6, and the natural communities' descriptions. Natural community classification follows the Guide to the Natural Communities (FNAI 1990). The FNAI recently completed updated vegetative communities maps and their associated descriptions for FWC on AWMA and those data are incorporated into this Management Plan.

Table 3. Natural and Altered Community Types of AWMA

Community Types	GIS Acres	Percent of Area*
Artificial pond	65	0.1%
Basin swamp	7,305	16.1%
Baygall	3,443	7.6%
Clearing/regeneration	13	0.0%
Depression marsh	39	0.1%
Developed	12	0.0%
Dome swamp	894	2.0%
Floodplain swamp	380	0.8%
Hydric hammock	16,766	37.0%
Mesic flatwoods	447	1.0%
Mesic hammock	72	0.2%
Pasture - improved	4	0.0%
Pine plantation	5,236	11.6%
Restoration mesic flatwoods	7,044	15.5%
Restoration wet flatwoods	1,138	2.5%
Restoration wet prairie	41	0.1%
Road	38	0.1%
Scrubby flatwoods	3	0.0%
Sinkhole	1	0.0%
Spring-run stream	256	0.6%
Upland hardwood forest	1,763	3.9%
Utility corridor	34	0.1%
Wet flatwoods	304	0.7%

*Percentage based on total FNAI mapped acres.

Table 4. Rare and Imperiled Plant Species of AWMA

Common Name	Scientific Name	Status
Blueflower butterwort	<i>Pinguicula caerulea</i>	ST
Branched tearthumb	<i>Polygonum meisnerianum</i> var. <i>beryrichianum</i>	SE
Buckthorn bully	<i>Sideroxylon lycioideslycoides</i>	SE
Cardinal flower	<i>Lobelia cardinalis</i>	ST
Catesby's lily	<i>Lilium catesbaei</i>	ST
Chapman's sedge	<i>Carex chapmannii</i>	ST
Cranefly orchid	<i>Tipularia discolor</i>	ST
Crested coralroot	<i>Hexalectris spicata</i>	SE
Florida corkwood	<i>Leitneria floridana</i>	ST
Florida mountain-mint	<i>Pycnanthemum floridanum</i>	ST
Florida willow	<i>Salix floridana</i>	SE
Flyr's brickellbush	<i>Brickellia cordifolia</i>	SE
Godfreys swamp privet	<i>Forestiera godfreyi</i>	SE
Hooded pitcher plant	<i>Sarracenia minor</i>	ST
Large rosebud orchid	<i>Pogonia divaricata</i>	SE

Palegreen orchid	<i>Platanthera flava</i>	ST
Parrot pitcher plant	<i>Sarracenia psittacina</i>	ST
Pinewood dainties	<i>Phyllanthus leibmannianus ssp. platylepis</i>	SE
Pond spice	<i>Litsea aestivalis</i>	SE
Purple pitcher plant	<i>Sarracenia purpurea</i>	ST
Southern crabapple	<i>Malus angustifolia</i>	ST
Southern twayblade	<i>Listera australis</i>	ST
Treat's rainlily	<i>Zephyranthes atamasco varv. treatiae</i>	ST
Turkscap lily	<i>Lilium superbum</i>	SE
Wild ginger	<i>Asarum arifolium</i>	ST

Abbreviations: Listed by the State of Florida as State-designated endangered (SE) or State-designated threatened (ST).

Table 5. Native Plant Species Observed or Expected to Occur at AWMA

Common Name	Scientific Name
American elm	<i>Ulmus americana</i>
American holly	<i>Ilex opaca</i>
American witchhazel	<i>Hamamelis virginiana</i>
Atlantic St. John's-wort	<i>Hypericum reductum</i>
Bartram's airplant	<i>Tillandsia bartramii</i>
Beaked panicum	<i>Panicum anceps</i>
Beaksedge	<i>Rhynchospora sp.</i>
Bedstraw St. John's wort	<i>Hypericum galioides</i>
Beggarticks	<i>Bidens sp.</i>
Big carpetgrass	<i>Axonopus furcatus</i>
Big floatingheart	<i>Nymphoides aquatica</i>
Bigleaf snowbell	<i>Styrax grandifolius</i>
Black oak	<i>Quercus velutina</i>
Black titi	<i>Cliftonia monophylla</i>
Blackberry	<i>Rubus spp.</i>
Blackroot	<i>Pterocaulon pycnostachyum</i>
Bladderwort	<i>Utricularia spp.</i>
Blue huckleberry	<i>Gaylussacia frondosa</i>
Blue palmetto	<i>Sabal minor</i>
Bogbutton	<i>Lachnocaulon sp.</i>
Bottlebrush threeawn	<i>Aristida spiciformis</i>
Bracken fern	<i>Pteridium aquilinum</i>
Broomsedge	<i>Andropogon sp.</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>

Bulltongue arrowhead	<i>Sagittaria lancifolia</i>
Bushy bluestem	<i>Andropogon glomeratus</i>
Butterweed	<i>Senecio glabellus</i>
Button rattlesnake master	<i>Eryngium yuccifolium</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Cabbage palm	<i>Sabal palmetto</i>
Carolina horsenettle	<i>Solanum carolinense</i>
Carolina redroot	<i>Lachnanthes caroliniana</i>
Carolina willow	<i>Salix caroliniana</i>
Cat greenbrier	<i>Smilax glauca</i>
Cattail	<i>Typha latifolia</i>
Chalky bluestem	<i>Andropogon virginicus var. glaucus</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Climbing fetterbush	<i>Pieris phyllyreifolia</i>
Climbing hempvine	<i>Mikania scandens</i>
Climbing hydrangea	<i>Decumaria barbara</i>
Clustered bushmint	<i>Hyptis alata</i>
Clustered sedge	<i>Carex glaucescens</i>
Coastal doghobble	<i>Leucothoe axillaris</i>
Coastal rosegentian	<i>Sabatia calycina</i>
Coastal sweetpepperbush	<i>Clethra alnifolia</i>
Coastalplain St. John's-wort	<i>Hypericum brachyphyllum</i>
Coastalplain staggerbush	<i>Lyonia fruticosa</i>
Colicroot	<i>Aletris sp.</i>
Common boneset	<i>Eupatorium perfoliatum</i>
Creeping primrosewillow	<i>Ludwigia repens</i>
Crossvine	<i>Bignonia capreolata</i>
Dahoon	<i>Ilex cassine</i>
Deerberry	<i>Vaccinium stamineum</i>
Dogfennel	<i>Eupatorium capillifolium</i>
Dogtongue wild buckwheat	<i>Eriogonum tomentosum</i>
Dotted smartweed	<i>Polygonum punctatum</i>
Dwarf huckleberry	<i>Gaylussacia dumosa</i>
Dwarf live oak	<i>Quercus minima</i>
Earleaf greenbrier	<i>Smilax auriculata</i>
Eastern bluestar	<i>Amsonia tabernaemontana</i>
Eastern redbud	<i>Cercis canadensis</i>
Ebony spleenwort	<i>Asplenium platyneuron</i>
Elliott's sedge	<i>Carex elliotii</i>

Flatsedge	<i>Cyperus sp.</i>
Flatwoods St. John's-wort	<i>Hypericum microsepalum</i>
Floating bladderwort	<i>Utricularia inflata</i>
Florida dropseed	<i>Sporobolus floridanus</i>
Florida maple	<i>Acer saccharum</i>
Fragrant ladies'-tresses	<i>Spiranthes odorata</i>
Fringed yellow-eyed grass	<i>Xyris fimbriata</i>
Gallberry	<i>Ilex glabra</i>
Grassleaf rush	<i>Juncus marginatus</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Green fly orchid	<i>Epidendrum conopseum</i>
Greenbrier	<i>Smilax sp.</i>
Hairawn muhly	<i>Muhlenbergia capillaris</i>
Hairy primrosewillow	<i>Ludwigia pilosa</i>
Hawthorn	<i>Crataegus spp.</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Elliott's blueberry	<i>Vaccinium elliotii</i>
Horned beaksedge	<i>Rhynchospora corniculata</i>
Laurel greenbriar	<i>Smilax laurifolia</i>
Laurel oak	<i>Quercus hemisphaerica</i>
Lax hornpod	<i>Mitreola petiolata</i>
Lesser creeping rush	<i>Juncus repens</i>
Little bluestem	<i>Schizachyrium scoparium</i>
Littlehead nutrush	<i>Scleria oligantha</i>
Live oak	<i>Quercus virginiana</i>
Lizard's tail	<i>Saururus cernuus</i>
Loblolly bay	<i>Gordonia lasianthus</i>
Loblolly pine	<i>Pinus taeda</i>
Longleaf pine	<i>Pinus palustris</i>
Longleaf woodoats	<i>Chasmanthium laxum var. sessiliflorum</i>
Looseflower waterwillow	<i>Justicia ovata</i>
Loosehead beaksedge	<i>Rhynchospora chalarocephala</i>
Maidencane	<i>Panicum hemitomon</i>
Maleberry	<i>Lyonia ligustrina</i>
Manyflower marshpennywort	<i>Hydrocotyle umbellata</i>
Marsh mermaidweed	<i>Proserpinaca palustris</i>
Millet beaksedge	<i>Rhynchospora miliacea</i>
Muscadine	<i>Vitis rotundifolia</i>
Muscle wood	<i>Carpinus caroliniana</i>

Myrtle oak	<i>Quercus myrtifolia</i>
Myrtle-leaved holly	<i>Ilex cassine</i> var. <i>myrtifolia</i>
Needle palm	<i>Rhaphidophyllum hystrix</i>
Needleleaf witchgrass	<i>Dichantheium aciculare</i>
Netted chain fern	<i>Woodwardia areolata</i>
Nutrush	<i>Scleria</i> sp.
Panicgrass	<i>Panicum</i> sp.
Pickerelweed	<i>Pontederia cordata</i>
Pignut hickory	<i>Carya glabra</i>
Plumegrass	<i>Erianthus</i> sp.
Poison ivy	<i>Toxicodendron radicans</i>
Pond cypress	<i>Taxodium ascendens</i>
Pond pine	<i>Pinus serotina</i>
Pop ash	<i>Fraxinus caroliniana</i>
Post oak	<i>Quercus stellata</i>
Purple bluestem	<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>
Rattan vine	<i>Berchemia scandens</i>
Rattlesnake master	<i>Eryngium aquaticum</i>
Red buckeye	<i>Aesculus pavia</i>
Red cedar	<i>Juniperus virginiana</i>
Red chokeberry	<i>Photinia pyrifolia</i>
Red maple	<i>Acer rubrum</i>
Redtop panicum	<i>Panicum rigidulum</i>
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>
Resurrection fern	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>
Rosy camphorweed	<i>Pluchea rosea</i>
Roundleaf thoroughwort	<i>Eupatorium rotundifolium</i>
Roundpod St. John's-wort	<i>Hypericum cistifolium</i>
Royal fern	<i>Osmunda regalis</i>
Running oak	<i>Quercus pumila</i>
Rush	<i>Juncus</i> sp.
Rusty staggerbush	<i>Lyonia ferruginea</i>
Saltmarsh fingergrass	<i>Eustachys glauca</i>
Saltmarsh umbrellasedge	<i>Fuirena breviseta</i>
Sand blackberry	<i>Rubus cuneifolius</i>
Sand live oak	<i>Quercus geminata</i>
Sandweed	<i>Hypericum fasciculatum</i>
Savannah meadowbeauty	<i>Rhexia alifanus</i>
Savannah panicum	<i>Phanopyrum gymnocarpon</i>

Sawgrass	<i>Cladium jamaicense</i>
Saw greenbriar	<i>Smilax bona-nox</i>
Saw palmetto	<i>Serenoa repens</i>
Sawtooth blackberry	<i>Rubus argutus</i>
Sedge	<i>Carex spp.</i>
Shiny blueberry	<i>Vaccinium myrsinites</i>
Shiny fetterbush	<i>Lyonia lucida</i>
Shiny woodoats	<i>Chasmanthium nitidum</i>
Shrubby primrosewillow	<i>Ludwigia suffruticosa</i>
Shumard's oak	<i>Quercus shumardii</i>
Slash pine	<i>Pinus elliottii</i>
Slender flattop goldenrod	<i>Euthamia caroliniana</i>
Slimleaf pawpaw	<i>Asimina angustifolia</i>
Small's greenbrier	<i>Smilax smallii</i>
Smallfruit beggarticks	<i>Bidens mitis</i>
Southern beaksedge	<i>Rhynchospora microcarpa</i>
Southern dewberry	<i>Rubus trivialis</i>
Southern magnolia	<i>Magnolia grandiflora</i>
Southern red oak	<i>Quercus falcata</i>
Southern wood fern	<i>Dryopteris ludoviciana</i>
Spadeleaf	<i>Centella asiatica</i>
Spanish moss	<i>Tillandsia usneoides</i>
Sparkleberry	<i>Vaccinium arboreum</i>
Sphagnum mosses	<i>Sphagnum spp.</i>
Spikerush	<i>Eleocharis sp.</i>
St. Andrew's cross	<i>Hypericum hypericoides</i>
Sugarcane plumegrass	<i>Saccharum giganteum</i>
Swamp chestnut oak	<i>Quercus michauxii</i>
Swamp doghobble	<i>Leucothoe racemosa</i>
Swamp dogwood	<i>Cornus foemina</i>
Swamp laurel oak	<i>Quercus laurifolia</i>
Swamp red bay	<i>Persea palustris</i>
Swamp rose	<i>Rosa palustris</i>
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Swampforest beaksedge	<i>Rhynchospora decurrens</i>
Sweet bay	<i>Magnolia virginiana</i>
Sweet gum	<i>Liquidambar styraciflua</i>
Sweet pinxter azalea	<i>Rhododendron canescens</i>
Switchcane	<i>Arundinaria gigantea</i>

Tall gallberry	<i>Ilex coriacea</i>
Taperleaf waterhorehound	<i>Lycopus rubellus</i>
Tenangle pipewort	<i>Eriocaulon decangulare</i>
Threeway sedge	<i>Dulichium arundinaceum</i>
Titi	<i>Cyrilla racemiflora</i>
Virginia chain fern	<i>Woodwardia virginica</i>
Virginia willow	<i>Itea virginica</i>
Walter's sedge	<i>Carex striata</i>
Water oak	<i>Quercus nigra</i>
Water toothleaf	<i>Stillingia aquatica</i>
Wax myrtle	<i>Myrica cerifera</i>
Whip nutrush	<i>Scleria triglomerata</i>
White oak	<i>Quercus alba</i>
Wicky	<i>Kalmia hirsuta</i>
Wild olive	<i>Osmanthus americanus</i>
Winged sumac	<i>Rhus copallinum</i>
Wiregrass	<i>Aristida stricta var. beyrichiana</i>
Witchgrass	<i>Dichantherium sp.</i>
Woodoats	<i>Chasmanthium sp.</i>
Woodsgrass	<i>Oplismenus setarius</i>
Wooley witchgrass	<i>Dichantherium scabriusculum</i>
Woolgrass	<i>Scirpus cyperinus</i>
Yankeeweed	<i>Eupatorium compositifolium</i>
Yaupon	<i>Ilex vomitoria</i>
Yellow hatpins	<i>Syngonanthus flavidulus</i>
Yellow jessamine	<i>Gelsemium sempervirens</i>
Yellow-eyed grasses	<i>Xyris spp.</i>

Table 6. Exotic Plant Species of AWMA

Common Name	Scientific Name
Air-potato	<i>Dioscorea bulbifera</i>
Chinaberry	<i>Melia azedarach</i>
Chinese privet	<i>Ligustrum sinense</i>
Chinese tallow	<i>Triadica sebifera</i>
Chinese wisteria	<i>Wisteria sinensis</i>
Coffeeweed	<i>Senna occidentalis</i>
Cogongrass	<i>Imperata cylindrica</i>
Japanese climbing fern	<i>Lygodium japonicum</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Mimosa	<i>Albizia julibrissin</i>
Rattlebox	<i>Crotalaria sp.</i>

2.2.1 FNAI Natural Community Descriptions

Artificial pond* (~65.08 acres)

Impoundment includes stream or watershed impoundments. Artificial ponds include water retention ponds, cattle ponds, etc. On AWMA artificial ponds or impoundments consist of several run-offs located along the Aucilla River Sinks section of the Aucilla River, a black water stream, and the spring-fed Wacissa River.

Basin Swamp

Basin swamp is a forested wetland community that occurs in large irregularly-shaped depressions within hydric hammocks, mesic flatwoods, and wet flatwoods, vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Basin swamps are highly variable in size, shape, and species composition. Mixed species tree canopies are common, often including both evergreen and deciduous tree species. This natural community typically occurs in any type of large landscape depression such as old lake beds, river basins, and ancient coastal swales and lagoons that existed during higher sea levels. This community can also form long linear features that eventually drain to the coast.

On the AWMA, the species composition of basin swamps resembles that of dome swamps where the basin swamp occurs on acid sandy soils, and resembles that of floodplain swamps in areas where limestone is near the surface. In the acid sandy areas, the open canopy is characterized by pond cypress and black gum, with white titi and shiny lyonia in the shrub layer; where limestone is close to the surface, the canopy is closed and canopy species include green ash and bald cypress over a sparse to absent shrub layer.

In general, the closed canopy element of basin swamp on the area is characterized by pond cypress and black gum, with lesser amounts of sweet bay, red maple, slash pine, loblolly pine, and green ash. The subcanopy is sparse, with dahoon holly, swamp red bay, pop ash, and wax myrtle commonly found, along with saplings of the canopy species. Tall shrub cover may be dense, especially on the edges of the swamps, and is characterized by titi, buttonbush, wax myrtle, and shiny fetterbush, with lesser amounts of swamp doghobble, Virginia willow, and myrtle holly; short shrubs are usually sparse with shiny fetterbush and coastal sweetpepperbush being the most common. The herb layer is usually sparse - the ground is mostly bare muck when exposed at low water; common herbaceous species encountered are sawgrass, dotted smartweed, millet beaksedge, and lizard's tail.

Many of the basin swamps on AWMA were clearcut or heavily logged between 1999 and 2004; these typically have a dense cover of weedy herbaceous species including horned beaksedge, Walter's sedge, shrubby primrosewillow, and hairy primrosewillow, plus species more typical of depression marshes such as sandweed and fringed yellow-eyed grass. These open areas are often dotted with islands of canopy trees or dense titi shrubs laced together with laurel greenbrier. The centers of basin swamps historically seldom burned due to their being inundated; however, much logging slash was left to decay in the basin swamps

that were recently logged at AWMA; this will eventually form a thicker than normal peat layer which could increase the risk of a peat fire in dry years and may be an unsuitable substrate for germination of some tree species such as pond cypress.

Basin swamp at the Pinhook tract on AWMA is identified by a diverse and closed canopy of hydrophytic trees including pond cypress, Carolina ash, swamp tupelo, sweetgum, sweetbay, cabbage palm, American elm, red maple, swamp laurel oak, and sweet bay. Many of the trees occurring in the basin swamp community of the Pinhook tract are of a mature stature. Cypress knees and hummocks are common on the forest floor, with much of the ground covered in open water and mucky soils. Shrubs are often sparse and are most common around the perimeter of the community and typically include common buttonbush, wax myrtle, and coastalplain willow. Herbs are sparse, and typically include switchcane, clustered sedge, sawgrass, climbing hempvine, shortbristle horned beaksedge, millet beaksedge, beaksedge, coastal rosegiant, sugarcane plumegrass, lizard's tail, fragrant ladies'-tresses, Virginia chain fern, and yellow-eyed grass. Saw greenbrier, and laurel greenbrier constitute the sparse vine layer. Epiphytes are often present, but not as a major community component. Epiphytes include green fly orchid, resurrection fern, and Bartram's air-plant.



Basin marsh is included within the area mapped as basin swamp within Figure 5. Basin marsh is a wetland herbaceous community occupying large depressions, and often occurs within a non-pyrogenic matrix community.

On AWMA, basin marsh occurs adjacent to hydric hammock and basin swamp communities on the area. This community classification has been applied to a unique situation that is present along the ephemeral Pinhook River which eventually terminates into salt marsh to the south. This river floods seasonally and is bordered by floodplain swamp. Adjacent to the floodplain swamp, on both the east and west sides of this system is hydric hammock. The transition habitat between this hydric hammock community and the surrounding flatwoods and/or pine plantation is classified as basin marsh. Historically, fires would have carried into this habitat from fires in the surrounding flatwoods and salt marsh communities. Exclusion of fire and silvicultural practices have allowed this community to become more canopied and shrub encroached.

Baygall (~3,443.28acres)

Baygalls are forested wetlands dominated by evergreen shrubs or bay trees and shrubs in depressions or seepage areas where groundwater is at or near the surface for long periods of time. Although most baygalls are small in acreage, some form large, mature forests. Soils are generally composed of peat, with seepage from uplands, rainfall, and capillary action

from adjacent wetlands maintaining a saturated substrate. Baygall typically develops at the bases of slopes, edges of floodplains, in depressions, and in stagnant drainages. Generally influenced by flowing water, baygall is often drained by small blackwater streams.

On AWMA, shrubby baygalls are tall, dense shrub communities dominated by titi and black titi, often with lesser amounts of tall gallberry, shiny fetterbush and wax myrtle. Scattered trees of a variety of species may be present, but do not form a closed canopy; these include pond cypress, water tupelo, pond pine, slash pine, loblolly pine, loblolly bay, and sweet bay. Vines of laurel greenbriar may knit together the shrubs to form an impenetrable tangle. Herbs are found only in openings, the most common being redroot and Virginia chain fern. Shrubby baygalls occur in shallow drainageways and depressions in mesic and wet flatwoods matrix communities on acid sandy soils, occasionally covering extensive areas as interpreted on the 1949 aerial. Wet and mesic flatwoods may be included communities on slightly higher ground within baygalls; small areas of dome swamp occur in depressions. Shrubby baygalls occur both naturally as described in the 1907 soil survey (Jones et al. 1907 p.368) and in former dome and basin swamps after the canopy is logged. Forested baygalls have a dense canopy dominated by loblolly and sweet bays with occasional loblolly pine, water tupelo and pond cypress; shiny fetterbush forms a dense shrub layer in the understory. Baygalls can withstand a moderate fire frequency since the titi shrubs and bay trees re-sprout following fire; however, they are killed if fire burns into the peat layer, destroying their roots. Portions of some baygalls at AWMA have been converted to open water and depression marshes with Walter's sedge, sandweed, and fringed yellow-eyed grass, by scraping the soil into linear mounds, presumably for pine planting, although the pines were never planted in most cases.

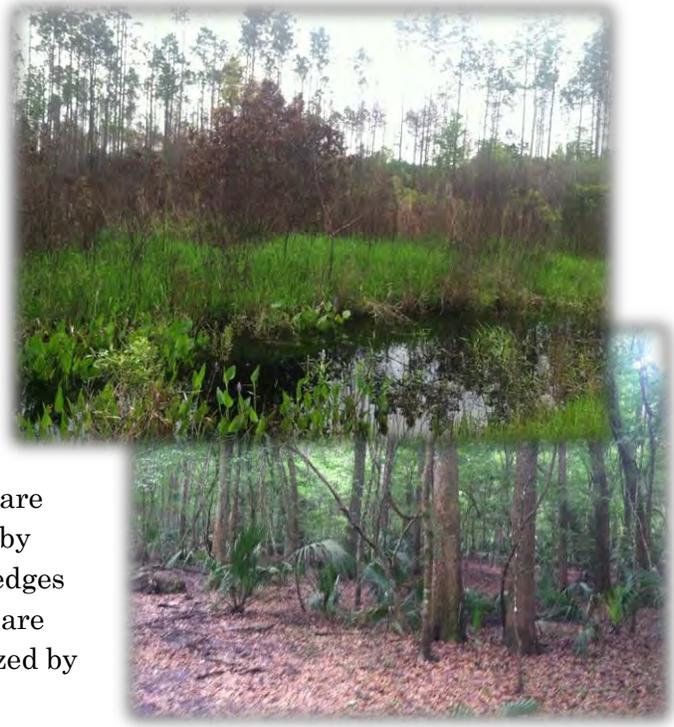
Clearcut /Regeneration* (~ 12.50 acres)

Over 2,000 acres of forested wetlands (basin and dome swamps and hydric hammocks) on the AWMA were logged between the time the 1999 aerial photographs were taken and when the field work commenced in 2003. These make up all but four of the 80 polygons or community coverages classified as ruderal on the area. The logged wetlands had only scattered canopy trees remaining or scattered islands of intact swamp in deeper areas. Seedlings and saplings of canopy trees were not noted as abundant in any areas. Most frequent canopy trees were pond cypress, swamp tupelo, swamp laurel oak, sweet bay, and red maple. Most of the plant cover of logged areas was in short shrubs and herbs. The shrubs were primarily sandweed, titi, shiny fetterbush, and wax myrtle; the herbs were primarily Walter's sedge, horned beaksedge, and hairy primrose willow, with open water in the deeper logging tracks. Four stands of Florida corkwood a state-listed shrub, were found within a 0.5-2 mi area in one recently logged basin swamp and adjacent hydric hammock. No invasive exotic plants were noted at the ruderal sites visited in this survey.

Depression Marsh (~ 39.29 acres)

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

On AWMA, depression marshes are seen on the 1949 aerials fringing forested wetlands (baygalls, dome swamps, basin swamps and hydric hammocks), rather than the more usual situation in which they occur as isolated ponds in a flatwoods matrix. Most of the depression marshes on the 1949 aerial are not currently present, having been altered by pine planting and road building along the edges of the wetlands; those that currently occur are often recently disturbed areas being colonized by marsh species and do not show the typical zonation of vegetation from shallower to deeper parts found in intact depression marshes. Species commonly present include Walter's sedge, sawgrass, tenangle pipewort, sandweed, loosehead beaksedge, horned beaksedge, water toothleaf, Virginia chain fern, and fringed yellow-eyed grass.



Depression marshes on the Pinhook tract of the AWMA are generally dominated by or shortbristle horned beaksedge. Other frequently encountered herbaceous species include dotted smartweed, sugarcane plumegrass, and yellow-eyed grass. The tall shrub layer may be sparse to dense and often is dominated by common buttonbush, dahoon, wax myrtle, swamp tupelo, coastalplain willow, and pond cypress. Many of the same species occur in the short shrub layer, plus peelbark St. John's wort, fetterbush, swamp rose, and water toothleaf. The sparse canopy layer consists of few isolated trees including red maple, sweetgum, swamp tupelo, coastalplain willow, and pond cypress. Vines found on the edges of the depression marsh community are saw greenbrier, and cat greenbrier.

Dome Swamp (~893.89 acres)

Dome swamps are small forested wetlands of primarily deciduous trees, often found on acid sandy soils in depressions within a flatwoods or baygall matrix. Trees in the center are often taller than those on the edges, giving the stand a dome-shaped profile. Species composition is the same as basin swamps, consisting of swamp tupelo and pond cypress in the canopy with lesser amounts of red maple, sweet bay, slash pine and loblolly pine; the subcanopy is usually sparse, consisting of young trees of the canopy species plus dahoon, myrtle holly, swamp bay, and popash. Tall and short shrub cover may be dense, especially on the edges of the swamps, and is characterized by titi, myrtle holly, buttonbush, wax myrtle, tall gallberry, and shiny fetterbush, with lesser amounts of swamp doghobble, Virginia willow, and coastal sweetpepperbush. The trees and shrubs often occur on hummocks with bare mucky soil between them. The herb layer is sparse, except in canopy openings, and consists primarily of sawgrass, lizard-tail, Virginia chain fern and others. The soil type is Surrency fine sand. Pond cypress can survive a moderate fire; however none of the dome swamps seen at Aucilla, which are mostly surrounded by pine plantations, showed signs of fire scorch on the cypress trunks.

On AWMA, many dome swamps were logged between 1999 and 2004 and appear from comparison with the 1949 aerial to have been converted to shrubby baygalls dominated by titi and black titi laced together by laurel greenbrier after removal of the canopy; deeper portions are colonized by species more characteristic of depression marshes such as sandweed, Walter's sedge, and horned beaksedge.

The canopy layer of the dome swamp community of the adjacent Flint Rock WMA commonly includes pond cypress red maple, sweetbay, and slash pine. Shrubs are often dense, especially in habitats that have had the canopy trees removed by forestry harvesting. Common shrubs include wax myrtle, coastalplain willow, and regenerating pond cypress. The sparse herbaceous layer is composed of sawgrass, and pickerelweed. Laurel greenbrier is a common vine.

