13.2 Definitions of Management Plan Terms

Management Plan Terms and Definitions for Goals and Objectives

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

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

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

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

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

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

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

Hydrological assessment: A documented, systematic evaluation by a qualified professional of the existing and historical quantity, quality, movement and function of water resources (e.g., computer modeling).

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

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

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

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

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

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

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

Poor, fair, good condition: Evaluating the condition of cultural resources is accomplished using a three part evaluative scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists against the ideal. "Good" describes a condition of structural stability and physical wholeness, where no obvious

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

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

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

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

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

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

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

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

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

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

Sustainable forestry: The stewardship and harvest of forest products in a way, and at a rate, that maintains their biodiveristy, productivitiy, regeneration capacity, vitality, and

potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems.

Systematic survey: A sampling protocol designed to assess the occurrence or population status of a species or a suite of species (e.g., presence/absence, mark and recapture, transect survey, etc.).

Trail: a linear route or path which has been specifically prepared or designed for one or more recreational functions such as hiking, biking, horseback riding or multiple use. In many cases, unimproved service roads are also designated as trails.

Treatment: A mechanical, chemical, biological or manual action that changes the structure or composition of an area in order to facilitate restoration or improvement.

Visitor carrying capacity: An estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site.

Wildlife activities: wildlife-associated recreation such as birdwatching, fishing, hunting, etc.

13.3 Public Involvement

Chassahowitzka Wildlife Management Area (CWMA)

Management Advisory Group (MAG)

Consensus Meeting Results

May 16, 2012 in Brooksville, Florida

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

The CWMA consensus meeting was held on the morning of May 16, 2012 at Southwest Florida Water Management District (SWFWMD) offices, in Brooksville, Florida in Hernando County. The ideas found below were provided by stakeholders for consideration for the 2013 - 2023 Management Plan (MP) for CWMA with priority determined by vote. These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by FWC, the Acquisition and Restoration Council (ARC), and the Trustees of the Internal Improvement Trust Fund (Governor and Cabinet), the CWMA MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

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

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

Rank	# of Votes	Score	Idea
1.	[8]	[11]	1. **Manage and restore plants and animal communities for abundance, diversity and distribution of native species.** Self-explanatory.

Rank	# of Votes	Score	Idea	
2.	[7]	[19]	3.	**Restore natural fire regime, including fire interval and season. Increase burn area. Include mechanical and chemical means as appropriate to reduce fuel load.** Self-explanatory.
3.	[4]	[12]	8.	**Promote and enable multiple public recreation opportunities; coordinate with FWC public access staff.** Public recreational users are a valuable resource and we need to promote and enable those activities to generate good will in the public. We should involve and encourage public users to synergize with management activities. These groups are on the area all the time and can be the eyes and ears for management. This will promote buy-in from user groups.
4.	[4]	[13]	22.	**Protect the water; manage and protect hydrologic resources to include implementation of hydrologic assessment.** A comprehensive hydrologic restoration assessment exists and we need to continue forward with managing and protecting hydrologic resources.
5.	[4]	[15]	7.	**Control exotic plant and animal species and restore native communities.** Self-explanatory.
6.	[3]	[11]	25.	**Physically delineate selected boundaries facilitating natural resource management and public use administration; mark WMA boundary of adjacent landowners to prevent trespass.** To achieve our goals, we need to make sure the boundaries are identifiable and that the boundaries are obvious to the public.
7.	[3]	[13]	18.	**Use sustainable forest management to supplement revenue; develop a timber management plan.** Some areas of Chassahowitzka may need to be reforested and require supplemental planting. There may be opportunities to capture some of the value of the timber that needs to be removed. Not talking about row cropping pine trees.

Rank	# of Votes	Score	Idea	
8.	[3]	[15]	15.	**Continue inter-agency cooperation.** Currently the National Wildlife Refuge cooperates with FWC on hunting and we should continue this effort. There may be more opportunities for cooperative management such as exotic species control and prescribed burn coordination.

Two items of equal rank:

9T.	[2]	[6]	10.	**Ensure management provides habitat protection for imperiled wildlife species.** We need to make sure we use sound science and good management decisions for imperiled wildlife species. We should continue the Wildlife Conservation Prioritization and Recovery (WCPR) process that FWC uses for that purpose.
9T.	[2]	[6]	27.	**Assure an optimal boundary by identifying and pursuing acquisition, including as a buffer from development.** Self-explanatory.
11.	[1]	[1]	16.	**Utilize VERP process to determine proper levels of use. Focus resource monitoring on non-game species to understand impacts of public use and utilize adaptive management to mitigate impacts by users.** VERP = Visitor Experience and Resource Protection. Managing conservation land always has trade offs that need balancing. Determining carrying capacity for individual species and monitoring will aid in developing management strategies. We should use focusing, monitoring and adaptive management to minimize negative impacts on focal species by public use.
12.	[1]	[2]	29.	**Stop or limit dog hunts; provide catch boxes.** Self-explanatory.

Two items of equal rank:

Rank	# of Votes	Score	Idea
13T.	[1]	[3]	21. **Evaluate potential for primary entrance relocation and associated road and infrastructure development., including access to Buford and Eagle's Nest springs.** The primary entrance may not be in ideal location for user group access.
13T.	[1]	[3]	23. **Establish use compatible with natural community perpetuation.** We need to make sure we only allow uses that are compatible with and further wildlife and habitat management.
15.	[1]	[5]	24. **Obtain adequate staff and funding to promote environmental education through interpretive facilities and materials.** Self-explanatory.

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

6. **Resolve easements and access issues.** Easements have issues with determining who has rights to the easements and what those rights are. Ingress/egress versus access easements. Need to make sure people are following the stipulations of the easements.

11. **Utilize trained citizen volunteers for management.** Volunteers are being used in other areas for monitoring and they can be used successfully to protect wildlife at Chassahowitzka.

14. **Preserve historical areas.** Self-explanatory.

17. **Develop management objectives to address potential impacts of climate change on the area's resources.** Being a coastal area in Florida, climate change is something that should be considered in the management of the area.

Rank	# of Votes	Score	Idea

26. **Facilitate and conduct research and monitoring to optimally manage native plant and animal communities.** We need to validate our on-the-ground actions through research.

30. **Increase law enforcement presence or close Ryle Creek entrance.** This would discourage or prevent people from encroaching on adjacent landowners' property.

31. **Make deer visible.** Self-explanatory.

Chassahowitzka Wildlife Management Area
MAG Meeting Participants

Name	Affiliation
Active Participants	
Chad Allison	FWC Area Biologist
Lt. Kevin Grover	FWC Law Enforcement
Robert Kein	The Nature Conservancy
Ricky Lackey	National Wild Turkey Federation
Kevin Love	Florida Native Plant Society
Jim King	Hernando County Planning Department
Joyce Kleen	United States Fish and Wildlife Service
Butch Mallett	Florida Forest Service
Michael Poucher	National Association of Cave Divers
Supportive Participants	
Jeff McGrady	FWC HSC, Regional Biologist
Victor Echaves	FWC HSC, District Biologist
Jennifer Myers	FWC HSC, Conservation Biologist
Cory Burch	FWC HSC, Biologist
Jennifer Roberts	FWC HSC, Biologist
Beth Stys	FWC, Fish and Wildlife Research Institute
Tom M. Matthews	FWC, Office of Public Access and Wildlife Viewing Services
Rich Noyes	FWC, Office of Public Access and Wildlife Viewing Services
Luis Gonzalez	FWC HSC, Landowner Assistance Program
Judy Boshoven	Defenders of Wildlife
Invited but Unable to Attend	
Will Miller	SWFWMD
Linda Vanderveen	Hernando County Audubon Society
Miki Renner	Hernando Chapter Florida Native Plant Society
Commissioner John Druzbick	Hernando County Commission
Mary Glowacki	Department of State, Division of Historical Resources
Sine Murray	Department of Environmental Protection
Greg Hendricks	Natural Resource Conservation Service
Dan Hipes	Florida Natural Areas Inventory
Donald and Kelly Arnold	Landowners

FWC Planning Personnel

David Alden	Meeting facilitator
Michael Hallock-Solomon	Recorder
Gary Cochran	Conservation Acquisition and Planning Administrator

PUBLIC HEARING REPORT

FOR THE

CHASSAHOWITZKA WILDLIFE MANAGEMENT AREA MANAGEMENT PLAN

HELD BY THE

CHASSAHOWITZKA WMA MANAGEMENT ADVISORY GROUP AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

September 13, 2012 – HERNANDO COUNTY, FLORIDA

The following report documents the public input that was received at the Chassahowitzka Wildlife Management Area (CWMA) Management Advisory Group's (MAG) Public Hearing for the CWMA Draft Management Plan that was held at 7:00-9:00 PM, on September 13, 2012, at the Hernando County Kennedy Multi-Purpose Room in Brooksville, Florida.

CWMA Management Advisory Group Introduction:
The meeting was introduced by Mr. Kevin Love, a CWMA MAG participant**.** Mr. Love indicated that he was one of nine stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated MAG meeting held on May 16, 2012. Mr. Love stated that the draft Management Plan was being presented tonight by FWC staff, and that hardcopies of the draft plan and the MAG meeting report were available at the front door for the public's review. Mr. Love thanked everyone for attending and then introduced FWC staff Mr. David Alden, Land Conservation Planning Coordinator, FWC, to facilitate and coordinate the presentation of an overview of CWMA; FWC's planning process, and the draft components of the Management Plan.

Presentation on an Overview of CWMA and the FWC Planning Process: Mr. Alden welcomed everyone and thanked the public for their attendance. Mr. Alden then went over an orientation of the material and explained that the purpose of the public hearing was to solicit public input regarding the draft Management Plan for CWMA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mr. Alden then described the materials that were available at the door for public review, including the draft Management Plan and the CWMA MAG Meeting Report and Accomplishment Report. Mr. Alden then presented the agenda for the public hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mr. Alden then presented an overview and orientation of CWMA, including a description of the

natural communities, data about park visitors, money generated for the state by the park, wildlife species, recreational opportunities found on the area, surrounding conservation lands, surrounding Florida Forever lands, acquisition history, etc. He also explained FWC's planning process and asked if there were any questions regarding that process.

Questions, Answers and Discussion on the CWMA Overview and FWC's Planning Process: Mr. Alden facilitated an informal question and answer session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mr. Alden again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the draft Management Plan for CWMA, and not to discuss area hunting, fishing and use regulations. No questions or comments were received regarding the CWMA Overview and FWC planning process.

Presentation of the CWMA Draft Management Plan

At this point, Ms. Jenny Roberts, the CWMA Area Biologist began the presentation of the draft management plan. Ms. Roberts then completed and concluded the presentation of the CWMA Draft Management Plan.

Questions and Comments on the CWMA Draft Management Plan Presentation

Mr. Alden encouraged everyone to fill out a speaker card for public testimony. He informed them that all cards will be considered equally.

Public Question: An anonymous gentleman asked about the maintenance of sandhill and specifically how long our "long term" goals were.

FWC Response: Mr. Alden informed the gentleman that short term would be considered the first two years of the plan and long term would be the last eight. He informed the gentleman that they currently maintain 50% of sandhill within a 2-5 year fire return interval. And that the long term objective is to maintain 100% of sandhill with a 2-5 year fire return interval. He informed the gentleman that they did not have a specific deadline in the plan because it's dependent upon weather and manpower.

Public Question: An anonymous gentleman asked if FWC/CWMA was planning to do research on black bear populations on the site and if dog hunting had any effect on those populations to potentially create a black bear management plan.

FWC Response: Ms. Roberts informed him that they intended to do a literature search to see if that information was already out there. They did not have a large enough population to research on the property. As far as they know it does not affect black bear population but they may devote an actual study to it.

Public Testimony on the CWMA Draft Management Plan: Two members of the public audience submitted speaker cards indicating their intention to provide formal public testimony. Mr. Alden again emphasized that the public hearing was for taking input regarding the CWMA Draft Management Plan, and called the first speaker to the podium.

Public Testimony: Mr. Kevin Love: spoke and indicated that he was concerned with the roads through the WMA and making sure people aren't driving too fast and causing road kill; he wanted to make sure individuals understand what they're driving through. Mr. Love made the comment that a driving tour would be a good idea but, he's not sure how it would be with the current habitat. He's read some literature about the roads and vehicles and their affects on some of the species, like the indigo snake, and there were some data that suggested that even low-level traffic can fragment indigo snake habitat. He brought up the all-weather road through the sandhill and said that the road was impressive, it was recently re-stabilized and individuals could drive fairly fast down it. He also mentioned that from his experience of managing roads, even roads that are closed to the public generates road kill. Mr. Love also made the comment that the respiration work on the sandhill (the burning) is outstanding and the area is looking very good.

Mr. Love continued by stating that he was surprised and happy to see that information about the bear habitat management issue made it into the draft plan and that he wishes it had been there before. He made that comment that, before CWMA and FWC decide to establish potentially impacting uses in the hydric hammock and associated flatwoods, the Commission should do research to determine what that kind of use would have on those habitats. He said that black bear management project research using a literature search is great but there needs to be more work done to determine what hunts and other activities are doing to the hospitableness or hostility of the bear habitat. He wanted to know if CWMA is exceeding the usage of those areas for recreational use to create negative effects on the area and the species that utilize that area. He suggested they go out and monitor resources relative to those potential impacts to mitigate those impacts.

Public Testimony: An anonymous gentleman whose first name was Dennis wanted to thank everyone for putting on a great presentation and said that he's sorry more of the public did not show up. He mentioned that he knows the drive-thru trail makes an impact on the area but that this trail is an intrinsic part of this feature. He said that if there were places to pull off and if there were signage, people would have a reason to slow down or stop. Or, in off-season, CWMA could encourage fox squires to hang out around there so people would stop. He knows that people do drive through there a little too fast. He added that he agrees that the bear literature study is great and that he hasn't had much luck finding anything about bear studies that would be helpful. After people understand more about the bears, they would adapt to the impact they make on those bears and their habitat.

FWC Response: Mr. Richard Noyes, FWC Section Leader for the FWC Office of Public Access and Wildlife Viewing (OPAWV) asked the audience who provided testimony, if they were able to find the driving tour guide. He informed the public that FWC OPAWS tries to set up stations along the road tour to provide up-to-date information about the area. He understands that the information here needs to be updated some due to some of the updates Jenny has made on the area and that FWC will make those changes.

Adjournment: Mr. Alden asked if there were any other members of the public that wished to give public testimony. Mr. Alden declared the public hearing adjourned.

Additional written comments submitted for the Chassahowitzka WMA Draft Management Plan 2012 Public Hearing Report:

From: hope
Sent: Thursday, September 13, 2012 5:37 PM
To: Shelton, Rebecca
Subject: Re: Information for the CWMA public hearing

Hello Rebecca,

Thank you for your assistance today with the contact information for the Chassahowitzka Wildlife Management Area Advisory Group.

Due to transportation issues (one car family, and husband with only car on job site in Pinellas County), I will be unable to attend the Chassahowitzka Wildlife Management Area meeting this evening in Brooksville (it's just too hazardous a bike ride from our home in Chassahowitzka). I just spoke with Cindy Klein, and she also thanks you for your email regarding the new contact for Black Bear sightings and occurrence reports.

Please forward my comments regarding the need for some "off days" (days with no hunting) during the pleasant weather months for Environmental Education Groups (school groups, Educational Travel and Tour Groups, etc.), and other gun-shy non-consumptive recreational users in the Chassahowitzka Wildlife Management Area.

Having worked as an environmental educator and as an environmental tour guide, I have found it difficult to schedule school groups and international tour groups whose liability insurance advisor and/or legal advisor discourages group travel to sites with active hunting. The Chassahowitzka WMA hunt schedule often schedules 60 or more days in a row for hunting, during peak tourist season and the most pleasant dry weather times of the academic year.

It would be wonderful if the Chassahowitzka Wildlife Management Area Plan could incorporate more opportunities (days when there is no hunting) for Environmental Education Program groups, school groups, tour groups, and resident non-consumptive "wildlife watchers," nature photographers, etc., who fear co-use during hunting days, but would appreciate use during the pleasant, dry-weather months.

I share FWCC's desire to preserve and protect Florida's native habitats and wildlife. It would be wonderful if voters and their politicians understood the intrinsic value of preserving Florida's wilderness areas, and the need to continue to acquire preservation lands as wildlife corridors to connect the existing tracts.

I fear, however, if we don't offer more opportunities for environmental education groups, tourists, and other non-consumptive recreational users, that the next generation may not understand or value the Florida wilderness that we love and value. Scheduling some "off days" (no hunting days) or weeks during pleasant weather months would invite more hunt-shy demographics to experience the beauty and wonder of this exceptionally diverse exemplary tract of wilderness Florida.

Please consider adding some "off days," perhaps on the historically low attendance days or weeks of the normal hunting schedule during the dry, pleasant weather months, to accommodate more opportunities for environmental education, eco-tourists, and other non-consumptive recreational users at the Chassahowitzka Wildlife Management Area (the best "outdoor classroom" one can imagine!).

We are so grateful to have such a wonderful example of so many of Florida's intact natural communities in Chassahowitzka Wildlife Management Area.

Kudos to the park managers who have done such a wonderful job on the recent burn, and the restoration and maintenance of sandhill habitat.

We continue to observe many of Florida's imperiled plant and wildlife species in the Chassahowitzka WMA.

Thank you again for preserving and protecting the natural resources and intact natural communities at the Chassahowitzka WMA, while also offering exceptional opportunities for recreation and education.

The Chassahowitzka WMA, the adjacent SWFWMD Chassahowitzka Riverine Swamp Sanctuary and Springs, and the Homosassa Tract of the Withlacoochee State Forest, are a string of rare jewels on the Nature Coast. The last refuge for so many of our imperiled

species. We are so grateful for the foresight of those that secured them, and for those that insure their continued protection.

Thanks again,
E. Hope Corona
PRESS RELEASE

For release: July 25, 2012
SW Contact: Gary Morse, 863-678-3852
NC Contact: Karen Parker, 386-758-0525

Public Hearing for Chassahowitzka Wildlife Management Area Management plan is September 13, 2012.

The Florida Fish and Wildlife Conservation Commission (FWC) will hold a public hearing for the Chassahowitzka Wildlife Management Area (WMA) Management Plan on Thursday, September 13, 2012. The meeting will be at 7 p.m. at the Kennedy Multipurpose Room, 1000 Kennedy Blvd, Brooksville, Fl. 34601.

The purpose of this hearing is to receive public comment on a draft of a 10-year management plan the FWC is developing for Chassahowitzka Wildlife Management Area, in Hernando County. Components of the draft land management plan will be presented to the public, followed by a question-and-answer session and public testimony. This meeting is not designed to discuss area hunting regulations. For more information on FWC rule and regulation development go online to: MyFwc.com/RulesandRegs/ or call (850) 488-4676

A management prospectus for the Chassahowitzka WMA is available upon request from the FWC's Conservation Acquisition and Planning group. Call Rebecca Shelton at 850-487-9982, or David Alden at 850-487-9588, or e-mail Rebecca.Shelton@MyFWC.com for the prospectus.

For more information, go to MyFwc.com/conservation/terrestrial/management-plans/.
RS/HSC
PCB/SCB
WBD/SCB

NOTICE

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

PUBLIC HEARING

For the

Chassahowitzka

Wildlife Management Area

Management Plan

Hernando County, Florida

7:00 P.M. Thursday, September 13, 2012

Kennedy Multi-Purpose Room
1000 Kennedy Blvd
Brooksville, FL. 34601

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Chassahowitzka Wildlife Management Area (WMA). This hearing is being held EXCLUSIVELY for discussion of the DRAFT Chassahowitzka WMA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development go online to: myfwc.com/about/rules-regulations/rule-changes/ or call (850) 487-1764.

A Management Prospectus for the Chassahowitzka WMA is available upon request. For a copy, please contact Rebecca Shelton, Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9982.

FWC Webpage Screenshot of Public Hearing Notice for the CWMA Management Plan

NOTICE:

The Florida Fish and Wildlife Conservation Commission (FWC) announce a PUBLIC HEARING for the FWC managed portion of Chassahowitzka Wildlife Management Area located in Hernando County, Florida.

7:00 P.M. Thursday, September 13, 2012
Kennedy Multipurpose Room
1000 Kennedy blvd
Brooksville, Fl. 34601

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the Chassahowitzka Wildlife Management Area (CWMA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Chassahowitzka WMA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development go online to: myfwc.com/about/rules-regulations/rule-changes/ or call (850) 487-1764.

A Management Prospectus for Chassahowitzka WMA and copy of the agenda is available upon request from the Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning Group, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-9982 or (850) 487-9767 or by e-mail at Rebecca.Shelton@MyFWC.com.
#8400 8/25,26,9/1,8/2012

Hernando Today

Published Daily

Brooksville, Hernando County, Florida

State of Florida }
County of Hernando } SS.

Before the undersigned authority personally appeared Judy Warnock, who on oath says that he/ she is the Legal Ad Coordinator of the Hernando Today / Hernando Sunday, a daily newspaper published at Brooksville in Hernando County, Florida, that the attached copy of advertisement being a

Legal Ads IN THE Hernando Today

In the matter of Legal Notices

In the Court, was published in said newspaper in the issues of

09/08, 09/01, 08/26, 08/25/2012

Affiant further says that the said Hernando Today / Hernando Sunday is a newspaper published at Brooksville in said Hernando County, Florida, and that the said newspaper has heretofore been continuously published in said Hernando County, Florida, each week and has been entered as second class mail matter at the post office in Brooksville, in said Hernando County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/ she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Judy Warnock

Sworn to and subscribed by me, this 10th day of September, A.D. 2012

Personally Known ✓ or Produced Identification ___
Type of Identification Produced ___

Denise Nohejl

DENISE NOHEJL
Notary Public - State of Florida
My Comm. Expires Dec 19, 2016
Commission # EE 829666
Bonded Through National Notary Assn.

Order # 0003204789

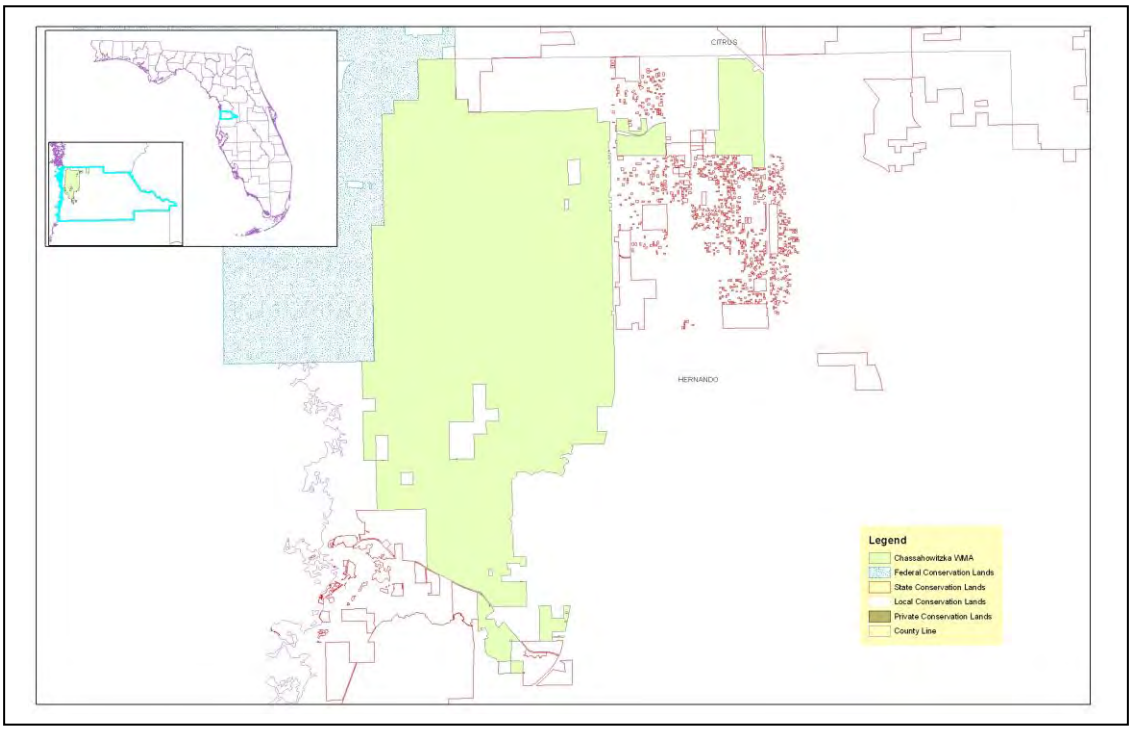
1360416 -- FLORIDA FISH AND WILDLIFE CONS

13.4 Land Management Review Report

Name of Site: Chassahowitzka WMA **County:** Hernando County

Managed by: Fish and Wildlife Conservation Commission **Acres:** 27,262.20 Acres

Review Date: 02/23/10



Review Team Determination

Managed in accordance with acquisition purpose? Yes =6, No = 0

Management practices, including public access, in compliance with the management plan? Yes =6, No = 0

Categories	Management Plan Review	Field Review
Natural Communities	0.69	3.10
Listed Species	0.55	3.75
Natural Resource Survey	0.57	3.68
Cultural Resources	0.50	3.00
Prescribed Fire	0.74	2.89
Restoration	0.77	3.99
Exotic Species	0.17	3.56
Hydrology	0.78	3.87
Groundwater Monitoring	0.83	3.67
Surface Water Monitoring	0.83	3.50
Resource Protection	0.79	4.13
Adjacent Property Concerns	0.67	3.25
Public Access & Education	0.87	3.69
Management Resources	N/A	3.92
Managed Area Uses	1.00	N/A
Buildings, Equipment, Staff & Funding	N/A	3.79

Consensus Commendations to the Managing Agency

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

1. The team commends the FWC for the bank stabilization work at the Weeki Wachee area, and the elimination of public misuse. (VOTE: 5+, 0-)

2. The team commends the FWC in the recent increase of burning activity, the removal of hardwoods in the sandhill, and the timber harvests in the pine plantations. (VOTE: 5+, 0-)

3. The team commends the FWC for the closing of firelines that are no longer needed, or are on ecotones. (VOTE: 5+, 0-)

Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The management plan must include responses to the recommendations identified below.

1. The team recommends that FWC continue restoration of the Weeki Wachee area, provide better signage for encouraging appropriate public access, and notifying of the no-waterfront access. (VOTE: 5+, 0-)

Managing Agency Response:
FWC notes that the review team commended FWC for the bank stabilization work at the Weeki Wachee area. FWC will continue to pursue restoration efforts in this area, consistent with management plan goals and objectives, and as feasible within budget constraints. FWC will evaluate the need for improved public access signage.

2. The team recommends that FWC explore increased use of volunteers. (VOTE: 5+, 0-)

Managing Agency Response:
FWC will evaluate the need and feasibility of increasing the use of volunteers.

3. The team recommends that FWC more intensive plants surveys, with an emphasis on rare and imperiled plants. (VOTE: 5+, 0-)

Managing Agency Response:
FWC has completed natural communities mapping and associated natural community descriptions. In addition, management area staff has received funding to conduct a Rare Plant Survey for CWMA.

Checklist Findings

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

- Natural Communities, specifically basin swamp, dome swamp, mesic/wet flatwoods, sandhill, scrub, scrubby flatwoods, mesic hammock, xeric hammock and spring run stream/sink.
- Listed Species, specifically animal inventory and plant inventory.
- Natural Resources, specifically listed species or habitat monitoring and other non-game species or habitat monitoring.
- Resource Management, specifically area being burned, frequency and quality.
- Restoration of Ruderal Areas, specifically planted pines and pine plantations.

- Hydrologic/Geologic Function, specifically roads/culverts, ditches, hydro-period alteration, water level alteration and bank stabilization on Weeki Wachee River.
- Ground/Surface Water Monitoring, specifically ground and surface water quality and quantity.
- Resource Protection, specifically boundary survey, gates/fencing, signage and law enforcement presence.
- Adjacent Property Concerns, specifically inholdings/additions.
- Public Access and Education, specifically roads, parking, boat access, wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities and management of visitor impacts.
- Managed Area Uses, specifically hunting, fishing, bird watching, hiking, bicycling, wildlife viewing/nature photography, canoeing, swimming, cave diving, nature based recreational opportunities, camping and an interpretive car tour.

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review (FR) were not considered sufficient (less than 2.5 score on average), or that the text noted in the Management Plan Review (PR) does not sufficiently address this issue (less than .5 score on average.). The management plan must include responses to the checklist items identified below:

1. Discussion in the management plan regarding Natural Communities, specifically Basin Marsh (PR,FR), Depression Marsh (PR,FR), Baygall (PR), Hydric Hammock (PR), Tidal Marsh (PR), Sandhill (FR), Scrub (FR), and Xeric Hammock (FR).

Managing Agency Response: FWC notes that the review teams checklist findings management actions exceeded expectation for natural communities, specifically basin swamp, dome swamp, mesic/wet flatwoods, sandhill, scrub, scrubbyflatwoods, mesic hammock, xeric hammock, and spring-run stream/sink. FWC has recently completed natural communities surveying, mapping, and associated natural community descriptions. FWC will incorporate this information in the next scheduled management plan update, as well as Objective-based Vegetative Management (OBVM) monitoring protocols. Furthermore, recent and upcoming assessments concerning ephemeral wetlands and hydrologic function will guide future management actions and restoration needs for the area's basin marsh, depression marsh, and hydric hammock communities.

2. Discussion in the management plan regarding Listed Species, specifically Sherman's Fox Squirrel and Black Bears. (PR)

Managing Agency Response: FWC notes that imperiled (listed) species, including Florida black bear, are described on page 10 of the current management plan. A list of all floral and faunal species found on CWMA is presented in Appendix IV on pages 57 – 72. Furthermore, FWC has established a Wildlife Conservation Prioritization and Recovery (WCPR) strategy for management of imperiled and select focal species. FWC will expand each of these plan sections (i.e., surveys, habitat monitoring), and will incorporate OBVM and WCPR information in the scheduled management plan update for CWMA.

3. Discussion in the management plan regarding Natural Resources Survey, specifically Fire effects monitoring, other habitat management effects monitoring, and invasive species survey/monitoring. (PR)

Managing Agency Response: FWC notes that the review team indicated that FWC's management actions exceeded expectations for listed species, specifically animal and plants inventories, listed species and habitat monitoring, as well as other wildlife species and habitat monitoring. Additionally, FWC notes that these subjects are discussed on pages 23, 25, and 27 of the current management plan. However, FWC will expand the discussion for each of these subjects in the scheduled management plan update.

4. Discussion in the management plan regarding Cultural Resources, specifically Cultural Resource Survey, Protection, and Preservation. (PR)

Managing Agency Response: FWC notes that cultural resources are discussed on pages 11, 12, 14, 24, 25, and in Appendix IX beginning on page 73. However, FWC will expand the discussion of cultural resources as appropriate and as recommended by the Florida Department of State's Division of Historical Resources in the scheduled management plan update.

5. Discussion in the management plan regarding Resource Management, specifically Area Being Burned and Frequency. (FR)

Managing Agency Response: FWC notes that the review team indicated that FWC management actions exceeded expectations for resource management, specifically for areas being burned, burn frequency and quality. Also, FWC notes management of fire-adapted communities, designated burn units, and associated fire return intervals are discussed extensively in the CWMA Burn Management Plan (Appendix X) beginning on page 121 of the current management plan. Furthermore, FWC has recently implemented OBVM desired future conditions and monitoring protocols to further guide management of fire-adapted communities. These OBVM desired future conditions and monitoring protocols will be described in the scheduled management plan update.

6. Discussion in the management plan regarding Restoration of Ruderal Areas, specifically Sandhill Restoration. (PR)

Managing Agency Response: FWC notes that the review team indicated that FWC management actions exceeded expectations for restoration of ruderal areas, specifically planted pines and pine plantations located on former sandhill. The review team also commended FWC for the removal of hardwoods and timber harvest of off-site pine species within the pine plantations. Furthermore, FWC notes that sandhill community restoration, improvement and off-site pine species removal are discussed on pages 10, 23, 27, and 29 of the current management plan. However, FWC will expand the discussion of ongoing sandhill and other restoration efforts in the scheduled management plan update.

7. Discussion in the management plan regarding Non-Native, Invasive & Problem Species, specifically Prevention and Control of Plants, Animals, Pests and Pathogens. (PR)

Managing Agency Response: The reference to "pests and pathogens" is not clear to FWC since it is not a required element of management plans. However, FWC will evaluate the need to address the issue of pests/pathogens in the scheduled management plan update.

FWC notes that invasive exotic species are discussed on pages 23 and 27. However, invasive exotic species, including plants and animals known to occur on CWMA, will be addressed further in the CWMA scheduled management plan update. Natural communities that may have occurrences and densities of non-native plant species will be addressed through FWC's OBVM desired future conditions and associated monitoring protocols. In addition, FWC has a standardized protocol for monitoring and treating exotic plants. These programs and protocols will also be discussed in the scheduled management plan update.

8. Discussion in the management plan regarding Hydrologic/Geologic Function, specifically Dams, Reservoirs or Other Impoundments. (PR)

Managing Agency Response: FWC notes that the review team indicated that FWC management actions exceeded expectations for hydrologic/geologic function, including roads/culverts, ditches, hydro-period alteration, water-level alteration, and bank stabilization at the Weeki Wachee area. Also, FWC notes that hydrologic/geologic function is discussed on pages 12, 25, 29, and 30 of the current management plan. However, FWC will expand the discussion of hydrologic/geologic function in the scheduled management plan update. Additionally, FWC has scheduled a hydrological assessment for CWMA scheduled to be conducted in the upcoming fiscal year. This assessment and associated recommended management actions will be included in the scheduled management plan update.

9. Discussion in the management plan regarding Adjacent Property Concerns, specifically Expanding Development. (PR)

Managing Agency Response: FWC notes that adjacent property concerns are discussed on pages 17-20, and page 27 of the current management plan. However, FWC will expand this discussion in the Adjacent Land Use section of the scheduled management plan update.

APPENDIX A:

PLAN REVIEW		1	2	3	4	5	6	AVERAGE
Natural Communities (I.A)								
Basin Swamp	I.A.1	1	1	1	1	1	0	0.83
Dome Swamp	I.A.2	1	1	1	1	0	0	0.67
Mesic/Wet Flatwoods	I.A.3	1	1	1	1	0	1	0.83
Sandhill	I.A.4	1	1	1	1	1	1	1.00
Basin Marsh	I.A.5	1	1	0	0	1	0	0.50
Scrub	I.A.6	1	1	1	1	0	1	0.83
Scrubby Flatwoods	I.A.7	1	1	1	1	0	0	0.67
Mesic Hammock	I.A.8	1	1	1	1	1	0	0.83
Xeric Hammock	I.A.9	1	1	1	1	1	0	0.83
Spring Run Stream/Sink	I.A.10	1	1	1	1	0	1	0.83
Depression Marsh	I.A.11	1	1	0	1	0	0	0.50
Baygall	I.A.12	1	1	0	0	0	0	0.33
Hydrick Hammock	I.A.13	1	1	0	0	0	1	0.50
Tidal Marsh	I.A.14	1		0	0		1	0.50
Listed species:Protection & Preservation (I.B)								
Animal Inventory	I.B.1	1		0	1	0	1	0.60
Sherman's Fox Squirrel	I.B.1.a	1		0	1		0	0.50
Black Bears	I.B.1.b				1		0	0.50
Plant Inventory	I.B.2	1		0	1	0	1	0.60
Natural Resources Survey/Management Resources (I.C)								
Listed species or habitat monitoring	I.C.2	1	1	0	1	0	1	0.67
Other non-game species or habitat monitoring	I.C.3	1	1	0	1	0	1	0.67
Fire effects monitoring	I.C.4	1		0		0	1	0.50
Other habitat management effects monitoring	I.C.5	1	0			0	1	0.50
Invasive species survey / monitoring	I.C.6	1		0		0	1	0.50
Cultural Resources (Archeological & Historic sites) (II.A,II.B)								
Cultural Res. Survey	II.A	1		0		0	1	0.50
Protection and preservation	II.B	1		0		0	1	0.50
Resource Management, Prescribed Fire (III.A)								
Area Being Burned (no. acres)	III.A.1	1		1	1	0	1	0.80
Frequency	III.A.2	1	0	1	1	0	1	0.67
Quality	III.A.3	1		1		0	1	0.75

Restoration of Ruderal Areas (III.B)								
Planted Pines	III.B.1	1	1	1		1	1	1.00
Pine Plantations	III.B.2	1	0	1		1	1	0.80
Sandhill Restoration	III.B.3	1		0		0	1	0.50
Non-Native, Invasive & Problem Species (III.E)								
Prevention								
prevention - plants	III.E.1.a	0	0	0	0	0	0	0.00
prevention - animals	III.E.1.b	1	0		0	0	0	0.20
prevention - pests/pathogens	III.E.1.c		0	0	0	0	0	0.00
Control								
control - plants	III.E.2.a	1	0	1	0	0	1	0.50
control - animals	III.E.2.b	1	0	0	0	0	1	0.33
control - pest/pathogens	III.E.2.c		0		0	0	0	0.00
Hydrologic/Geologic function Hydro-Alteration (III.F.1)								
Roads/culverts	III.F.1.a	1	1	1	1	0	1	0.83
Ditches	III.F.1.b	1	1	0	1	0	1	0.67
Hydro-period Alteration	III.F.1.c	1	1	1	1	0	1	0.83
Water Level Alteration	III.F.1.d	1	1	1	1	0	1	0.83
Dams, Reservoirs or other impoundments	III.F.1.e	1		0	1	0		0.50
Bank Stabilization on Weeki Wachee River	III.F.1.f	1	1	1	1		1	1.00
Ground Water Monitoring (III.F.2)								
Ground water quality	III.F.2.a	1	1	1	1	0	1	0.83
Ground water quantity	III.F.2.b	1	1	1	1	0	1	0.83
Surface Water Monitoring (III.F.3)								
Surface water quality	III.F.3.a	1	1	1	1	0	1	0.83
Surface water quantity	III.F.3.b	1	1	1	1	0	1	0.83
Resource Protection (III.G)								
Boundary survey	III.G.1	1	1	1	1	0	1	0.83
Gates & fencing	III.G.2	1	1	0	1	0	1	0.67
Signage	III.G.3	1	1	1	1	0	1	0.83
Law enforcement presence	III.G.4	1	1	1	1	0	1	0.83
Adjacent Property Concerns (III.H)								
Land Use								
Expanding development	III.H.1.a	1	0	1	0	0	0	0.33
Inholdings/additions	III.H.2	1	1	1		1	1	1.00
Public Access & Education								
Public Access								
Roads	IV.1.a	1	1	1		1	1	1.00
Parking	IV.1.b	1	1	1		1	1	1.00
Boat Access	IV.1.c	1	1	1			1	1.00