Floodplain Swamp (~380.28 acres)

Floodplain swamps are primarily deciduous wetland forests occurring along streams and rivers and composed of trees tolerant of prolonged flooding. Floodplain swamps occur on frequently flooded terraces of river floodplains. These multi-layered forests harbor many hardwood trees and shrub species, and are variable in respect to canopy and shrub dominants. Very subtle changes in micro-topography affect flooding duration, and subsequent seedling germination and survival. Floodplain swamp is located within floodplains of any permanently moving stream or river. It ranges from narrow strips of cypress along primary and secondary streams to expansive stands along large rivers to tidally influenced freshwater swamps near river mouths. Often, floodplain swamps immediately border the stream or river channel. In many cases, however, floodplain swamps are isolated from the main channel by riverbank levees and restricted to oxbows, overflow channels, old stream beds, and expansive flats commonly called back-swamps. Soils are variable mixtures of alluvial and organic materials, sometimes with



layers of sand in the subsoil. Inundation is seasonal and usually prolonged, restricting the growth of most shrubs and herbs and leaving most of the ground surface open or thinly mantled with leaf litter. This forest generally consists of a closed canopy of tall, straight trees with little shrub or herb layer and large areas of bare mucky soil exposed.

On AWMA, the canopy is dominated by green ash, bald cypress, black gum, and red maple. Large bald cypress stumps, 4-5 feet in diameter, are frequently encountered. Less common canopy species include sweetbay, sweetgum, and diamond-leaf oak. Subcanopy trees include young trees of the canopy species, particularly green ash and red maple, plus popash and American elm. The sparse shrub layer is characterized by swamp dogwood, Virginia willow, dahoon holly, and wax myrtle. The rare Florida willow occurs in this community on the area around depressions or along the river edge near the head of the Wacissa River. Herbs are generally sparse, but may form denser patches in canopy gaps; the most frequent species are millet beakrush and lizard-tail. Other less frequent species are iris, spiderlily, and false nettle. At AWMA, this community is found as a band along the Wacissa River and also is intricately intermingled with the large hydric hammock community occupying a broad depression along the river drainage. Soil type is Nutall fine sand, which is acid to neutral. Limestone outcrops are frequently encountered.

Hydric Hammock (~16,765.70 acres)

Hydric hammocks are forested wetlands with a canopy of mixed deciduous and evergreen hardwoods and/or palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils, often with limestone very near the surface. While species composition varies, the community generally has a closed canopy of oaks and palms, an open understory, and a sparse to a moderate groundcover of grasses and ferns. Hydric hammock occurs on low, flat, wet sites where limestone may be near the surface, and soil moisture is kept high mainly by rainfall accumulation on poorly drained soils. Periodic flooding from rivers, seepage, and spring discharge may also contribute to hydric conditions. It usually includes swamp laurel oak, with cabbage palm in the subcanopy, occurring in the ecotone between floodplain swamp and upland communities especially where limestone is at or near the soil surface.

On AWMA, most of the hardwood forest is hydric hammock, which occupies a broad lowland along the Wacissa River. The diverse, closed canopy consists of four equally abundant tree species, including, sweetbay, red maple, and sweetgum, with green ash, bald cypress and swamp tupelo becoming more frequent in wetter depressions within this community. The subcanopy may be dense, especially where canopy trees have been thinned. Along with cabbage palm, the subcanopy usually contains blue beech, popash, American elm, red mulberry, and swamp red bay. The sparse tall shrub layer consists of wax myrtle, swamp dogwood, and cabbage palm. Blue palmetto is the most common short shrub followed by shiny fetterbush. Needle palm may form nearly 100% cover in the short shrub layer of some hammocks, particularly in the west-central portion of AWMA, south of Calico Hill. Elsewhere the short shrub layer in hydric hammocks is relatively sparse. Herb cover is variable, with southern wood fern, shiny woodoats, switchcane, spikegrass, and sedges occasionally forming dense patches. Millet beakrush, savannah panicum, and lizard-tail are present in wetter areas. Several terrestrial orchids occur in this community, including the relatively uncommon low ground orchid, plus green orchid and shadow witch. Soils are classified as Nutall fine sand and limestone outcrops are frequent. Small ponds, including a half-acre lake in the floodplain of the Wacissa River, may represent sinkhole lakes developing in the karst plain that underlies the hydric hammocks on AWMA. Hog rooting damage was minimal in Aucilla hammocks; harvest of hearts of cabbage palms was evident in some hammocks near roads. There were no signs of fire in this community.

Mesic Flatwoods (~447.23 acres)

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

surface. The soils may be alternately xeric during dry periods, and saturated or even inundated after heavy rain events.

Mesic flatwoods historically burned with a frequency of 2-4 years. Fire is an important factor in maintaining the high plant diversity and naturally occurs during the late spring/early summer lightning season.

On AWMA, mesic flatwoods was formerly the matrix upland plant community, but is now rare, having been largely converted to pine plantation. Two types of flatwoods are found: the typical flatwoods type with a canopy of longleaf and slash pine, a short shrub layer of gallberry and saw palmetto, and an herb layer dominated by wiregrass, and a more unusual type in the ecotone between typical flatwoods and hydric hammock with an open canopy of loblolly pine, and a dense to patchy shrub layer of rusty staggerbush, shiny lyonia, and saw palmetto. One example of each type was found along the northeast portion of the AWMA on the 2004 additions to AWMA.



Mesic flatwoods at the Pinhook tract of the AWMA was previously pine plantation. This plantation habitat has been thinned and currently contains a canopy of widely spaced slash pine. The shrub layers of these areas have also been chopped and are structurally similar to a natural flatwoods community. The pines have been thinned excessively and may not provide enough needle cast to carry prescribed fires. Subcanopy cover is sparse, consisting of occasional individual trees of sweetgum, swamp laurel oak, live oak, or cabbage palm. Tall shrubs are likewise sparse and include titi and wax myrtle, in addition to the subcanopy species. The dense short shrub layer is dominated by saw palmetto, with scattered young cabbage palms. Other species in this layer include roundpod St. John's wort, flatwoods St. John's wort, large gallberry, yaupon, coastalplain staggerbush, fetterbush, and wax myrtle. The herbaceous layer is found in patchy openings and consists of purple bluestem, sawgrass, witchgrass, dogfennel, bracken fern, and nutrush. Vines include yellow jessamine, and muscadine.

Mesic Hammock (~72.26 acres)

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

On AWMA, the mesic hammock community is uncommon, and found primarily between mesic flatwoods and hydric hammock. It has a closed canopy of live oak, water oak, sweetgum, swamp laurel oak, and loblolly pine, a subcanopy of cabbage palm and sparse shrub layer of wax myrtle, yaupon and saw palmetto. The sparse herb layer includes switchcane and bracken and cinnamon fern. This community has a lower diversity of woody species than either the upland hardwood forest or the hydric hammock communities.

Mesic hammock on the Pinhook tract of the AWMA is only found on isolated rises within basin swamp and basin marsh communities. These surrounding habitats naturally exclude fire. The remoteness of these habitats also makes establishing pine plantation difficult which has helped this community remain fairly intact. Historically some of the flatwoods habitats in the south half of the Pinhook tract presumably contained mesic hammock. This distinction between these two communities is not evident on the historic aerial photography. These areas are believed to be a combination of mesic hammock and mesic flatwoods that would have burned infrequently. Live oak, southern magnolia and cabbage palm are the characteristic canopy species of mesic hammocks at the Pinhook tract of the AWMA. Other canopy species include sweetgum, swamp laurel oak, swamp chestnut oak, and water oak. The subcanopy layer is dominated by cabbage palm, with American hornbeam and slash pine occasionally present. Tall shrubs include American holly, yaupon, and swamp bay, in addition to younger versions of the canopy species. Short shrubs are sparsely scattered and include redbud, wax myrtle, and saw palmetto. The sparse or patchy herbaceous layer is composed of chalky bluestem, shiny woodoats, and bracken fern. The principal epiphyte is resurrection fern.

Pasture – Improved (~ 3.98 acres)

Pasture – improved is an altered community dominated by non-native forage species with evidence of recent pasture treatments such as mowing, grazing, burning, and fertilizing. Improved pastures have been cleared of their native vegetation. Most improved pastures are planted with bahia grass and to a lesser extent with other non-native grasses. Weedy native species are often common in improved pastures and include dogfennel, flatsedge, carpet grasses, crab grasses, and rustweed among many others.

On AWMA, improved pasture consists of a small field near the equipment storage shed.

Pine Plantation (~ 5,236.26 acres)

Pine plantation is an anthropogenic community characterized by pines planted in rows. Most plantations were planted in the areas of former mesic and wet flatwoods and baygalls as shown on the 1949 aerials. Pine plantation was previously established on all former flatwoods communities. Restoration of pine plantation to the historic natural communities is ongoing using management techniques including, but not limited to, thinning and prescribed burning.

On the AWMA, slash pine is the most common tree planted, with loblolly pine plantation

used to a lesser extent. Most plantations have no subcanopy, or just a few scattered trees, often sweet bay, water oak, or sweetgum. Shrub cover is usually moderately to very dense; dense stands are often dominated by titi, black titi, shiny fetterbush, and large gallberry; these are interpreted to have been planted in areas occupied by wet flatwoods and baygall; more open stands tend to be dominated by wax myrtle, saw palmetto and gallberry and are thought to have been planted in areas of mesic flatwoods or, in a few cases, mesic hammock. Herbaceous cover is generally very sparse; where it is denser it is dominated by the weedy purple bluestem. Much of the area now in plantation, especially in the northern portion of the AWMA, has a white to light gray signature on the 1949 aerial which is interpreted as being mesic flatwoods with a



predominantly grassy understory, presumably wiregrass. This interpretation is corroborated by the description of the area given in the 1907 soil survey of Jefferson County (Jones et al. 1907 p. 368). In the current survey, wiregrass was found at only 5 of the 282 data points taken in the pine plantations and only a few clumps were present in all of these cases. Thus, restoration to the original condition of mesic flatwoods will require re-introduction of wiregrass to the area. Plantations in areas of former mesic hammock have

live oak and sweetgum in the subcanopy and occasionally woodoats or woodsgrass in the herb layer.

Pine plantation remains in the southern most areas of AWMA where presumably a pine dominated community occurred historically. In the historic photography these areas had been clear cut. It is possible that the lands in question were mesic hammock. From the evidence of white sand in the historic aerials, these areas are slightly more elevated than the surrounding landscape. The surrounding community for these areas is typically hydric hammock or a floodplain community when adjacent to the Pinhook River drainage on the area. The classification of the historic ecotone areas between the elevated pinelands and surrounding hammock is also unknown. Rowed pines, in the density that they currently occur in, are not reflective of past natural conditions.

The canopy layer of the pine plantation community is dominated by either slash pine or loblolly pine. Occasional isolated subcanopy trees in pine plantation include red maple, red cedar, sweetgum, sweetbay, swamp laurel oak, live oak, cabbage palm, and pond cypress. Isolated individual species in the tall shrub layer include yaupon, coastalplain staggerbush, fetterbush, and wax myrtle; short shrubs form a sparse to moderately dense layer dominated by saw palmetto. Other shrubs include titi, St. Andrew's cross, and southern dewberry. Herbaceous species are sparse and patchy. Commonly encountered herbs include sawgrass, broomsedge bluestem, chalky bluestem, sugarcane plumegrass, and bracken fern. The only epiphyte present is Spanish moss. Vines are common and include rattan vine, yellow jessamine, and earleaf greenbrier, saw greenbrier, cat greenbrier, and muscadine.

Restoration Natural Community

Restoration Natural Community is an altered landcover type where active restoration has been initiated in order to return the community to its historic state. Examples of restoration activities include pine thinning, longleaf pine planting, groundcover restoration, hydrology restoration, and removal of exotics and other undesirable vegetation. In historically pyrogenic natural communities, restoration activities are accompanied by the application of prescribed fire. On AWMA, the natural communities in restoration condition include: mesic flatwoods, wet flatwoods and wet prairie.



Road* (~37.62 acres)

Roads are cleared ruderal areas used for access that are either paved or unpaved. On AWMA, there are a variety of primary, secondary service roads and a County Road traversing the area.

Scrubby Flatwoods (~2.50 acres)

Scrubby flatwoods typically support an open canopy of pines over a shrubby understory that includes scrub oaks and occasional herbaceous species within open patches of white sand. Scrubby flatwoods have an open canopy of widely spaced pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand. Principal canopy species are longleaf pine and slash pine in northern and Central Florida. The shrub layer consists of oak species and shrubs typical of mesic flatwoods, as well as grasses and dwarf varieties of other shrubs. Scrubby flatwoods occur on slight rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods. Soils of scrubby flatwoods are moderately well-drained sands with or without an organic layer (spodic horizon). The structure of scrubby flatwoods is maintained by frequent to occasional burns, typically every 5 to 15 years.

On AWMA, one small stand of this community occurs on the area, south of U.S. Highway 98. It has a canopy of widely scattered slash pine, a subcanopy of scattered cabbage palm, sand laurel oak, and sand live oak and a dense short shrub layer of rusty lyonia, gallberry and saw palmetto. A single one acre occurrence of scrubby flatwoods is also present on the Pinhook tract of AWMA. The canopy of this community is dominated by widely scattered slash pines. The subcanopy layer is sparse, consisting of scattered individuals of sand live oak, with lesser numbers of live oak, and cabbage palm. The tall shrub layer is moderately dense, dominated by smaller individuals of sand live oak, plus coastalplain staggerbush and wax myrtle. The short shrub layer forms a dense continuous cover dominated by saw palmetto. Other species in this layer are fetterbush and coastalplain staggerbush. Herbaceous species are sparse and patchy, consisting of witchgrass, and bracken fern. Epiphytes are uncommon due to the open nature of this community; Spanish moss is the only documented epiphyte. Vines are infrequent and include yellow jessamine, earleaf greenbrier, and muscadine.

Sinkhole (~.63 acres)

Sinkholes are steep depressions that occur within an upland habitat matrix and commonly contained limestone walls. This community may or may not contain open water.

On AWMA, there are a variety of sinkholes scattered throughout the area, however sinkholes only account for a small portion of the area.



Spring-Run Stream (~256.36 acres)

Spring-run streams are perennial water courses that derive most, if not all, of their water from artesian openings in the underground aquifer. Spring-run streams generally have

sand bottoms or exposed limestone along their central channel. Calcareous silts may form thick deposits in quiet shallow zones, while leaf drift and other debris collect around fallen trees and quiet basins. When undisturbed, submerged aquatic vegetation clothes most of a spring-run stream bottom. The water emanating from the aquifer is generally clear due to the filtering and absorbing actions of the soils and aquifer limestones through which the water percolates and flows. When the water is deep, it may appear bluish because of light-refraction. If the water sources for the aquifer are substantially influenced by nearby swamps or flatwoods, the spring-run stream may temporarily become stained with tannins and other dissolved organics during or following periods of heavy rain events. When extensive underground cavities connect the spring caverns with nearby sinks and swallow holes, the spring-run stream may become turbid with suspended particulates during and following heavy rains and floods. Conversely during periods of low rainfall, the aquifer can become supersaturated with calcium, carbonates, and other ions. These chemicals readily precipitate when the water reaches the surface, causing the spring head to appear milky. The clarity of the water permits a dense growth of aquatic plants.

On AWMA, there is a healthy growth of native aquatic species in the Wacissa River despite some infestation by the invasive exotic, *Hydrilla verticillata*. Snail eggs, required in the diet of limpkins and affected by a *Hydrilla* infestation at Wakulla Springs, were observed to be abundant during the survey at Wacissa, and limpkins were frequently seen along the river. Other native aquatics present included spring tape grass, tape grass, and pondweed. A solid stand of wild rice bordered the river edge.

Upland Hardwood Forest (~1,763.41 acres)

Upland hardwood forest is an upland closed-canopy community, with a diverse mixture of northern deciduous and evergreen hardwood species in the canopy and subcanopy, found on richer soils, often where limestone or phosphatic rock is at, or near, the surface. Upland hardwood forest occurs on rolling mesic hills, slopes above river floodplains, in smaller areas on the sides of sinkholes, and occasionally on rises within floodplains. Soils are generally sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils have higher nutrient levels than the sandy soils prevalent in most of Florida. The moisture retention properties of clays and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community.

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

community. Upland hardwood forest is found in association with bottomland forest and upland pine, typically situated between the two on isolated ravine slopes.

On AWMA, the upland hardwood forest community is characterized by live oak, southern magnolia, and water oak in the canopy, accompanied by any of a number of deciduous species found on sites not subject to regular flooding, including, pignut hickory, swamp chestnut oak, Florida sugar maple, basswood, white oak, beech, Shumard oak and white ash. Sweetgum, red maple and diamond-leaf oak are also frequently present in the canopy. The subcanopy layer is composed of canopy trees of varying heights plus short trees and blends gradually into the tall shrub layer; common species include southern magnolia, spruce pine, cabbage palm, swamp chestnut oak, plus species that also occur in the tall shrub layer, such as American holly, blue beech, ironwood and witch hazel. Several species of hawthorn are common in the subcanopy and tall shrub layer of stands near the Aucilla sinks. Other tall shrub species include redbud and yaupon. The short shrub and herb layers are typically sparse, with red buckeye, blue palmetto and saw palmetto as frequent shrubs and switchcane, spikegrass, and partridgeberry common in the herb layer. Upland hardwood forest occurs along the Aucilla sinks and on higher areas within the broad depression occupied by hydric hammock, as well as between this community and the upland pine plantations bordering it. Areas of this community that are regenerating after disturbance are dominated by dense stands of young sand laurel oak and water oak, 4-6" dbh, mingled with scattered upland hardwood canopy species and having little or no understory layers. Areas of this community that have been clearcut may be covered by an impenetrable stand of blackberry. Upland hardwood forest is found on Seaboard fine sand along the Aucilla sinks and Tooles fine sand bordering the large hydric hammock, and is often associated with numerous limestone outcrops. This community is rare on the Aucilla additions, occurring as small inclusions on higher areas within the hydric hammock.

Utility Corridor* (~34.34 acres)

Utility corridors are electric, gas, or telephone right-of-ways. On AWMA, there are established utility corridors.

Wet Flatwoods (~303.58 acres)

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

mucky texture in the uppermost horizon. Loamy sands are typical of soils in grassy wet flatwoods.

On AWMA, the wet flatwoods community occurs south of U.S. 98 and consists of woody islands of scattered slash pines over tall dense clumps of young trees and tall shrubs, including cabbage palm, sweetbay, wax myrtle and saw palmetto. These islands alternate with open areas of sawgrass and beakrushes, plus the subshrubs, St. John's wort and Queen's delight. This community is resilient to fire, since the pine and cabbage palms are resistant and sawgrass is able to resprout. Soils are Nutall fine sand and limestone outcrops are frequent. According to Rick Batillo of Foley Timber Company, this area was chopped, burned, and subsequently aerially seeded in slash pine in 1981. In some portions of the area the slash pines grew in densely enough to be classified as "pine plantation", but in the areas classified as "wet flatwoods" pines are more widely scattered and natural ground cover occupies most of the area. Another type of wet flatwoods occurs as an included community in the large baygall north of Welaunee Landing Road. Here the community is characterized by a tall shrub layer of large gallberry and white and black titi with a very sparse canopy and herb layer. Most of the area of this formerly extensive community on the Aucilla additions is in pine plantation – only two natural stands were found. These occurred on higher areas in swamps or in the ecotone between swamps and uplands. The one stand sampled had a sparse canopy of slash pine - and dense shrub layer consisting of tall gallberry, sweet pepperbush, and saw palmetto. The herb layer was very sparse, consisting primarily of Virginia chain fern.

Wet flatwoods on the Pinhook tract of the AWMA are former pine plantations that have been thinned. These communities still contain a fair groundcover assemblage. The canopy of this community contains slash pine and /or loblolly pine along with occasional trees of swamp laurel oak and pond cypress. The canopy trees have been thinned excessively from the former pine plantation and may not provide adequate needle cast to effectively carry prescribed fire. The subcanopy consists of scattered hydrophytic trees including titi, dahoon, red maple, and cabbage palm, along with smaller members of the canopy species. Sweetgum and southern magnolia are occasionally present. The tall shrub layer may be dense to sparse and contains, in addition to shorter members of the canopy and subcanopy layers, black titi, large gallberry, yaupon, coastalplain staggerbush, wax myrtle, and swamp bay. Red cedar is occasionally present. The short shrub layer is dominated by shorter members of the tall shrub layer. Other species present in this layer include roundpod St. John's wort, peelbark St. John's wort, bedstraw St. John's wort, St. Andrew's cross, flatwoods St. John's wort, gallberry, sawtooth blackberry, and highbush blueberry. The herbaceous layer is sparse and patchy with many species present. Commonly seen in this layer are sawgrass, bushy bluestem, purple bluestem, and sugarcane plumegrass. Other species present include spadeleaf, woolly witchgrass, dogfennel, common boneset, slender flattop goldenrod, saltmarsh umbrellasedge, clustered bushmint, climbing hempvine, lax hornpod, redtop panicum, rosy camphorweed, and bracken fern.

2.2.2 Forest Resources

As noted above, prior to acquisition by the State of Florida the AWMA was managed for industrial pulpwood production. Pine plantation comprises 11.6% of the AWMA. Under this management prescription the historic mesic and wet flatwoods, characterized by an open canopy dominated by longleaf pine with an understory composed of grasses and forbs with a short shrub layer that included saw palmetto, gallberry, blueberries and huckleberries, was converted to a plantation characterized by a closed canopy of off-site slash pine or loblolly pine.

Working with both the FFS and a private consultant, FWC has been thinning pine plantations on AWMA since 2007. These initial timber harvests were a third row geometric thin coupled with logger select within row thinning to achieve a basal of 40-60 ft²/ac. This basal area range was chosen so as to leave enough trees that the needle cast produced would be enough to support the fire management goals. In 2014, FWC contracted with The Forestry Company to complete the most contemporary pine inventory on the AWMA. In 2015, FWC used this data to contract with Larson & McGowin, Inc. to develop a comprehensive and prescriptive silvicultural plan hereinafter referred to as the AWMA Forest Management Plan (Appendix 13.3) designed to guide management decisions regarding timber management and restoration of longleaf pine at the management unit level for the AWMA.



Flatwoods planted with off-site pines will be reforested with longleaf pine or other on-site species as appropriate. Degraded or disturbed bottomland hardwood sites will be encouraged to reforest naturally with native wetland oaks, hardwoods, and other appropriate native plant species.

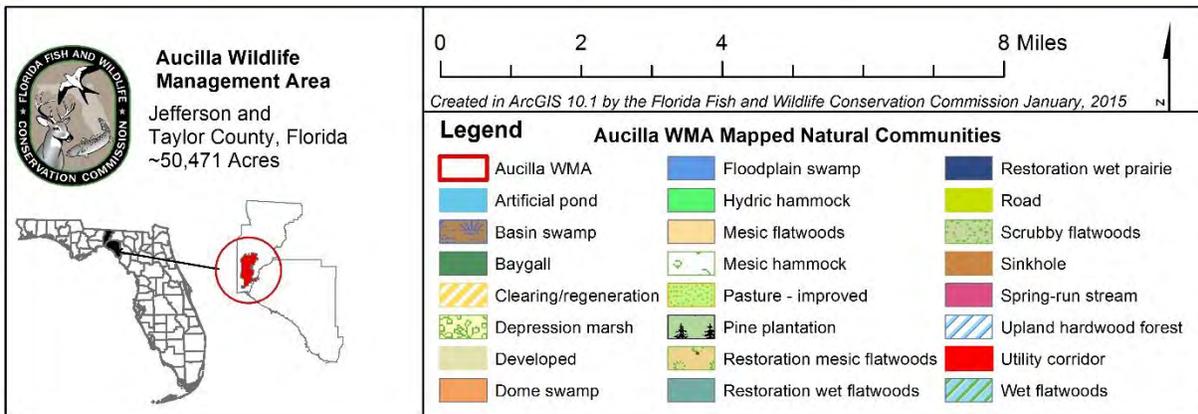
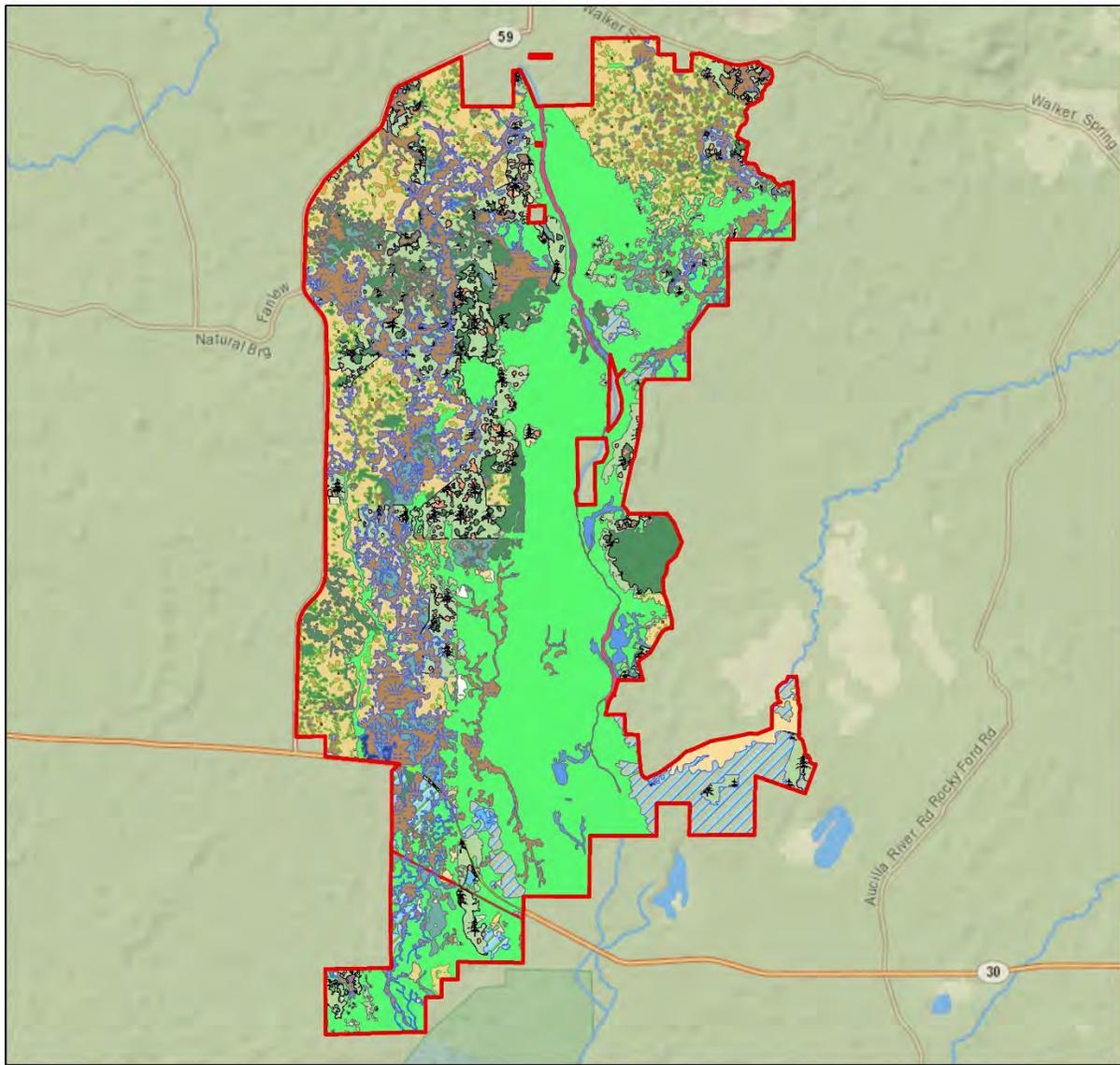


Figure 5. FNAI Natural Communities Vegetative Cover Map

2.3 Fish and Wildlife Resources

The AWMA currently supports a variety of wildlife species. Active wildlife management practices and a diversity of communities make the AWMA an excellent place to view wildlife. As noted above, the diversity and quality of the area's wildlife habitats support populations of imperiled, rare and common wildlife. Tables 7-13 list the various fauna species that have been documented or are expected to occur within or near the vicinity of the AWMA.