Environmental Education & Outreach								
Wildlife	IV.2.a	1	1	1		0	1	0.80
Invasive Species	IV.2.b	1	1	1		0	1	0.80
Habitat Management Activities	IV.2.c	1	1	1		0	1	0.80
Interpretive facilities and signs	IV.3	1	1	1		0	1	0.80
Recreational Opportunities	IV.4	1	1	1		0	1	0.80
Management of Visitor Impacts	IV.5	1	1	1		0	1	0.80
Managed Area Uses								
Existing Uses								
Hunting	VI.A.1	1	1	1	1	1	1	1.00
Fishing	VI.A.2	1	1	1	1	1	1	1.00
Birdwatching	VI.A.3	1	1	1	1	1	1	1.00
Hiking	VI.A.4	1	1	1	1	1	1	1.00
Bicycling	VI.A.5	1	1	1	1	1	1	1.00
Wildlife Viewing/Nature Photography	VI.A.6	1	1	1	1	1	1	1.00
Canoeing	VI.A.7	1	1	1	1	1	1	1.00
Swimming	VI.A.8	1	1	1	1	1	1	1.00
Cave Diving	VI.A.9	1	1	1	1	1	1	1.00
Proposed Uses								
Nature-based Recreational Opportunities	VI.B.1	1	1	1	1	0	1	0.83
Camping	VI.B.2	1	1	1	1	0	1	0.83
Interpretive Car Tour	VI.B.3	1	1	1	1	0	1	0.83
FIELD REVIEW		**1**	**2**	**3**	**4**	**5**	**6**	**AVERAGE**
Natural Communities (I.A)								
Basin Swamp	I.A.1	4	3	5	4	5	4	4.17
Dome Swamp	I.A.2	3	4	5	5	3	3	3.83
Mesic/Wet Flatwoods	I.A.3	3	3	4	3	3	3	3.17
Sandhill	I.A.4	2	2	2	3	3	2	2.33
Basin Marsh	I.A.5	1	1	1	3	3	1	1.67
Scrub	I.A.6	1	1	1	1	3	1	1.33
Scrubby Flatwoods	I.A.7	4	4	4	2	3	1	3.00
Mesic Hammock	I.A.8	4	5	4	4	4	4	4.17
Xeric Hammock	I.A.9	4	4	1	1	3	1	2.33
Spring Run Stream/Sink	I.A.10	5	1	5	5	4	5	4.17
Depression Marsh	I.A.11	2	1	3	2	2	2	2.00
Baygall	I.A.12	4	2	4	5	4	5	4.00
Hydrick Hammock	I.A.13	5	1	5	5	3	5	4.00
Tidal Marsh	I.A.14	3	1		5		4	3.25
Listed species:Protection & Preservation (I.B)								
Animal Inventory	I.B.1	4	3	4	5	2	4	3.67
Sherman's Fox Squirrel	I.B.1.a	4	3	4	5		4	4.00
Black Bears	I.B.1.b		3		4		4	3.67
Plant Inventory	I.B.2	4	3	5	4	3	3	3.67

Natural Resources Survey/Management Resources (I.C)								
Listed species or habitat monitoring	I.C.2	4	4	4	4	3	3	3.67
Other non-game species or habitat monitoring	I.C.3	4	4	X	4	2	3	3.40
Fire effects monitoring	I.C.4	4	4	4	4	3	4	3.83
Other habitat management effects monitoring	I.C.5	5	4		4	3	4	4.00
Invasive species survey / monitoring	I.C.6	4	4	4	3	3	3	3.50
Cultural Resources (Archeological & Historic sites) (II.A,II.B)								
Cultural Res. Survey	II.A	3	2	3	4	2	4	3.00
Protection and preservation	II.B	3	2	4	3	3	3	3.00
Resource Management, Prescribed Fire (III.A)								
Area Being Burned (no. acres)	III.A1	2	4	2	2	2	2	2.33
Frequency	III.A.2	2	1	2	3	2	1	1.83
Quality	III.A.3	5	4	5	4	4	5	4.50
Restoration of Ruderal Areas (III.B)								
Planted Pines	III.B.1	4	4	4	3	X	4	3.80
Pine Plantations	III.B.2	4	4	4	5	4	5	4.33
Sandhill Restoration	III.B.3	4	4	4	4	3	4	3.83
Non-Native, Invasive & Problem Species (III.E)								
Prevention								
prevention - plants	III.E.1.a	3	3	5	4	3	3	3.50
prevention - animals	III.E.1.b	3	3		3	3	2	2.80
prevention - pests/pathogens	III.E.1.c		3	5	5	3	3	3.80
Control								
control - plants	III.E.2.a	5	3	5	4	4	5	4.33
control - animals	III.E.2.b	4	3	4	3	3	3	3.33
control - pest/pathogens	III.E.2.c	4	3		5	3	3	3.60
Hydrologic/Geologic function Hydro-Alteration (III.E.1)								
Roads/culverts	III.F.1.a	4	4	5	5	3	4	4.17
Ditches	III.F.1.b	3	4	3	4	2	2	3.00
Hydro-period Alteration	III.F.1.c		4	4	4		4	4.00
Water Level Alteration	III.F.1.d		4	4	4	3	4	3.80
Dams, Reservoirs or other impoundments	III.F.1.e		4			3	4	3.67
Bank Stabilization on Weeki Wachee River	III.F.1.f	4	5	4	5		5	4.60
Ground Water Monitoring (III.F.2)								
Ground water quality	III.F.2.a	4	5	3	3	3	4	3.67
Ground water quantity	III.F.2.b	4	5	3	3	3	4	3.67
Surface Water Monitoring (III.E.3)								
Surface water quality	III.F.3.a	3	5	4	3	2	4	3.50

Surface water quantity	III.F.3.b	3	5	4	3	2	4	3.50
Resource Protection (III.F)								
Boundary survey	III.G.1	4	5	5	5	4	4	4.50
Gates & fencing	III.G.2	4	5	5	5	4	4	4.50
Signage	III.G.3	4	5	4	5	3	3	4.00
Law enforcement presence	III.G.4	4	3	4	3	3	4	3.50
Adjacent Property Concerns (III.G)								
Land Use								
Expanding development	III.H.1.a	4	3	4	3	3	2	3.17
Inholdings/additions	III.H.2	3	4	3	3	3	4	3.33
Public Access & Education								
Public Access								
Roads	IV.1.a	4	5	5	5	4	4	4.50
Parking	IV.1.b	4	4	5	5	3	3	4.00
Boat Access	IV.1.c	3	3	3	3		3	3.00
Environmental Education & Outreach								
Wildlife	IV.2.a	3	3	3	4	4	4	3.50
Invasive Species	IV.2.b	3	3	3	3	4		3.20
Habitat Management Activities	IV.2.c	3	3	3	4	4	4	3.50
Interpretive facilities and signs	IV.3	3	3	4	4	4	4	3.67
Recreational Opportunities	IV.4	3	3	5	4	4	5	4.00
Management of Visitor Impacts	IV.5	3	3	4	5	4	4	3.83
Management Resources								
Maintenance								
Waste disposal	V.1.a	4	4	4	4	4	4	4.00
Sanitary facilities	V.1.b	4	4	4	4	3	4	3.83
Infrastructure								
Buildings	V.2.a	4	4	4	5	4	4	4.17
Equipment	V.2.b	4	4	4	5	4	4	4.17
Staff	V.3	5	3	3	4	3	5	3.83
Funding	V.4	4	2	3	4	3	2	3.00

APPENDIX B:

I.A. Natural Communities

- Sandhill work is coming along very well.
- Excellent efforts to reintroduce fire to the sandhills, which has been augmented with Velpar oak control in some areas. Consideration to increasing the long leaf pine component in areas of low stocking is suggested. Managers have really turned the corner in improving condition of sandhills. Continue to focus on the use of growing season fire on a 1 to 3 year rotation. The 500 acres of hardwood flatwoods in the southern sandhills maybe bitten off too much restoration at one time. I would encourage consideration of piling and burn approach to minimize the smoke impact from burning a disposed logo and slash lying on the ground. Break it into smaller pieces (20-30 acres) to tackle a little at a time. Don't try burning it all at once. Burning and selective thinning of planted and heavily stocked natural strands of slash pine are greatly improving conditions and ground cover in the mesic flatwoods. Many are as recently burned show good ecotonal impacts where fire has pushed back in the growth of hardwoods and bush from imbedded hydric hammock, cypress domes and other wetland areas. More effort is needed in this regard, however in the same areas where burning has been absent and allowed too much weedy herbaceous growth in these wetlands transition zones. I encourage that in flatwoods areas where you've reintroduced fire to stay on a 2 to 4 year rotation, even a 2 to 3 year frequency until you get the stand in maintenance condition. Scrub island areas didn't look bad but needed fire treatment to reduce scrub layer following recent sand pine logging. Cypress domes in some areas appeared to be dehydrated and lacking recent, and were experiencing an increase in hardwood growth. In some cases the wetter dome swamps could be burned with wet lines along ecotones, so long as the soil contained adequate moisture. In other cases the 30-40 year old cypress component was greater and wetter and could be burned at the same time as surrounding habitat. The basin marsh needs fire. The ecotone has become overgrown and cypress has become established in areas. Suggest mechanically treating and/or burning adjacent habitat to avoid heat build-up in when burning the marsh, especially in areas near the residential community. Fire lines need to be removed from the ecotonal edges of the depression and basin marshes.
- Look forward to discussion of natural communities recently mapped by FNAI in the next management plan.

I.B. Listed Species

- FNAI completed survey of plants on site.
- More effort to schedule periodic surveys for herps and gopher tortoises is suggested, to at least update baseline data from 15 years ago.
- Would like to see more text on what imperiled species have been documented and actions to monitor, protect, etc. recommend sending imperiled species data to FNAI.

I.C. Natural Resources Survey/Management Resources

- Suggest establishing a system of photo plots in upland habitats.

II.A.B. Cultural Resources

- Trained site monitor is needed.
- Good effects to establish a protection zone around the old community sand mill site. Recommend a periodical visit to observe and document any looting or other undesired disturbances. Recommend the manager or staff be trained as an archeological site monitor. I also recommend contacting DHR for guidelines and priorities for monitoring all the existing sites and to identify special needs for additional surveys.
- Should consider developing interpretation for centralized sites. Existing kiosk is good, but the site is quite interesting. Recommend taking photos of FMSF sites to document and monitor.

III.A. Prescribed Fire

- Team is doing a fine job, the future looks good.

Over the last 4 years staff have averaged 1100 acres per year, however FWC has greatly increased their burning, having already burned 2000 acres. With 7000 burnable acres and a 2 to 4 year coverage return interval. Staff should be burning on average more than 2300 acres per year, which is well above what they have been averaging. However, their accomplishments this past year have

- been very encouraging, especially in the sandhill. Using a 1 to 3 year goal in sandhill the annual goal should probably be more like 3000 acres per year. Take advantage of growing season wildfire to return fire to these acres soon, so as to build on the positive groundcover and habitat impacts from the wildfire.
- Good prescribed burn efforts this year. Recommend more consistent follow up to mechanical treatment with fire.

III.B. Restoration

- Excellent silvicultural approach and execution of thinning treatments of existing pine plantations.
- Recommend addressing restoration of bahia grass/improved pasture in next management plan. Good restoration of pine plantations with tree thinning.

III.E. Non-native, Invasive & Problem Species

- Prevention of exotic species invasion could be augmented by including agreement with loggers for equipment inspections.
- Excellent job at monitoring and treating invasive plants. Very few invasive plants were observed. Some hog damage was seen on the north end.
- Recommend decontamination standard for equipment. Recommend evaluation of hog situation and possible implementation of eradication in addition to hunting.

III.F. Hydrologic/Geologic Function

- Planting needed on bank stabilization area.
- FWC needs to address need for a hydrological assessment for this WMA that addresses feasibility and priority for ditch removals and wetland restoration. Get more knowledgeable in what kind of data is being collected from your wetland areas and what it means.
- Hydrologic study needs to be done to address impacts of ditches on site.

III.G. Resource Protection

- Manager seems attentive and engaged in addressing the several boundary and illegal entry issue observed at the south end of the property.
- Recommend some sign changes at Weeki Wachee parcel- more positive.

III.H. Adjacent Property Concerns

- Smoke management concerns with expanding development.
- Include Chassahowitzka in comp plan language and submit comments from land manager.
- Continued effort is needed to educate and engage adjacent homeowner groups in management issues (i.e. burning, sandhill restoration) on the WMA.
- Recommend better coordination with Hernando County to address needs of WMA in county comprehensive plan with respect to development.

IV. Public Access and Education

- Very nice interpretive auto trail throughout the property. Wonderful information signage at various locations suggests continued effort to replant Weeki Wachee bluff site and to rethink public trail access and install more customer friendly and innovative signage. Over all though a diverse and multi-use originated day use recreation program.
- Good management of visitors at Weeki Wachee. Really nice driving tour. Recommend expanding volunteer program.

V. Infrastructure/Management Resources

- Larger office space is needed.
- Five FTE and one OPS. Increased use of volunteers.
- Fund more fauna/flora surveys.

V.I. Managed Area Uses

- Should consider adding nature study as a form of passive recreation.

13.5 Soils – Map Unit Descriptions

Map Unit Description

Citrus County, Florida

[Minor map unit components are excluded from this report]

Map unit: 23 - Weekiwachee-Durbin mucks

Component: Weekiwachee (45%)

The Weekiwachee component makes up 45 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits over limestone. Depth to a root restrictive layer, bedrock, lithic, is 40 to 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 47 percent. This component is in the R154XY009FL Salt Marsh ecological site. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The soil has a strongly saline horizon within 30 inches of the soil surface. The soil has a strongly sodic horizon within 30 inches of the soil surface.

Component: Durbin (40%)

The Durbin component makes up 40 percent of the map unit. Slopes are 0 to 1 percent. This component is on -- Error in Exists On --. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 53 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The soil has a strongly saline horizon within 30 inches of the soil surface. The soil has a strongly sodic horizon within 30 inches of the soil surface.

Map unit: 24 - Okeelanta-Lauderhill-Terra Ceia mucks

Component: Okeelanta (37%)

The Okeelanta component makes up 37 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Lauderhill (33%)

The Lauderhill component makes up 33 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Component: Terra Ceia (30%)

The Terra Ceia component makes up 30 percent of the map unit. Slopes are 0 to 1 percent. This component is on marshes on marine terraces on coastal plains. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map Unit Description

Citrus County, Florida

Map unit: 100 - Waters of the Gulf of Mexico

Component: Waters of the Gulf of Mexico (100%)

Generated brief soil descriptions are created for major soil components. The Waters of the Gulf of Mexico is a miscellaneous area.

Map Unit Description

Hernando County, Florida

Map unit: 1 - Adamsville fine sand, 0 to 2 percent slopes

Component: Adamsville (95%)

The Adamsville component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises, coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY003FL South Florida Flatwoods ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 2 - Anclote fine sand, 0 to 2 percent slopes, ponded

Component: Anclote (85%)

The Anclote component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on Pamlico marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 6 percent. This component is in the R154XY010FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 5 - Aripeka-Okeelanta-Lauderhill association

Component: Aripeka (35%)

The Aripeka component makes up 35 percent of the map unit. Slopes are 0 to 1 percent. This component is on rises on karstic marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits over limestone. Depth to a root restrictive layer, bedrock, lithic, is 23 to 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Okeelanta (30%)

The Okeelanta component makes up 30 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Lauderhill (20%)

The Lauderhill component makes up 20 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map Unit Description

Hernando County, Florida

Map unit: 6 - Arredondo fine sand, 0 to 5 percent slopes

Component: Arredondo (82%)

The Arredondo component makes up 82 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 9 - Basinger fine sand

Component: Basinger (85%)

The Basinger component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 10 - Basinger fine sand, depressional

Component: Basinger, depressional (75%)

The Basinger, depressional component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 14 - Candler fine sand, 0 to 5 percent slopes

Component: Candler (90%)

The Candler component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian deposits and/or sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY002FL Longleaf Pine-turkey Oak Hills ecological site. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 15 - Candler fine sand, 5 to 8 percent slopes

Component: Candler (90%)

The Candler component makes up 90 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian deposits and/or sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30

Map Unit Description

Hernando County, Florida

Map unit: 15 - Candler fine sand, 5 to 8 percent slopes

Component: Candler (90%)

inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 18 - EauGallie fine sand

Component: EauGallie, non-hydric (72%)

The EauGallie, non-hydric component makes up 72 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: EauGallie, hydric (10%)

The EauGallie, hydric component makes up 10 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 30 - Lacoochee fine sandy loam

Component: Lacoochee (70%)

The Lacoochee component makes up 70 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer, bedrock, paralithic, is 14 to 36 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. The soil has a strongly saline horizon within 30 inches of the soil surface.

Map unit: 35 - Myakka fine sand

Component: Myakka, non-hydric (64%)

The Myakka, non-hydric component makes up 64 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Myakka, hydric (20%)

The Myakka, hydric component makes up 20 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil

Map Unit Description

Hernando County, Florida

Map unit: 35 - Myakka fine sand

Component: Myakka, hydric (20%)

has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 37 - Okeelanta-Terra Ceia association

Component: Okeelanta (60%)

The Okeelanta component makes up 60 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Terra Ceia (30%)

The Terra Ceia component makes up 30 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 39 - Paola fine sand, 0 to 8 percent slopes

Component: Paola (90%)

The Paola component makes up 90 percent of the map unit. Slopes are 0 to 8 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 0 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 41 - Pits

Component: Pits (70%)

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

Map unit: 42 - Pits-Dumps complex

Component: Pits (50%)

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

Component: Dumps (40%)

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

Map Unit Description

Hernando County, Florida

Map unit: 43 - Pomello fine sand, 0 to 5 percent slopes

Component: Pomello (95%)

The Pomello component makes up 95 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 47 - Sparr fine sand, 0 to 5 percent slopes

Component: Sparr (85%)

The Sparr component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 49 - Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (90%)

The Tavares component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 53 - Weekiwachee muck

Component: Weekiwachee (80%)

The Weekiwachee component makes up 80 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits over limestone. Depth to a root restrictive layer, bedrock, lithic, is 40 to 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 47 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The soil has a strongly saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 50 within 30 inches of the soil surface.