The best way to view an abundance of wildlife is either by canoe or kayak, early in the morning or evening, or by walking quietly along the Aucilla Sinks Trail or the trams accessed from Highway 98. Along the Wacissa, the Prothonotary and yellow-throated warbler, black-crowned night heron, yellow-crowned night heron, nesting osprey, limpkin and purple gallinule are commonly spotted. The endangered wood stork is found in marshy areas and often feeds in ditches. Pine warblers are common in the pinelands and the Swainson's warbler, although uncommon, is sometimes seen in shrubby moist undergrowth. The hooded warbler is common in upland forests.



Red-shouldered hawks are common and nest along the Florida Trail at Aucilla Sinks. White-eyed vireos are also common year-round. The Acadian flycatcher is common in moist, swampy forests and the great crested flycatcher is abundant.

In addition to birds, visitors may spot reptiles such as snakes, turtles, alligators and anoles basking in the sun. They join a variety of invertebrates, from the tiny, yet bothersome, ticks and mosquitoes, to large (up to 2 inches) spiders known as orb weavers.

The FWC maintains an active inventory of fauna occurring on or near the AWMA. Table 7 lists mammalian species occurring or expected to occur on AWMA, Table 8 lists reptile and amphibian species occurring or expected to occur on AWMA, Table 9 lists fish species occurring or expected to occur on AWMA, Table 10 lists bird species occurring on AWMA, Table 11 lists invertebrates, and Table 12 lists exotic animal species known to occur on the area. All of these species inventories will continue to be maintained and updated by FWC staff.

Table 7. Mammal Species Documented or Expected to Occur on AMWA

Common Name	Scientific Name
Beaver	<i>Castor canadensis</i>
Bobcat	<i>Felis rufus</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>

Common Name	Scientific Name
Cotton mouse	<i>Peromyscus gossypinus</i>
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Eastern harvest mouse	<i>Reithrodontomys humulis</i>
Eastern mole	<i>Scalopus aquaticus</i>
Tri-colored bat	<i>Perimyotis subflavus</i>
Eastern red bat	<i>Lasiurus borealis</i>
Eastern woodrat	<i>Neotoma floridana</i>
Eastern yellow bat	<i>Lasiurus intermedius</i>
Evening bat	<i>Nycticeius humeralis</i>
Florida black bear	<i>Ursus americanus floridanus</i>
Florida water rat	<i>Neofiber alleni</i>
Fox squirrel	<i>Sciurus niger</i>
Golden mouse	<i>Peromyscus nuttalli</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
Hoary bat	<i>Lasiurus cinereus</i>
Long-tailed weasel	<i>Mustela frenata</i>
Marsh rabbit	<i>Sylvilagus palustris</i>
Mink	<i>Mustela vison</i>
Opossum	<i>Didelphis virginiana</i>
Raccoon	<i>Procyon lotor</i>
Rice rat	<i>Oryzomys palustris</i>
River otter	<i>Lontra canadensis</i>
Seminole bat	<i>Lasiurus seminolus</i>
Short-tailed shrew	<i>Blarina brevicauda</i>
Southeastern pocket gopher	<i>Geomys pinetis</i>
Southeastern shrew	<i>Sorex longirostris</i>
Southeastern weasel	<i>Mustela frenata olivacea</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Spotted skunk	<i>Spilogale putorius</i>
Striped skunk	<i>Mephitis mephitis</i>
White-tailed deer	<i>Odocoileus virginianus</i>

Table 8. Reptile and Amphibian Species Documented or Expected to Occur on AMWA

Common Name	Scientific Name
Alligator snapping turtle	<i>Macrochelys temminckii</i>
American alligator	<i>Alligator mississippiensis</i>

Common Name	Scientific Name
Banded water snake	<i>Nerodia fasciata fasciata</i>
Barbour's map turtle	<i>Graptemys barbouri</i>
Barking treefrog	<i>Hyla gratiosa</i>
Bluestripe garter snake	<i>Thamnophis sirtalis similis</i>
Bluestripe ribbon snake	<i>Thamnophis sauritus nitae</i>
Broadhead skink	<i>Eumeces laticeps</i>
Bronze frog	<i>Lithobates clamitans</i>
Brown snake	<i>Storeria dekayi</i>
Bullfrog	<i>Lithobates catesbeianus</i>
Common musk turtle	<i>Sternotherus odoratus</i>
Cope's gray treefrog	<i>Hyla chrysoscelis</i>
Eastern corn snake	<i>Pantherophis guttatus</i>
Dusky pigmy rattlesnake	<i>Sistrurus miliarius barbouri</i>
Dwarf salamander	<i>Eurycea quadridigitata</i>
Eastern box turtle	<i>Terrapene carolina major</i>
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>
Eastern coral snake	<i>Micrurus fulvius</i>
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern glass lizard	<i>Ophisaurus ventralis</i>
Eastern hognose snake	<i>Heterodon platirhinos</i>
Eastern indigo snake	<i>Drymarchon couperi</i>
Eastern kingsnake	<i>Lampropeltis getula getula</i>
Eastern mud snake	<i>Farancia abacura abacura</i>
Eastern mud turtle	<i>Kinosternon subrubrum</i>
Eastern narrowmouth toad	<i>Gastrophryne carolinensis</i>
Central newt	<i>Notophthalmus viridescens louisianensis</i>
Eastern spadefoot	<i>Scaphiopus holbrookii</i>
Common five-lined skink	<i>Plestiodon fasciatus</i>
Florida cottonmouth	<i>Agkistrodon piscivorus conanti</i>
Florida red-bellied turtle	<i>Pseudemys nelsoni</i>
Florida redbelly snake	<i>Storeria occipitomaculata obscura</i>
Florida softshell	<i>Apalone ferox</i>
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>
Glossy crayfish snake	<i>Regina rigida</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Gray rat snake	<i>Pantherophis spiloides</i>
Green anole	<i>Anolis carolinensis</i>
Green treefrog	<i>Hyla cinerea</i>
Ground skink	<i>Scincella lateralis</i>
Little grass frog	<i>Pseudacris ocularis</i>
Loggerhead musk turtle	<i>Sternotherus minor minor</i>

Common Name	Scientific Name
Northern scarlet snake	<i>Cemophora coccinea copei</i>
Ornate chorus frog	<i>Pseudacris ornata</i>
Pig frog	<i>Lithobates grylio</i>
Pinewoods treefrog	<i>Hyla femoralis</i>
Rough green snake	<i>Opheodrys aestivus</i>
Scarlet kingsnake	<i>Lampropeltis elapsoides</i>
Six-lined racerunner	<i>Aspidoscelis sexlineata</i>
Southeastern five-lined skink	<i>Plestiodon inexpectatus</i>
Southeastern slimy salamander	<i>Plethodon grobmani</i>
Southern black racer	<i>Coluber constrictor priapus</i>
Southern chorus frog	<i>Pseudacris nigrita</i>
Southern cricket frog	<i>Acris gryllus dorsalis</i>
Southern fence lizard	<i>Sceloporus undulatus undulatus</i>
Southern leopard frog	<i>Lithobates sphenoccephalus</i>
Southern ringneck snake	<i>Diadophis punctatus punctatus</i>
Southern toad	<i>Anaxyrus terrestris</i>
Spring peeper	<i>Pseudacris crucifer</i>
Squirrel treefrog	<i>Hyla squirella</i>
Suwanee cooter	<i>Pseudemys suwanniensis</i>
Two-toed amphiuma	<i>Amphiuma means</i>
Yellowbelly slider	<i>Trachemys scripta scripta</i>

Table 9. Fish Species Documented or Expected to Occur on AMWA

Common Name	Scientific Name
American eel	<i>Anguilla rostrata</i>
Banded pygmy sunfish	<i>Elassoma zonatum</i>
Banded sunfish	<i>Enneacanthus obesus</i>
Banded topminnow	<i>Fundulus cingulatus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blackbanded darter	<i>Percina nigrofasciata</i>
Bluefin killifish	<i>Lucania goodei</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluespotted sunfish	<i>Enneacanthus chaetodon</i>
Bowfin	<i>Amia calva</i>
Sunfish	<i>Lepomis spp.</i>
Brook silverside	<i>Labidesthes sicculus</i>
Brown bullhead	<i>Ameiurus nebulosus</i>
Chain pickerel	<i>Esox niger</i>
Channel catfish	<i>Ictalurus punctatus</i>
Coastal shiner	<i>Notropis petersoni</i>

Common Name	Scientific Name
Dollar sunfish	<i>Lepomis marginatus</i>
Dusky shiner	<i>Notropis cummingsae</i>
Eastern mosquitofish	<i>Gambusia holbrooki</i>
Everglades pygmy sunfish	<i>Elassoma evergladei</i>
Flagfish	<i>Jordanella floridae</i>
Flier	<i>Centrarchus macropterus</i>
Florida gar	<i>Lepisosteus platyrhincus</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Golden topminnow	<i>Fundulus chrysotus</i>
Grass pickerel	<i>Esox americanus</i>
Ironcolor shiner	<i>Notropis chalybaeus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Least killifish	<i>Heterandria formosa</i>
Lined topminnow	<i>Fundulus lineolatus</i>
Longnose gar	<i>Lepisosteus osseus</i>
Mud sunfish	<i>Acantharchus pomotis</i>
Okefenokee pygmy sunfish	<i>Elassoma okefenokee</i>
Pirate perch	<i>Aphredoderus sayanus</i>
Pugnose minnow	<i>Opsopoeodus emiliae</i>
Pygmy killifish	<i>Leptolucania ommata</i>
Redbreast sunfish	<i>Lepomis auritus</i>
Redear sunfish	<i>Lepomis microlophus</i>
Redeye chub	<i>Notropis harperi</i>
Sailfin molly	<i>Poecilia latipinna</i>
Sailfin shiner	<i>Pteronotropis hypselopterus</i>
Seminole killifish	<i>Fundulus seminolis</i>
Speckled madtom	<i>Noturus leptacanthus</i>
Spotted sucker	<i>Minytrema melanops</i>
Spotted sunfish	<i>Lepomis punctatus</i>
Striped mullet	<i>Mugil cephalus</i>
Suwannee bass	<i>Micropterus notius</i>
Swamp darter	<i>Etheostoma fusiforme</i>
Tadpole madtom	<i>Noturus gyrinus</i>
Taillight shiner	<i>Notropis maculatus</i>
Warmouth	<i>Lepomis gulosus</i>
Weed shiner	<i>Notropis texanus</i>
Yellow bullhead	<i>Ameiurus natalis</i>

Table 10. Bird Species Documented or Expected to Occur on AMWA

Common Name	Scientific Name
Acadian flycatcher	<i>Empidonax virescens</i>
American bittern	<i>Botaurus lentiginosus</i>
American black duck	<i>Anas rubripes</i>
American coot	<i>Fulica americana</i>
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Spinus tristis</i>
American kestrel	<i>Falco sparverius</i>
American pipit	<i>Anthus rubescens</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
American wigeon	<i>Anas americana</i>
American woodcock	<i>Scolopax minor</i>
Anhinga	<i>Anhinga anhinga</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn swallow	<i>Hirundo rustica</i>
Barred owl	<i>Strix varia</i>
Belted kingfisher	<i>Megaceryle alcyon</i>
Black rail	<i>Laterallus jamaicensis</i>
Black vulture	<i>Coragyps atratus</i>
Black-and-white warbler	<i>Mniotilta varia</i>
Black-crowned night heron	<i>Nycticorax nycticorax</i>
Blue grosbeak	<i>Passerina caerulea</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Blue-winged teal	<i>Anas discors</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Brown-headed nuthatch	<i>Sitta pusilla</i>
Bufflehead	<i>Bucephala albeola</i>
Canvasback	<i>Aythya valisineria</i>
Carolina chickadee	<i>Parus carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Caspian tern	<i>Sterna caspia</i>
Cattle egret	<i>Bubulcus ibis</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Chimney swift	<i>Chaetura pelagica</i>
Chipping sparrow	<i>Spizella passerina</i>

Common Name	Scientific Name
Chuck-will's widow	<i>Antrastomus carolinensis</i>
Common gallinule	<i>Gallinula galeata</i>
Common goldeneye	<i>Bucephala clangula</i>
Common grackle	<i>Quiscalus quiscula</i>
Common ground-dove	<i>Columbina passerina</i>
Common nighthawk	<i>Chordeiles minor</i>
Common snipe	<i>Gallinago gallinago</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Eastern phoebe	<i>Sayornis phoebe</i>
Eastern screech-owl	<i>Megascops asio</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
Eastern wood-pewee	<i>Contopus virens</i>
Fish crow	<i>Corvus ossifragus</i>
Gadwall	<i>Anas strepera</i>
Gray catbird	<i>Dumetella carolinensis</i>
Great blue heron	<i>Ardea herodias</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Great egret	<i>Ardea alba</i>
Great horned owl	<i>Bubo virginianus</i>
Greater scaup	<i>Aythya marila</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Green heron	<i>Butorides virescens</i>
Green-winged teal	<i>Anas crecca</i>
Hairy woodpecker	<i>Picoides villosus</i>
Henslow's sparrow	<i>Ammodramus henslowii</i>
Hermit thrush	<i>Catharus guttatus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Hooded warbler	<i>Setophaga citrina</i>
Indigo bunting	<i>Passerina cyanea</i>
Kentucky warbler	<i>Geothlypis formosa</i>
Killdeer	<i>Charadrius vociferus</i>
King rail	<i>Rallus elegans</i>
Le Conte's sparrow	<i>Ammodramus leconteii</i>
Least bittern	<i>Ixobrychus exilis</i>
Least sandpiper	<i>Calidris minutilla</i>

Common Name	Scientific Name
Lesser scaup	<i>Aythya affinis</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Limpkin	<i>Aramus guarauna</i>
Little blue heron	<i>Egretta caerulea</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Louisiana Waterthrush	<i>Parkesia motacilla</i>
Mallard	<i>Anas platyrhynchos</i>
Marsh wren	<i>Cistothorus palustris</i>
Merlin	<i>Falco columbarius</i>
Mississippi kite	<i>Ictinia mississippiensis</i>
Mourning dove	<i>Zenaida macroura</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Northern bobwhite	<i>Colinus virginianus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern flicker	<i>Colaptes auratus</i>
Northern harrier	<i>Circus cyaneus</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern parula	<i>Setophaga americana</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Northern waterthrush	<i>Parkesia noveboracensis</i>
Orchard oriole	<i>Icterus spurius</i>
Osprey	<i>Pandion haliaetus</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Palm warbler	<i>Setophaga palmarum</i>
Peregrine falcon	<i>Falco peregrinus</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Pine warbler	<i>Setophaga pinus</i>
Prairie warbler	<i>Setophaga discolor</i>
Prothonotary warbler	<i>Protonotaria citrea</i>
Purple gallinule	<i>Porphyrio martinicus</i>
Purple martin	<i>Progne subis</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Red-cockaded woodpecker	<i>Picoides borealis</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Redhead	<i>Aythya americana</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>

Common Name	Scientific Name
Ring-necked duck	<i>Aythya collaris</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Scarlet tanager	<i>Piranga olivacea</i>
Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Snowy egret	<i>Egretta thula</i>
Sora rail	<i>Porzana carolina</i>
Spotted sandpiper	<i>Actitis macularius</i>
Summer tanager	<i>Piranga rubra</i>
Swainson's warbler	<i>Limnothlypis swainsonii</i>
Swallow-tailed kite	<i>Elanoides forficatus</i>
Swamp sparrow	<i>Melospiza Georgiana</i>
Tree swallow	<i>Tachycineta bicolor</i>
Tricolored heron	<i>Egretta tricolor</i>
Tufted titmouse	<i>Baeolophus bicolor</i>
Turkey vulture	<i>Cathartes aura</i>
White breasted nuthatch	<i>Sitta carolinensis</i>
White ibis	<i>Eudocimus albus</i>
White-eyed vireo	<i>Vireo griseus</i>
Wild turkey	<i>Meleagris gallopavo</i>
Winter wren	<i>Troglodytes hiemalis</i>
Wood duck	<i>Aix sponsa</i>
Wood stork	<i>Mycteria americana</i>
Wood thrush	<i>Hylocichla mustelina</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yellow-breasted chat	<i>Icteria virens</i>
Yellow-crowned night heron	<i>Nyctanassa violacea</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
Yellow-throated vireo	<i>Vireo flavifrons</i>
Yellow-throated warbler	<i>Setophaga dominica</i>

Table 11. Invertebrate Species Documented on AMWA

Common Name	Scientific Name
Appalachian brown	<i>Satyrodes appalachia</i>
Big blue spring cave crayfish	<i>Procambarus horsti</i>
Florida apple snail	<i>Pomacea paludosa</i>

Common Name	Scientific Name
Little glassywing	<i>Pompeius verna</i>
Little-entrance Oxyethiran Micro-caddisfly	<i>Oxyethira janella</i>

Table 12. Exotic Species Documented on AMWA

Common Name	Scientific Name
Coyote	<i>Canis latrans</i>
Feral pig	<i>Sus scrofa</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>

2.3.1 Integrated Wildlife Habitat Ranking System

The FWC has developed the Integrated Wildlife Habitat Ranking System (IWHRS) as a Geographic Information Systems (GIS)-based assessment tool that incorporates a wide variety of land cover and wildlife species data. The IWHRS evaluates the Florida landscape based upon the habitat needs of wildlife as a way to identify ecologically significant lands in the state, and to assess the potential impacts of management and land-use changes. The IWHRS was developed to provide technical assistance to various local, regional, state, and federal agencies, and entities interested in wildlife needs and conservation in order to: (1) determine ways to avoid or minimize project impacts by evaluating alternative placements, alignments, and transportation corridors during early planning stages, (2) assess direct, secondary, and cumulative impacts to habitat and wildlife resources, and (3) identify appropriate parcels for public land acquisition for wetland and upland habitat mitigation purposes. The IWHRS (2009) indicates that AWMA has a very high mean wildlife value of 7.1 (Figure 6).

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 USFWS. This designation is also commonly known as “listed species.”

In January, 2013, new threatened species rules approved by the FWC went into effect. The list of wildlife presented here reflects those changes to the rules. All federally listed species that occur in Florida are now included on Florida’s list as Federally-designated Endangered or Federally-designated Threatened species. In addition, the state has a listing process to identify species that are not federally listed but at risk of extinction. These species will be called State-designated Threatened. All State-designated species that have



recently undergone status reviews were presented and approved at the June 2011, Commission meeting. FWC will continue to maintain a separate Species of Special Concern category until all the species have been reviewed and those species are either designated as State-Threatened and given a management plan or removed from the list. More detailed descriptions and management prescriptions are available on the FWC website: <http://www.myfwc.com/wildlifehabitats/profiles/>.

The FWC published Species Action Plans in 2014, for all state-listed species. These plans outline the specific management actions necessary to meet conservation goals for the species, improve habitat quality, and minimize threats. The FWC consults the Species Action Plans in consideration of imperiled species management for all of our managed areas. These Species Action Plans are consulted for specific habitat management recommendations. <http://myfwc.com/wildlifehabitats/imperiled/>

As noted above, the AWMA has a variety of natural communities and currently supports a diverse assemblage of imperiled, rare and more common wildlife species. Active wildlife management practices and a diversity of natural communities make the AWMA an excellent place for wildlife viewing. To date, a substantial number of fauna species have been documented as occurring on the AWMA. A total of 13 imperiled wildlife species are known to occur on or near the area and are listed in Table 13.



Table 13. Rare and Imperiled Wildlife Species Documented on or Near AWMA

Common Name	Scientific Name	Status
Amphibians		
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	FT
Birds		
Limpkin	<i>Aramus guarauna</i>	SSC
Little blue heron	<i>Egretta caerulea</i>	SSC
Red-cockaded woodpecker	<i>Picoides borealis</i>	FE
Snowy egret	<i>Egretta thula</i>	SSC
Tri-colored heron	<i>Egretta tricolor</i>	SSC
White ibis	<i>Eudocimus albus</i>	SSC
Wood stork	<i>Mycteria americana americana</i>	FT
Reptiles		
American alligator	<i>Alligator mississippiensis</i>	FT(S/A)
Barbour's map turtle	<i>Graptemys barbouri</i>	SSC

Eastern indigo snake	<i>Drymarchon couperi</i>	FT
Gopher tortoise	<i>Gopherus polyphemus</i>	ST
Suwanee cooter	<i>Pseudemys suwanniensis</i>	SSC

Abbreviation	Status
FE	Federal Endangered
FT	Federal Threatened
FT(S/A)	Federally Threatened due to similarity of appearance
SSC	State Species of Special Concern
ST	State Threatened

All abbreviations and status determinations were derived from Florida’s Endangered and Threatened Species published by FWC in October 2012. FWC maintains the state list of animals designated as Federally-designated Endangered or Threatened, State-designated Threatened, or State-designated Species of Special Concern, in accordance with Rules 68A-27.003 and 68A-27.005, respectively, of the Florida Administrative Code <https://www.flrules.org/>.

2.3.3 FWC Wildlife Observations and FNAI Element Occurrences

The FNAI element occurrence records include threatened or endangered species and species of special concern. As defined by FNAI, an “element” is any exemplary or rare component of the natural environment, such as a species, natural community, bird colony, spring, sinkhole, cave, or other ecological feature. An element occurrence is a single extant habitat which sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element. FNAI assigns a rank to each “element” occurrence. This ranking system was developed by The Nature Conservancy and the Natural Heritage Program Network based on the element’s global rank (element’s worldwide status) or state rank (status of element in Florida). The FNAI ranking system and definitions are located on the following website: www.fnai.org/ranks.cfm. The FNAI element occurrences are shown in Figure 7. The FNAI Element Occurrence Data Usage Letter (Appendix 13.4).

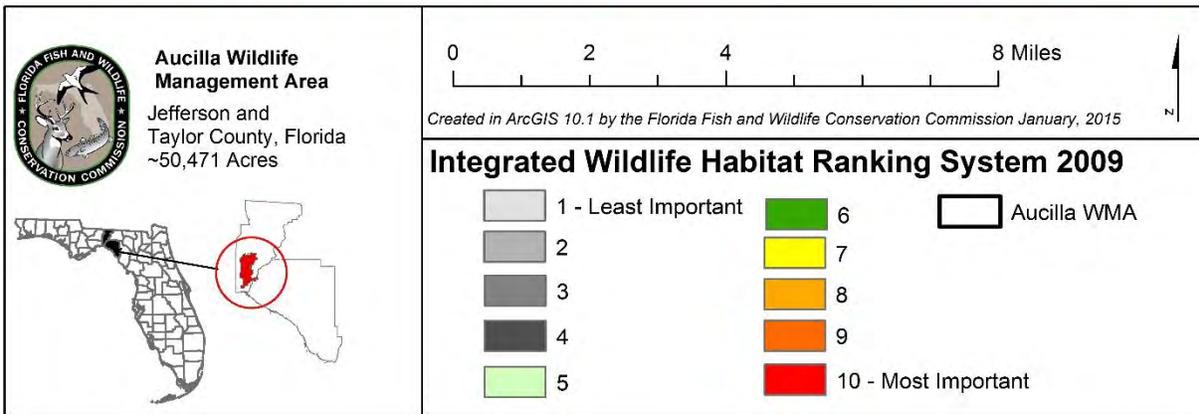
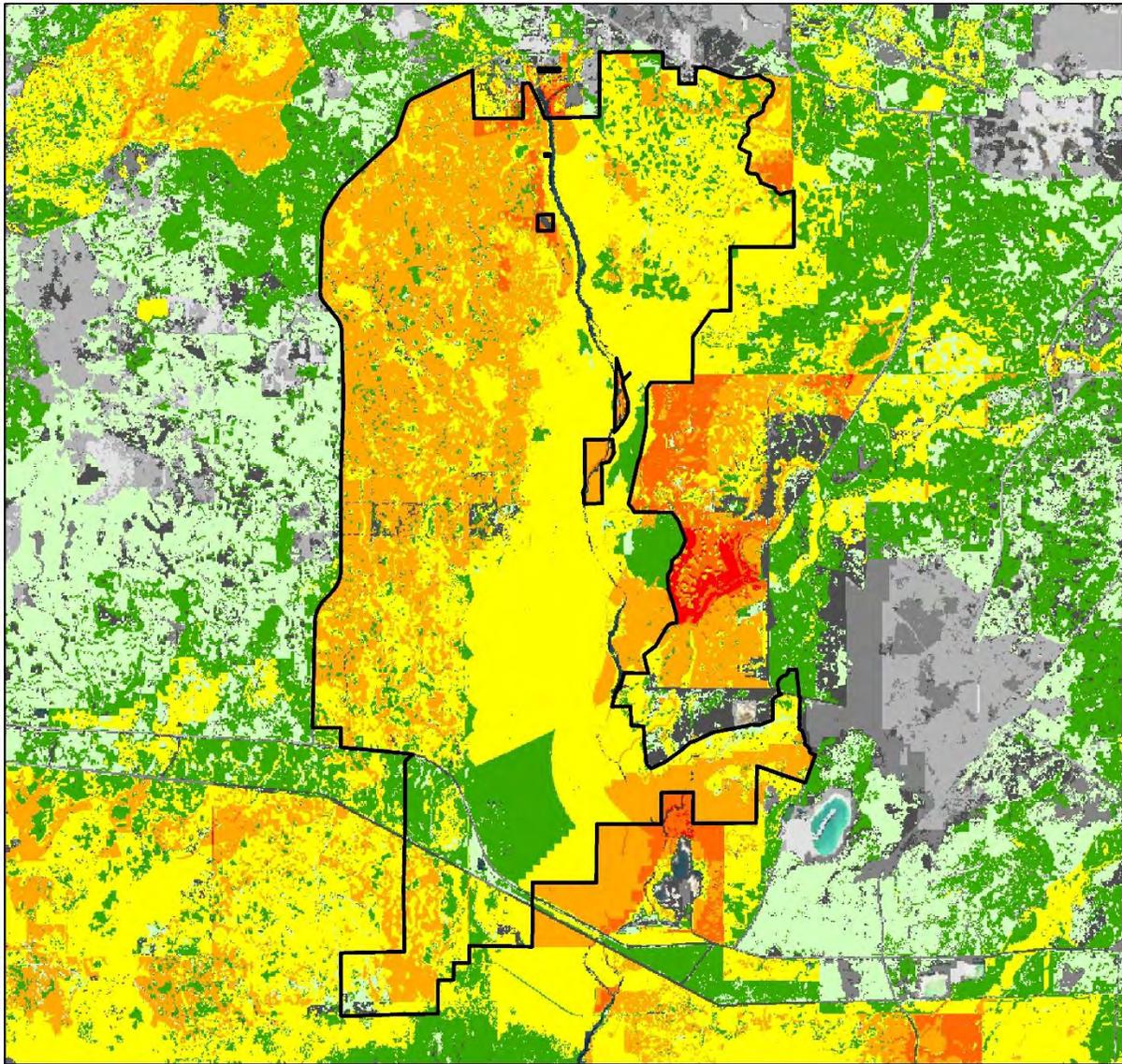


Figure 6. AWMA Integrated Wildlife Habitat Ranking System

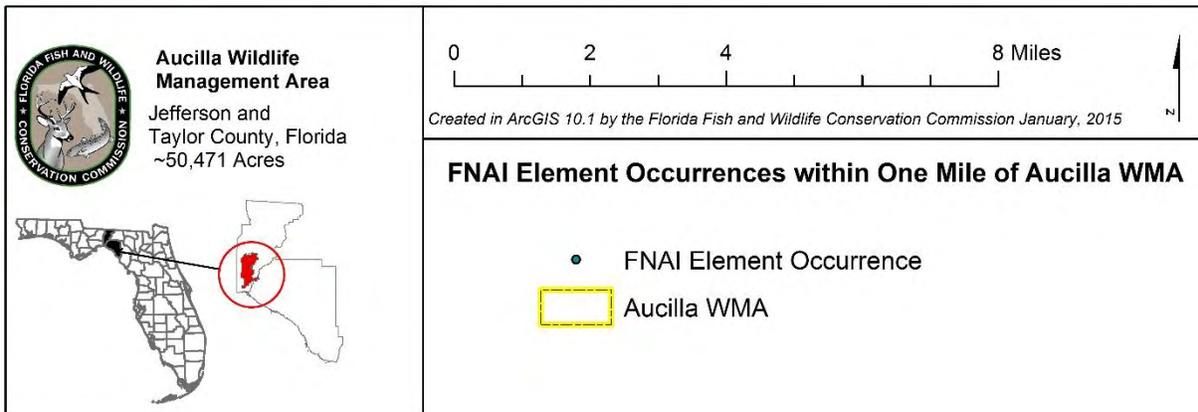
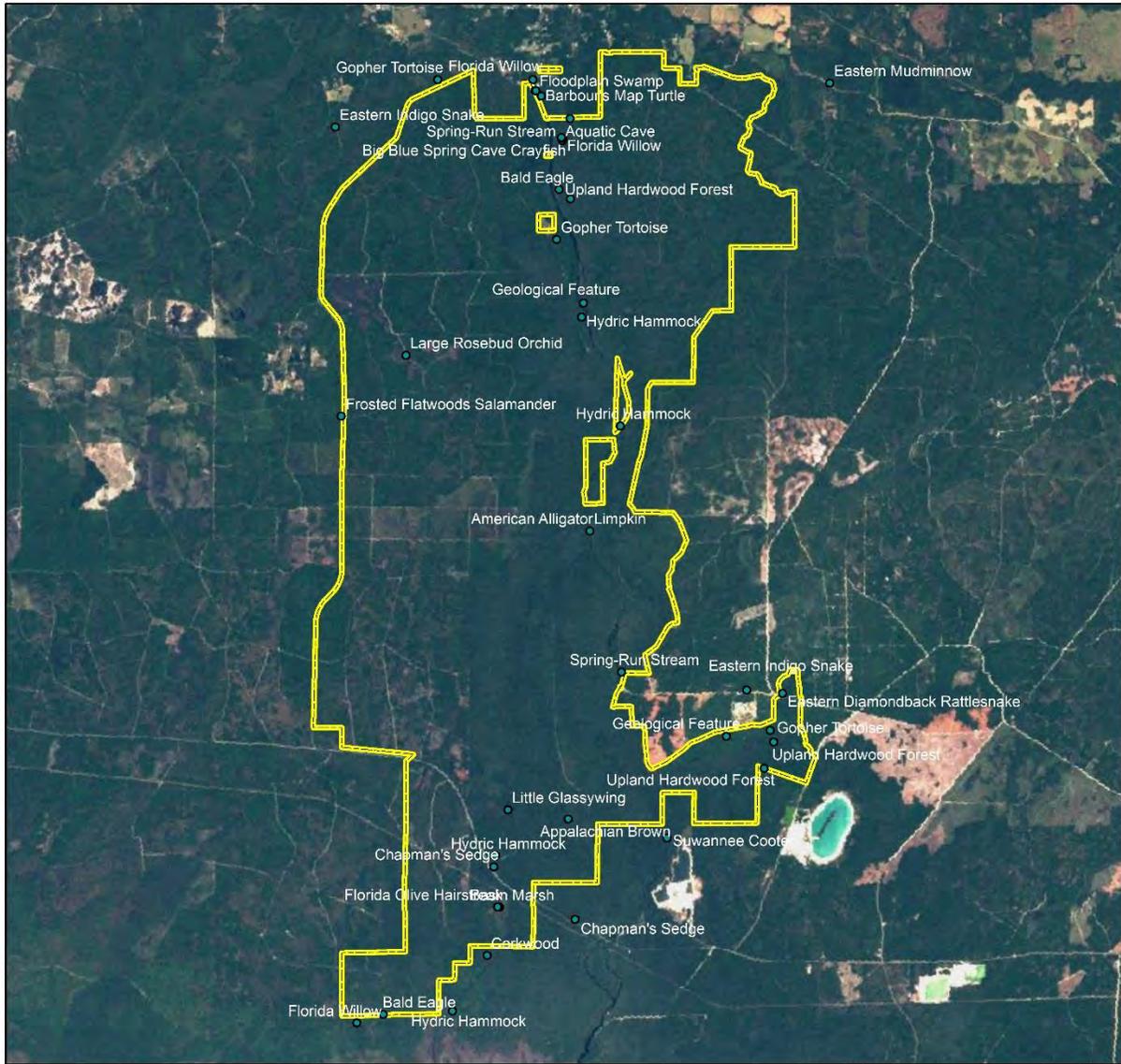


Figure 7. FNAI Element Occurrences within One Mile of Aucilla WMA

2.4 Native Landscapes

While past silvicultural use of the AWMA precludes consideration of much of AWMA as an outstanding native landscape, there are a number of natural community types on the area which, have never undergone silvicultural alterations that are essentially in their natural condition. Combined these natural communities comprise the remaining native landscape of the area and include; springs, streams, freshwater marsh, hardwood hammock and wetland hardwood hammock. Consequently, these remaining natural areas do exemplify outstanding native landscapes.

2.5 Water Resources

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

The water resources of AWMA include the Wacissa and Aucilla rivers, both of which are listed as Outstanding Florida Waters. Many clear-water springheads are found along these rivers. The springs located within AWMA are Minnow Spring, Jefferson Blue Spring, Little Blue Spring, Garner Spring, Big Blue Spring, Buzzard Log Spring, and Cassidy Springs. Also, numerous bottomland and wetland natural community types including swamps, sloughs and marshes, can be found on AWMA.

No part of AWMA is designated as an aquatic preserve, or is under consideration for such designation. However, the BBASP is located approximately two miles south of the southern boundary of AWMA. Both the Aucilla and Wacissa rivers flow into this preserve. There are no lakes or ponds that are named in AWMA. The underlying aquifer in AWMA are the Floridan Aquifer and an intermediate confining unit. The Floridan Aquifer covers the southern half of AWMA. The intermediate confining unit covers the northern half. The Floridan Aquifer transports its water through carbonate rocks. The Floridan aquifer is one of the highest producing aquifers in the world. It is found throughout Florida and extends into the southern portions of Alabama, Georgia, and South Carolina. This aquifer system is comprised of a sequence of limestone and dolomite, which thickens from about 250 feet in Georgia to about 3000 feet in south Florida. The Floridan aquifer system has been divided into an upper and lower aquifer separated by a unit of lower permeability. The upper Floridan aquifer is the principal source of water supply in most of north and central Florida. Groundwater flow is generally from highs near the center of the state towards the coast. The Floridan aquifer is the source of many springs in Florida and more specifically

within the AWMA including the adjacent Wacissa Springs which is a First Magnitude Spring.

2.6 Beaches and Dunes

No beach or dune features exist on AWMA.

2.7 Mineral Resources

According to the University of Florida soil survey of Jefferson County and Taylor County, possible minerals available in Jefferson County include clay minerals like Montmorillonite, 14 Angstrom intergrade, Kaolinite, and Quartz. Possible mineral resources in Taylor County include dolostone, limestone, sand, clay, and peat.

Other possible mineral resources in these two counties include calcium, phosphorus-phosphates, and stone. (The following comes from the University of Florida Soil Survey and the following shape file: mrds-f12063 at <http://mrddata.usgs.gov/mrds/package.php>)

Sand is another mineral found on AWMA. Different sands make up 81.55% of AWMA.

2.8 Historical Resources

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

The Florida Department of State's Division of Historical Resources (DHR) observations are broken down into five categories: archaeological sites, historical structures, historical bridges, historical cemeteries, and resource groups. There are 328 records listed as Florida sites for the AWMA, 327 archaeological sites, 0 historical structures, bridges, or cemeteries, and 1 resource group. The magnitude and importance of historical resources found on AWMA combine to make it an area of unique historical significance.

Area staff have since documented many more sites, and recently submitted documented forms to DHR to be recorded with the Florida Master Site file. There have been 10 field surveys documented on or near AWMA. All Master Site recordings, assessments, and preservation strategies will be coordinated with the DHR.

Currently, some of the AWMA staff has received DHR Archaeological Resources



Management (ARM) training and FWC will ensure that future management staff will continue to also receive ARM training. Furthermore, 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.

2.9 Scenic Resources

The Wacissa and Aucilla Rivers that flow through portions of AWMA offer an excellent scenic river corridor viewing experience to boaters. Good examples of many upland and bottomland/wetland natural communities' types can be viewed throughout AWMA. In addition, the Wacissa/Aucilla River sinks geologic formations offer unique viewing opportunities for those interested in karst features. Finally, the Slave Canal, a human-altered waterway connecting the Wacissa River to the Aucilla River offers an enjoyable wilderness canoe or kayak adventure for those willing to undertake the effort.

3 Uses of the Property

3.1 Previous Use and Development

Thousands of years before Europeans arrived; Native Americans hunted, fished, and gathered wild plants along the Wacissa and Aucilla Rivers and along Florida's Gulf coast. Evidence of several Native American campsites has been found within AWMA on the same high and dry ground used as camps by 20th century hunters and fishermen. The coastal hardwood forests and the streams flowing through these lands provided rich hunting and fishing grounds for Native Americans as it does for modern Floridians. Within AWMA are a substantial number of archaeological sites dating from 12,000 years ago to the time of Spanish exploration. As noted earlier, located on nearby lands, immediately adjacent to the area, is the North America's first evidence of butchering ancient mastodon.



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. Several important archaeological sites located on the area document the presence of Native Americans occupying the lands within AWMA over many thousands of years. Though some land alteration occurred, only minor alteration of the landscape is thought to have taken place, until the advent of European settlement beginning with the Spanish occupation of Florida in the sixteenth century.

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

Historically, the predominant land use within the Aucilla and Wacissa River Basins was commercial forestry. The principal timber products harvested in this area are used for lumber and pulpwood. The previous owners/managers, SJC, of the Wacissa and River Sinks Tracts were managing for pine production on most of the upland flatwoods areas.

Consequently, prior to State acquisition, the AWMA was used primarily for timber products. The native pine uplands were converted to industrial silviculture where the land was cleared and the soil bedded before replacing the characteristic longleaf pine with "offsite" pine species consisting of slash pine and, to a lesser extent, loblolly pine. Fire exclusion is common with this type of land management. The road system was constructed to provide access to timber, and the associated ditches and raised roadbeds severely altered the natural hydrology and in some cases were designed to drain certain areas to facilitate the conversion to silviculture. These past management practices altered the structure and function of the landscape from a longleaf pine wiregrass complex, characterized by an open canopied forest with an understory dominated by herbaceous vegetation and maintained with frequent fire, to a densely stocked pine plantation with a dense understory of hardwood shrubs.

Natural resource-based recreations, such as hunting, fishing, sightseeing, camping, and picnicking, have also been traditional activities on the area. Similarly, the SJC, and the Buckeye Cellulose Company have previously allowed access to the Wacissa and Aucilla rivers by providing boat ramps and landings. These ramps and landing continue to be maintained by FWC.

As noted above under Acquisition History (Section 1.3.2), more recent uses by private landowners prior to State acquisition included leasing some of the lands to FWC to regulate and provide hunting opportunities as well as various other uses.

3.2 Current Use of the Property

Currently, AWMA is managed for the conservation and protection of fish and wildlife habitat and fish and wildlife based public outdoor recreation. A wide range of operational and resource management actions are conducted on AWMA each year including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive exotic species maintenance and control; road repairs and maintenance; imperiled species

management, monitoring and protection; facilities and infrastructure maintenance and repair; conservation acquisition and stewardship activities; archeological and historical resources monitoring and protection; and research related activities.

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

Due to the proximity of population centers in Jefferson County, public use can be expected to increase as public awareness of opportunities increases. Annual use of AWMA is estimated to be 143,787 user-days for all activities combined. The FWC administers hunts in the fall and spring for various game species including small game, deer, turkey, and feral hogs, which account for a little more than half of the user-days.

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 AWMA, and contribute to the overall economy for this region of Florida and the State. In Fiscal Year 2013-14, an estimated 143,787 people visited the AWMA. Primarily, as a result of this visitation and use of the area, FWC economic analysis estimates indicate that the AWMA generated an estimated annual economic impact of \$16,427,644 for the State and the NW Florida region. This estimated annual economic impact has aided in the support or creation of an estimated 286 jobs.

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



Further revenue generating potential of AWMA will depend upon future uses to be approved in the management plan. To date, the AWMA has generated more timber revenue each of the last several years than any other WMA in Florida; usually exceeding \$1 million/year. During the 2016-2025 planning period, a number of timber thinnings, as part of specific habitat restoration plans, are scheduled and expected to provide additional sources of revenue.

Additional revenue from environmental lands such as AWMA will include sales of various permits and recreational user fees and ecotourism activities, if such projects could be economically developed. Revenue will be generated from special opportunity hunts, and apiary leases. The annual area regulations can be consulted to clarify the necessary and required permits, fees, and regulations. The long-term values of ecosystem services to local and regional land and water resources, and to human health, through the protection of air and water quality are expected to be significant. The legislature appropriates funds for land management.

3.3 Single- or Multiple-use Management

The AWMA will be managed under the multiple-use concept as a Wildlife Management Area. The AWMA will provide fish and wildlife resource based public outdoor recreation and educational opportunities, while protecting the natural and historical resources found on the area. Any natural and historical resources of AWMA will be managed under the guidance of ARC, the Conceptual State Lands Management Plan, the DHR 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 AWMA. 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 13.5). Uses classified as "Conditional" indicate that the use may be acceptable but will be allowed only if approved through a process other than the management plan development and approval process (e.g., special-use permitting, managed-area regulation and rule development). Uses classified as “Rejected” are not considered to be in accordance with the original purpose of acquisition or one or more of the various forms of guidance available for planning and management:

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

3.3.2 Incompatible Uses and Linear Facilities

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

3.3.3 Assessment of Impact of Planned Uses of the Property

To communicate FWC's planned uses and activities, specific management intentions, long- and short-term goals and with associated objectives, identified challenges, and solution strategies have been developed for AWMA (Sections 5 -8). A detailed assessment of the

benefits and potential impacts of planned uses and activities on natural and historical resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.4 Acreage Recommended for Potential Surplus Review

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

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

4 Accomplished Objectives from the AWMA Management Plan 2004-2014

This section is dedicated to reporting the extent to which the Objectives described in the AWMA Management Plan 2004-2014 (pages 36 - 41) were successfully completed. Accomplishments for AWMA during the previous planning timeframe are further discussed in more comprehensive detail throughout Section 5 Management Activities and Intent of this Management Plan.

The following Resource Management Goals and Objectives from the 2004-2014 AWMA Management Plan describe the planned activities for AWMA 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.

Objectives Accomplished from the 2004-2014 Aucilla WMA Management Plan		
Goals and Objectives	Percent Accomplished	Comments
Goal 1: Restore, maintain, or enhance natural communities of AWMA to perpetuate wildlife populations and increase habitat diversity.		

Objective 1: Continue to implement a prescribed burn plan that encourages growing season burns where appropriate, but also utilize dormant season burns to reduce fuel loads and enhance natural vegetative composition and structure in accordance with vegetative management objectives.	100%	FWC has developed and implemented a prescribed burn plan for AWMA and continues to use both dormant and growing season burns to achieve fire return intervals and desired future conditions within established OBVM parameters.
Objective 2: Thin slash and loblolly plantations to facilitate natural community restoration, and reduce the risks of wildfire damage.	70%	70% of offsite pine plantations have been thinned. A Timber Management Plan was completed for the area in 2015.
Objective 3: To achieve restoration of off-site plantations, and after historic natural communities have been delineated by FNAI, selectively harvest planted pines and replant with appropriate native vegetation.	70%	70% of offsite pine plantations have been thinned. A Timber Management Plan was completed for the area in 2015.
Objective 4: Using prescribed fire, mechanical, and chemical treatments, continue to control invasive exotic plant species, including known occurrences of cogongrass and Japanese climbing fern.	100%	Area staff maintain a data set of exotic plant species locations. Infestations are monitored and treated annually.
Objective 5: Control feral hog populations by offering liberal harvest opportunities to hunters during established hunting seasons.	100%	FWC has eliminated size and bag limits, extended the hunting season for feral hogs through the general gun and small game seasons, and implemented summer hog dog hunts to control the feral hog population.
Objective 6: Coordinate with FNAI to determine historic plant community boundaries for AWMA management units by 2004 .	100%	FNAI developed historic plant community boundaries in conjunction with natural community mapping of the area.
Objective 7: By 2005 , develop a contract with FNAI to identify current vegetative community types.	100%	FNAI completed natural community mapping of the area which was recently updated in 2015.

Objective 8: In addition to the DOF Timber Assessment, develop a contract for a comprehensive timber inventory by 2005 .	100%	The most recent timber inventory for the area was completed in 2014. A Timber Management Plan was completed for the area in 2015.
Objective 9: Delineate management units and develop quantifiable vegetation management objectives for these management units by 2005 .	100%	FWC has delineated OBVM management units and associated quantifiable vegetative management objectives for the area.
Objective 10: Contract for comprehensive survey of invasive exotic plant species by 2005 .	80%	FNAI conducted a roadside survey of exotics in conjunction with natural community mapping. Area staff continue to monitor and survey for exotics on an annual basis. It was determined by FNAI that a comprehensive exotic plant species survey was not needed for the area at this time.
Objective 11: By 2006 , develop a contract with FNAI to conduct a survey for rare and listed plant species.	100%	FNAI conducted a rare plant survey in conjunction with natural community mapping of the area.
Objective 12: To increase early successional habitat, and utilizing appropriate disturbed areas such as logging trams, and power lines, use prescribed burning, plantings, and mowing, disking, chopping, and chemical treatments, to establish up to 150 acres of wildlife openings by 2008 .	100%	FWC has utilized each of these management prescriptions to enhance wildlife habitat on the area.
Goal 2. Survey and inventory natural and cultural resources.		
Objective 1: Conduct annual track count surveys for game species.	N/A	FWC determined that deer track counts are not necessary as the antlerless harvest of deer is not recommended for Aucilla WMA.
Objective 2: Conduct annual aerial surveys for bald eagle, colonial wading bird and osprey nests.	100%	FWC conducts statewide aerial surveys for bald eagle nests annually. Wading bird monitoring is conducted as prescribed in the AWMA WCPR Strategy.

Objective 3: Conduct annual breeding bird point count surveys.	100%	Monitoring is conducted as prescribed in the AWMA WCPR Strategy.
Objective 4: Continue to cooperate with the CARL Archaeological Survey of DHR, now known as Public Lands Archaeology Program of DHR, to record archaeological sites not already in the Florida Master Site File.	100%	140 previously unrecorded sites have been documented by area staff and will be submitted to DHR for inclusion in the DHR Master Site File.
Objective 5: In addition to the FFS Timber Assessment, develop a contract for a comprehensive timber inventory by 2005 .	100%	FWC completed a comprehensive timber inventory in 2013, and an AWMA Forest Management Plan in 2015 in addition to the previously completed FFS timber assessment.
Objective 6: Conduct hair snare and track count surveys for the Florida black bears by 2004 .	100%	Statewide monitoring of the black bear population is conducted under the parameters established within the FWC Florida Black Bear Management Plan.
Objective 7: By 2005 , develop a contract with FNAI to identify current vegetative community types.	100%	FNAI completed natural community mapping of the area which was recently updated in 2015.
Objective 8: By 2005, conduct an amphibian and reptile survey.	100%	FWC completed the survey in 2005. Another herpetological survey will be conducted on the area beginning in FY 2015-16. The survey will focus on managed community types in an attempt to detect differences in the herpetological communities as pine plantation is restored to the historic natural communities.

<p>Objective 9: In cooperation with FNAI, complete the survey for flatwoods salamander by 2005.</p>	<p>100%</p>	<p>FWC completed the survey in 2005. Another herpetological survey will be conducted on the area beginning in FY 2015-16. The survey will focus on managed community types in an attempt to detect differences in the herpetological communities as pine plantation is restored to the historic natural communities.</p>
<p>Objective 10: Develop a contract for a comprehensive survey for invasive exotic plant species by 2005.</p>	<p>80%</p>	<p>FNAI conducted a roadside survey of exotics in conjunction with natural community mapping. Area staff continue to monitor and survey for exotics on an annual basis. It was determined by FNAI that a comprehensive exotic plant species survey was not needed on the area at this time.</p>
<p>Objective 11: Develop a contract with FNAI to conduct a survey for rare and listed plant species by 2006.</p>	<p>100%</p>	<p>FNAI conducted a rare plant survey in conjunction with natural community mapping of the area.</p>
<p>Goal 3. Manage or restore historic hydrologic regimes to enhance or protect significant surface water resources.</p>		
<p>Objective 1: Where necessary, fill ditches, and breach trams and dikes; install ditch plugs, culverts, low-water crossings, and other water control structures.</p>	<p>100%</p>	<p>In conjunction with completion of a hydrological assessment and Conceptual Hydrological Restoration Plan developed for AWMA, FWC completed installation of a number of low water crossings and culverts.</p>
<p>Objective 2: By 2004, contact the Florida Springs Initiative to acquire documentation of springhead and trace locations, and develop necessary protection measures for these resources.</p>	<p>100%</p>	<p>Area staff in cooperation with the NFWFMD has located and identified documentation of springhead and trace locations.</p>

Objective 3: Develop a contract for a hydrological study to identify restoration needs by 2007.	100%	FWC completed development of a hydrological assessment and a Conceptual Hydrological Restoration Plan developed for AWMA in 2005?
Goal 4. Develop and maintain facilities and structural improvements necessary to facilitate public use and administration.		
Objective 1: Continue to utilize volunteers to aid in management activities.	100%	FWC coordinates use of volunteers through regional volunteer coordinators as staffing and management needs are configured.
Objective 2: By 2004 , supplement existing FWC staffing using appropriate OPS positions and contracted services in response to increased management workloads caused by new acquisitions, Nature-based Recreation program activities, and increased visitation (this addresses Checklist Finding 16 of the 1997 DSL LMR).	100%	Four additional FWC FTE staff positions have been created and filled by FWC to augment area staffing.
Objective 3: Continue to maintain the existing boat ramp at Welaunee Landing and evaluate the need to provide additional boat or canoe access at other locations by 2004.	100%	In addition to Welaunee Landing, FWC also maintains access for small boats and canoes at Calico Landing.
Objective 4: Contact and cooperate with the U.S. Forest Service (USFS) and Florida Trail Association (FTA) to evaluate routing of the Florida Trail/Florida National Scenic Trail (FT/FNST) to St. Marks National Wildlife Refuge (NWR) by 2004.	100%	Rerouting of the FNST on the area was determined to be unfeasible due to wet ground conditions and numerous stream crossings including the Wacissa River and historic slave canal.
Objective 5: Continue to maintain existing gates, check stations and visitor contact facilities and evaluate the need for additional facilities or structures by 2005.	100%	FWC continues to routinely monitor all existing facilities, infrastructure, and roads and to assess the need for additional facilities on AWMA.
Objective 6: Build a field office and equipment storage/maintenance facility at a disturbed site on Grade 19 by 2006.	100%	An equipment storage/maintenance facility was built in 2006.

Objective 7: Develop a nature-based recreation plan that includes design specifications for construction of signs, kiosks, trails and other public use facilities by 2008.	100%	FWC developed a Recreation Master Plan for the area in 2006 which included plans for additional public access facilities. In addition, the Recreation Master Plan will be updated in conjunction with the development of the updated AWMA Management Plan.
Goal 5. Facilitate access to optimize public use, while protecting cultural and natural resources.		
Objective 1: Designate primary, secondary, and service roads, maintaining primary roads for all-weather access.	100%	FWC developed a vehicular access plan for the area in 2006 to balance public access needs with resource protection.
Objective 2: Focus law enforcement efforts at problems, including trespass, vandalism, theft of natural and cultural resources, and dumping.	100%	FWC's Division of law Enforcement continues to routinely conduct patrol and law enforcement activities to control illegal activities on AWMA.
Objective 3: To protect natural and cultural resources, close roads in problem areas as necessary and practical, and continue to evaluate the need for the relocation of certain public facilities where concentration of public use leads to damage to archaeological sites.	100%	FWC developed a vehicular access plan for the area in 2006 to balance public access needs with resource protection.
Objective 4: Post known disturbed cultural sites, vandalized areas, dump sites, and other problem sites with informational or educational signs.	100%	FWC continues to work in cooperation with the DHR to monitor manage and protect the historical resources on AWMA and posts these and other problem sites (dumping) with educational signage and information as recommended and needed.
Objective 5: Existing procedures and protocols to be followed by FWC and DHR staff for each newly discovered instance of cultural resource degradation will be evaluated and revised where appropriate.	100%	Area staff continues to coordinate with DHR and FWC LE to address cultural resource looting issues.
Objective 6: Develop an access plan to address road, trail, and boat access needs and concerns by 2004.	100%	FWC developed a RMP in 2006 that accomplished this objective.

Objective 7: Continue to maintain the existing boat ramp at Welaunee Landing, and evaluate the need to provide additional boat or canoe access at other locations by 2004.	100%	In addition to Welaunee Landing, FWC also maintains access for small boats and canoes at Calico Landing.
Objective 8: Contact and cooperate with the USFS and FTA to evaluate rerouting of the FT/FNST to St. Marks NWR by 2004.	100%	Rerouting of the FNST on the area was determined to be unfeasible due to wet ground conditions and numerous stream crossings including the Wacissa River and historic slave canal.
Objective 9: Continue to maintain existing gates, check stations and visitor contact facilities and evaluate the need for additional facilities or structures by 2005.	100%	FWC continues to routinely monitor all existing facilities, infrastructure, and roads and to assess the need for additional facilities on AWMA.
Objective 10: In cooperation with DHR, post informational signage at entry points to provide educational information emphasizing the importance of cultural resources, and the laws and rules that prohibit collecting and digging for artifacts by 2006.	100%	FWC continues to work in cooperation with the DHR to interpret, monitor, manage and protect the historical resources on AWMA.
Objective 11: Coordinate with DHR to have FWC area managers participate in state and federal training directed at management of cultural resources by 2006.	100%	Key AWMA staff have completed the DHR's ARM training and any new or additional staff will complete the training in the future.
Objective 12: Coordinate with DHR to have FWC law enforcement officers participate in state and federal training directed at archaeological law enforcement by 2006.	100%	Archaeological resource law enforcement has been integrated in the training curriculum at the FWC LE Academy.
Objective 13: In cooperation with DHR, develop a comprehensive cultural and archaeological resource management plan by 2006.	100%	Area staff continues to coordinate with DHR and FWC LE to address cultural resource looting issues.
Goal 6. Continue to promote traditional recreational opportunities while expanding other nature-based recreational opportunities.		
Objective 1: Continue to offer diverse recreational opportunities, including fishing and frogging opportunities, as well as muzzleloading gun, archery, general gun, small game and spring turkey hunting seasons.	100%	FWC continues to offer each of these hunting fishing opportunities on the area.

Objective 2: Control feral hog populations by offering liberal harvest opportunities to hunters during hunting seasons.	100%	FWC eliminated the size and bag limits for feral hogs, extended the hunting season through the general gun and small game seasons, and implemented summer hog dog hunts on the area.
Objective 3: Continue to maintain the existing boat ramp at Welaunee Landing, and evaluate the need to provide additional boat or canoe access at other locations by 2004 .	100%	In addition to Welaunee Landing, FWC also maintains access for small boats and canoes at Calico Landing.
Objective 4: Contact and cooperate with the USFS and FTA to evaluate rerouting of the FT/FNST to St. Marks NWR by 2004 .	100%	Rerouting of the FNST was determined to be unfeasible due to wet ground conditions and numerous stream crossings including the Wacissa River and the historic slave canal.
Objective 5: Develop a comprehensive nature-based recreation plan by 2008 .	100%	FWC developed a RMP for the area in 2007 that addressed this objective.
Goal 7: Assure an optimum boundary by continuing to identify and pursue acquisition needs.		
Objective 1: Continue to maintain a Geographic Information System (GIS) shapefile, acreage, and other necessary data to facilitate nominations for the FWC Additions and Inholdings Program list.	100%	FWC has developed GIS shapefiles for all of the parcels on the FWC Additions and Inholdings Acquisition List for AWMA. In addition FWC will develop an OCPB for the area in conjunction with development of the updated management plan.
Objective 2: Continue to nominate parcels for addition to the FWC Additions and Inholdings Program list.	100%	FWC added a number of parcels to the FWC Additions and Inholdings Acquisition List for AWMA during this planning period and will evaluate whether to recommend additional parcels be added through the development of an OCPB and associated CAS for the area in conjunction with the development of the updated AWMA Management Plan.