Map unit: 99 - Water

Component: Water (100%)

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

Map Unit Description

Hernando County, Florida

Map unit: 100 - Waters of the Gulf of Mexico

Component: Waters of the gulf of mexico (100%)

Generated brief soil descriptions are created for major soil components. The Waters of the gulf of mexico is a miscellaneous area.

Map Unit Description

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

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

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

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

13.6 FNAI Element Occurrence Data Usage

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

April 11, 2014

David Alden
Land Conservation & Planning
Florida Fish and Wildlife Conservation Commission
Tallahassee, FL

Dear David,

By virtue of this letter we are updating and continuing our agreement that it is unnecessary for your office to request FNAI element occurrence data for each land management plan you prepare, under the following conditions:

- FNAI will continue to provide our Florida Element Occurrence GIS database to FWC on a quarterly update basis;
- The FNAI GIS data will be available to FWC staff for reference and incorporation as required in management plan review and preparation.

Our database manager, Frank Price, currently provides this update via ftp to FWC staff on a quarterly basis. Current FWC contacts for the quarterly update are Beth Stys and Ted Hoehn. We are pleased to continue this beneficial collaboration with the Florida Fish and Wildlife Conservation Commission.

Sincerely,

Gary Knight
Director
Florida Natural Areas Inventory

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

13.7 Cultural Resources of CWMA and Management Procedures Guidelines - Management of Archaeological and Historical Resources

Environmental Resource Analysis

Cultural Resources of Chassahowitzka WMA

Florida Sites

SITE NAME	SITEID	SITETYPE1	SITETYPE2	SITETYPE3	SITETYPE4	SITETYPE5	SITETYPE6	HUMANREMNS	Total Area (acres)	Percent of Area
CENTRALIA	HE00307	Building remains	Campsite (prehistoric)	Habitation (prehistoric)	Land-terrestrial	Lumber mill	No field investigation--reported by remote sensing	YES	133.94	0.49 %
CHAPMAN HUNT CAMP	HE00320	Lithic scatter/quarry (prehistoric: no ceramics)	Variable density scatter of artifacts						2.00	0.01 %
COON WALLOW	HE00076	Prehistoric lithics only, but not quarry							1.58	0.01 %
Eagle's Nest	HE00497								0.78	0 %
FENCELINE SANDHILL	HE00397	Prehistoric lithics only, but not quarry							0.14	0 %
HUNTERS TRAIL	HE00075	Prehistoric lithics only, but not quarry							1.25	0 %
LYKES 1	HE00056	Artifact scatter-low density (< 2 per sq meter)							0.13	0 %
LYKES 2	HE00057	Artifact scatter-low density (< 2 per sq meter)							0.22	0 %
LYKES 3	HE00058	Artifact scatter-low density (< 2 per sq meter)							0.22	0 %
LYKES 4	HE00059	Lithic scatter/quarry (prehistoric: no ceramics)							0.23	0 %
LYKES 5	HE00060	Lithic scatter/quarry (prehistoric: no ceramics)							0.27	0 %
MILITARY LANDING	HE00309	Homestead	No field investigation--reported by remote sensing	Other	Wharf / Dock / Pier				6.05	0.02 %
OAK GROVE	HE00310	Habitation (prehistoric)	No field investigation--reported by remote sensing	Historic refuse / Dump	Historic town				128.27	0.47 %
OLD CAMP	HE00339	Campsite	Artifact scatter-dense (> 2 per sq						1.99	0.01 %

		(prehistoric)	meter)					
POND HOLE	HE00457	Lithic scatter/quarry (prehistoric: no ceramics)	Prehistoric lithics only, but not quarry				4.08	0.01 %
PRISTINE PLACE	HE00394	Artifact scatter-dense (> 2 per sq meter)	Turpentine camp				0.32	0 %
RIVER COUNTRY	HE00436	Lithic scatter/quarry (prehistoric: no ceramics)					3.70	0.01 %
SEVILLE BURROW	HE00437	Historic refuse / Dump	Lithic scatter/quarry (prehistoric: no ceramics)				1.65	0.01 %
SISTER SINKS	HE00321	Lithic scatter/quarry (prehistoric: no ceramics)	Variable density scatter of artifacts				0.74	0 %
SOL BEND NORTH JUNCTION	HE00338	Campsite (prehistoric)	Artifact scatter-dense (> 2 per sq meter)				1.24	0 %
SOUTH OF PLANTED PINE	HE00322	Campsite (prehistoric)	Specialized site for procurement of raw materials	Lithic scatter/quarry (prehistoric: no ceramics)	Variable density scatter of artifacts		2.30	0.01 %
SPEED BUMP ROAD BORROW PIT	HE00396	Other					0.15	0 %
TURPENTINE HUNT CAMP	HE00395	House	Naval stores-related	Historic refuse / Dump	Prehistoric lithics only, but not quarry		0.24	0 %
VARNS HUNT CAMP	HE00319	Other	Lithic scatter/quarry (prehistoric: no ceramics)	Variable density scatter of artifacts			1.87	0.01 %
WAGON	HE00398	Land-terrestrial	Other				0.05	0 %
WEEKI WACHEE WALL	HE00392	Historic refuse / Dump	Ceramic scatter				0.17	0 %
WINDING WATERS	HE00393	Campsite (prehistoric)	Artifact scatter-low density (< 2 per sq meter)				0.09	0 %
						TOTAL:	293.67	1.07 %

Field Survey

TITLE	Total Area (acres)	Percent of Area
A Cultural Resources Survey of the Lykes Property (River Pines DRI) in Southwest Hernando County, Florida	281.91	1.02 %
An environmental-archaeological survey of the Lykes site, Hernando County, Florida.	281.91	1.02 %
Archaeological resources assessment survey of proposed improvements to SR 55/US 19, from SR 50 northerly to US 98, in Hernando and Citrus counties.	1.77	0.01 %

Excerpts from the Hernando County Comprehensive Plan, Historical and Archaeological Element	27,498.41	99.96 %
An Archaeological Inventory of the Chassahowitzka Wildlife Management Area, Hernando County, Florida	19,032.27	69.18 %
Cultural Resource Assessment Survey for the Suncoast Parkway - Project 2, Project Development and Environment (PD&E) Study, Citrus County, Florida	1.23	0 %
A Cultural Resource Assessment Survey Suncoast Parkway Reevaluation Areas Hillsborough, Pasco, and Hernando Counties, Florida	0.70	0 %
Cultural Resourse Assessment Survey, US 98 from the North Suncoast Expressway to US 19, Citrus and Hernando Counties, Florida	1.47	0.01 %
Cultural Resources Assessment of Recent C.A.R.L. Acquisitons, Including the Former Town of Centralia, Chassahowitzka Wildlife Management Area, Hernando County, Florida	4,466.06	16.23 %
Cultural Resources Survey and Inventory, Florida Gas Transmission Phase V Expansion, Gulf Power Lateral, Palmetto Power Lateral, Loop C, Loop D, Loop E, Loop G, Loop H St. Petersburg Lateral, Loop I St. Petersburg Lateral, Jacksonville Loop, and FP&L	35.79	0.13 %
Identification and Evaluation of Historic Properties Within the One Mile Area of Potential Effects of the Proposed 180-foot Winchester Plaza Telecommunications Tower (Verizon #086995-4), Hernando County, Florida (DEA Project #20308014)	29.23	0.11 %
A Cultural Resource Survey of the Eagle's Nest Dive Hole in Hernando County, Florida	1.44	0.01 %
A Cultural Resource Survey of the Seville Tract, Hernando County, Florida	34.28	0.12 %
A Phase 1 Cultural Resource Assessment Survey of the Florida Gas Transmission Company Phase VII Expansion Project	0.08	0 %
Cultural Resource Assessment Survey of the Glen Lakes Property, Hernando County, Florida	27.11	0.1 %
Section 106 Review of Proposed Tower Site Ridan Industries, LLC Tower Site - Chassahowitzka (No. FL-1220) 17076 Necklace Warbler Avenue, Weeki Wachee, Hernando County, Florida DEA No. 20607011	0.39	0 %
Final Environmental Impact Statement: Volume 1: Zone 2: State Road 52 to US 98 in Hernando County, Florida	47.66	0.17 %

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties

Revised March 2013

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Toll Free: (800) 847-7278
Fax: (850) 245-6435

13.8 FWC Strategic Plan

Florida Fish and Wildlife Conservation Commission
Agency Strategic Plan
2014 – 2018

Theme One – Florida's Fish and Wildlife Populations and Their Habitats

Goal 1: Ensure the sustainability of Florida's fish and wildlife populations.

Strategies:

1. Manage listed species so they no longer meet Florida's endangered and threatened listing criteria.

2. Manage species to keep them from meeting Florida's endangered and threatened listing criteria.

3. Anticipate and address fish and wildlife species' conservation needs in light of adaptation to long-term environmental changes.

4. Develop, acquire and apply the appropriate biological and sociological science to inform fish and wildlife conservation decisions.

5. Inform and guide partners regarding how their regulations, policies, procedures and other actions affect fish and wildlife conservation.

6. Protect fish and wildlife species through effective outreach and enforcement.

Goal 2: Ensure sufficient habitats exist to support healthy and diverse fish and wildlife populations.

Strategies:

1. Use science to determine quantity, quality and location of the habitats most critical to sustain healthy and diverse fish and wildlife populations.

2. Protect lands and waters critical to sustaining healthy and diverse fish and wildlife populations through diverse incentive programs.

3. Manage habitats to sustain healthy and diverse fish and wildlife populations.

Theme Two – Interactions with Fish and Wildlife, including Fishing, Hunting, Boating and Wildlife Viewing Opportunities

Goal 1: Provide residents and visitors with quality fishing, hunting, boating and wildlife viewing opportunities that meet their needs and expectations while providing for the sustainability of those natural resources.

Strategies:

1. Develop, acquire and use the appropriate biological and sociological science necessary to provide sustainable fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of user groups while providing for the sustainability of those resources.

2. Manage fish and wildlife populations to provide sustainable fishing, hunting, and wildlife viewing opportunities.

3. Develop and maintain widely available, diverse and accessible fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of residents and visitors while providing for the sustainability of those resources and emphasizing partnerships with both public and private landowners.

4. Recruit and manage sustainable levels of resident and visitor participation in fishing, hunting, boating and wildlife viewing.

5. Provide targeted fishing, hunting, boating and wildlife viewing programs for youth, the disabled and veterans.

Goal 2: Enhance the safety and outdoor experience of those who hunt, fish, boat and view wildlife.

1. Provide and promote opportunities for residents, and visitors to learn safety practices for fishing, hunting, boating and wildlife viewing.

2. Enhance the boating safety and waterway experience of residents and visitors through improved access, management, education and enforcement.

3. Promote Florida's outdoor environment as a safe and healthy recreational option for residents and visitors.

4. Address the growing disconnect between people and nature by marketing and providing opportunities and education for diverse age, race, gender, ethnic and other demographic sectors.

Goal 3: Use minimal regulations to manage sustainable fish and wildlife populations, manage access to fish and wildlife resources, and protect public safety.

Strategies:

1. Continually evaluate proposed and existing regulations, based on resource management benefits, public safety concerns, and economic and social impacts, to improve or eliminate regulations as warranted.

2. Coordinate with partners and stakeholders to ensure that appropriate authorities and regulations exist to maintain sustainable fish and wildlife populations.

3. Implement and enforce regulations in an informative, proactive and influential manner to enrich resident and visitors' outdoor experience while safeguarding the natural resources.

Goal 4: Minimize adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants that are known, or have a potential, to cause adverse impacts.

Strategies:

1. Manage species and their habitats, as well as species and human interactions, to eliminate or reduce the adverse environmental, social, economic and health and safety impacts from native and non-native fish, wildlife and plants.

2. Effectively communicate to residents, visitors and businesses how to be safe and act responsibly when interacting with or possessing fish, wildlife and plants.

3. Manage captive and non-native wildlife movement and trade through proactive and responsive enforcement, regulation and education, with an emphasis on species that pose a high risk to our native fish and wildlife.

4. Enhance partnerships to address adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants and ensure a consistent and integrated approach with FWC.

Theme Three – Sharing Responsibility for Fish and Wildlife Conservation and Management with an emphasis on developing conservation values in our youth

Goal 1: Ensure current and future generations support fish and wildlife conservation.

Strategies:

1. Expand and promote a network of youth conservation centers, programs and initiatives through leveraging FWC programs and staff, and developing public and private partnerships and sponsorships.

2. Develop and deliver standardized youth conservation curricula and fishing, hunting, boating and wildlife viewing outdoor activity programs, and assist with adapting programs and curricula to meet the needs of diverse communities.

3. Foster stewardship and shared responsibility for fish and wildlife conservation through conservation education programs.

4. Expand marketing and outreach to reach diverse audiences and engage all staff in priority outreach initiatives.

Goal 2: Ensure residents, visitors, stakeholders and partners are engaged in the processes of developing and implementing conservation programs.

Strategies:

1. Foster a common vision among partners and the FWC to maintain and enhance fish and wildlife populations and their habitats through interagency coordination, mutually beneficial goals and initiatives.

2. Engage residents, visitors, stakeholders and partners to understand their perspectives, develop and implement conservation programs, and implement fishing, hunting, boating and wildlife viewing management activities.

3. Use citizen science to enhance conservation programs.

Goal 3: Increase opportunities for residents and visitors, especially youth, to actively support and practice fish and wildlife conservation stewardship.

Strategies:

1. Inform residents and visitors about conservation stewardship and encourage their active involvement in achieving conservation of fish and wildlife.

2. Provide and promote opportunities for residents and visitors, especially youth, to participate in conservation stewardship activities, including FWC volunteer opportunities.

Goal 4: Encourage communities to conserve lands and waters critical to sustaining healthy and diverse fish and wildlife populations.

1. Provide communities with the necessary assistance to help them obtain the social and economic benefits of local conservation lands.

2. Provide residents and visitors with relevant information on the social and economic benefits of conservation, fishing, hunting, boating, and wildlife viewing.

3. Support community events and programs that promote fish and wildlife conservation.

Theme Four – Responsive Organization and Quality Operations

Goal 1: Integrate our commitment to benefit the community and enhance the economy through our conservation efforts and public service.

Strategies:

1. Identify and implement ways to support Florida businesses and job growth while managing fish and wildlife.

2. Identify and promote opportunities for staff to benefit local communities through participation in approved activities where FWC resources can be used (for example, the Florida State Employees' Charitable Campaign, the Guardian ad Litem Program, mentoring programs, FWC Disaster Response Teams, and American Red Cross Disaster Services).

3. Provide residents and visitors with reliable and current information on Florida's fish and wildlife.

4. Continue to attract visitors by providing top-quality fishing, hunting, boating and wildlife viewing opportunities.

Goal 2: Provide resources and support for the safety and protection of residents and visitors, our natural and cultural resources, and for emergency responses to critical incidents and environmental disasters.

Strategies:

1. Identify existing and emerging risks to the safety of residents and visitors and foster internal collaboration and external partnerships necessary to effectively manage, reduce or eliminate those risks. *(Note – new strategy)*

2. Provide immediate and effective disaster response and recovery through mutual-aid efforts with local, state and federal partners.

3. Provide search, rescue, and recovery services in coordination with local, state and federal entities to ensure the safety of residents and visitors.

4. Protect natural and cultural resources through proactive and responsive enforcement efforts.

Goal 3: Ensure the FWC has highly effective and adaptive business practices.

Strategies:

1. Address emerging biological, social and economic trends, anticipate impacts and take advantage of opportunities to accomplish FWC's mission. *(Note – new strategy)*

2. Expect each employee to be an ambassador for FWC and its mission to Florida's diverse residents and visitors.

3. Provide efficient and effective service to Florida's diverse residents, visitors, and FWC staff.

4. Foster a diverse, accountable, responsive and skilled workforce who effectively serves Florida's residents and visitors.

5. Manage existing and secure additional resources necessary to achieve fish and wildlife conservation and meet residents, visitor and stakeholder needs.

6. Create and maintain an effective business model that supports the FWC's mission by using continuous improvement approaches that foster a collaborative and professional culture.

13.9 CWMA Prescribed Burning Plan

Chassahowitzka Wildlife Management Area
Prescribed Burning Plan

INTRODUCTION

Fires, naturally occurring or man-induced, are an integral part of the ecology of the southern pine (*Pinus spp.*) region (Miller 1963) and have maintained a fire-dependent plant community in the southeast for countless years. Exclusion of fire reduces nutrient cycling and changes the vegetative community from an open canopy system to a closed one. The growth of dense brush shades out fire-dependent plants, including listed species, and has an adverse affect on fire-dependent wildlife such as the gopher tortoise. Exclusion of fires allows successional stages to occur until a climax hardwood community exists. Extensive areas covered by dense brush can lose much of their value to wildlife. Additionally, heavy fuel accumulation results in increased wildfire hazard.

Prescribed burning is used extensively in forestry and wildlife management for fuel reduction, brush control, disease and insect control, site preparation and wildlife habitat improvement. It is a recommended tool for management of such game animals as white-tailed deer (*Odocoileus virginianus*), bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*) and wild turkey (*Meleagris gallopavo*) (U. S. Forest Service 1969, Stoddard 1971). The value of prescribed fire to these and other animals, such as raptors and some songbirds, are well documented (Givens 1962, Miller 1963, Stoddard 1963). Prescribed fire benefits wildlife by reducing underbrush density, thus improving access, promoting the growth of succulent vegetation and lowering browse to feeding height of deer. Additionally, it benefits aesthetic values and enhances growth and fruiting of important wildlife food plants, such as dewberries (*Rubus spp.*) and blueberries (*Vaccinium spp.*) (Halls 1977).

BURN OBJECTIVES

Prescribed fire will be used on the Chassahowitzka Wildlife Management area (CWMA) as a habitat management tool exclusively or in conjunction with other management techniques to accomplish a variety of objectives. The primary objective for using prescribed fire on the CWMA is to restore and /or maintain fire-dependent native habitat communities. This will result in preserving native plant communities while simultaneously improving wildlife habitat. Secondary objectives for the use of prescribed fire include the maintenance of early successional habitats and timber management in some burn units. Early successional habitats are important for many species of wildlife found on the CWMA. Timber management is important in many of the burn units and prescribed fire will be used as a prep tool prior to forest regeneration; to help release recently planted longleaf pine; and to reduce understory vegetation prior to marking timber for sale.

The benefits that will be derived from prescribed burning on the CWMA include not only long term preservation of native plant communities and improved wildlife habitat but numerous others as well:

1) Reduction of fuel loads, which will help to prevent or mitigate effects of wildfires.
2) Enhancement of the area's aesthetics by controlling undesirable vegetation.
3) Control of exotic plant species.
4) Improved public access.
5) Increased success of longleaf pine regeneration.