Objective 3: By 2004 , modify the AWMA hunt brochure map, and GIS shapefile to indicate the Jefferson County lime rock mine as a closed area.	100%	The AWMA Hunt map has been modified to indicate the Jefferson County lime rock mine is a closed area.
Goal 8: Expand educational and interpretive opportunities.		
Objective 1: Continue to distribute informational brochures that reflect the prohibitions against collecting artifacts within the boundaries of the AWMA.	100%	FWC continues to work in cooperation with the DHR to interpret, monitor, manage and protect the historical resources on AWMA and develops and distributes brochures that reflect the prohibitions against collecting artifacts within the boundaries of the AWMA.
Objective 2: By 2004 , develop and maintain an informational web page describing and illustrating the educational and recreational opportunities on AWMA.	100%	FWC has completed the development of a Web Page for AWMA and routinely evaluates the need to revise and improve it.
Objective 3: Contact and cooperate with the USFS and FTA to evaluate rerouting of the FT/FNST to St. Marks NWR by 2004 .	100%	Rerouting of the FNST was determined to be unfeasible due to wet ground conditions and numerous stream crossings including the Wacissa River and slave canal.
Objective 4: In cooperation with DHR, develop an interpretive brochure to provide educational information emphasizing the importance of the cultural resources found on AWMA, and the laws and rules that prohibit collecting and digging for artifacts by 2006 .	100%	FWC continues to work in cooperation with the DHR to interpret, monitor, manage and protect the historical resources on AWMA and develops and distributes brochures that reflect the prohibitions against collecting artifacts within the boundaries of the AWMA.
Objective 5: In cooperation with DHR, post informational signage at entry points to provide educational information emphasizing the importance of cultural resources, and the laws and rules that prohibit collecting and digging for artifacts by 2006 .	100%	In cooperation with DHR, FWC posted cultural resources information at five area entrance kiosks.

Objective 6: Develop an interpretive plan that includes design specifications for construction of signs, kiosks, trails and other public use facilities by 2008 .	100%	FWC developed an RMP for the area in 2007 that included the development and installation of new interpretive kiosks, signage, etc., on the area.
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5 Management Activities and Intent

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

5.1 Land Management Review

Pursuant to Chapter 259.036, FS, the DEP-DSL is required to “cause periodic management reviews to be conducted” on Board of Trustees conservation lands to determine if they “are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to FS, 259.032.”

The recommendations of 2012 Land Management Review (Appendix 13.11) were considered and addressed in the drafting of this Management Plan. This includes the development of management intent language, goals and objectives, and identification of management challenges and development of solution strategies (Sections 4 -8).

5.2 Adaptive Management

Adaptive management is "learning by doing";¹ it is the adjustment or modification of conservation actions to achieve a desired conservation goal. In practice, adaptive management is a rigorous process that includes sound planning and experimental design with a systematic evaluation process that links monitoring to management.^{1,2} Adaptive management requires flexibility for implementation, but should be fitted over a fundamentally sound, well-planned design.

An adaptive management process produces the strongest inference and most reliable results when experimental design components are incorporated into the monitoring process. Adaptive management is most rigorously applied in an active format when components of experimental design (i.e., controls, replication, and randomization) are included in the monitoring process.^{2,3} Incorporating valid statistical analyses of results will further

enhance the value of the adaptive management process. However, in some situations, rigorous experimental design procedures can be relaxed without invalidating monitoring results. In a passive format, adaptive management can involve applying a conservation action at a site, observing the results and adjusting the action in the future if warranted.^{2, 3}

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

5.2.1 Monitoring

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

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

For natural communities, monitoring protocols are established through FWC's Objective-Based Vegetation Management (OBVM, Section 5.3.1) program, which monitors how specific vegetative attributes are responding to FWC management. For imperiled and focal fish and wildlife species, monitoring protocols are established through FWC's Wildlife Conservation Prioritization and Recovery (WCPR, Section 5.4.2) program. FWC staff may monitor additional fish and wildlife species when deemed appropriate. Exotic and invasive plant and animal species (Section 5.6) 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 5.7.3). Historical resources (Section 5.10) are monitored with guidance from DHR.

5.2.2 Performance Measures

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

5.2.3 Implementation

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

5.3 Habitat Restoration and Improvement

On AWMA, FWC will focus on managing for native habitat diversity, emphasizing maintenance of high-quality natural communities, and restoration of disturbed areas. Restoration may be achieved on disturbed areas by the re-introduction of fire, restoring historic hydrological conditions and/or the use of mechanical or chemical forest management techniques as appropriate. Retention of the native old growth component of forests, while also providing for natural regeneration, remains an important consideration. AWMA has high-quality native communities including freshwater marsh, hardwood hammock and wetland hardwood hammock that FWC will continue to manage and protect. On disturbed upland sites, FWC intends to initiate ground cover and natural community restoration.

The FNAI has conducted surveys and mapped the current vegetative communities and historic vegetation communities on AWMA. This information will be used to guide and prioritize management and restoration efforts on the area.

5.3.1 Objective-Based Vegetation Management

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

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

After natural communities have been mapped, management units are delineated. Delineating management units takes into account the distribution and extent of the current and/or historic mapped natural communities, existing and proposed infrastructure, and other management considerations. FWC land managers then identify the predominant current or historic natural community within each management unit that guides the type

and frequency of management activities that should be applied. Through OBVM monitoring, the FWC collects data on a number of specific vegetation attributes that provide insight about the condition of the natural community. Because FWC is interested in the overall effect of management on the natural communities, OBVM data is analyzed at the natural community level.

Measurable habitat management objectives referred to as ‘desired future conditions’ are established for each actively managed natural community. Desired future conditions are the acceptable range of values for quantifiable vegetation attributes, such as basal area, shrub height and cover, and ground cover. 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.

5.3.2 Prescribed Fire and Fire Management

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

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

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

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

Single drum (with standard, not offset blades), one-pass roller chopping can be a valuable management tool, enabling the use of prescribed fires in areas heavily invaded by dense woody vegetation. However, roller chopping may damage the herbaceous ground cover, especially wiregrass. Therefore, its application will be limited to situations where burning can only be accomplished by first reducing woody vegetation by mechanical means.

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

The transitional areas between two adjacent but different vegetative cover types, such as forests and wetlands, are known as ecotones. With the possible exception of wildfire suppression, mechanical soil disturbance in ecotones will be avoided in order to protect habitats for important rare species that often occur between flatwoods and riparian drainages. Silvicultural site preparation and creation of firebreaks are avoided when possible in these zones. Additionally, fires are allowed to burn into the edges of marshes, swamps and other wetlands in order to maintain these habitats. Once fuel loads have been reduced and a more open appearance has returned, vegetative management objectives will

likely dictate a fire return interval that averages 1-4 years, preferably during the spring and early summer months.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan will be developed and implemented for the AWMA. 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.

5.3.3 Habitat Restoration

On the AWMA, FWC will focus on managing for habitat quality, emphasizing the maintenance of natural communities, and restoration of disturbed areas. Restoration may be achieved on areas by the re-introduction of fire, restoring historic hydrological conditions and the use of mechanical or chemical land management techniques as appropriate. Retention of the native habitat component of the area, while also providing for natural regeneration, remains an important consideration. The most extensive natural communities on the AWMA include hydric hammock, followed by pine plantation. On disturbed upland sites, FWC intends to initiate ground cover and natural community restoration where it is feasible such as cleared areas, but on other disturbed areas such as, utility corridors, roads, firebreaks or trails, no specific restoration plans have been developed.

Previous land uses have reduced or eliminated the characteristic ground cover composition and structure typical of the historic natural communities, thereby degrading habitat required by several focal species, especially the northern bobwhite, Bachman's sparrow, flatwoods salamander, gopher tortoise, and red-cockaded woodpecker.

During the previous planning period a number of habitat restoration activities were conducted. As reported in the 2014 LMUC biennial report, 257 acres of pine plantation were thinned, to reduce canopy closure thus allowing more light to penetrate the understory, promoting ground cover restoration. To reduce heavy fuel loads, small diameter hardwoods and encourage natural regeneration of pines, over 3,209 acres of fire adapted communities were maintained during a 2-3 year target-return interval, while 8,170 acres were maintained in a five year fire-return interval.

To restore stand form, composition, function and, based on recommendations in the timber assessment, and Forest Management Plan (Appendix 13.13), FWC plans to conduct further timber harvests or thinnings to reduce current pine stands basal area on 5,450 acres (Figure 10).

Staff will apply prescribed fire according to the prescribed fire plan to mimic the natural fires regimes that have been altered through fire suppression, ditching, and alteration of the natural hydrologic function in the area. Specific goals and objectives (6.1.1, 6.1.2, 6.1.7 and, 6.1.8) have been designed to keep the fire adapted communities into a maintenance

condition. During the next 10-year planning period, 5,000 acres (33%) of the fire adapted communities will be burned annually within a 2-3 year target fire return interval.

As planned habitat restoration work continues on the area and the habitat is improved, the percentage of the area's fire adapted communities on which prescribed burning is conducted within established fire return intervals is projected to increase.

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

5.4.1 Fish and Wildlife

The size and natural community diversity of AWMA creates a habitat mosaic for a wide variety of wildlife species, including rare, imperiled, game, and non-game species. In managing for wildlife species, an emphasis will be placed on conservation, protection and management of natural communities.

Resident wildlife will be managed for optimum richness, diversity and abundance. In addition to resident wildlife, AWMA provides resources critical to many migratory birds including waterfowl, passerines, raptors, and others. Habitats important to migratory species will be protected, maintained or enhanced.

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

Wildlife management emphasis is placed on documenting the occurrence and abundance of rare and imperiled species on the property. The FWC will continue to update inventories and monitor for a number of wildlife species, with emphasis on rare and imperiled fish and wildlife species. Monitoring of these species will continue as an ongoing effort for the area.



Concurrent with ongoing species inventory and monitoring activities, management practices are designed to restore, enhance or maintain rare and imperiled species, and their habitats. This will be further augmented by following approved Federal and FWC species

recovery plans, guidelines, and other scientific recommendations for these species. Guided by these recommendations, land management activities including prescribed burning and timber stand improvements will address rare and imperiled species requirements and habitat needs. Section 5.4.2 below provides further information on FWC’s comprehensive species management strategy for rare and imperiled wildlife and their respective habitats.

5.4.2 Imperiled and Focal Species: Wildlife Conservation Prioritization and Recovery

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

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

The WCPR program helps FWC take a proactive, science-based approach to species management on FWC-managed lands. This approach assesses information from statewide potential habitat models and Population Viability Analysis, and in conjunction with input from species experts and people with knowledge of the area, creates site-specific wildlife assessments for imperiled wildlife species and a select suite of focal species. Staff combines these assessments with area-specific management considerations to develop a wildlife management strategy for the area. Each strategy contains area-specific measurable objectives for managing priority species and their habitat, prescribes management actions to achieve these objectives, and establishes monitoring protocols to verify progress towards meeting the objectives. By providing FWC managers with information on actions they should undertake, the FWC intends for the strategy to assure the presence and persistence of Florida’s endangered and threatened fish and wildlife species (see



http://myfwc.com/media/1515251/Threatened_Endangered_Species.pdf), as well as select focal species found on the area. Additionally, a comprehensive species list has been developed for the area, which will be updated and modified as appropriate over time. The species list is included within the accompanying Management Prospectus that has been developed for the area and will be included in the final version of the AWMA Management Plan to enhance knowledge and management of the area.

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

5.4.3 Focal Species Selection and Management

An FWC, WCPR Strategy was completed for AWMA in 2009. As noted in the completed WCPR Strategy, "At AWMA, almost all land management is in support of restoration. As a result, implementing the land management recommendations in this document will require little additional resources. Existing resources can be shifted to focus on restoration in the designated Strategic Management Areas (SMAs). To determine species response to management and to measure progress towards goals, comprehensive wildlife monitoring programs have been recommended. Newly recommended surveys for gopher tortoises, limpkins, and flatwoods salamanders will require additional resources. This document also



identifies some additional resource needs that may occur in the future. For example, once the area has habitat parameters suitable to red-cockaded woodpeckers, additional resources would be necessary to draft a reintroduction, management and monitoring plan and conduct the management actions in that plan."

Not all of the focal species modeled to have potential habitat on AWMA occur on the area or are in need of specific management actions. Therefore, of the focal species identified, Gopher tortoise, Sherman’s fox squirrel red-cockaded woodpecker, southern bald eagle, wading birds (multiple species) are surveyed or monitored annually. The WCPR Strategy includes measurable objectives for a number of the area’s identified focal species.



As previously noted, the AWMA WCPR Strategy is contained in its’ entirety as (Appendix 13.10).

Table 14. Focal Species and Species Groups Identified as having Potential Habitat on AWMA

Common Name	Scientific Name	Status
American swallow-tailed kite	<i>Elanoides forficatus</i>	NL
Bachman’s sparrow	<i>Peucaea aestivalis</i>	NL
Brown-headed nuthatch	<i>Sitta pusilla</i>	NL
Cooper’s hawk	<i>Accipiter cooperii</i>	NL
Flatwoods salamander	<i>Ambystoma cingulatum</i>	FT
Florida black bear	<i>Ursus americanus floridanus*</i>	NL
Gopher frog	<i>Lithobates capito</i>	SSC
Gopher tortoise	<i>Gopherus polyphemus</i>	ST
Limpkin	<i>Aramus guarauna</i>	SSC
Louisiana waterthrush	<i>Seiurus motacilla</i>	NL
Northern bobwhite	<i>Colinus virginianus</i>	NL
	<i>Picoides borealis</i>	FE
Sherman’s fox squirrel	<i>Sciurus niger shermani</i>	SSC
Southern bald eagle	<i>Haliaeetus leucocephalus</i>	NL
Wading birds	multiple species	NL

Abbreviation	Status
FE	Federally Endangered
FT	Federally Threatened
SSC	State Species of Special Concern
ST	State Threatened
NL	Not Listed

5.6 Exotic and Invasive Species Maintenance and Control

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

Exotic and invasive plant species known to occur on AWMA and treated annually by FWC include: air-potato, chinaberry, Chinese privet Chinese tallow, Chinese wisteria, coffeeweed, cogongrass, Japanese climbing fern, Japanese honeysuckle, mimosa, and rattlebox. Exotic and invasive plant species have been identified as occurring at varying densities on approximately two acres of the AWMA. However, the FWC’s methodology for determining the number of acres “infested” with invasive exotic plants only represents a cumulative acreage, and does not reflect the degree of the invasive exotic occurrence. The degree of infestation among areas identified with invasive exotic plant occurrences often varies substantially by species, level of disturbance, environmental conditions, and the status of ongoing eradication and control efforts. The FWC will continue to focus treatments on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring.

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

An exotic animal species of concern on the AWMA is the feral hog. These animals have high reproductive rates, and when populations reach high densities, feral hogs can significantly degrade natural communities through foraging activity (rooting). The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate feral hog control measures as necessary. Hog populations are controlled by hunts during the wild hog-dog hunt season, archery, small game, general gun, muzzleloading gun, and archery/muzzleloading gun seasons. Trapping is another measure that may be implemented to augment ongoing feral hog control efforts and to further reduce the natural community damage and degradation caused by this species.



5.7 Public Access and Recreational Opportunities

5.7.1 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 ADA⁴ where:

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

5.7.2 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 AWMA. To accomplish this, FWC will work with recreational stakeholders and the general public to update the 2007 Recreation Master Plan for AWMA that will be used to further design and develop appropriate infrastructure that will continue to support the recreational use of the area by the general public. This Recreation Master Plan will include planning for parking, trail design, and area resource interpretation.

5.7.3 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 AWMA can currently support a maximum of 1,261 visitors per day. An objective to maintain the

public access carrying capacity at 1,261 visitors per day has been proposed in Section 6.5.1 of this Management Plan.

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

5.7.4 Wildlife Viewing

With the diversity of natural communities and planned active wildlife management practices, the AWMA is an excellent place to view wildlife. One of the best ways to see wildlife is by canoe or kayak early in the morning or evening or by walking quietly along the Aucilla Sinks Trail or the trams accessed from U.S. Highway 98 and SR 59. Wading birds, turtles, and alligators are a few of the species commonly spotted here. The AWMA is part of the FWC [Great Florida Birding and Wildlife Trail](http://apalachee.floridatrail.org/big-bend-area-trails/aucilla-sinks/) a statewide trail system that designates and interprets select birding locations throughout Florida. More detailed information about this section of the trail can be found: <http://apalachee.floridatrail.org/big-bend-area-trails/aucilla-sinks/>

Additionally, wildlife viewing opportunities are projected to increase upon the completion of planned improvements for public access and wildlife viewing facilities on the area outlined in Section 5.7.4 of this draft plan.

5.7.5 Hunting

Hunting opportunities at AWMA include seasons for small game, fur bearers, general gun, archery, muzzleloading gun, feral hog, spring turkey, migratory bird, and trapping. Quotas limiting the number of hunters accessing the area during certain hunting seasons are employed as necessary in order to provide a safe, high-quality-hunting experience. An evaluation of hunting opportunities offered on AWMA is performed periodically by the FWC.



5.7.6 Fishing/Frogging

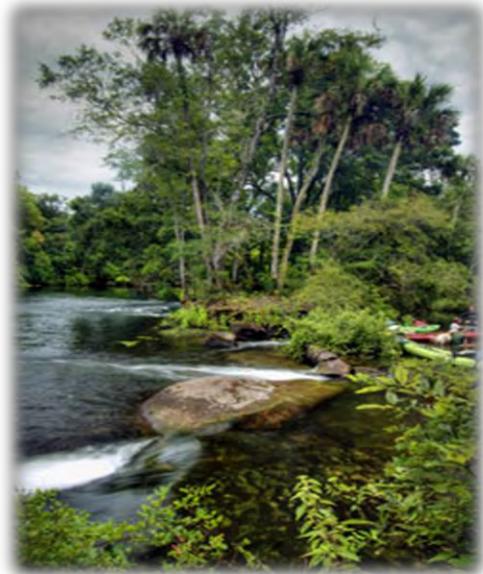
Year round fishing and frogging is another popular recreation opportunity on the AWMA and is permitted year-round. The Wacissa River offers many angling opportunities for largemouth bass, Suwannee bass and various species of bream. There are four boat launches located around the AWMA, near U.S. Highway 98, Goose Pasture Road, Welaunee Landing Road, and off SR 59. Calico Hill Landing is located on the west side of Wacissa

River on the AWMA. It is accessible from Saw Dust Pile Road in the Western Pines section of AWMA. Welaunee Landing is on the east side of the Wacissa River on the AWMA. This launch is hardened. Wacissa Landing is located just south of Wacissa at the head springs. This launch is maintained by Jefferson County.

Goose Pasture is located on the east side of the Wacissa River. The improved launch (concrete ramp) and campground are maintained by the SRWMD.

Access to these sites will be regularly maintained by their representative managing agency. Additional information about the current fishing opportunities and regulations on the area may be found at:

<http://myfwc.com/hunting/wma-brochures/nw/aucilla/>



5.7.7 Boating/Paddling

The AWMA lies between the Wacissa and Aucilla rivers, both state-designated paddling trails. The Wacissa, fed by twelve major springs, is a recreational hub for swimmers, snorkelers, boaters and anglers, and is perfect for beginning paddlers and families. The Aucilla River, with its many shallows and rock-filled shoals, offers more challenging paddling. As noted above, there are four launches to facilitate this activity.

5.7.8 Trails/Hiking

Hiking opportunities abound in natural areas for those willing to leave the marked trail. Bicyclists and hikers can enjoy any roads in the area as well as 10 miles of trails within the Western Sloughs accessible from U.S. Highway 98. Segments of the FNST include the



Aucilla Sinks Trail, which features numerous sinkholes and the Aucilla River Trail, which follows the east bank of the Aucilla River for 7.1 miles. Designated trails are currently limited to that section of the Florida Trail that traverses the Aucilla River Sinks and certain area roads. The FNST is one of eight National Scenic Trails in the NST that was designated by Congress, October 2, 1968, in the National Scenic Trails Act (Public Law 90- 543, 82 Stat. 919,16 U.S.C. 1241). Development and maintenance of the trail is coordinated with the Florida Trail

Association(FTA), and with the National Scenic Trails Coordinator of the United States Forest Service (USFS).

5.7.9 Camping

Primitive camping is allowed on designated sites along the FNST or by permit from the SRWMD on District-managed lands, as well as in Goose Pasture, except during the zonal general gun season. Additional information about the current camping opportunities and regulations on the area may be found at:

<http://myfwc.com/viewing/recreation/wmas/lead/aucilla/things-to-do/>

5.7.10 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.

5.7.11 Interpretation/Education

Interpretive signage and resource interpretation materials are provided at the main entrance and on the FWC website. Additionally, area staff maintain five informational kiosks, a paddling trail brochure, a recreation guide, and a comprehensive bird list for interpretation and education of the area.



5.8 Hydrological Preservation and Restoration

5.8.1 Hydrological Assessment

The floodplain swamp along the Wacissa River, including the Western Sloughs, provides natural filtering and regulation of water flowing into the Wacissa and Aucilla Rivers and the Gulf of Mexico. These swamps and hammocks will be preserved in order to maintain natural hydroperiods and the integrity of the system. Past management practices have significantly altered the natural hydrology of the area. These include the construction of logging trams and ditches, as well as bedding practices on pine plantations. Bedding practices channel water and impede the movement of fire across these sites. A hydrological assessment of the area was completed in 2005 (Appendix 13.14). The majority of the recommended structures for restoration have been installed during the previous planning period. All hydrological restoration plans and management activities will be implemented in cooperation and coordination with the SRWMD and/or the NFWMD.

Currently, most of the wetlands on the area are documented as freshwater forested/shrub wetlands. However, there are also freshwater emergent wetlands, freshwater ponds, riverines, and a small sink hole lake approximately a half acre in size. Outstanding Florida waters include the Aucilla River, the Wacissa River, and where the Wacissa River and Aucilla River combine. Nearby are the BBSAP and the St. Marks NWR. The majority of surface water classifications include streams such as Cow Creek, Hosford Branch, Little River, Oyster Creek, Pinhook River, St. Mark's River, the Slave Canal, and Welaunee Creek. There is also an estuary where the Aucilla River directly runs off into the bay, and the Big Blue, Buzzard Log, Garner, Little Blue, Minnow, and Wacissa Springs.

5.9 Forest Resource Management

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

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

Pursuant to OBVM management goals, FWC will continue to manage timber resources for wildlife benefits and natural community restoration. Management activities including the use of timber thinning and harvesting may be utilized. The primary management technique for encouraging reforestation is protection of young trees and seedlings on these sites from damage. However, where natural regeneration is lacking, artificial reforestation may be implemented. Planting trees on these selected sites is used to increase the rate of reforestation and to ensure diversity. Forested wetlands are managed for stands with old growth characteristics. Snags will be protected to benefit cavity-nesting species.

5.9.1 Timber Management Plan

The FWC obtained an updated timber inventory in 2014, to add to the existing Timber Assessment for AWMA through the services of a contracted professional forester. In addition a Forest Management Plan was completed in 2015 and is considered necessary to provide specific management prescriptions for the management of pine forested communities on the respective area (Appendix 13.3).

5.10 Historical Resources

Procedures outlined by DHR will be followed to preserve the historical sites of AWMA. The FWC will consult with DHR in an attempt to locate any additional historical features on the area. In addition, FWC will ensure management staff has DHR ARM training. The

FWC will refer to and follow DHR’s Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for management of these resources, and prior to any facility development or other ground disturbing activities. Furthermore, as appropriate and necessary, FWC will contact professionals from DHR for assistance prior to any ground-disturbing activity on AWMA.



To date, the DHR Master Site File indicates 328 known historic sites on AWMA. The FWC will submit subsequently located historic sites on AWMA to DHR for inclusion in their Master Site File. In cooperation with DHR, FWC will continue to identify and locate a priority subset of the known archeological resource sites across AWMA that require annual monitoring based upon site importance and historical value that can be realistically monitored given available staff and resources.

5.11 Capital Facilities and Infrastructure

The FWC’s land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure necessary to effectively conduct operational and resource management activities, and provide ample opportunities for fish and wildlife resource based public outdoor recreation. For these reasons, planned capital facilities and infrastructure will focus on improving access, recreational potential, hydrology, or other resource and operational management objectives.

Current capital facilities and infrastructure on AWMA include five entrance facilities, two boat landings, a picnic pavilion and the equipment storage compound facility, 120 miles of roads, and 6 miles of trails. As described in Section 2.4.1 of this Management Plan, for any public facilities that are developed on areas managed by FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336).



5.12 Land Conservation and Stewardship Partnerships

The FWC utilizes a three-tiered approach to identifying, acquiring or otherwise protecting important conservation lands adjacent to or in proximity to existing FWC-managed areas. This involves development of an Optimal Resource Boundary (ORB), Optimal Conservation Planning Boundary (OCPB) and associated Conservation Action Strategy (CAS).

Increasingly, cooperative land steward partnership efforts with private landowners plays an integral role in this effort as does ongoing land conservation, either through fee-simple or less-than-fee conservation easements. In combination, this tiered model helps FWC to further the regional conservation of important fish and wildlife habitats through a proactive, comprehensive, and cooperative approach towards conservation.

5.12.1 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.

5.12.2 Optimal Conservation Planning Boundary

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

The OCPB provides the basis for development of a broader CAS for AWMA. 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 (Figure 8).

5.12.3 Conservation Action Strategy

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

Primary components of the CAS may include:

- FWC Landowner Assistance Program
- FWC conservation planning
- FWC Additions and Inholdings Program Land Conservation Work Plan
- Forest Stewardship Program proposals
- Florida Forever project proposals and boundary modifications
- Conservation easements
- Federal or State grant conservation proposals
- Regional or local conservation proposals
- Local, state, and federal planning proposals
- Non-governmental organization conservation proposals

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

Private landowners seeking assistance with habitat management will likely find it offered within FWC's Landowner Assistance Program (LAP). The FWC employs biologists who are available to provide wildlife-related assistance with land-use planning and habitat management. There are many forms of assistance that include technical, financial, educational, and various forms of recognition that seek to award landowners who manage their wildlife habitat responsibly. More information on FWC's LAP program and online habitat management tools are available online at: <http://myfwc.com/conservation/special-initiatives/lap/> .

5.12.4 FWC Florida Forever Additions and Inholdings Acquisition List

Currently, FWC has identified 28,321 acres of potential additions or privately held inholdings for AWMA (Figure 8). In addition, 17,464 acres of the Wacissa-Aucilla River Sinks Florida Forever project remain to be acquired. Acquisition of these parcels is considered essential for optimal management of the area. Upon completion of the CAS, additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended.