DESCRIPTION OF AREA

The Chassahowitzka WMA is located between Weeki Wachee and Homosassa on US Highway 19. Highway 19 boarders the main parcel of the CWMA to the east. Nearby roads include US Highway 98 to the north, State Road 50/County Road

550 to the south, and the Suncoast Parkway to the east. The Weeki Wachee parcel lies south of County Road 550 and the Weeki Wachee river and River Country Estates boarder the parcel to the south. The Annutteliga Hammock lies south of US Highway 98 and west of the Suncoast Parkway.

The CWMA contains 33,919 acres of land including the western portion of the property that is managed by the United States Fish and Wildlife Service (USFWS). The property is comprised of the following natural communities as mapped by the Florida Natural Areas Inventory (FNAI) (Figure 1): Basin Marsh, Basin Swamp, Baygall, Bottomland Forest, Depression Marsh, Dome Swamp, Hydric Hammock, Mesic Flatwoods, Mesic Hammock, Sandhill, Scrub, Scrubby Flatwoods, Sinkhole Lake, Spring-run Stream, Tidal Marsh, Wet Flatwoods, and Xeric Hammock. Full descriptions of these communities, including the importance and recommended frequency of fire, are found in Appendix A. Excluded are the Tidal Marsh as it is managed by USFWS and the Sinkhole Lake and Spring Run Stream as they are not managed by fire.

PRESCRIBED BURNING PROGRAM

A. Firelines

Natural features (e.g. drains, creeks, rivers and swamps) and existing roads are utilized as firelines whenever feasible. Many of the roads that are utilized as firebreaks are maintained for public access and management. Firelines disked to mineral soil will be used when necessary. Nearby vegetation may be mowed or chopped to reduce fire intensity along firelines.

B. Size and Arrangement of Compartments

One-hundred and Twenty-six burn units have been delineated on the CWMA (Figure 2), averaging 83 acres in size (range: 3-468 acres). Ideally, burns should be conducted at 2-5 year intervals, or on a prescribed

need to burn in consecutive years if objectives are not accomplished. Burn units will be burned in a mosaic pattern when possible so species with small home ranges, such as bobwhite quail, have nearby escape cover. If burn days are limited due to weather constraints, several burn units may be burned on the same day. Additionally, 50% of the mesic flatwoods will be burned on a 5-10 year interval in order to provide a variety of habitat for the imperiled Florida Black Bear population on the area. Upland fire shadows and areas inside large swamps that rarely burn will also provide a variety of food and cover for black bears.

C. Type of Burn

Most burns will begin with a backfire along the downwind side of the unit. The rest of the unit will be burned with spot, flank, or headfires depending on fuel loads and desired fire intensity. Due to good fuel continuity and access on CWMA, the majority of burns will be ignited using ground crews instead of aerial ignition.

D. Season and Time of Day

Initially, most prescribed burning of sandhills and pine flatwoods will be conducted during the dormant season (October-March). When the heavy fuel loads have been reduced, burns will be switched to primarily growing season (April-September). Growing season burns are also favorable to bears as it reduces the risk of burning a den site. Burning potential den sites, such as thick areas along swamp edges, during February and March will be avoided whenever possible. Exceptions will be made if it is determined that an initial dormant season burn is nessecary to reduce fuel loads and burn windows are small. Burning will be conducted primarily during daylight hours; night burning will be approached with caution due to problems associated with smoke dispersal. If favorable conditions exist and permits can be obtained, night burning is an option.

E. Optimal Weather Conditions

For most of the CWMA, winds out of the east are typically desired for burning. These winds will push fire and smoke away from Highway 19 and away from nearby communities. Westerly seabreezes are most common during the summer months but can occur at any time of year. Seabreezes have been known to occur as early as 11:00 am on the area. Burns will begin as early as possible to mitigate for wind shifts, especially during the summer. Units lying farther inside the WMA, and away from Highway 19, can be burned on a westerly wind with a good dispersion (40-70). Burn units that are close to residences and roads will also require a good dispersion during the day and the following night. Additionally a predicted wind direction that pushes smoke away from these areas will be utilized.

Other parameters, such as time since last rain and desired relative humidity, will be prescribed based on fire objectives within the unit and containment concerns. We will not burn on days that are deemed too volatile or days in which we are not meeting our objectives.

F. Smoke Management

Direction, volume and dissipation of smoke from prescribed burning on CWMA are of primary concern due to the proximity of smoke-sensitive areas. Areas that may be affected by smoke (or particulates carried by smoke) under optimum burning conditions are US Highway 19 (eastern boundary), State Route 50/County Road 550 (to the south), US Highway 98 (to the north) and the Suncoast Parkway (to the east). The urban interface becomes more dense on southern portions of the area as you move toward Weeki Wachee. There are numerous neighborhoods that share a border with the area and in some areas houses back up directly to the burn units. There is a new school complex directly across Highway 19 from one of the burn units and is a designated smoke sensitive area. Other

smoke sensitive areas include several hospitals along State Route 50 and all surrounding highways.

To minimize smoke problems, burning should be conducted when the atmosphere is slightly unstable, with the mixing height at a minimum of 1,700 feet and transport wind speed at a minimum of 7 mph. Additionally, the use of backfires, as prescribed, will produce less smoke and consume fuel more completely than headfiring (Mobley et al. 1973, Southern Forest Fire Laboratory 1976, Crow and Shilling 1983).

The use of backfires can be difficult in larger burn units as time often does not allow for completion of the burn in one day. Additionally, fires that are allowed to burn for too long, increase the chance for wind shifts and can cause a dangerous situation. Additional fire lines often need to be installed to use this technique safely in larger units, therefore this method will only be used as burn unit and weather conditions allow.

Smoke management is difficult during night burns, because smoke often stays close to the ground and smoke drift is difficult to predict. Additionally, smoke tends to seek lower areas (along streams and creeks) and may drift across surrounding highways. Night burning will be approached with caution and in close association with the Florida Forest Service (FFS) to avoid these problems.

G. Personnel

Under ideal conditions, burning can be conducted with a minimum of 4-6 crew members. A typical crew consists of one to two ignition personnel, one to two suppression crews, and a burn boss. The FFS often stands by with a Dozer-plow unit on complex burns. Commission personnel who are FFS-certified for prescribed burning will conduct the burning.

Personnel from other state and federal agencies (FFS, DEP, USFS) will be used if they are available.

H. Equipment

All members of the fire crew will wear, at a minimum, the PPE required by FWC's Prescribed Burning and Wildfire Suppression Standards (Appendix B). Type V and VI engines, tractor-plows, farm tractors, 4-wheelers, and other equipment may be used as conditions require. Smoke caution signs for nearby roads will be deployed as necessary.

I. Permits and Notifications

A permit will be obtained from the FFS on the afternoon before or the morning of the burn in accordance with FS 590.125. Notification will be given to:

1. Hernando County Sherriff's Office and Fire Department
2. Residents of the inholdings and surrounding areas that request notification
3. FWC LE/Florida Highway Patrol dispatch (email)
4. Southwest Regional Staff (email)

J. Evaluation of Burn

Burns will be evaluated informally during and shortly after each burn by comparing burn objectives with burn effects. Objective Based Vegetation Monitoring (OBVM) data will be used to determine if the fire intensity is maintaining the desired vegetative composition and structure.

K. Special Considerations

Special attention will be given to ensure our burns do not adversely affect adjacent landowners and nearby roads. We will minimize smoke impacts on nearby roads and residents by utilizing a smoke screening map and responding to changing weather conditions during the burn.

Attention will be given to the safety of private inholdings and surrounding residences. The firebreaks around the inholdings and near residences will be reinforced; a pumper unit and/or a fireplow will be stationed nearby to expedite response time to the area if required.

Sensitive wildlife resources will be depicted on burn maps and protected. Infrastructure within the burn unit will be depicted on burn maps and protected as well.

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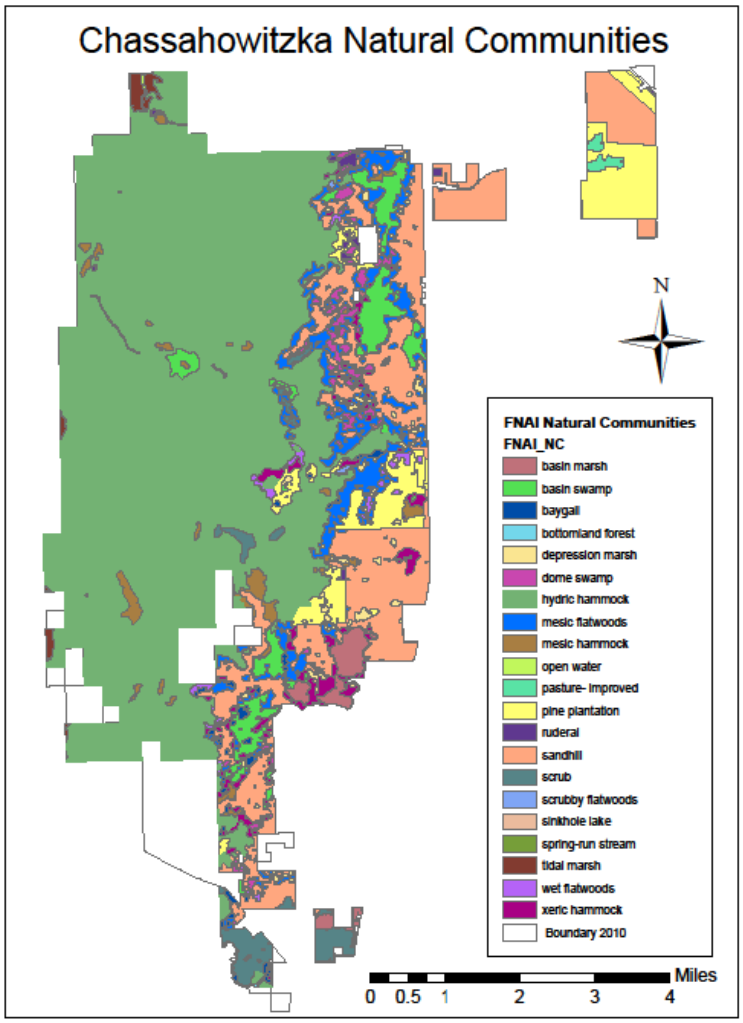

Figure 1. Chassahowitzka WMA Habitat Classifications

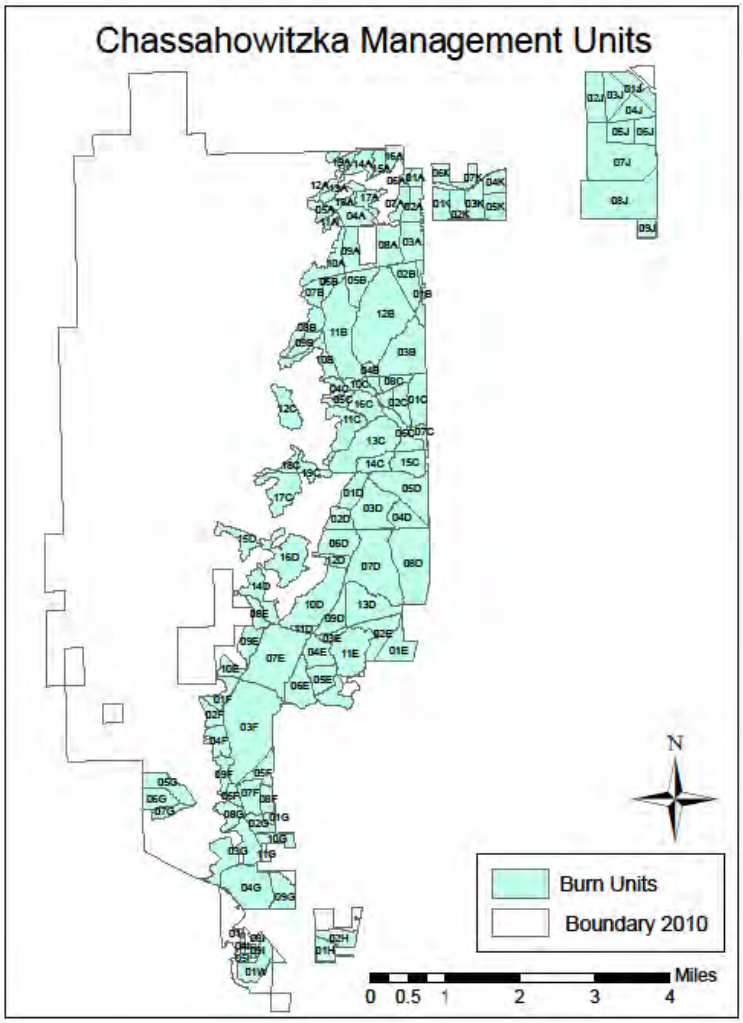

Figure 2. Chassahowitzka Management Units

Appendix A. Natural Community Descriptions from Guide to the Natural Communities of Florida, Florida Natural Area Inventory and Florida Department of Natural Resources, 2010).

Basin Marsh (312 acres)

Description: Basin marshes are regularly inundated freshwater herbaceous wetlands that may occur in a variety of situations but, in contrast to depression marshes, are not small or shallow inclusions within a fire-maintained matrix community. Species composition is heterogeneous both within and between marshes but can generally be divided into submersed, floating-leaved, emergent, and grassy zones from deepest to shallowest portions; shrub patches may be present within any of these zones. Common species found in the floating-leaved zone of basin marshes include white waterlily, American lotus, and yellow pondlily; the emergent zone may have pickerelweed, bulltongue arrowhead, southern cattail, sawgrass, and softstem bulrush; the grassy zone is typically characterized by maidencane, smooth beggarticks, dotted smartweed, and sand cordgrass, accompanied by a diverse mixture of less common forbs such as sweetscent, spadeleaf , and lemon bacopa. Coastalplain willow, common buttonbush, elderberry, and wax myrtle are common shrubby components. During droughts exposed marsh and lake beds may be colonized by large native weedy species such as southern amaranth and dogfennel.

Basin marsh occurs in a variety of isolated or mostly isolated depressions. They occur around fluctuating shorelines of lakes, on the former lake bottoms of "disappearing" lakes, at the head of broad, low basins which were former embayments of the sea during times of higher sea level, and as large deep inclusions within pyrogenic upland communities, or as inclusions in non-pyrogenic communities such as hardwood forests or basin swamps. They are regularly inundated with water originating from localized rainfall. While water is generally not flowing, some basin marshes have outflow, particularly where large marsh systems form the headwaters of rivers, such as the St. Johns. Basin marsh may occur on either sand or peat soils. Common soil series include Ledwith-Wauberg, Wabasso, and Riviera.

Management Considerations: Hydrological alteration is the main threat to marshes in Florida. Ditching and cutting of canals to drain water lowers the water table and dampens the natural fluctuations of water levels in the marsh, altering the vegetation. A lowered water table allows shrubby species such as coastalplain willow to invade the marsh, shading out the herbaceous vegetation. Water table draw-downs for human consumption have been shown to negatively affect nesting success in sandhill cranes in marshes.

Fire has been used to control the spread of coastalplain willow in the St. Johns River upper basin marshes that were invaded by willow after the water levels were lowered by drainage. Prescribed burns in marshes have to be conducted with caution to avoid peat fires that will kill the dominant species, especially in areas where the water table has been artificially lowered for human consumption. Another consideration is how completely a marsh area burns. Complete burns of marsh habitat leaving no patches as refuge areas can

extirpate animals, such as black rails, snail kites, and round-tailed muskrats, that are dependent on marsh habitat for foraging and nesting.

Basin Swamp (894 acres)

Description: Basin swamp is a basin wetland vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Basin swamps are highly variable in size, shape, and species composition. While mixed species canopies are common, the dominant trees are pond cypress and swamp tupelo. Other typical canopy and subcanopy trees include slash pine, red maple, dahoon, swamp bay, sweetbay, loblolly bay, swamp laurel oak, sweetgum, water oak, green ash, American hornbeam, and American elm. Depending on the hydrology and fire history, shrubs may be found throughout a basin swamp or they may be concentrated around the perimeter. Common species include Virginia willow, swamp dogwood, swamp doghobble, coastal sweetpepperbush, myrtle dahoon, fetterbush, wax myrtle, titi, black titi, and common buttonbush. The herbaceous layer is also variable and includes a wide array of species including maidencane, Virginia chain fern, arrowheads, lizard's tail, false nettle, beaksedges, bladderworts, and royal fern. Sphagnum moss often occurs in patches where the soil is saturated but not flooded. Vines may be present, particularly coral greenbrier, laurel greenbrier, and eastern poison ivy. Epiphytic species such as resurrection fern, Spanish moss, and Bartram's air-plant are common, especially in older, more mature examples of basin swamp.

This natural community typically occurs in any type of large landscape depression such as old lake beds or river basins, or ancient coastal swales and lagoons that existed during higher sea levels. Basin swamps exist around lakes and are sometimes headwater sources for major rivers, such as the Suwannee. Soils are generally acidic, nutrient-poor peats often overlying a clay lens or other impervious layer.

Management Considerations: Basin swamps can suffer from anthropogenic alterations such as regional hydrological modifications, logging, nutrient enrichment, pollution from agricultural runoff, and invasive exotic species invasion. Conversion of the adjacent uplands to pasture, development, or agriculture impedes natural fire and alters hydrologic inputs to basin swamps that are left unconverted.

Basin swamps have long been used for their timber resources. Most cypress trees in the southeast were harvested in the late nineteenth and early twentieth centuries. Unlike most pine plantations, cypress harvested in Florida generally is cut from natural stands and few areas are ever replanted. Although cypress trees are capable of regenerating, or resprouting from cut stumps, cypress regeneration is usually from seed. It is therefore important that at least a few seed trees be left in place for canopy regeneration. Cypress seeds are water-dispersed and they are infrequently moved from one area to another. The short-lived seeds will not germinate in standing water and seedlings are intolerant of prolonged inundation. Young cypress trees are also vulnerable to fire, especially in logged swamps that are undergoing canopy regeneration. If cypress saplings and

seedlings are destroyed by fire, or if cypress seed trees are removed, coastalplain willow, swamp tupelo, or bay species are likely to dominate the swamp.

Baygall (156 Acres)

Description: Baygalls are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. The canopy is composed of tall, densely packed, generally straight-boled evergreen hardwoods dominated by sweetbay, swamp red bay, and loblolly bay. A more or less open understory of shrubs and ferns commonly occurs, while sphagnum mats are often interlaced with the convoluted tree roots. Other typical plants include dahoon holly, Atlantic white cedar, fetterbush, maleberry, myrtle-leaved holly, large gallberry, wax myrtle, odorless wax myrtle, hurrah-bush, doghobble, white alder, possumhaw, red chokeberry, Virginia willow, laurel greenbrier, poison ivy, cinnamon fern, chain fern, wild grape, netted chain fern, sweetgum, cypress, lizard's tail, and needle palm. Typical animals include mole salamander, southern dusky salamander, southern mud salamander, opossum, southeastern shrew, short-tailed shrew, marsh rabbit, black bear, raccoon, southern mink, and bobcat.