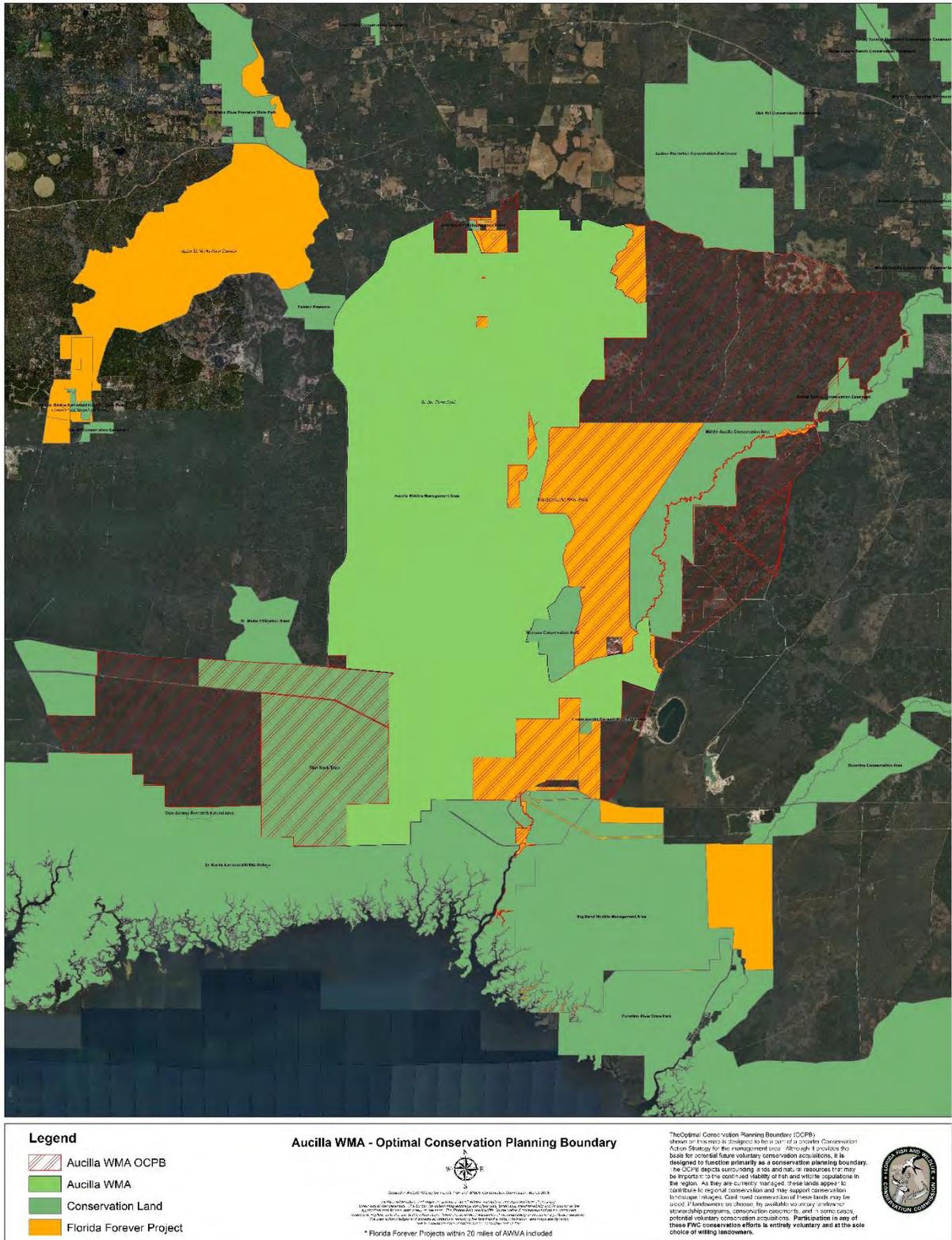


Figure 8. OCPB for AWWA

5.13 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For the AWMA, the FWC will continue to assess and identify research needs, and pursue research and environmental education partnership opportunities as appropriate. Area staff will continue to cooperate with the Avian Research and Conservation Institute conducting limpkin research on the Wacissa River, as well as, continue to cooperate with the United States Geological Survey (USGS) conducting research on coastal bald cypress. Research proposals involving the use of the area are evaluated on an individual basis. All research activities on AWMA must have prior approval by the FWC.

5.14 Cooperative Management and Special Uses

5.14.1 Cooperative Management

The FWC is the lead management agency on lands titled to the Board of Trustees within AWMA. On SRWMD owned lands, FWC maintains a cooperative management agreement with the SRWMD to provide hunting and fishing opportunities, and to provide assistance and consultation regarding the conservation and protection of fish and wildlife resources. In keeping with the lease agreements, and in order to conduct its management operations in the most effective and efficient manner, the FWC cooperates with other agencies to achieve management goals and objectives described in this management plan. These include cooperating with DHR to ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 13.7) are followed with regard to any ground-disturbing activities. In addition, FWC cooperates with TNC and the Sam Shine Foundation on management of their lands adjacent to the area.

Also, FWC cooperates and consults with the SRWMD and DEP for the monitoring and management of both ground and surface water resources and the overall management of AWMA.

5.14.2 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 AWMA. 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 AWMA, 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 AWMA. Any first-responder or military training that is not low-impact, intermittent and occasional would require an amendment to this management plan, and therefore will be submitted by FWC to DSL and ARC for approval consideration prior to authorization.

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

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

5.14.3 Apiaries

Currently, all available apiary sites on AWMA have been leased. Use of apiaries is conditionally approved for AWMA, 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 13.5). Location, management, and administration of apiaries on AWMA will be guided by the FWC Apiary Policy (Appendix 13.6).

The FWC Apiary Policy (Appendix 13.6) will be followed with regards to site location, management, and administration of apiaries.

5.15 Climate Change

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

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is likely proceeding at a rate where there will be unavoidable

impacts to humans, wildlife, and habitat. Given current levels of heat-trapping greenhouse gas emissions, shifts in local, regional, and national climate patterns including changes in precipitation, temperature, increased frequency and intensity of extreme weather events, rising sea levels, tidal fluctuations, and ocean acidification are projected. The current trend of global temperature increase has appeared to accelerate in recent decades, and continued greenhouse gas emissions may result in projected global average increases of 2 – 11.5° F by the end of the century.⁵

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

Potential impacts that may be occurring as a result of climate change include: change in the timing of biological processes, such as flowering, breeding, hibernation, and migration;^{6, 7, 8} more frequent invasions and outbreaks of exotic invasive species;⁹ and loss of habitat in coastal areas due to sea level rise.¹⁰ Some species are projected to adjust to these conditions through ecological or evolutionary adaptation, whereas others are projected to exhibit range shifts as their distributions track changing climatic conditions. Those species that are unable to respond to changing climatic conditions are projected to go extinct. Some estimates suggest that as many as 20% - 30% of the species currently assessed by the IPCC are at risk of extinction within this century if global mean temperatures exceed increases of 2.7 – 4.5° F.¹¹ A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the potential effects of climate change on Florida's conservation lands are just beginning to be studied and are not yet well understood. For example, FWC has begun a process for currently developing climate change adaptation strategies for monitoring, evaluating, and determining what specific actions, if any, may be recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation, and the possible spread of exotic and invasive species. Currently, FWC is continuing its work on the development of these potential adaptation strategies. However, as noted above, the effects of climate change may become more frequent and severe within the time period covered by this Management Plan.

For these reasons, there is a continuing need for increased information and research to enable adaptive management to cope with potential long-term climate change impacts. The most immediate actions that FWC can take are to work with partners to gather the best scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive

management strategies to enhance the resiliency of natural communities to adapt to climate change, and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a species. To this end, when appropriate, FWC will participate in organizations such as the Peninsular Florida Land Conservation Cooperative or similar organizations so that FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, FWC will consider the need for conducting vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC managed land.

Elements of climate change that may potentially affect AWMA include inundation and saltwater intrusion from sea level rise (Figure 9), more frequent and more potent storm events, alteration of vegetation reproductive cycles, and changes in the fire regime. The results of a Sea Level Affecting Marsh Model for the AWMA shows habitats that may potentially be impacted. The low-lying coastal habitats, such as salt marsh and hardwood swamp natural communities are projected to face the most direct and dramatic impacts of climate change, particularly from a projected rising sea level and from the projected increased frequency and intensity of coastal storms.^{12, 13, 14, 15} The potential loss of habitat may result in the loss of species using that habitat, including migrating and nesting birds. Storm events also cause considerable physical damage to native vegetation along vulnerable shorelines, impacting nesting habitat for sea life and shorebirds. The projected rise in sea levels may decrease the availability and abundance of prey for wading birds that forage in shallow waters on the expansive tidal flats of the Gulf Coast. Climate change may amplify and hasten these effects, potentially at rates that exceed the normal resiliency of plant communities to recover, shift or adapt accordingly.^{16, 17} Projected salt water intrusion into the subsurface freshwater lens from potential sea level rise and saltwater inundation of surface freshwaters from storm surges may alter coastal ecosystems and freshwater marshes, possibly resulting in more salt-tolerant aquatic plant communities.

To address the potential impacts of climate change on the AWMA, Goals and Objectives have been developed as a component of this Management Plan (Section 6.12). Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the AWMA Management Plan in the future.

5.16 Soil and Water Conservation

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

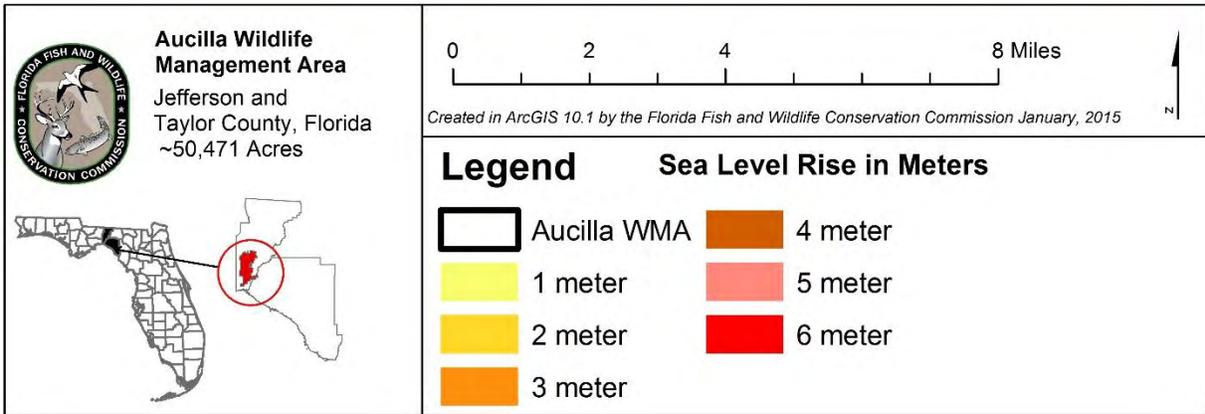
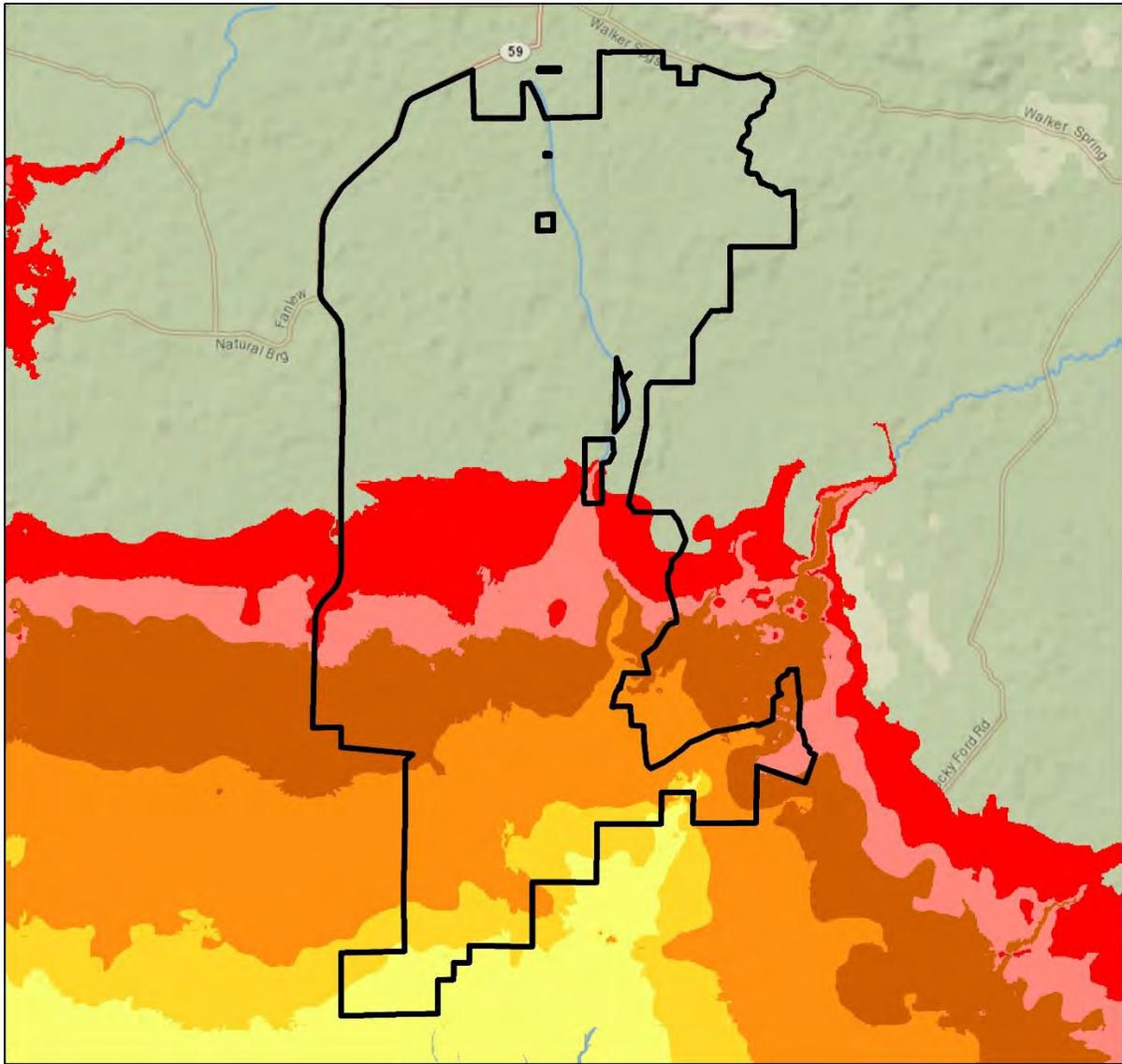


Figure 9. Sea Level Rise on AWMA

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 AWMA. 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 2,300 – 4,300 acres of fire adapted communities) on the area per year.
- 6.1.2** Maintain 5,000 acres of fire adapted communities on the area (33%) within 1-4 year target fire return interval.
- 6.1.3** Revise, update and continue to implement the area’s prescribed burning plan.
- 6.1.4** Conduct habitat/natural community improvement on 200 acres of the area per year including mechanical vegetation management (roller chopping and mowing) and exotic species control.
- 6.1.5** Conduct habitat/natural community restoration activities on the area including prescribed burning, timber thinning, mechanical vegetation management and exotic species control on 7,000 acres (Figure 10).
- 6.1.6** Conduct timber harvest for the purposes of habitat restoration on 1,050 acres of the area (Figure 10).

Long-term

- 6.1.7** Continue to conduct prescribed burning on 2,800 – 5,000 acres of fire adapted communities on the area per year.
- 6.1.8** Continue to Maintain 8,500 acres of fire adapted communities on the area (56%) within 1-4 year target fire return interval.
- 6.1.9** Continue to implement an OBVM program on the area.
- 6.1.10** Continue to conduct habitat/natural community improvement on 200 acres of the area per year (Figure 10).

- 6.1.11 Continue to conduct habitat/natural community restoration activities on 15,000 acres of the area (Figure 10).
- 6.1.12 Continue to conduct timber harvest for the purposes of habitat restoration on 5,400 acres on the area (Figure 10).
- 6.1.13 Restore native ground cover on 250 acres on the area using mechanical, chemical and direct seeding treatments (Figure 10).
- 6.1.14 Continue to restore disturbed ephemeral wetlands on the area for pond breeding amphibians, wading birds, and waterfowl.
- 6.1.15 Identify and begin removal of remnant windrows on the area created during past land use.
- 6.1.16 Continue to coordinate and cooperate with ARSA, CISMA and the NWTF and other partners on potential grant and other funding opportunities for natural community restoration.

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

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

Short-term

- 6.2.1 Continue to implement the AWMA WCPR Strategy for imperiled and focal species including American swallow-tailed kite, Bachman’s sparrow, brown-headed nuthatch, Cooper’s hawk, frosted flatwoods salamander, Florida black bear, gopher frog, gopher tortoise, limpkin, Louisiana waterthrush, Northern bobwhite, red-cockaded woodpecker, Sherman’s fox squirrel, Southern bald eagle, and wading birds.
- 6.2.2 As described in the AWMA WCPR Strategy, continue to monitor for American swallow-tailed kite, Bachman’s sparrow, brown-headed nuthatch, Florida black bear, Cooper’s hawk, frosted flatwoods salamander, gopher frog, gopher tortoise, limpkin, Louisiana waterthrush, Northern bobwhite, red-cockaded woodpecker, Sherman’s fox squirrel, Southern bald eagle, and wading birds.
- 6.2.3 Continue to collect opportunistic wildlife and plant species occurrence data for rare and imperiled species on the area.
- 6.2.4 As described in the AWMA WCPR Strategy, continue habitat restoration in the SMAs identified for frosted flatwoods salamander, gopher tortoise, red-cockaded woodpecker, Bachman’s sparrow, and brown-headed nuthatch.

- 6.2.5 Continue to monitor and protect 25 imperiled plant species on the area (Table 4).
- 6.2.6 Continue to document new occurrences of imperiled plant species on the area and enter them into the FWC Sampling and Monitoring Protocol Database (SaMP) database.

Long-term

- 6.2.7 Continue to implement the AWMA WCPR Strategy by managing identified habitats.
- 6.2.8 As described in the AWMA WCPR Strategy, continue to monitor for American swallow-tailed kite, Bachman’s sparrow, brown-headed nuthatch, Florida black bear, Cooper’s hawk, frosted flatwoods salamander, gopher frog, gopher tortoise, limpkin, Louisiana waterthrush, Northern bobwhite, red-cockaded woodpecker, Sherman’s fox squirrel, Southern bald eagle, and wading birds.
- 6.2.9 Continue to collect opportunistic wildlife and plant species occurrence data on the area.
- 6.2.10 Continue to monitor and protect 25 imperiled plant species on the area.
- 6.2.11 Continue to document new occurrences of imperiled plant species on the area and enter them into the FWC SAMP database.
- 6.2.12 As described in the AWMA WCPR Strategy, continue habitat restoration in the Strategic Management Areas identified for frosted flatwoods salamander, gopher tortoise, red-cockaded woodpecker, Bachman’s sparrow, and brown-headed nuthatch.
- 6.2.13 By 2020, revise and update the AWMA WCPR Strategy.

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

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

Short-term

- 6.3.1 Continue to collect opportunistic wildlife occurrence data on the area.
- 6.3.2 Conduct annual breeding bird point count surveys on the area.
- 6.3.3 Conduct herpetological drift fence survey within managed communities on the area.
- 6.3.4 Continue to maintain 23 wood duck nest boxes on the Wacissa River.

Long-term

- 6.3.5 Implement a Barbour's map turtle basking survey on the Wacissa River.
- 6.3.6 Implement an annual amphibian dip net survey on the area to compare breeding amphibian communities between restored and unrestored ephemeral wetlands.
- 6.3.7 Continue to maintain 23 wood duck nest boxes on the Wacissa River.
- 6.3.8 Continue to collect opportunistic wildlife occurrence data on the area.
- 6.3.9 Conduct annual breeding bird point count surveys on the area.

6.4 Exotic and Invasive Species Maintenance and Control

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

Short-term

- 6.4.1 Annually spot treat at least two acres of EPPC Category I and Category II invasive exotic plant species on the area.
- 6.4.2 Implement control measures on 10 (mimosa, rattlebox, air-potato, cogongrass, Chinese privet, Japanese climbing fern, Chinaberry, Chinese tallow, Chinese wisteria, and feral hog) exotic and nuisance animal species on the area.
- 6.4.3 Continue to coordinate with Jefferson County staff to treat cogongrass infestations at the rock mine adjacent to the AWMA.
- 6.4.4 Work with partners in the North Central Florida Cooperative Invasive Species Management Area (CISMA) to identify and control Early Detection and Rapid Response (EDRR) species.

Long-term

- 6.4.5 Continue to annually treat at least two acres of EPPC Category I and Category II invasive exotic plant species on the area.
- 6.4.6 Contract or coordinate with the Apalachicola Regional Stewardship Alliance or FNAI to conduct survey and mapping of invasive exotic plant species on the Pinhook tract of AWMA.
- 6.4.7 Continue to implement control measures on feral hogs, including hunting and trapping on the area as feasible.
- 6.4.8 Continue to work with North Central Florida CISMA to identify and control EDRR species.

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 on the area to allow for a recreational carrying capacity of 1,261 visitors per day.
- 6.5.2** Provide website, five informational kiosks, paddling trail brochure, recreation guide, and bird list for interpretation and education of the area.
- 6.5.3** Develop new interpretive/education programs for archeological resources on the area.
- 6.5.4** Update the AWMA Recreational Master Plan.
- 6.5.5** Continue to coordinate with USFS and DEP to manage and maintain the FNST on AWMA.
- 6.5.6** Provide hunting opportunities on the area for deer, turkey, waterfowl, small game, and feral hogs.
- 6.5.7** Provide paddling opportunities on the Aucilla and Wacissa Rivers.
- 6.5.8** Provide frogging and fishing opportunities on appropriate water bodies on the area.
- 6.5.9** Cooperate with other agencies, County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas.
- 6.5.10** Identify partnerships that could provide for environmental educational programs and outreach for the area.

Long-term

- 6.5.11** Continue to implement the AWMA Recreational Master Plan.
- 6.5.12** Monitor the area's trails annually for visitor impacts.
- 6.5.13** Reassess recreational opportunities on the area every three years.
- 6.5.14** Continue to provide hunting opportunities on the area for deer, turkey, waterfowl, small game, and feral hogs.
- 6.5.15** Continue to provide paddling opportunities on the Aucilla and Wacissa Rivers.
- 6.5.16** Continue to provide frogging and fishing opportunities on the area on appropriate water bodies.

- 6.5.17 Cooperate with other agencies, County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas.
- 6.5.18 Continue to coordinate with USFS and DEP to manage and maintain the FNST on AWMA.
- 6.5.19 Continue to identify partnerships that could provide for environmental educational programs and outreach for the area.

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 As recommended by the AWMA Hydrology Assessment and Conceptual Restoration Plan, continue to install and maintain low-water crossings and culverts as appropriate to maintain and enhance natural hydrological functions.
- 6.6.2 Continue to cooperate with the Northwest Florida and Suwannee River Water Management Districts and Florida Department of Environmental Protection Storage and Retrieval database (STORET) for the monitoring of surface and ground water quality and quantity on the area.
- 6.6.3 Using Light Detection and Ranging remote sensing (LiDAR) imagery to identify and ground truth potential undocumented springs, sink holes and caves on the area.
- 6.6.4 Explore feasibility of obtaining funding from NFWMD and SRWMD to conduct additional hydrological restoration on the area.

Long-term

- 6.6.5 To enhance natural hydrological functions, continue to install and maintain low-water crossings and culverts on the area as appropriate.
- 6.6.6 Continue to cooperate with the Northwest Florida and Suwannee River Water Management Districts and Florida Department of Environmental Protection (STORET) for the monitoring of surface and ground water quality and quantity on the area.
- 6.6.7 Continue to maintain and restore natural hydrologic condition and functions to wetland communities on approximately 28,000 acres on the area (Figure 10).
- 6.6.8 Continue using LiDAR imagery identify and ground truth potential undocumented springs, sink holes and caves on the area.

6.7 Forest Resource Management

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

Short-term

- 6.7.1** Cooperate with the FFS to complete a Timber Assessment.
- 6.7.2** Continue to implement the AWMA Timber Management Plan that focuses on ecological forest management, including reforestation, harvesting, and prescribed burning activities based on restoration and maintenance needs of the natural communities and other goals established for management of AWMA.
- 6.7.3** Consult with the FFS or a professional forestry consultant regarding forest management activities on the area as appropriate.
- 6.7.4** Conduct timber thinning operations on approximately 1,000 acres of pine plantation on the area to a basal area of 50-60 sq. feet per acre or as recommended in the Forest Management Plan.

Long-term

- 6.7.5** Continue to consult with the FFS or a professional forestry consultant regarding forest management activities on the area as appropriate.
- 6.7.6** Pursuant to guidance of the AWMA Forest Management Plan, conduct timber thinning and harvest of approximately 5,450 acres of overstocked planted pine plantations on the area (Figure 10).
- 6.7.7** Pursuant to guidance of the AWMA Forest Management Plan, plant longleaf pine on approximately 2,000 acres on the area (Figure 10).
- 6.7.8** Continue to coordinate and cooperate with ARSA, CISMA and the NWTF and other partners on potential grant and other funding opportunities for natural community restoration. Work with the CISMA in grant funding opportunities from various sources for longleaf pine restoration on the area.

6.8 Historical Resources

Goal: Protect, preserve and maintain historical resources.

Short-term

- 6.8.1** Ensure all known AWMA cultural and historic sites are recorded in the DHR Master Site file.

- 6.8.2 Continue to coordinate with DHR personnel to identify and locate a priority subset of the 328 historical sites across AWMA that require annual monitoring based upon site importance and historical value that can be realistically monitored given available staff and resources. Monitor additional sites regularly on a rotating basis as staffing and time allow.
- 6.8.3 Coordinate with DHR and Panhandle Archaeological Society at Tallahassee (PAST) for assistance with annual monitoring of cultural resources on the area.
- 6.8.4 Ensure management staff has DHR ARM training.
- 6.8.5 Coordinate with DHR to assess the need for conducting additional or updated cultural resource surveys on the area as required.
- 6.8.6 Follow DHR archeological guidelines for determining what activities require site evaluation and monitoring for cultural resources before, during and/or after management activities on the area.
- 6.8.7 Continue to coordinate with DHR and archeological research institutions to complete research concerning cultural sites located on the area of high significance.

Long-term

- 6.8.8 Cooperate with DHR in designing site plans for development of infrastructure on the area.
- 6.8.9 Cooperate with DHR to manage and maintain known existing cultural resources on the area.
- 6.8.10 Continue to monitor, protect, and preserve as necessary 328 identified sites on the area.
- 6.8.11 Coordinate with DHR ARM for cultural resource management guideline staff training.
- 6.8.12 Continue to follow DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources on the area.
- 6.8.13 Continue to use LiDAR imagery for remote identification of potential historical sites on the area. Ground truth potential sites and record identified sites with the Florida Master Site File.

6.8.14 Continue to coordinate with DHR personnel to identify and locate a priority subset of the 328 historical sites across AWMA that require annual monitoring, based upon site importance and historical value. Monitor additional sites regularly on a rotating basis as staffing and time allow.

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

6.9 Capital Facilities and Infrastructure

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

Short-term

6.9.1 Continue to maintain 9 facilities (five entrance facilities, two boat landings, a picnic pavilion and the equipment storage compound facility) and 120 miles of roads on the AWMA (Figure 10).

6.9.2 Maintain 25 miles of roads on the area annually.

6.9.3 Maintain approximately 6 miles of trails existing on the area (as applicable).

6.9.4 Improve or repair 1 facility, 2 miles of roads, and 1 foot bridge on the FNST existing on the area (as applicable) (Figure 10).

Long-term

6.9.5 Continue to maintain 120 miles of roads on the area.

6.9.6 Continue to maintain 6 miles of trails existing on the area.

6.9.7 Construct 1 new facility, equipment and maintenance storage building on the area (EMSB) (Figure 10).

6.9.8 Continue to maintain, improve or repair 9 facilities (five entrance facilities, two boat landings, a picnic pavilion and the compound facility) and 120 miles of roads on AWMA. Additionally, maintain 7 trail foot bridges, and 6 miles of trails existing on the area (Figure 10).

6.10 Land Conservation and Stewardship Partnerships

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

Short-term

- 6.10.1 Identify potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational/resource management needs.
- 6.10.2 Identify and develop conservation stewardship partnerships.
- 6.10.3 Identify and pursue conservation acquisition needs.
- 6.10.4 Develop and maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB (Figure 8) and for FWC's LAP and Land Acquisition Programs.
- 6.10.5 Develop a Conservation Action Strategy.
- 6.10.6 Contact and inform adjoining landowners about the FWC Landowners Assistance Program to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements.
- 6.10.7 Determine which parcels should be added to the FWC acquisition list.
- 6.10.8 Identify potential non-governmental organization partnerships and grant program opportunities.
- 6.10.9 Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop.
- 6.10.10 Identify potential conservation easements donations.
- 6.10.11 Evaluate and determine if any portions of AWMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

Long-term

- 6.10.12 To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed OCPB for AWMA as appropriate and necessary.
- 6.10.13 Continue to identify and develop conservation stewardship partnerships.
- 6.10.14 Continue to identify and pursue conservation acquisition needs for AWMA.
- 6.10.15 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for the FWC LAP and Land Acquisition Program.

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

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

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

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

6.10.20 Continue to identify potential conservation easements donations.

6.10.21 Continue to evaluate and determine if any portions of AWMA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

6.11 Cooperative Management and Special Uses

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

Long-term

6.11.1 Continue to coordinate and cooperate with the SRWMD to continue wildlife related recreational opportunities on SRWMD owned lands.

6.11.2 Continue to cooperate with TNC and the Sam Shine Foundation on management of their lands adjacent to the area.

6.11.3 Coordinate and cooperate with the Department of Defense military branches to allow for training opportunities for military personnel and other initiatives as appropriate and compatible with the conservation of AWMA.

6.12 Climate Change

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

Long-term

6.12.1 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 AWMA.

- 6.12.2 Incorporate appropriate climate change adaptation strategies into the WCPR for the AWMA.
- 6.12.3 As appropriate, update the AWMA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of AWMA's fire-adapted habitats.
- 6.12.4 As science, technology, and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document and address potential climate change; assess the need to incorporate public education about climate change into the update of the AWMA Recreation Master Plan.

6.13 Research Opportunities

Goal: Explore and pursue cooperative research opportunities.

Long-term

- 6.13.1 Continue to cooperate with the Avian Research and Conservation Institute conducting limpkin research on the Wacissa River.
- 6.13.2 Continue to cooperate with the USGS conducting research on coastal bald cypress.
- 6.13.3 Continue to cooperate with researchers, universities, and others as appropriate.
- 6.13.4 Continue to support requests for research projects on AWMA.

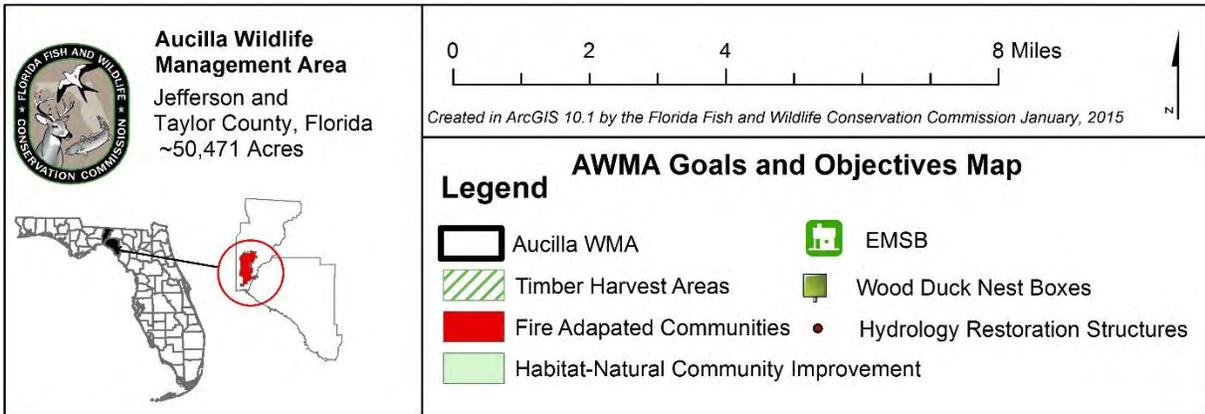
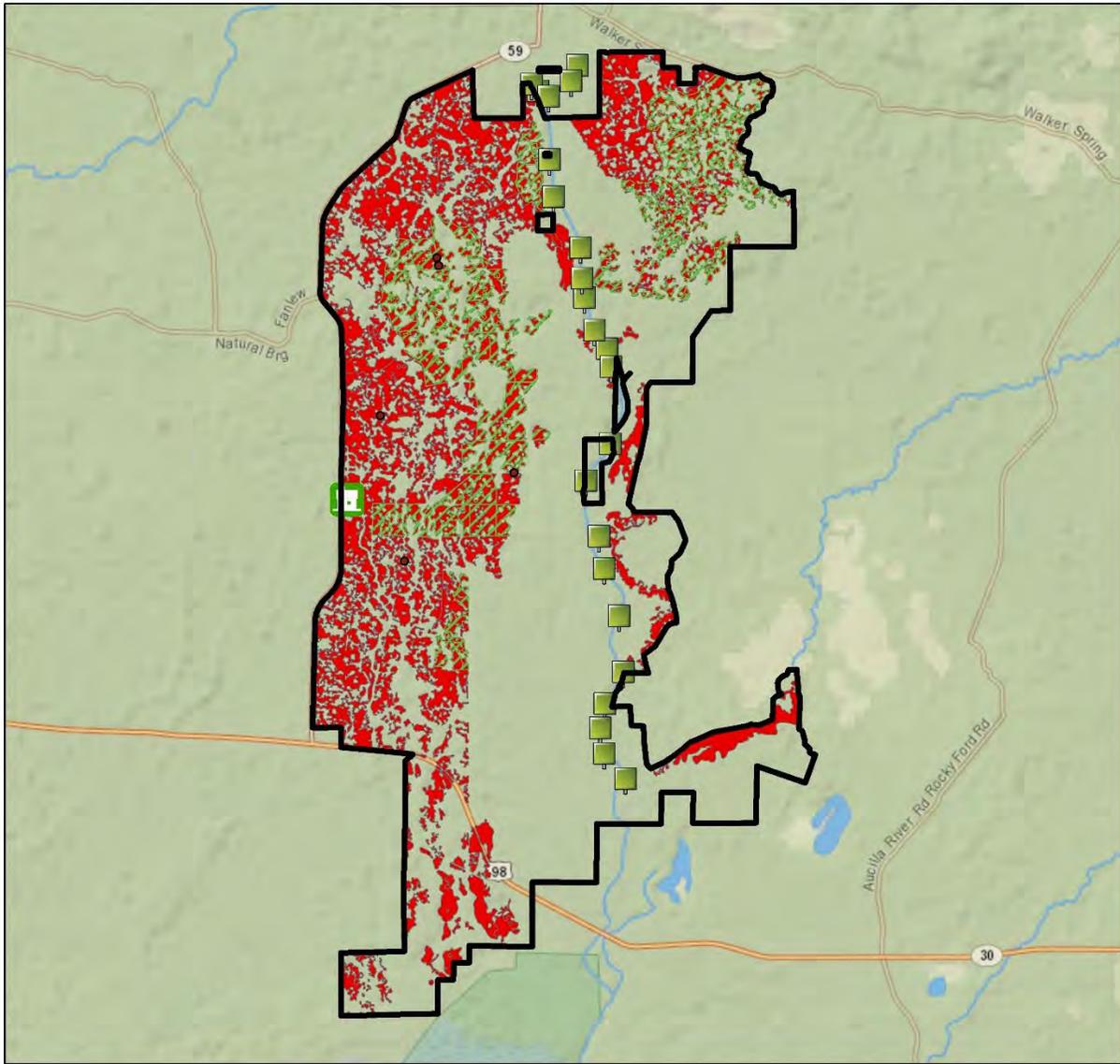
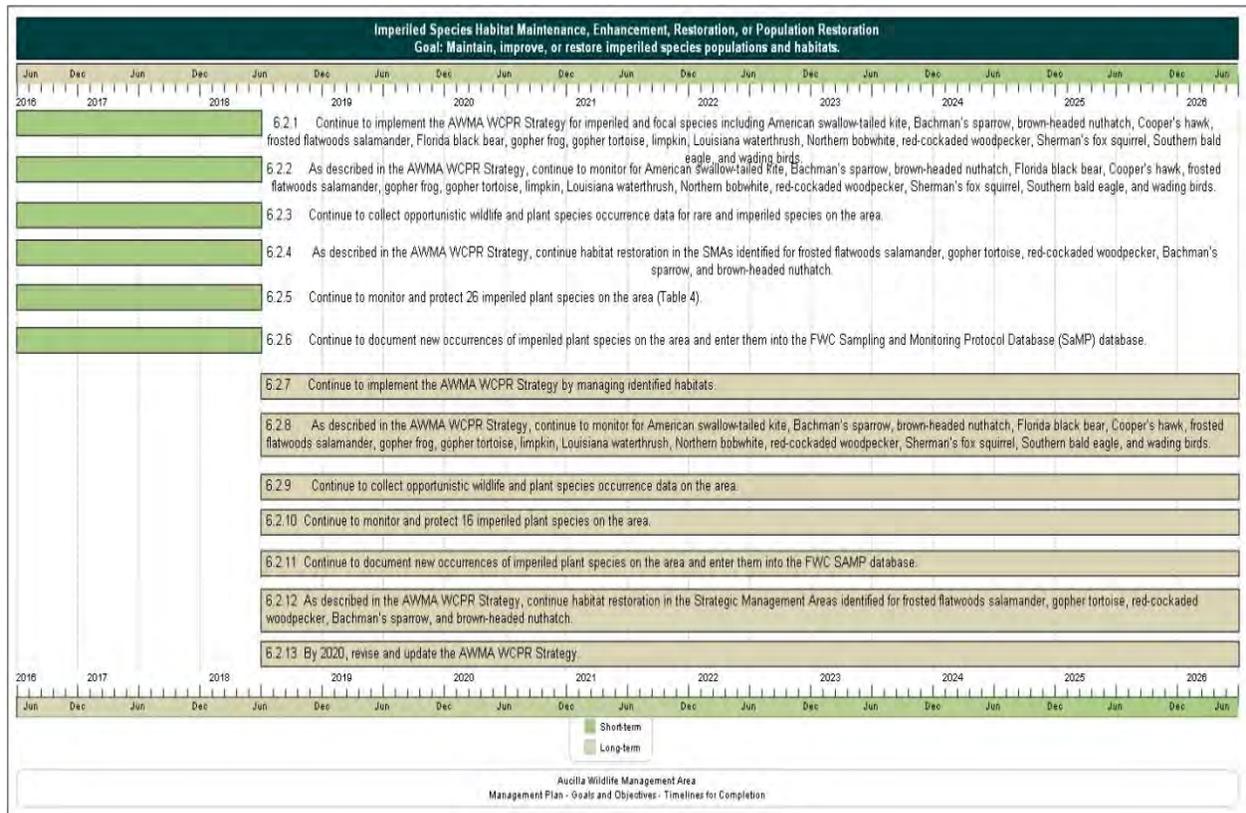
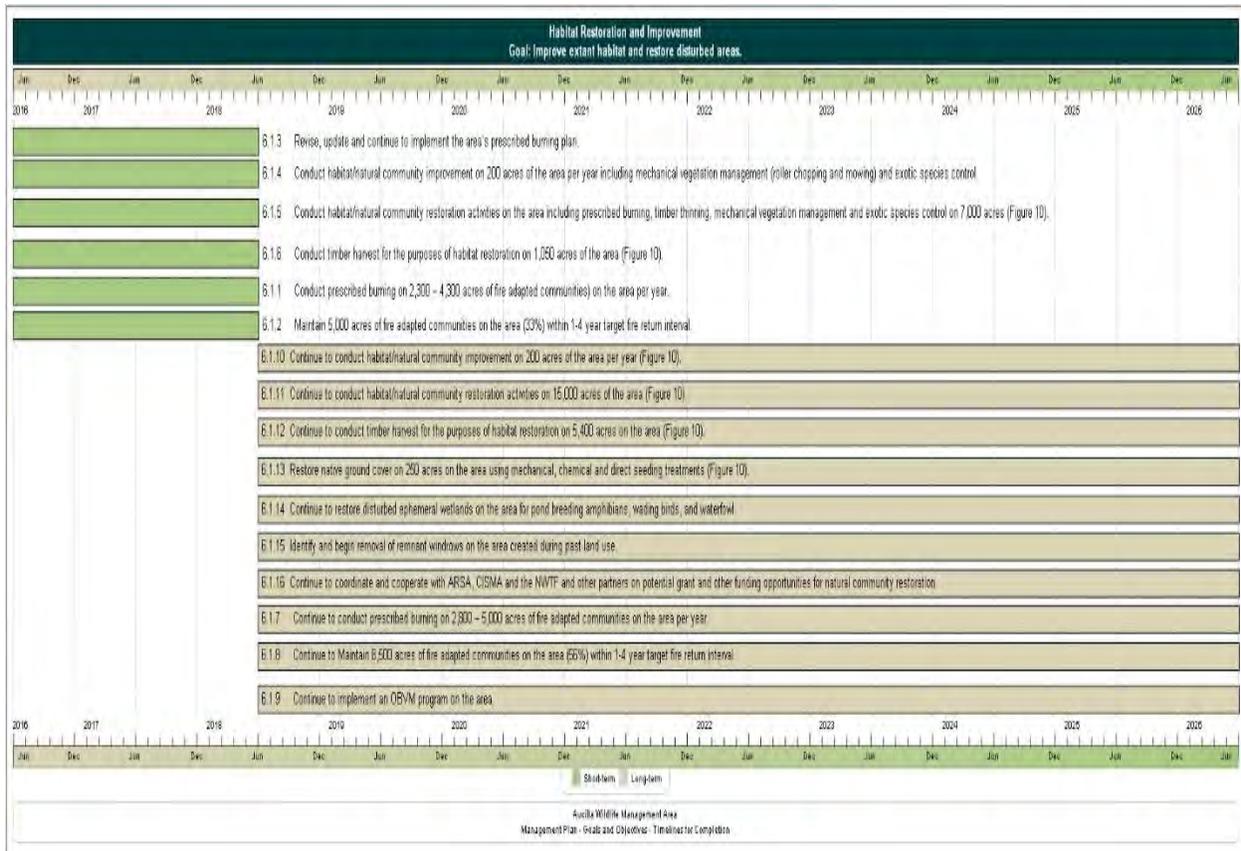


Figure 10. Objectives Map for Aucilla WMA

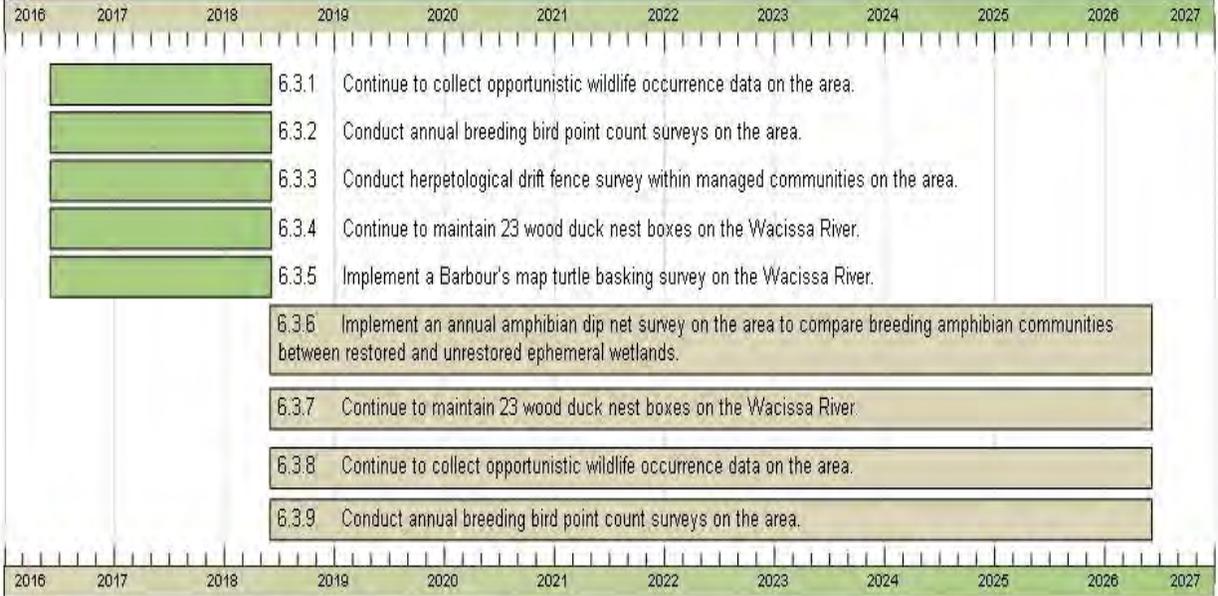
7 Schedule: Timelines for Completion of Resource Management Goals and Objectives

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





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.

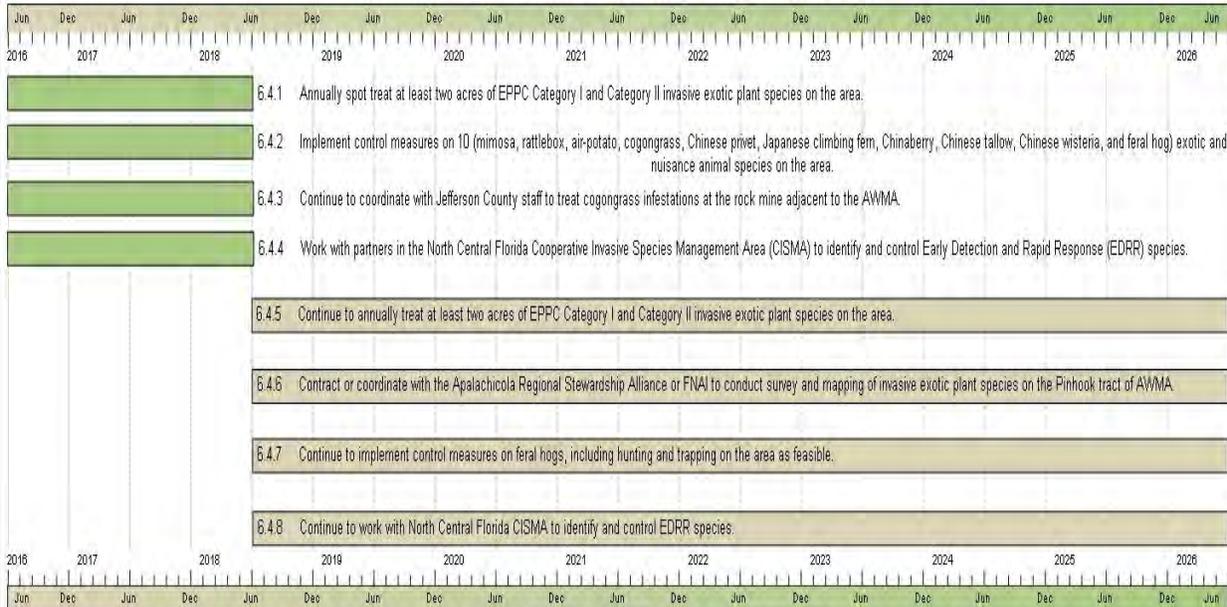


Short-term Long-term

Aucilla Wildlife Management Area
 Management Plan - Goals and Objectives - Timelines for Completion

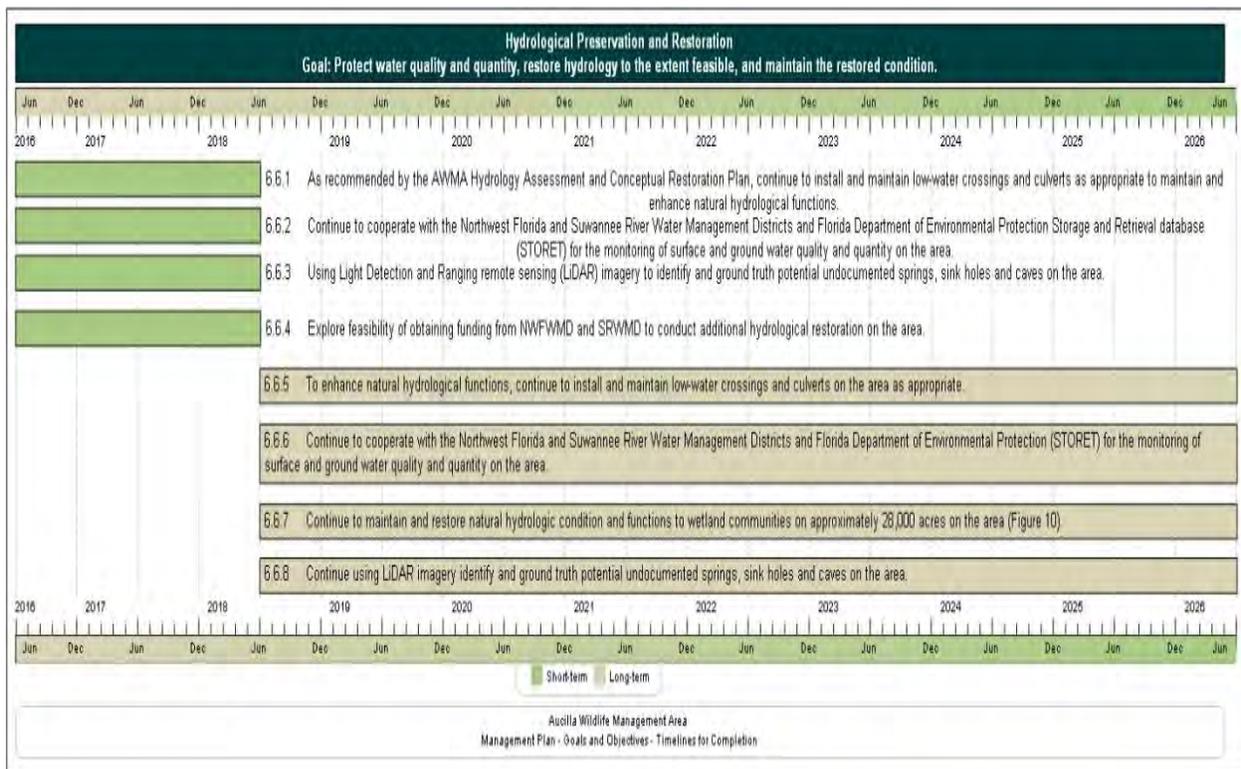
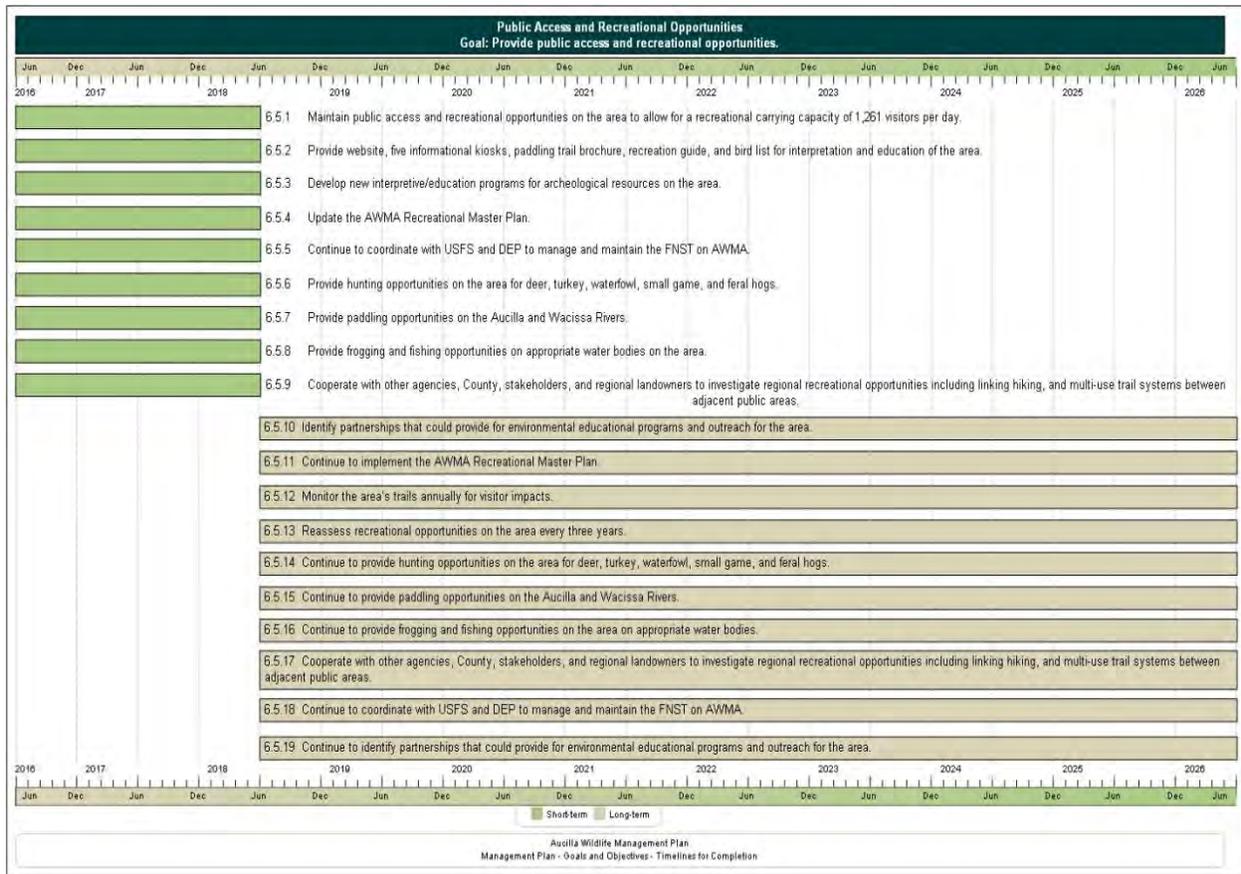
Exotic and Invasive Species Maintenance and Control

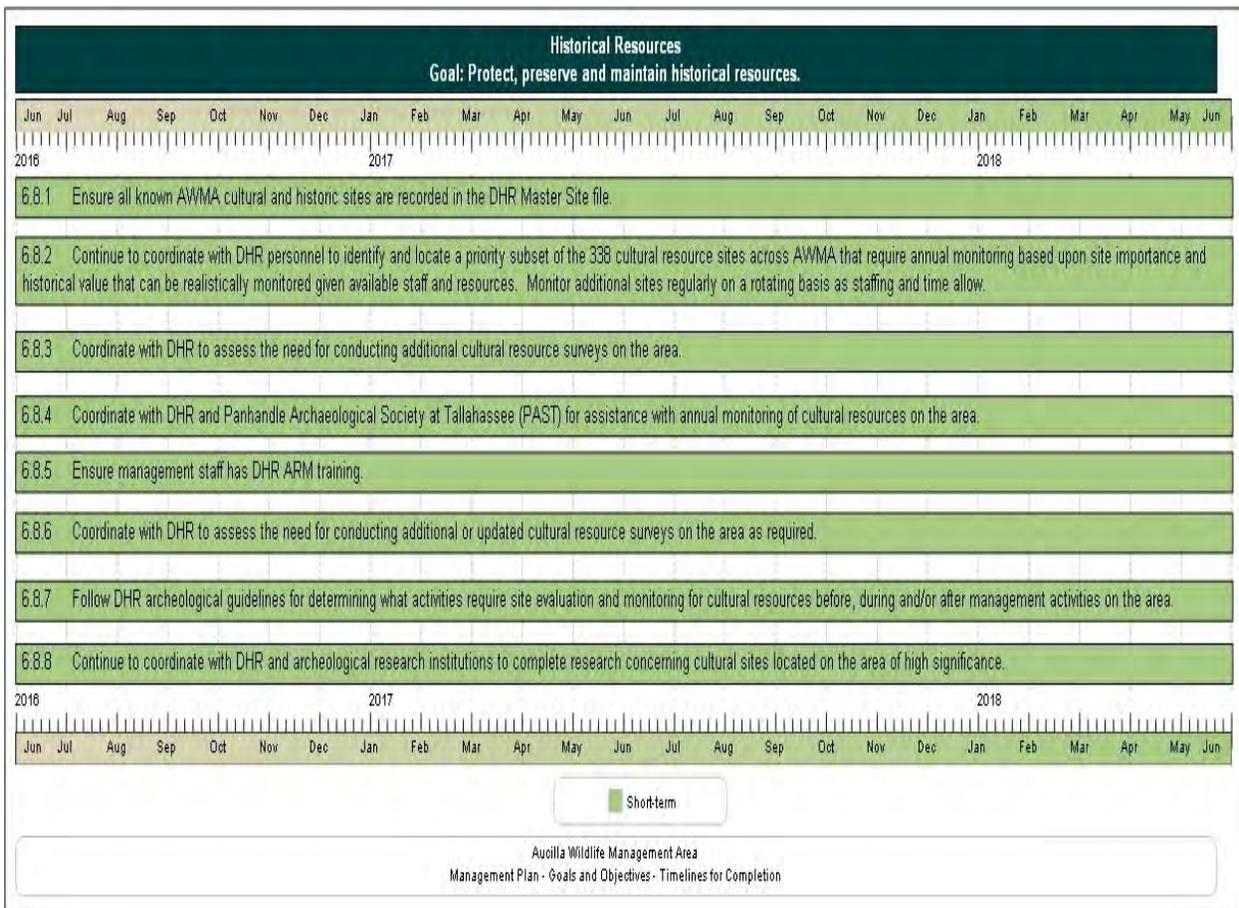
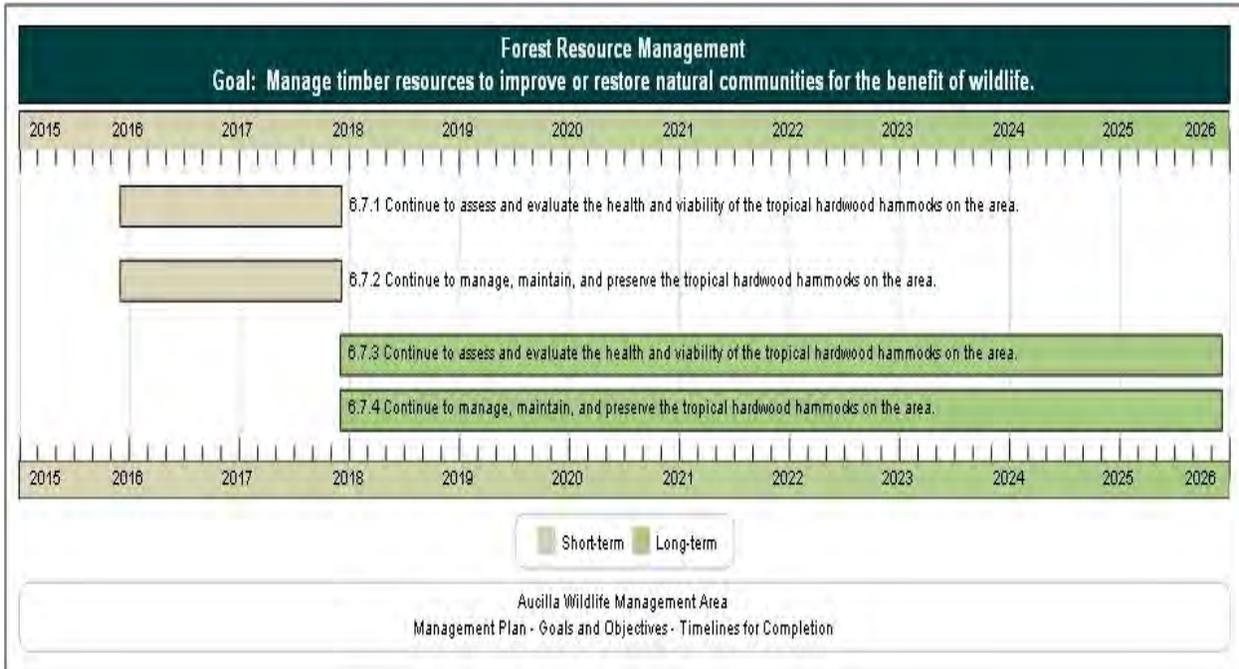
Goal: Remove exotic and invasive plants and animals and conduct needed maintenance and control.