Baygalls typically develop at the base of a slope where seepage usually maintains a saturated peat substrate. They may also be located at the edges of floodplains or in other flat areas where high lowland water tables help maintain soil moisture. Baygall soils are generally composed of peat with an acidic pH (3.5 - 4.5).

Management Considerations: Since Baygalls rarely dry out enough to burn, the normal fire interval in these communities is probably 50-100 years or more. After a fire, bay trees usually resprout from the roots and replace themselves, but severe fires may change a Baygall into a different community. If only a small amount of surface peat is removed, a Baygall may be replaced by a Wet Flatwoods community. If the ground surface is lowered considerably, willows may invade, followed by a cypress-gum community. With recurrent fire, the site will become a shrub bog. If the subsurface peat does not burn and fire and hydrological regimes are undisturbed, a burned out bay forest may be replaced by a stand of white cedar.

Baygall is often associated with and may grade into Seepage Slope, Floodplain Forest or Floodplain Swamp. The species composition of Baygalls frequently overlaps with Bog, Dome Swamp, Basin Swamp, Strand Swamp, Bottomland Forest, Wet Flatwoods, and Hydric Hammock.

Baygalls are dependent upon seepage flow and a high water table. Alterations in the local or regional hydrology could impact Baygall communities. They may also need fire protection during droughts, especially if water tables are lowered. Baygalls are vulnerable to logging, peat mining, and conversion to agricultural land. When drained, the peat soils are valued for farming, although they then begin to oxidize and disappear. The renewed interest in mining peat as fuel may place greater pressure on these wetlands.

Bottomland Forest (2 acres)

Description: Bottomland forest is a deciduous, or mixed deciduous/evergreen, closed-canopy forest on terraces and levees within riverine floodplains and in shallow depressions. Found in situations intermediate between swamps (which are flooded most of the time) and uplands, the canopy may be quite diverse with both deciduous and evergreen hydrophytic to mesophytic trees. Dominant species include sweetgum, spruce pine, loblolly pine, sweetbay, swamp laurel oak, water oak, live oak, swamp chestnut oak, and sugarberry. More flood tolerant species that are often present include American elm and red maple, as well as occasional swamp tupelo and bald cypress. Evergreen bay species such as loblolly bay, and sweetbay are often mixed in the canopy and understory in acidic or seepage systems. Smaller trees and shrubs often include American hornbeam, swamp dogwood, possumhaw, dahoon, dwarf palmetto, swamp bay, wax myrtle, and highbush blueberry. The understory is either dense shrubs with little ground cover, or open, with few shrubs and a groundcover of ferns, herbs, and grasses. In the drier forests of this type, American holly, Gulf Sebastian bush, and sparkleberry may be frequent. Ground cover is also variable in composition and abundance, often with species overlap between herbs suited to either mesic or hydric conditions. Characteristic species include witchgrasses, slender woodoats, and sedges. Species lists are based in part on Leitman et al., Light and Darst, and Darst and Light.

Situations where bottomland forest occurs include several distinct ecological settings in Florida: along rivers and tributaries, on higher terraces and levees in floodplains, and in somewhat isolated depressions that do not flood frequently. Bottomland forests along smaller streams are prone to periodic flooding attributable to localized rainfall that increases seepage and runoff from surrounding uplands. In floodplains along larger rivers and tributaries, bottomland forests on higher terraces, ridges, and levees are subject to short seasonal floods due to either high relief or quickly drained sandy soils or both. Soils are a mixture of sand, clay, and organic materials. The water table in these forests is high in blackwater or spring-fed floodplains and relatively low in alluvial floodplains (during dry periods). Inundation occurs only during higher floods, regardless of the stream type.

Management Considerations: Nearly all bottomland forests have suffered from timbering operations, which frequently leave long-lasting scars from soil disturbance. In addition to clearcutting, some bottomland forests have been converted to pine plantations, usually with severe effects on species composition and leaving exposed topsoil that would normally have been bound by tree roots. Clearcutting of bottomland forest in the Panhandle often leads to a second growth canopy dominated by loblolly pine and sweetgum. Sweetgum is often favored by disturbance due to its ability to sprout following damage to the tree.

Depression Marsh (276 Acres)

Description: Depression Marsh is characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands. Depression Marshes are similar in vegetation and physical features to, but are generally smaller than, Basin Marshes. Typical plants include St. John's wort, spikerush, yellow-eyed grass, chain fern, willows, maidencane, wax myrtle, swamp primrose, bloodroot, buttonbush, fire flag, pickerelweed, arrowheads, and bladderwort.

Larger and more permanent Depression Marshes may have many of the same plants and animals listed as typical of Basin Marshes. However, because of their isolation and small size, many Depression Marshes support a very different assemblage of species than that found in larger, more permanent wetlands. Depression Marshes are considered extremely important in providing breeding or foraging habitat for such species as the flatwoods salamander, mole salamander, tiger salamander, dwarf salamander, striped newt, oak toad, cricket frog, pinewoods treefrog, barking treefrog, squirrel treefrog, little grass frog, southern chorus frog, ornate chorus frog, narrowmouth toad, eastern spadefoot toad, gopher frog, white ibis, wood stork and sandhill crane. Depression Marshes occurring as isolated wetlands within larger upland ecosystems are of critical importance to many additional wetland and upland animals.

Depression Marshes are typical of karst regions where sand has slumped around or over a sinkhole and thereby created a conical depression subsequently filled by direct rain fall, runoff, or seepage from surrounding uplands. The substrate is usually acid sand with deepening peat toward the center. Some depressions may have developed or be maintained by a subsurface hardpan. Hydrological conditions vary, with most Depression Marshes drying in most years. Hydroperiods range widely from as few as 50 days or less to more than 200 days per year.

Management Considerations: Fire is important to maintaining this community type by restricting invasion of shrubs and trees and the formation of peat. Fire frequency is often greatest around the periphery of the marsh and least toward the center. A severe peat fire can lower the ground surface and create a pond at the center of the marsh.

Depression Marshes are often associated with and grade into Wet Prairie, Seepage Slope, Wet Flatwoods, Mesic Flatwoods, Dome Swamp or Bog. They also may occur in association with various types of lakes, such as Sandhill Lake or Flatwoods Lake.

Depression Marshes are threatened by drainage, agriculture, pollution, fire suppression, and invasion of exotic species. Depression Marshes may be filled and converted to other uses. A regional lowering of the water table as a result of overuse may eliminate many Depression Marshes. Depression Marshes on some public lands have been deepened by explosives to allow for stocking with game fish. By preying upon the eggs and larvae of frogs and salamanders, these fish may eliminate the amphibians that depend on such seasonal wetlands for successful reproduction. Likewise, many species of invertebrates not adapted to predation by fishes may be
eliminated.

Dome Swamp (293 Acres)

Description: Dome Swamps are characterized as shallow, forested, usually circular depressions that generally present a domed profile because smaller trees grow in the shallower waters at the outer edge, while bigger trees grow in the deeper water in the interior. Pond cypress, swamp tupelo, and slash pine are common plants. Other typical plants include red maple, dahoon holly, swamp bay, sweetbay, loblolly bay, pond apple, Virginia willow, fetterbush, chain fern, netted chain fern, poison ivy, laurel greenbrier, Spanish moss, wild pine, royal fern, cinnamon fern, coastal plain willow, maidencane, orchids, wax myrtle, swamp titi, St. John's wort, sawgrass, lizard's tail, swamp primrose, water hyssop, redroot, sphagnum moss, floating heart, buttonbush, arum, and fire flag. Typical animals include flatwoods salamander, mole salamander, dwarf salamander, oak toad, southern cricket frog, pinewoods treefrog, little grass frog, narrowmouth toad, alligator, snapping turtle, striped mud turtle, mud turtle, eastern mud snake, cottonmouth, woodstork, wood duck, swallow-tailed kite, barred owl, pileated woodpecker, great-crested flycatcher, prothonotory warbler, and rusty blackbird.

Dome Swamps typically develop in sandy flatwoods and in karst areas where sand has slumped around or over a sinkhole, creating a conical depression. Soils are composed of peat, which becomes thickest toward the center of the dome, and are generally underlain with acidic sands and then limestone, although other subsoils may also occur. Some domes have a clay lens that helps retain water levels.

Dome Swamps often derive much of their water through runoff from surrounding uplands, but they may also be connected with underground channels, in which case subterranean flows would dominate the hydrological regime. Dome Swamps generally function as reservoirs that recharge the aquifer when adjacent water tables drop during drought periods. The normal hydroperiod for Dome Swamps is 200 to 300 days per year with water being deepest and remaining longest near the center of the dome.

Management Considerations: Fire is essential for the maintenance of a cypress dome community. Without periodic fires, hardwood invasion and peat accumulation would convert the dome to Bottomland Forest or Bog. Dome Swamps dominated by bays are close to this transition. Fire frequency is greatest at the periphery of the dome and least in the interior where long hydroperiods and deep peat maintain high moisture levels for most of the year. The normal fire cycle might be as short as 3 to 5 years along the outer edge and as long as 100 to 150 years towards the center. The profile of a Dome Swamp (i.e., smaller trees at the periphery and largest trees near the center) is largely attributable to this fire regime. The shorter hydroperiods along the periphery permit fires to burn into the edge more often, occasionally killing the outer trees. Cypress is very tolerant of light surface fires, but muck fires burning into the peat can kill them, lower the ground surface, and transform a dome into a pond.

Dome Swamps may have a Depression Marsh or pond in their center, creating a doughnut appearance when viewed from above. Dome Swamps typically grade into Wet Prairie or Marl Prairie around the periphery, but they may also be bordered by

Bottomland Forest or Swale. The species composition of Dome Swamps frequently overlaps with Strand Swamp, Wet Flatwoods, Basin Swamp, Baygall, Floodplain Swamp, and Freshwater Tidal Swamp.

Normal hydroperiods must be maintained. Somewhat deeper than normal water levels are not likely to do much harm, but extended hydroperiods will limit tree growth and prevent reproduction. Shortened hydroperiods will permit the invasion of mesophytic species, which will change the character of the understory and eventually allow hardwoods to replace cypress. Dome Swamps may also be degraded by pollution and the invasion of exotic plants.

Hydric Hammock (15,328 Acres)

Description: Hydric Hammock is characterized as a well developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. Typical plants include cabbage palm, diamond-leaf oak, red cedar, red maple, swamp bay, sweetbay, water oak, southern magnolia, wax myrtle, saw palmetto, bluestem palmetto, needle palm, poison ivy, dahoon holly, myrsine, hackberry, sweetgum, loblolly pine, Florida elm, swamp chestnut oak, American hornbeam, Walter viburnum, royal fern, peppervine, rattanvine, yellow jessamine, and Virginia creeper. Typical animals include green anole, flycatchers, warblers, and gray squirrel.

Hydric Hammock occurs on low, flat, wet sites where limestone may be near the surface and frequently outcrops. Soils are sands with considerable organic material that, although generally saturated, are inundated only for short periods following heavy rains. The normal hydroperiod is seldom over 60 days per year. Because of their generally saturated soils and the sparsity of herbaceous ground cover, Hydric Hammocks rarely burn.

Hydric Hammock occurs as patches in a variety of lowland situations, often in association with springs or karst seepage, and in extensive forests covering lowlands just inland of coastal communities. Hydric Hammock generally grades into Floodplain Swamp, Strand Swamp, Basin Swamp, Baygall, Wet Flatwoods, Coastal Berm, Maritime Hammock, Slope Forest, Upland Mixed Forest, or Upland Hardwood Forest. Hydric Hammock is often difficult to differentiate from Bottomland Forest, Prairie Hammock, and Floodplain Forest.

Management Considerations: The normal hydrological regime must be maintained in Hydric Hammock. If the water table is lowered, Hydric Hammock will gradually change to mesic conditions. If the hammock is flooded, many trees will die and eventually be replaced by more hydrophytic species.

Mesic Flatwoods (1,616 Acres)

Description: Mesic flatwoods is characterized by an open canopy of tall pines and a dense, low ground layer of low shrubs, grasses, and forbs. Longleaf pine is the principal canopy tree in northern and Central Florida, and South Florida slash pine forms the canopy south of Lake Okeechobee. Although slash pine is currently more common than longleaf pine in mesic flatwoods in northern Florida, this a result of invasion by, or planting of, slash pine after logging of longleaf pine followed by a long period of fire exclusion in the early part of the twentieth century. Early accounts mention slash pine only in wet flatwoods sites. Characteristic shrubs include saw palmetto, gallberry, coastalplain staggerbush, and fetterbush. Rhizomatous dwarf shrubs, usually less than two feet tall, are common and include dwarf live oak, runner oak, shiny blueberry, Darrow's blueberry, and dwarf huckleberry. The herbaceous layer is predominantly grasses, including wiregrass, dropseeds, panicgrasses, and broomsedges, plus a large number of showy forbs.

Mesic flatwoods is the most widespread natural community in Florida, covering the flat sandy terraces left behind by former high stands of sea level during the Plio-Pleistocene. Soils are acidic, nutrient-poor fine sands with upper layers darkened by organic matter. Leon, Vero, and Smyrna fine sands are common examples. 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 are alternately droughty during dry periods and saturated, or even inundated, after heavy rains.

Management Considerations: The need for frequent fire (2- to 4-year intervals) to control hardwood and off-site pine invasion of longleaf pine communities has been known for many years, when it was realized that fire exclusion policies of the 1920s and 1930s had resulted in canopy destroying wildfires and lack of pine reproduction on some sites, in contrast to sites that had been regularly winter-burned for grazing. That fire stimulates flowering in many flatwoods herbs and that frequent fire (1-3 years) increases species richness and abundance of herbs were also noted from an early date. Controlled burns in this matrix community will indirectly determine fire frequency and season for all the included communities, such as wet prairie, depression marsh, shrub bog, scrub, etc.

Mesic Hammock (368 Acres)

Description: Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is typically closed and dominated by live oak, with cabbage palm generally common in the canopy and subcanopy. Southern magnolia and pignut hickory may be occasional in the subcanopy. These species become less important where they reach their southern extent just north of Lake Okeechobee. South of this region, the overstory may contain a few tropical species such as gumbo limbo and satinleaf. Water oak and laurel oak may also be frequent in this community. Other than pignut hickory, only a few deciduous species such as sweetgum and sugarberry are found in the canopy and subcanopy layers. Pine trees, particularly slash pine or loblolly pine, may form a sparse emergent layer.

The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto, American beautyberry, American holly, gallberry, sparkleberry, hog plum, common persimmon, highbush blueberry, Carolina laurelcherry, yaupon, wild olive, and/or wax myrtle. Tropical shrubs such as Simpson's stopper, myrsine, and wild coffee are common in more southern mesic hammock. The herb layer is often sparse or patchy and consists of various graminoids, including low panic grasses, witchgrasses, woodsgrass, longleaf woodoats, sedges, and whip nutrush, as well as various ferns and forbs such as bracken fern and partridgeberry. Toothpetal false rein orchid and other ground orchids are occasional.

In the central and southern peninsula, abundant epiphytes on live oaks and cabbage palms are a characteristic feature of mesic hammocks. In addition to the ubiquitous Spanish moss and other air-plants, epiphytic ferns such as resurrection fern, golden polypody, and shoestring fern are common in undisturbed stands. The most northern ranging epiphytic orchids in Florida, green fly orchid and Florida butterfly orchid, occur in mesic hammock. Vines are common and often abundant, occasionally creating a solid groundcover in disturbed hammocks. Species include muscadine, sarsaparilla vine, greenbriers, yellow jessamine, eastern poison ivy, crossvine and Virginia creeper.

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

Soils of mesic hammock are sands mixed with organic matter and may have a thick layer of leaf litter. Rock outcrops are common in some hammocks, especially where limestone is near the surface. In South Florida, tree islands in the Everglades occasionally develop mesic hammock on organic soils, while further west in the Big Cypress, soils supporting mesic hammock are sandier. Mesic hammocks occupy soils that, although well-drained, maintain high moisture by heavy shading of the ground layer and accumulation of litter. 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.

Natural Processes: Mesic hammocks are not considered fire-adapted communities, although cabbage palms are fire tolerant and live oaks have a limited capacity to re-sprout from rhizomes. These species tend to dominate in small mesic hammocks found in prairies that experience frequent low intensity fires. Destructive ground fires capable of killing most of the hammock vegetation are possible on organic substrates where the upper soil layer may be completely consumed, damaging roots and preventing resprouting. Although mesic hammock may develop on many soil types in peninsular

Florida if protected from fire, whether naturally or artificially, there is evidence that more fertile soils will support hammocks even in the presence of regular fire.

Management Considerations: Mesic hammocks are of considerable importance to wildlife, providing cover, nesting sites, and hardwood mast. Migratory birds use hammocks for resting cover and foraging, and animals of neighboring wetland communities may take refuge in mesic hammock islands during floods. Many mesic hammocks have experienced disturbances from human activities, especially since these hammocks provide desirable home, camp, and recreation sites. Logging, understory clearing, cattle grazing, and introduction of feral hogs have altered natural mesic hammock canopies and disturbed soils. Cattle trample understory plants as they take refuge from the heat in shaded oak hammocks, and rooting by hogs causes severe soil disturbance.

Sandhill (4,000 acres)

Description: Sandhill is characterized by widely spaced pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Sandhill occurs on the rolling topography and deep sands of the Southeastern U.S. Coastal Plain. Typical associations or indicator species are longleaf pine, turkey oak, and wiregrass. On the southern Lake Wales Ridge, South Florida slash pine may replace longleaf pine. The midstory trees and low shrubs can be sparse to dense, depending on fire history, and may include turkey oak, bluejack oak, sand live oak, sand post oak, saw palmetto, sparkleberry, dwarf huckleberry, pricklypear, and gopher apple. Earleaf greenbrier is the most common woody vine that occurs in sandhill. The greatest plant diversity within sandhill is in the herbaceous groundcover. Dominant grasses, in addition to wiregrass, include other three-awns, pineywoods dropseed, lopsided indiangrass, several species of bluestems, and little bluestem. The latter is especially common in portions of the western Florida Panhandle where it can replace wiregrass. Bracken fern can be common. Typical forbs include dogtongue wild buckwheat and such Aster family taxa as narrowleaf silkgrass, gayfeathers and blazing stars, coastalplain honeycomb-head, sweet goldenrod, and soft green eyes. Legumes also make up an important component of the sandhill groundcover. Typical species include sidebeak pencil flower, sensitive brier, summer farewell, milkpeas, snoutbeans, spurred butterfly pea, and Atlantic pigeon-wing.

Sandhill occurs on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often yellowish sands that are well-drained and relatively infertile. Sandhill is important for aquifer recharge because the porous sands allow water to percolate rapidly with little runoff and minimal evaporation. The deep, sandy soils and a lack of near surface hardpan or water table contribute to a xeric environment. Sandhill requires growing season fires to maintain open structure.