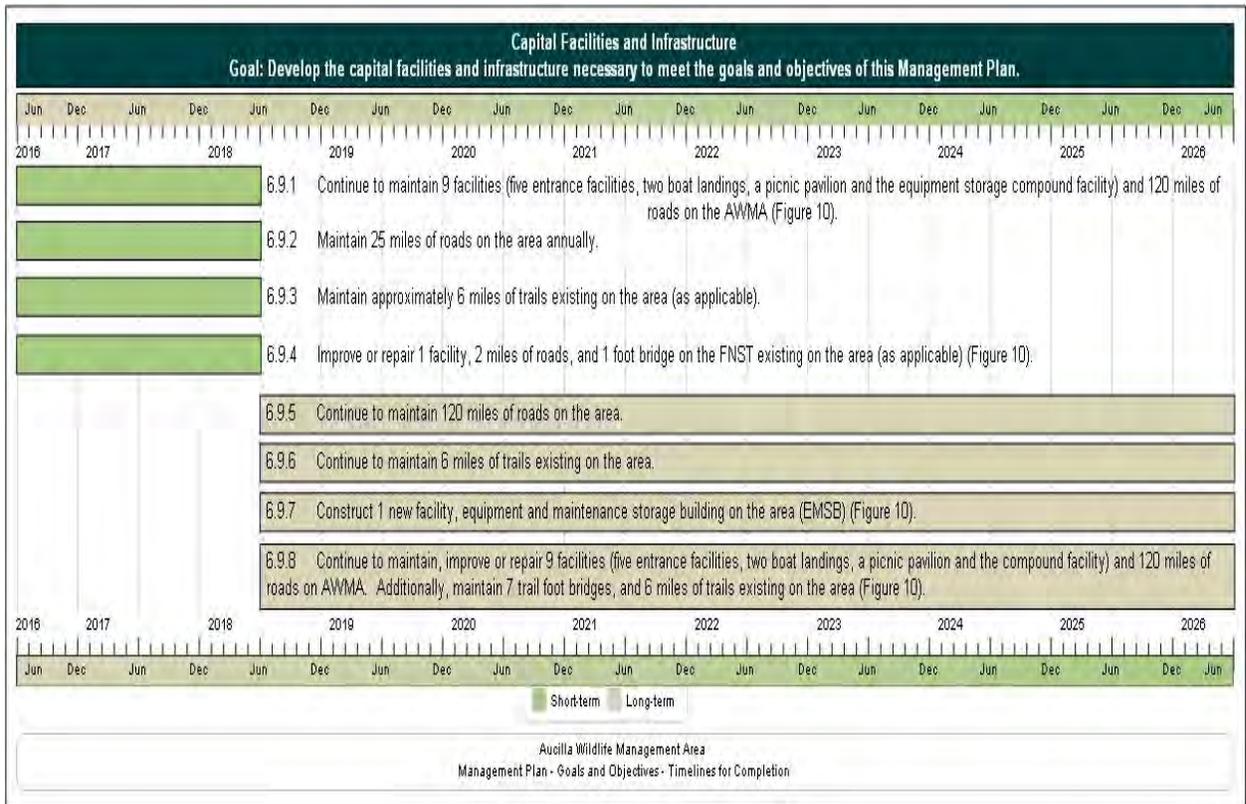
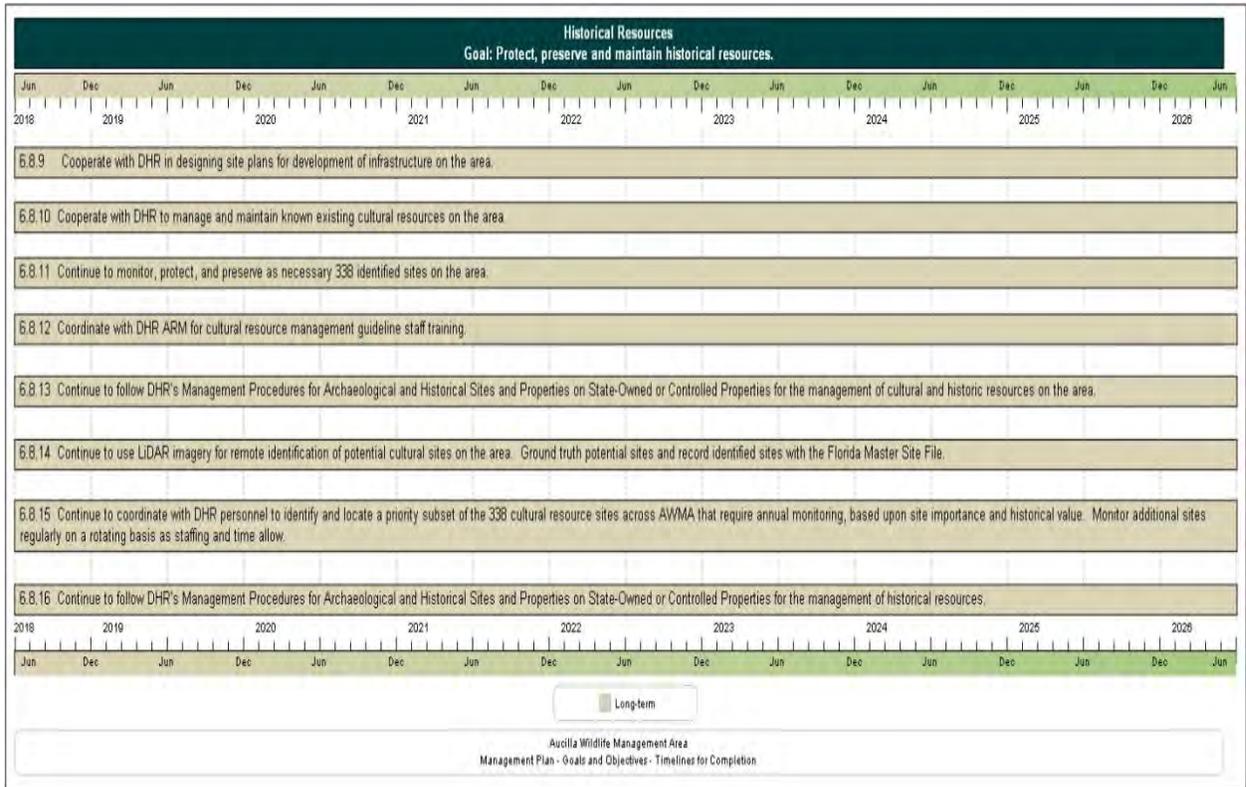


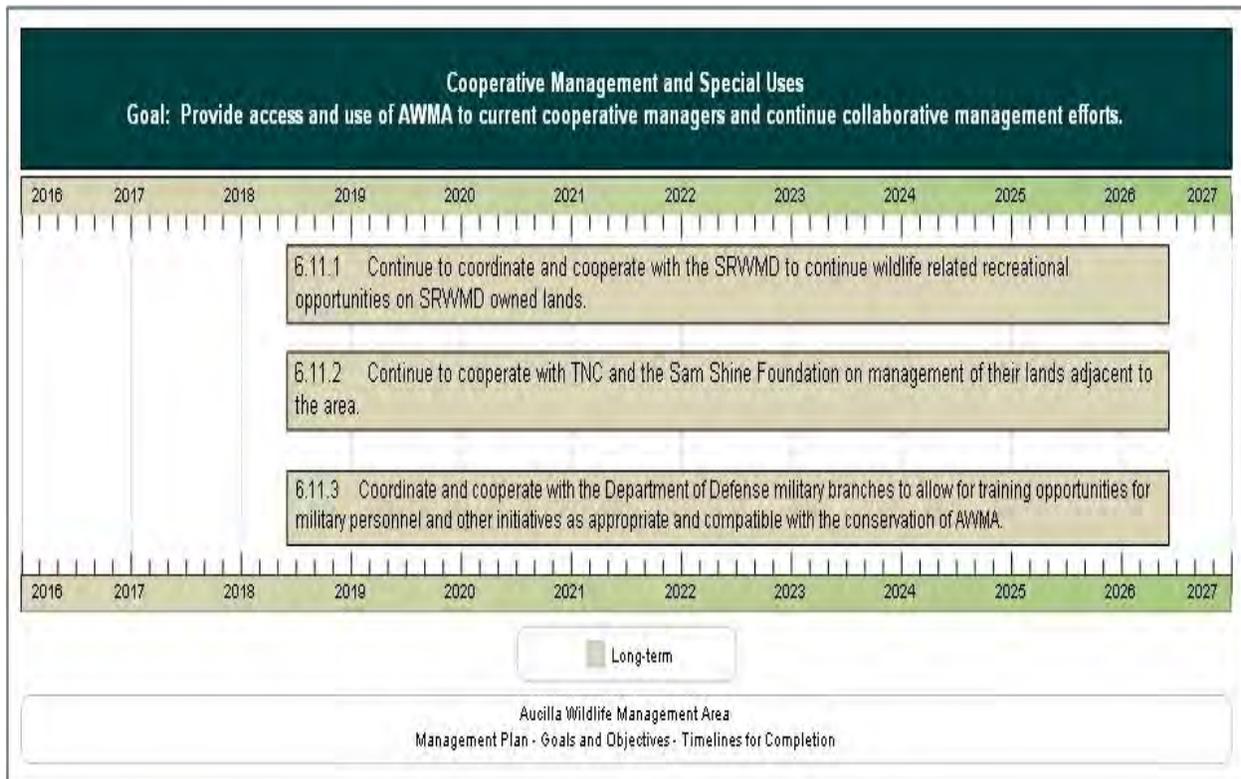
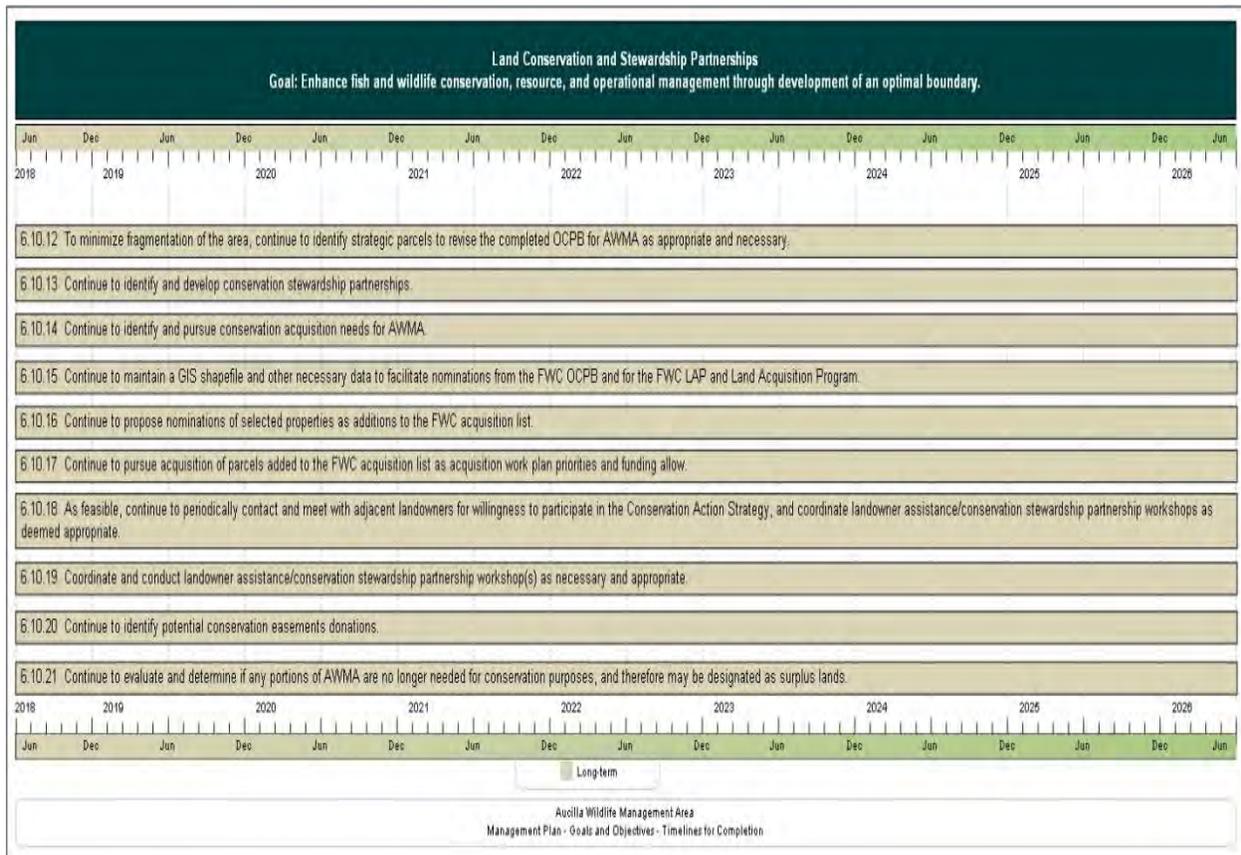
Short-term Long-term

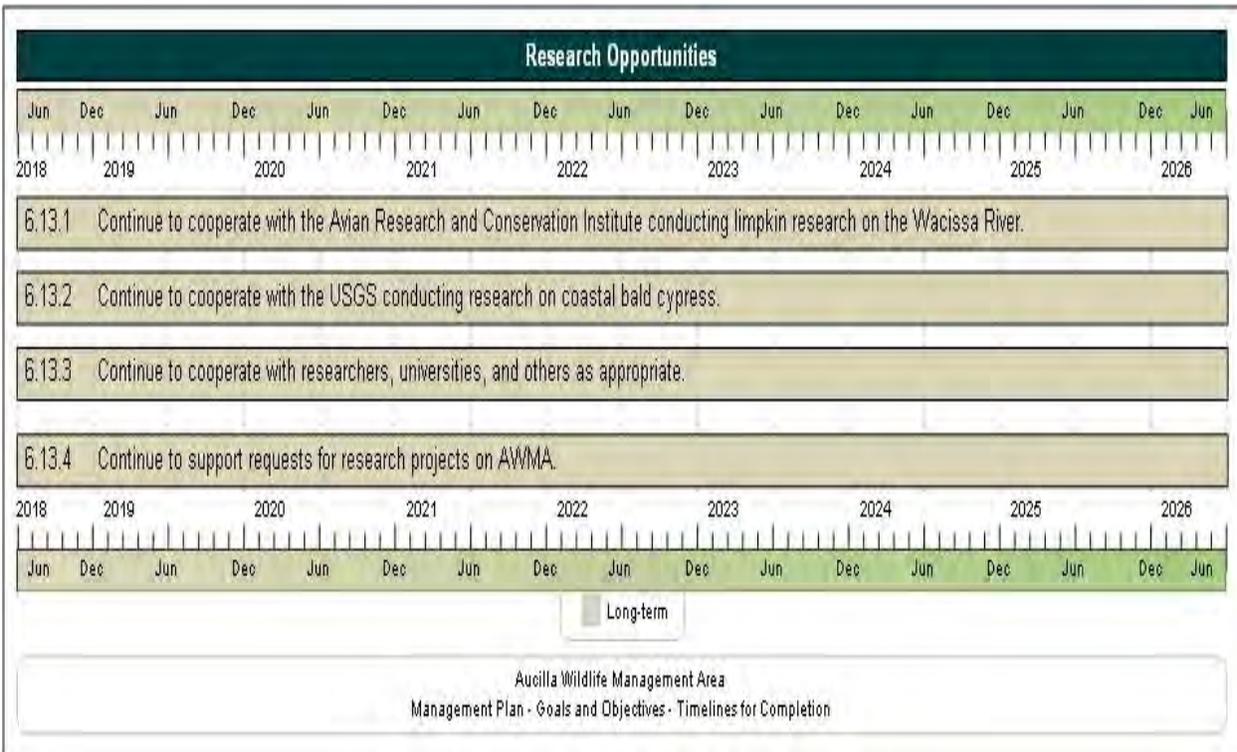
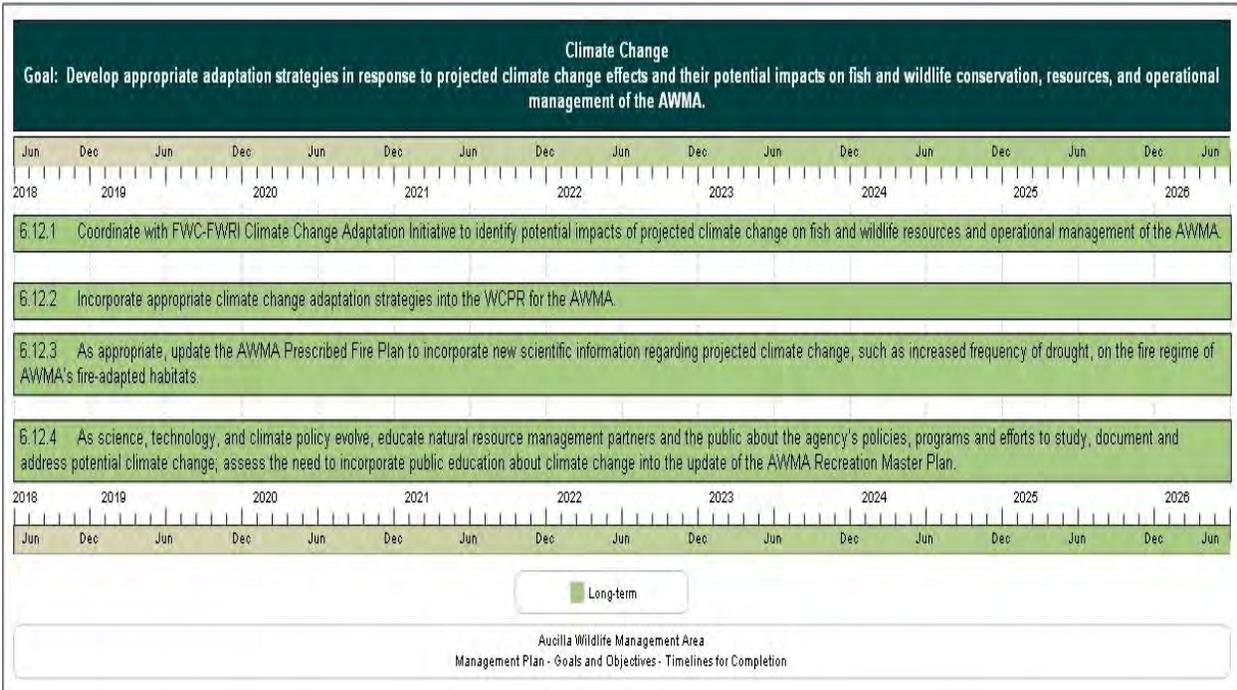
Aucilla Wildlife Management Area
 Management Plan - Goals and Objectives - Timelines for Completion











8 Resource Management Challenges and Strategies

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

Challenge 1: Feral hogs are continuing to cause damage to habitat area wide. Substantial damage has been observed in areas where significant restoration efforts have taken place. These include ground cover restoration sites and ephemeral wetlands that were restored for management of flatwoods salamander breeding habitat. Damage has also been documented at multiple archaeological sites. To maximize recreational pressure on hog populations, size and bag limits have been removed and recreational hunting has been expanded to include all of the small game season and spring and summer hog dog hunts. Despite these efforts, anecdotal observations suggest that hog damage is steadily increasing on the area. In some areas the damage is severe enough so as to impede the ability of fire to carry across the landscape.

Strategy: Continue to utilize hog hunting as a control measure.

Strategy: Contract out or purchase equipment for area staff to implement hog trapping efforts using a whole sounder removal approach.

Challenge 4: Previous land uses have resulted in population declines or extirpation of several management responsive WCPR focal species.

Strategy: Explore the long term need and feasibility of reintroducing WCPR focal species that have been extirpated from the AWMA.

Challenge 5: Previous land uses have left thousands of meters of windrows. Windrows can create a barrier to the movement of wildlife and create fire control problems.

Strategy: As timber is thinned in these areas, mechanically remove the windrows, incorporating them back into the landscape.

Challenge 6: Degradation of sensitive natural communities is occurring due to inappropriate usage, primarily off-road vehicle use.

Strategy: Install gates and road barriers to prevent vehicles from leaving named and numbered roads to operate on closed roads and trams, fire-lines, or across country.

Strategy: Evaluate the potential of further restricting or prohibiting the use of ATVs on those units where they are routinely being used off-road illegally and causing damage to sensitive habitats.

Strategy: Improve compliance with designated road regulations through directed law enforcement patrols of problem areas.

Challenge 7: Currently the existing level of staffing and resources is inadequate to accomplish optimal management and address the management challenges at AWMA.

Strategy: Continue to seek funding and resources to meet the needs of staffing and resources within the AWMA Management Plan optimal management cost estimate (Section 9).

Challenge 8: Several sections of AWMA do not currently have legal public vehicle access available and FWC does not have secured easements on other access roads limiting management and maintenance and repair that can be completed on these roads to provide reasonable and safe public access.

Strategy: Pursue land acquisition, negotiate easements, and develop road use agreements with private property owners to enable the public to use roads and FWC staff to maintain roads that provide legal, reliable, adequate public access to each unit of AWMA.

Strategy: As a last resort and where possible, evaluate the feasibility of building new roads across state lands to access areas that are currently not accessible by roads incorporated into an easement or road use agreement.

Challenge 9: Facility and equipment vandalism, and littering have negative impacts on a number of natural resources on the area. Some of the impacts include; degradation to sensitive plant communities and water quality, degradation of the aesthetic qualities of the area, damage to wildlife species or their habitats, and increase management costs.

Strategy: Through news media outlets, postings at entrance kiosks, and signage, inform public about these activities and their detrimental effects on the area.

Strategy: Improve compliance with designated road regulations, litter laws, and protection of facilities and equipment through directed law enforcement patrols of problem areas.

Challenge 10: There are several prohibited activities occurring on the AWMA that degrade and destroy significant historical resources on the area.

Strategy: Improve compliance with the laws protecting looting and destruction of historical resources and designated road regulations through directed law enforcement patrols of problem areas.

9 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of AWMA. This cost estimate was developed using data developed by FWC

and other cooperating entities, and is based on actual costs for land management activities, equipment purchase and maintenance, and for development of fixed capital facilities. Funds needed to protect and manage the property and to fully implement the recommended program are derived primarily from the Land Acquisition Trust Fund and from State Legislative appropriations. However, private conservation organizations may be cooperators with the agency for funding of specific projects. Alternative funding sources, such as monies available through mitigation, may be sought to supplement existing funding.

The cost estimate below, although exceeding what FWC typically receives through the appropriations process, is estimated to be what is necessary for optimal management, and is consistent with the current and planned resource management and operation of AWMA. Cost estimate categories are those currently recognized by FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2015-2016 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 13.8.

Aucilla WMA Management Plan Cost Estimate

Maximum expected one year expenditure

<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	<u>Priority schedule:</u>
Exotic Species Control	\$12,990	(1)	(1) Immediate (annual)
Prescribed Burning	\$100,104	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	\$16,022	(1)	(3) Other (5+ years)
Timber Management	\$17,014	(1)	
Hydrological Management	\$32,400	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring,	\$150,196	(1)	
Subtotal	\$328,726		
<u>Administration</u>			
General administration	\$4,457	(1)	
<u>Support</u>			
Land Management Planning	\$38,860	(1)	
Land Management Reviews	\$33,608	(3)	
Training/Staff Development	\$39,351	(1)	
Vehicle Purchase	\$394,584	(2)	
Vehicle Operation and Maintenance	\$160,902	(1)	
Other (Technical Reports, Data Management, etc.)	\$31,492	(1)	
Subtotal	\$698,797		
<u>Capital Improvements</u>			
New Facility Construction	\$295,351	(2)	
Facility Maintenance	\$284,093	(1)	
Subtotal	\$579,445		
<u>Visitor Services/Recreation</u>			
Info./Education/Operations	\$28,601	(1)	
<u>Law Enforcement</u>			
Resource protection	\$42,252	(1)	
Total	\$1,682,277 *		

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

Aucilla WMA Management Plan Cost Estimate

Ten-year projection

<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	<u>Priority schedule:</u>
Exotic Species Control	\$114,130	(1)	(1) Immediate (annual)
Prescribed Burning	\$879,528	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	\$140,771	(1)	(3) Other (5+ years)
Timber Management	\$149,486	(1)	
Hydrological Management	\$284,669	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring,	\$1,319,636	(1)	
Subtotal	\$2,888,220		
<u>Administration</u>			
General administration	\$39,159	(1)	
<u>Support</u>			
Land Management Planning	\$341,427	(1)	
Land Management Reviews	\$96,207	(3)	
Training/Staff Development	\$345,739	(1)	
Vehicle Purchase	\$1,388,558	(2)	
Vehicle Operation and Maintenance	\$1,413,703	(1)	
Other (Technical Reports, Data Management, etc.)	\$276,693	(1)	
Subtotal	\$3,862,328		
<u>Capital Improvements</u>			
New Facility Construction	\$853,119	(2)	
Facility Maintenance	\$2,496,075	(1)	
Subtotal	\$3,349,194		
<u>Visitor Services/Recreation</u>			
Info./Education/Operations	\$251,290	(1)	
<u>Law Enforcement</u>			
Resource protection	\$371,231	(1)	
<u>Total</u>	\$10,761,422 *		

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

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

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

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

11 Compliance with Federal, State, and Local Governmental Requirements

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

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

Uses planned for AWMA are in compliance with the Conceptual State Lands Management Plan and its requirement for “balanced public utilization,” and are in compliance with the mission of FWC as described in its Agency Strategic Plan (Appendix 13.5). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters, 253, 259, 327, 370, 379, 403, 870, 373, 375, 378, 487, and 597 FS.

The FWC has developed and utilizes an Arthropod Control Plan for AWMA in compliance with Chapter 388.4111 F.S. (Appendix 13.9). This plan was developed in cooperation with the local Jefferson and Taylor counties arthropod control agencies. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Jefferson and Taylor counties, Florida, (Appendix 13.18).

12 Endnotes

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