Management Considerations: Frequent fires are essential for the conservation of native sandhill flora and fauna. In order to maintain (or restore) natural historic conditions, prescribed fire should be applied in sandhill on a 1-3 year interval. Variability in the

season, frequency, and intensity of fire is also important for preserving species diversity, since different species in the community flourish under different fire regimes. Frequent fires reduce ground litter and prevent hardwood and shrub encroachment into the midstory, thereby allowing ample sunlight to reach the forest floor. This is essential for the regeneration and maintenance of longleaf pines, as well as the native grasses, herbs, and low shrubs that characterize sandhill communities. It is important to recognize, however, that too many years of closely spaced burns ($\leq$ 1 year) may decrease species diversity.

Scrub (444 Acres)

Description: Scrub occurs in many forms, but is often characterized as a closed to open canopy forest of sand pines with dense clumps or vast thickets of scrub oaks and other shrubs dominating the understory. The ground cover is generally very sparse, being dominated by ground lichens or, rarely, herbs. Open patches of barren sand are common. Where the overstory of sand pines is widely scattered or absent altogether, the understory and barren sands are exposed to more intense sunlight. Typical plants include sand pine, sand live oak, myrtle oak, Chapman's oak, scrub oak, saw palmetto, rosemary, rusty lyonia, ground lichens, scrub hickory, scrub palmetto, hog plum, silk bay, beak rush, milk peas, and stagger bush. Typical animals include red widow spider, scrub wolf spider, oak toad, Florida scrub lizard, blue-tailed mole skink, sand skink, six-lined racerunner, coachwhip, ground dove,scrub jay, loggerhead shrike, yellow-rumped warbler, rufous-sided towhee, Florida mouse, and spotted skunk. Scrubs of the Lake Wales Ridge are notable for the large number of narrowly endemic plants and animals that occur in them.

Scrub occurs on sand ridges along former shorelines. Some of the sand ridges originated as winddeposited dunes, others as wave-washed sand bars. Some Scrub soils are composed of well-washed, deep sands that are brilliant white at the surface; some Scrubs occur on yellow sands. The loose sands drain rapidly, creating very xeric conditions for which the plants appear to have evolved several water conservation strategies.

Management Considerations: Scrub is essentially a fire maintained community. Ground vegetation is extremely sparse and leaf fall is minimal, thus reducing the chance of frequent ground fires. As the sand pines mature, however, they retain most of their branches and build up large fuel supplies in their crowns. When a fire does occur, this fuel supply, in combination with the resinous needles and high stand density, ensures a hot, fast burning fire. Such fires allow for the regeneration of the Scrub community which might otherwise succeed to Xeric Hammock. The minerals in the vegetation are deposited on the bare sand as ashes, and the heat of the fire generally facilitates the release of pine seeds. As discerned from the life histories of the dominant plants, scrub probably burns catastrophically once every 20 to 80 years or longer.

Scrub is associated with and often grades into Sandhill, Scrubby Flatwoods, Coastal Strand, and Xeric Hammock. Some Xeric Hammocks are advanced successional stages of Scrub, making intermediate stages difficult to classify. Scrub occurs almost

exclusively in Florida, although coastal scrubs extend into adjacent Alabama and Georgia.

Because Scrub occurs on high dry ground and is not an aesthetically pleasing habitat, at least to the uninitiated, this ecosystem and its many endangered and threatened species are rapidly being lost to development. Scrub is also readily damaged by off-road vehicle traffic or even foot traffic, which destroys the delicate ground cover and allows the loose sand to erode. Ground lichens may require 50 years or more to recover.

Scrubby Flatwoods (17 Acres)

Description: Scrubby Flatwoods are characterized as an open canopy forest of widely scattered pine trees with a sparse shrubby understory and numerous areas of barren white sand. The vegetation is a combination of Scrub and Mesic Flatwoods species; Scrubby Flatwoods often occupy broad transitions or ecotones between these communities. Typical plants include longleaf pine, slash pine, sand live oak, Chapman's oak, myrtle oak, scrub oak, saw palmetto, staggerbush, wiregrass, dwarfblueberry, gopher apple, rusty lyonia, tarflower, golden-aster, lichens, silkbay, garberia, huckleberry, goldenrod, runner oak, pinweeds, and frostweed.

Scrubby Flatwoods generally occur intermingled with Mesic Flatwoods along slightly elevated relictual sandbars and dunes. The white sandy soil is several feet deep and drains rapidly. However, the water table is unlikely to be very deep. Scrubby Flatwoods normally do not flood even under extremely wet conditions. Temperatures and humidities of air and soil in Scrubby Flatwoods fluctuate substantially more than in most other communities because the scattered overstory, sparse understory, and barren sands of Scrubby Flatwoods do not ameliorate daily and seasonal changes very well.

Management Considerations: Although the elevated, deeper sandy soils of scrubby flatwoods engender a drier environment than the surrounding mesic flatwoods, the general sparsity of ground vegetation and the greater proportion of relatively incombustible scrub-oak leaf litter reduces the frequency of naturally occurring fires. Only after a long absence of fire and during periods of drought does the leaf litter become sufficiently combustible and concentrated enough to support an ecological burn. Several species of plants in Scrubby Flatwoods are typical scrub plants which endure only when long intervals between fires occur. Thus, a periodicity of approximately 8 to 25 years between fires appears to be natural for this community.

Scrubby Flatwoods are associated with and often grade into Mesic Flatwoods, Scrub, Dry Prairie or Sandhills. This community is essentially a Mesic Flatwoods with a Scrub understory.

Upland Hardwood Forest (14 acres)

Description: 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. Characteristic canopy trees include southern magnolia, pignut hickory, sweetgum, Florida maple, live oak, laurel oak, swamp chestnut oak, southern hackberry, white ash, and loblolly pine. Species commonly found in Florida Panhandle and northern peninsula but not farther south include American beech, white oak, and spruce pine. The midstory layer is composed of younger canopy species as well as small trees, and tall shrubs, such as American holly, red bay, American hornbeam, gum bully, devil's walkingstick, eastern hophornbeam, flowering dogwood, eastern redbud, horse sugar, American, silverbells, winged elm, black cherry, basswood. The groundcover is composed of shade-tolerant herbs, graminoids, and vines, such as partridgeberry, Virginia creeper, violets, sedges, sarsaparilla vine, ebony spleenwort, woodsgrass, and longleaf woodoats. Trilliums can be found in the groundcover in the Panhandle and northern peninsula.

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

Management Considerations: Upland hardwood forest often occurs near streams, creeks, and rivers and can provide watershed protection. Common disturbances include logging, development, foot or vehicular traffic, and feral hog rooting. Unsightly refuse dumps are frequently located in upland hardwood forests. This refuse can bury or damage vegetation and impact stream water quality.

Wet Flatwoods (153 Acres)

Description: Wet Flatwoods are characterized as relatively open-canopy forests of scattered pine trees or cabbage palms with either thick shrubby understory and very sparse ground cover, or a sparse understory and a dense ground cover of hydrophytic herbs and shrubs. Several variations exist between these extremes. Typical plants include pond pine, slash pine, sweetbay, spikerush, beakrush, sedges, dwarf wax myrtle, gallberry, titi, saw palmetto, creeping beggarweed, deer tongue, gay feather, greenbrier, bluestem, and pitcher plants. Typical animals include oak toad, cricket frog, chorus frog, black racer, yellow rat snake, diamondback rattlesnake, pygmy rattlesnake, red-shouldered hawk, bobwhite, opossum, cottontail rabbit, cotton rat, cotton mouse, raccoon, striped skunk, bobcat, and white-tailed deer.

Wet Flatwoods occur on relatively flat, poorly drained terrain. The soils typically consist of 1 to 3 feet of acidic sands generally overlying an organic hardpan or clay layer.

Cabbage palm flatwoods tend to occur on more circumneutral sands (pH 6.0 - 7.5) underlain by marl or shell beds. The hardpan substantially reduces the percolation of water below and above its surface. During the rainy season, water frequently stands on the surface, inundating the flatwoods for 1 or more months per year. During the drier seasons, ground water is less accessible for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during the wet seasons, and under the stress of dehydration during the dry seasons.

Management Considerations: Another important physical factor in Wet Flatwoods is fire. Natural fires probably occurred every 3 to 10 years during pre-Columbian times. Nearly all plants and animals inhabiting this community are adapted to periodic fires, and several species depend on fires for their continued existence. Without relatively frequent fires, Wet Flatwoods succeed into hardwood dominated forests whose closed canopy would essentially eliminate the ground cover herbs and shrubs. In fact, much of the variation in community structure is probably associated with fire frequency. Thus, the longer the period of time since the last fire, the more developed will be the understory shrubs. If the understory is allowed to grow for too long, the accumulation of needle drape and the height of flammable understory shrubs will increase the probability of a catastrophic canopy fire.

Wet Flatwoods are closely associated with and often grade into Hydric Hammock, Mesic Flatwoods, Wet Prairie, or Basin Swamp. Wet Flatwoods may also grade into Dome Swamp or Strand Swamp, but the absence of a Wet Prairie ecotone suggests that the hydrology has been disturbed.

Although Wet Flatwoods may have been an abundant biological community of the Coastal Plain at one time, examples with an intact overstory and understory, without exotics, and with the potential for future maintenance by fire are rare. They are relatively resilient to overstory damage but recover poorly when the ground cover or hydrology has been disturbed. Wet Flatwoods are vulnerable to disruptions of fire and hydrological regimes. Exotic plants readily invade Wet Flatwoods in south Florida and must be controlled promptly.

Xeric Hammock (513 Acres)

Description: Xeric Hammock is characterized as either a scrubby, dense, low canopy forest with little understory other than palmetto, or a multi-storied forest of tall trees with an open or closed canopy. Several gradations between these extremes exist. Typical plants include live oak, sand live oak, laurel oak, turkey oak, blackjack oak, red oak, sand post oak, staggerbush, saw palmetto, sparkleberry, pignut hickory, southern magnolia, redbay, American holly, wild olive, black cherry, fox grape, beautyberry, bluejack oak, Chapman's oak, persimmon, and yaupon. Typical animals include barking treefrog, spadefoot toad, gopher tortoise, worm lizard, fence lizard, black racer, red rat snake, hognose snake, crowned snake, screech-owl, turkey, blue jay, eastern mole, gray squirrel, and eastern flying squirrel.

Management Considerations: Xeric Hammock is an advanced successional stage of Scrub or Sandhill. The variation in vegetation structure is predominantly due to the original community from which it developed. In all cases, however, the soils consist primarily of deep, excessively-drained sands that were derived from old dune systems. The sparsity of herbs and the relatively incombustible oak litter preclude most fires from invading Xeric Hammock. When fire does occur, it is nearly always catastrophic and may revert Xeric Hammock into another community type. Xeric Hammock only develops on sites that have been protected from fire for 30 or more years.

Xeric Hammocks are often associated with and grade into Scrub, Sandhill, Upland Mixed Forest or Slope Forest. The species composition of Xeric Hammock is also often similar to Prairie Hammock and Maritime Hammock. Xeric Hammock is often considered the climax community on sandy uplands.

Xeric Hammock occurs generally as isolated patches that rarely cover extensive areas. Mature examples are rare, and scrub derived types have always been scarce. Because of its general location on high ground with big trees, Xeric Hammock is prime residential property, especially when near the coast. Remaining tracts of Xeric Hammock require protection from fire and development.

Appendix B

DIVISION OF HABITAT AND SPECIES CONSERVATION
Internal Operating Policy
Revised March 2008

Subject: **Prescribed Burning and Wildfire Suppression Standards**

Policy:

The following policy shall apply to all Division of Habitat and Species Conservation (DHSC) employees engaged in prescribed burning or wildfire suppression activities.

General Guidelines:

This policy establishes minimum standards for participation in prescribed burning and wildfire suppression activities. In addition to conducting prescribed burning on Commission-managed lands, DHSC employees are periodically asked to assist the Florida Division of Forestry with wildland fire suppression efforts, particularly during declared wildfire emergencies. Working on prescribed fires or wildfires is an inherently dangerous and risky activity that can result in significant property damage, personal injury, or loss of life. Therefore, it is necessary to establish minimum standards for training and certification to insure DHSC employees have the appropriate skills and knowledge to perform these activities safely and effectively. Employees are encouraged to obtain higher levels of training and certification as warranted and approved through supervisory channels.

Chapter 1 Prescribed Burning

1.1 Prescribed Burn Participation: This section establishes minimum training, certification, and experience required for members of a prescribed burn team. These same standards apply to non-DHSC employees, volunteers, and contractors participating on a burn on FWC-managed state lands.

A. Crew Member Trainee: Employees who do not meet the requirements for Crew Member shall be classified as a Crew Member Trainee. A Crew Member Trainee may participate in prescribed burning activities provided that they are under the direct supervision of a Crew Member. A Crew Member may supervise no more than one Crew Member Trainee. It is recommended that no more than 40% of the burn crew be Crew Member Trainees.

   Note: Crew members may supervise more than one Crew Member Trainee, and more than 40% of the burn crew may be Crew Member Trainees during prescribed burns conducted during training classes.

B. Crew Member: May participate independently in prescribed burning activities. Shall have successfully completed the following level of training:

1

1) Interagency Basic Prescribed Fire Course; ***or***
2) Basic Wildland Firefighter Training (S-130) **and** Introduction to Wildland Fire Behavior (S-190).

C. Burn Manager Trainee: May serve as burn manager to fulfill the responsibilities of acquiring certified prescribed burn manager status. Burn Manager Trainee must be under the direct supervision of a Certified Burn Manager on prescribed burns that will be used to qualify them for certified prescribed burn manager status. Shall have successfully completed the following level of training and have the specified level of experience:

1) Interagency Basic Prescribed Fire Course;
2) S-130/S-190; ***and***
3) Participated on at least five prescribed burns.

D. Certified Burn Manager: May request prescribed burn authorizations and serve as burn manager. Shall have successfully completed the following level of training, and have the specified certification and level of experience:

1) Interagency Basic Prescribed Fire Course;
2) S-130/S-190;
3) Prescribed Burn Manager Certification; ***and***
4) Participated on at least ten prescribed burns.

1.2 Prescribed Burn Engine (Pumper Unit/Brush Truck) Operator: Before an employee may independently operate a water-delivery engine in support of active prescribed burns, they shall have successfully completed the following level of training and have the specified level of experience:

A. S-130/S-190;
B. On-the-job training for operation of water-delivery engines by a trained and/or experienced engine operator; ***or*** successful completion of Southern Area Engine Academy or Engine Operator (PMS 419); ***and***
C. Participated on at least five prescribed burns.

1.3 Prescribed Burn Tractor/Bulldozer Plow Unit Operator: Before an employee may independently operate tractor/dozer fire-plow during prescribed burns, they shall have successfully completed the following level of training and have the specified level of experience:

A. The wildland fire portion of Basic Fire Control Training; ***and***
B. Participated on at least five prescribed burns.

1.4 Prescribed Burn Aerial Ignition Dispenser (AID) Operator: Before an employee may independently operate an AID during a prescribed burn, they shall have successfully completed the following level of training and have the specified level of experience:

A. Qualified at or above Crew Member level for prescribed burning;
B. Completed an FWC AID training workshop or other courses that provide an equivalent level of training; ***and***
C. Participated on at least five prescribed burns.

1.5 General: All prescribed burns shall be conducted in complete compliance with all laws regulating the use of prescribed fire; specifically Chapter 590.125(3) F.S. and Chapter 5I-2 F.A.C. Burn plans shall have all the required elements as specified in Chapter 5I-2.006 as well as a contingency plan, mop-up standards, and standards for declaring the fire out. All prescribed burns shall be conducted as a certified prescribed burn, and managed by a certified prescribed burn manager.

Chapter 2 Wildfire Suppression

2.1 General: The Division of Forestry, or other firefighting entity, may request assistance from DHSC staff during a wildfire suppression incident. This request will usually be for a wildfire strike team. A wildfire strike team consists of one wildfire strike team leader, and two wildfire strike team members per Type V or VI engine. Standards for strike team members and leaders are outlined below. In addition, requests may be made for personnel to fill positions on a suppression incident that are not covered by the following standards. The decision to assist, and the level of assistance provided, on fire suppression incidents will be made by DHSC leadership (includes Division Director, Deputy Division Director, Section Leaders and/or Assistant Section Leaders) and the Wildland Fire Coordinator.

2.2 Wildfire Strike Team Member: Before an employee may participate on wildfire strike teams in support of wildfire suppression efforts, they shall have successfully completed the following level of training and have the specified level of experience:

A. S-130/S-190;
B. Southern Area Engine Academy;
C. Experience and demonstrated proficiency operating a Type V or VI engine; ***and***
D. Participated on at least ten prescribed burns and/or wildfire suppression incidents.

* Exception - Employees who do not meet the above standards can be approved by DHSC leadership and the Wildland Fire Coordinator to serve on a wildfire strike team. Exceptions can be granted when available strike team personnel are not sufficient to meet the requested need. Training and experience levels should be considered when approving exceptions.

2.3 Wildfire Strike Team Leader: Before an employee may serve as team leader for wildfire strike teams in support of wildfire suppression efforts, they shall have completed the following

level of training and have the specified level of experience **in addition to that required to participate on a wildfire strike team:**

A. Basic Incident Command System (I-200); ***and***
B. Experience as burn manager, crew boss, or strike team leader on at least ten prescribed burns or wildfire suppression incidents.

2.4 Wildfire Tractor/Bulldozer Plow Unit Operator: Before an employee may independently operate tractor/dozer fire-plow units in support of wildfire suppression efforts, they shall have completed the following level of training and have the specified level of experience:

A. The wildland fire portion of Basic Fire Control Training;
B. Experience and demonstrated proficiency operating a tractor/bulldozer plow unit; ***and***
C. Participated on at least ten prescribed burns or wildfire suppression incidents.

Chapter 3 Safety

3.1 Personal Protective Equipment: Required items of Personal Protective Equipment for all wildland fire activities include:

- Flame Resistant Shirt and Pants, or Jumpsuit
- Wildland Fire Hard Hat
- Leather Gloves
- Leather Boots – 8" Lace-up
- Eye Protection
- Bandana or Dust Mask
- Hand-held Radio
- Fire Shelter

Safety considerations and/or vegetative types may dictate that crew members wear additional equipment or in some cases deviate from the above required equipment. The burn manager/strike team leader shall determine what Personal Protective Equipment will be worn by their crew to maximize safety, and shall document justifications for any deviations of the required equipment.

3.2 Physical Standards: Prescribed burning and firefighting are physically demanding activities. Each prescribed burn crew/strike team member shall maintain a level of fitness that will allow full participation in these activities. It is the burn crew/strike team member's responsibility to make the burn manager/strike team leader aware of any limitations that may restrict their activities so that they can be assigned an appropriate role.

Chapter 4 Incident Reviews

4.1 Incident Reviews: This section outlines a mechanism for how DHSC will respond to and review a prescribed fire that had unintended negative consequences. The purpose of a fire-related incident review is to gather facts regarding the incident, and if necessary, recommend actions that may help minimize the chance of reoccurrence.

4.2 Fire-related Incident: A fire or smoke related incident that includes any of the following:

A. Notice of Violation;
B. Conducting a burn outside of the prescription;
C. Fire leaves the prescribed burn area;
D. Fire leaves the WMA or WEA; or
E. Fire causes property damage, personal injury, or loss of life.

4.3 Reporting of Fire-related Incidents: The burn manager shall notify their Regional Wildlife Management Biologist as soon as possible but no later than 8:00 am the day after the fire-related incident occurred. The Regional Wildlife Management Biologist shall notify THCR leadership and the Wildland Fire Coordinator of the incident as soon as possible. The notification should include the following:

A. Date, Time and Location of Incident
B. Brief Description of the Incident and Current Status
C. Other Agencies or Entities Assisting

THCR leadership will notify Division leadership and the Executive and Assistant Executive Director of any incidents involving escapes from the WMA, escapes requiring unplanned suppression assistance, or any incidents resulting in private property damage or injury to a member of the public.

4.4 Fire-related Incident Review: A review of a fire-related incident initiated by the Wildland Fire Coordinator resulting in a written finding of facts and recommendations. The following guidelines should be used to determine the type of review conducted:

A. No Review – No review is required if the prescribed fire escaped from the burn unit, stayed on the WMA/WEA, and was suppressed. These incidents, however, need to be reported to the Regional Wildlife Management Biologist and the Wildland Fire Coordinator if Division of Forestry or other entity assisted with suppression efforts.
B. Level 1 Review – Review to be conducted by the Wildland Fire Coordinator or alternate if one or more of the following occurred and no Level 2 review criteria were met:
   1) A Notice of Violation was issued to the burn manager.
   2) Motorized equipment was damaged requiring the completion of an Equipment Damage Report.
   3) A Level 1 review is requested by DHSC leadership.

C. Level 2 Review – Review to be conducted by the Wildland Fire Coordinator or alternate, and one representative from at least three of the administrative regions if one or more of the following occur:
   1) Prescribed fire escaped from the burn unit and from the WMA/WEA.
   2) Injury or private property damage resulted from the fire or smoke. If an injury occurs to a member of the burn crew, the need to convene a review team will be determined by DHSC leadership.
   3) A Level 2 review is requested by DHSC leadership.

4.5 **Fire-related Incident Report:** Within 45 days of completing a Fire-related Incident Review, the Wildland Fire Coordinator shall submit a report to DHSC leadership for approval. The report should include: 1) a summary of the incident; 2) a review of the weather forecast and observed weather conditions; 3) a review of the burn prescription; 4) a summary of the execution of the burn and the suppression of the escape, if applicable; and 5) recommendations for future burns. After being approved, the report will be made available to appropriate personnel via e-mail and by being posted on the Terrestrial Habitat and Conservation's Wildland Fire Sharepoint site.

Approved: Timothy A. Breault — 2-08-2010

Division Director or Designee — Date
Division of Habitat & Species Conservation
Florida Fish and Wildlife Conservation Commission

13.10 WCPR Species Management Strategy

Chassahowitzka WMA
Species Management Strategy

Original - 10/9/2009
Revised – 07/9/2012

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Terrestrial Habitat Conservation and Restoration Section
A product of the Wildlife Conservation,
Prioritization and Recovery Program

Explanation of Revisions

The Chassahowitzka Wildlife Management Area (CWMA) Species Management Strategy was finalized in 2009. In order to address concerns regarding the Florida black bear (*Ursus americanus floridanus*) population on CWMA, the original Strategy was revised in 2012. FWC's Bear Management Program, CWMA and regional staff, Wildlife Conservation, Prioritization and Recovery (WCPR) staff, and species experts have provided input and oversight during the revision process.

Changes to the species assessment for Florida black bear (Section 3.2.20) include results of a hair snare research project in 2009-10 and a revised goal. A measurable objective was created to address the need for a Bear Habitat Management Plan, and the text of the assessment was modified to address implications of research results and potential impacts of habitat management activities on the bear population. The need for a Bear Strategic Management Area (SMA) was identified and inserted (Section 4.1.3). The revision process included updating the gopher frog (*Lithobates capito*; Section 3.2.1) and gopher tortoise (*Gopherus polyphemus*; Section 3.2.5) assessments to include the results of monitoring conducted on CWMA since the original Strategy was finalized.

EXECUTIVE SUMMARY

The Florida Fish & Wildlife Conservation Commission's (FWC) Terrestrial Habitat Conservation and Restoration section (THCR) takes a proactive, science-based approach to species management on lands in the Wildlife Management Area system (WMA/WEA). This approach uses site-specific wildlife assessments of a number of focal species in conjunction with area and species expert knowledge to develop a wildlife management strategy for the area. This strategy is intended to: 1) provide land managers with information on actions that should be taken provided the necessary resources are available, 2) promote the presence of and ensure the persistence of focal wildlife species on the area, and 3) provide measurable species objectives that can be used to evaluate the success of wildlife management on the area.

This document presents the results of a science-based process for evaluating focal species needs within an ecosystem management approach for the Chassahowitzka Wildlife Management Area (CWMA). Natural community management focused on a set of focal species provides benefits to a host of species reliant upon the same natural communities. Monitoring select species provides information that verifies whether natural community management is having the desired effect on wildlife. Throughout the process, the role of the area in regional and statewide conservation initiatives was considered to maximize the potential benefit.

Section 1 informs the reader about the process used to generate this document. **Section 2** describes ongoing management actions on the property. **Section 3** provides a list of the focal and listed species on the area, and an assessment of each species' level of opportunity/need. This includes species-specific goals and objectives when appropriate. Objectives were identified for 5 species on this area: the gopher frog, gopher tortoise, Florida scrub-jay, southeastern American kestrel and Florida black bear. **Section 4** describes specific land management actions recommended for focal species. This includes Strategic Management Areas (SMA) and Objective-Based Vegetation Management (OBVM) considerations. A SMA is an area in which a specific land or species management action(s) can be taken to facilitate conservation of a single or group of species. On CWMA, we identified the need for a SMA for the Florida scrub-jay, Sherman's fox squirrel, and Florida black bear. This section also discusses management necessary to ensure continued persistence of focal species. **Section 5** describes species-specific management (i.e. restocking, nest structures, etc) that may be necessary for a species, the species monitoring that is prescribed for the area, and identifies any research that would be necessary to guide future management efforts. Potential species-specific management actions are described for 3 species and 6 monitoring efforts (one of which covers multiple species) are described. Opportunistic monitoring of encounters and/or nesting of other focal species are recommended. The conservation of these species requires interaction with other parties beyond local staff. Intra-agency coordination with 9 other units in FWC and inter-agency coordination with 7 other entities are identified in **Section 6**. **Section 7** describes efforts that are prescribed to occur "beyond the area's boundaries" to ensure conservation of the species on the area.

Continuation of current resource levels would be required to provide for most of the land management recommended in this document. These actions can be conducted either by area staff or by contracting with vendors. Some of the monitoring recommendations may require additional resources, while others can be accomplished with continuation of existing resources.

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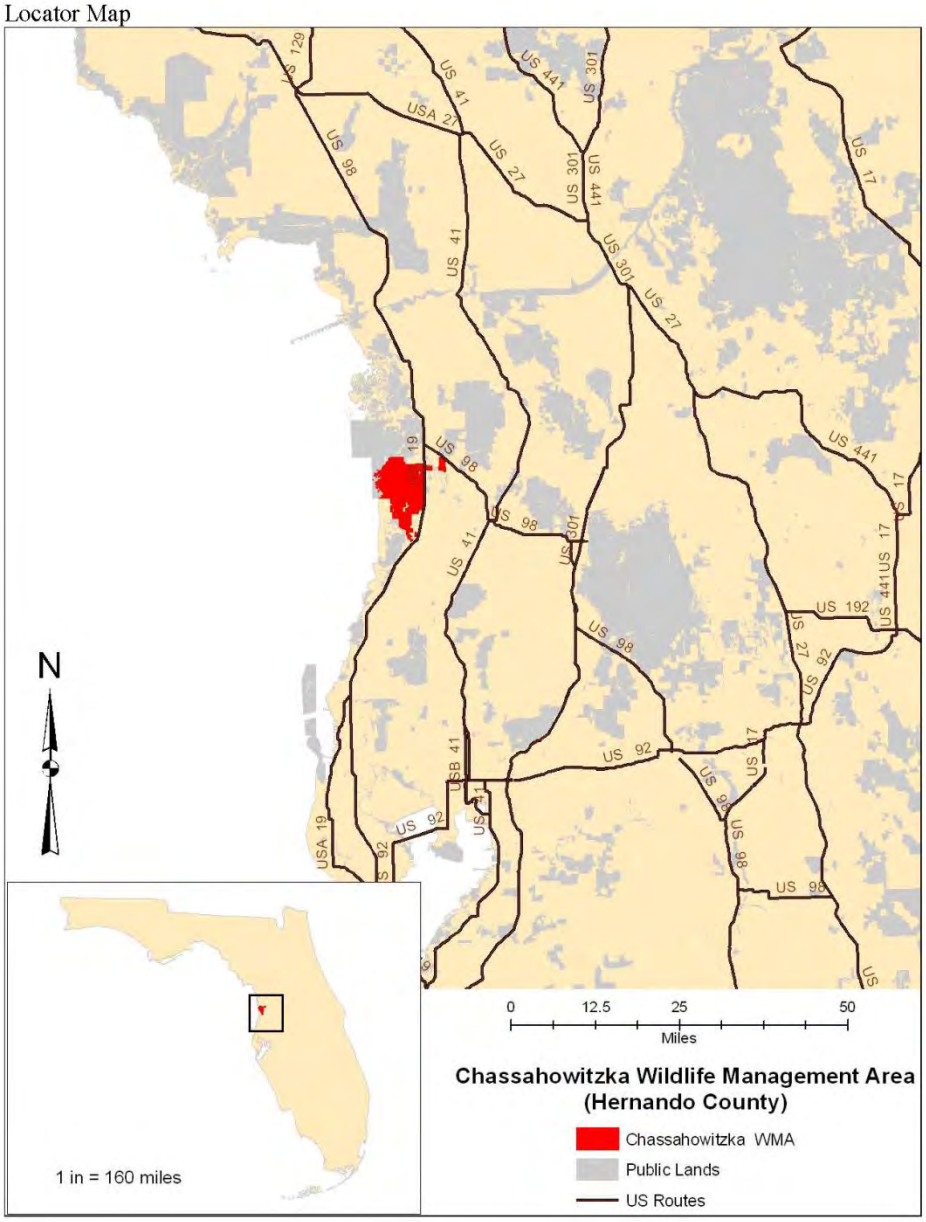
Locator Map


N
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0
12.5
25
50
Miles
Chassahowitzka Wildlife Management Area
(Hernando County)
Chassahowitzka WMA
Public Lands
US Routes

Section 1: Introduction

The FWC takes a proactive, science-informed approach to species management on lands in the WMA/WEA system. Staff integrates conservation planning, Population Viability Analysis (PVA) results, and geospatial analytical techniques to model potential habitat to help FWC determine where focal species conservation can be affected. These landscape level assessments are then combined with area specific and expert knowledge and result in the creation of Species Management Strategies (Strategy) specific to each WMA.

The Strategy is intended to: 1) provide land managers with information on actions that should be taken provided the necessary resources are available, 2) promote the presence and facilitate the persistence of focal wildlife species on the area, and 3) provide measurable species objectives that can be used to evaluate the success of wildlife management on the area. On FWC lead areas, goals and objectives included in the Management Plan (formerly known as Conceptual Management Plan) are referenced when discussing the species and drafting the Strategy; therefore this Strategy will help guide and support the goals of the Management Plan. The species-specific objectives identified in this Strategy will be incorporated into the Management Plan and this Strategy will be appended to the Management Plan.

In this document, goals, objectives and strategies are defined as follows: Goals are broad statements of a condition or accomplishment to be achieved; goals may be unattainable, but provide direction and inspiration. Objectives are a measurable, time-specific statement of results responding to pre-established goals. Strategies are the actions that will be taken to accomplish a goal or objective, and strategies may be measurable.

Species-specific habitat models were used to create statewide potential habitat maps. A GIS analysis was conducted to determine which of the focal species were modeled to have potential habitat on each area. We use local staff's knowledge, species-expert knowledge, and area-specific maps of natural communities to refine habitat information for each species and evaluate the area's potential role in conservation of the species. A workshop is conducted at which all individuals involved in the decision making process discuss the focal species status, evaluate opportunities for land and species management on the area, and decide on appropriate monitoring and/or research actions. Some species cannot be expected to persist on an area based solely on area-specific measures; therefore this strategy identifies intra- and interagency coordination and any "beyond the boundary" considerations (i.e. working with neighboring land owners) necessary for the management of focal species. Area-specific species objectives, a list of necessary actions to achieve these objectives, and the monitoring necessary to verify progress towards objectives are agreed upon and used to create the area's Strategy.

The primary focus of this approach is non-game species; however 2 of the focal species are game birds. Specific game management actions are not included in this Strategy, though game management actions are considered when drafting the Strategy and are compatible with the actions prescribed by this Strategy. While this Strategy focuses on the CWMA, it considers the role of the area within the larger state or regional context. Similarly, while the Strategy has species-specific objectives and actions, it does not endorse single-species management. The FWC's land management focuses on natural community management that benefits the host of species that naturally occur in each natural community. However, some species may need directed actions if they are to recover from past declines or

be restored to habitat from which they were extirpated. By implementing the Strategy, FWC believes our management will benefit the largest suite of native wildlife by keeping common species common and aiding in the recovery of listed species.

Section 2: Current and Historic Management on CWMA

In 1985, 15,455 acres in Hernando County were purchased from the Lykes Brothers and the Turner Corporation to create CWMA. Funds for this purchase were made available from the Conservation and Recreational Lands (CARL) program and a share of funds appropriated from the Preservation 2000 (P-2000) Inholdings and Additions series. An additional 150 acres were added in 1988 as part of a mitigation project involving the loss of red-cockaded woodpecker (*Picoides borealis*) habitat in Marion County and several tracts have been added since that time. In 1996, the first tract of the Weeki Wachee First Magnitude Springs Project was purchased, and several smaller parcels have since been added. The Annutteliga Hammock CARL Project resulted in the addition of the 390 acre Seville Tract in 1998, and acquisition efforts continue to date for the purchase of wetlands along the coast and uplands along US 19.

The current total size of CWMA is 33,919 acres. Lead agency status on 27,219 acres is assigned to FWC because of the hardwood swamp mosaic of the landscape and associated diversity of flora and fauna. The United States Fish and Wildlife Service (USFWS) is the lead agency on the remaining 6,700 acres. This section is a part of the greater Chassahowitzka National Wildlife Refuge (CNWR), a 31,000 acre refuge composed of saltwater bays, estuaries and brackish marshes at the mouth of the Chassahowitzka River. The Florida Department of Agriculture and Consumer Services, Division of Forestry (DOF) is a cooperating agency on CWMA. The DOF provides authorizations for prescribed burning, assists on escaped fires and provides assistance with timber management on CWMA.

The FWC contracted with the Florida Natural Areas Inventory (FNAI) to map current natural community types on CWMA. Historic natural community types were not mapped because it was believed most of the current communities represent historic or the historic communities are easily identified from current vegetation. The most extensive natural community on CWMA is hydric hammock within the hardwood swamp. The Chassahowitzka swamp is of ecological significance because it represents the largest hardwood swamp south of the Suwannee River. The swamp is an important buffer for the Chassahowitzka estuary and serves as a recharge area for subsurface aquifers. Actively managed natural communities include mesic flatwoods, sandhill and scrub (Table 1). Within CWMA's main parcel, the dominant managed natural community is sandhill. A portion of this area is currently pine plantation. The Annutteliga Hammock tract also has a pine plantation, as well as land in ruderal condition. The DOF has completed a timber assessment on CWMA, but thinning operations in the pine plantations have not been scheduled. The Weeki Wachee Scrub tract has a disturbed river-side beach area with a history of issues with public access and vandalism and is now closed and in need of restoration. Through the OBVM workshop process, management units were delineated and Desired Future Conditions (DFC) for specific vegetative parameters were defined for the actively managed natural communities (Section 4.2).

Table 1. Mapped acreage of current plant communities on CWMA, including management status and number of focal species that use the community.

Community Type	Estimated Current Acreage	Actively Managed[1]	# of Species That Use the NC
Basin marsh	312	No	7
Basin swamp	894	No	8
Baygall	156	No	3
Bottomland forest	2	No	3
Depression marsh	276	No	7
Dome swamp	293	No	6
Hydric hammock	15,329	No	7
Mesic flatwoods	1,616	Yes	15
Mesic hammock	368	No	5
Open water	11	No	2
Pasture improved	66	No	6
Pine plantation	1,408	No	3
Ruderal	75	No	6
Sandhill	4,000	Yes	14
Scrub	444	Yes	8
Scrubby flatwoods	17	No	13
Sinkhole lake	0.4	No	0
Spring-run stream	20	No	2
Tidal marsh	126	No	1
Wet flatwoods	153	No	8
Xeric hammock	513	No	10
TOTAL ACRES	26,079		

[1] Communities that are actively managed and monitored via the OBVM process. Other communities are managed, but not monitored via OBVM.

Prior to acquisition, primary land uses on CWMA were timber production, pine tar operations, agriculture (citrus, cattle) and recreation (hunting, trapping). Virgin timber was harvested in the late 1800s, and logging operations continued until all marketable timber was removed. The old logging town of Centralia is protected as a cultural resource. Historically, wildfires likely burned portions of the landscape periodically, but at the time of acquisition, much of the uplands were degraded as a result of fire suppression or conversion to pine plantation. In some portions of the mesic flatwoods, the wax myrtle (*Myrica cerifer*)/gallberry (*Ilex glabra*) understory exceeded 8 feet in height and significantly reduced the quality of the wildlife forage. In the sandhills, pine density was reduced through past logging operations and the oak understory overgrown as a result of fire suppression. Fire suppression also degraded scrub habitat on the Weeki Wachee Tract, resulting in a high density of sand pines (*Pinus clausa*) and various oak species.

Restoration of natural communities on CWMA is being accomplished through a mix of prescribed fire, mechanical and chemical treatments. Prescribed fire was introduced in 1995 and is ongoing through in-house operations and contracted work. The total burnable habitat on CWMA includes 9,986 acres. To date, 9,020 acres have been treated with

prescribed fire at least once and the most burned in a single year was 2,403 acres. The goal is to increase the acres burned each year.

Mechanical and chemical means are also utilized to accomplish natural community restoration on CWMA. Approximately 1,800 acres have been harvested for timber since 1999. From 2002 - 2005, 838 acres of sandhill were treated with a broadcast application of the herbicide velpar to reduce the oak overstory. Roller-chopping and shredding equipment has been used on approximately 3,000 acres. Follow-up treatment with prescribed fire has occurred in many management units, and is an overall goal of the current burn program. Additional mechanical treatment includes seasonal mowing to maintain open areas for wild turkeys (*Meleagris gallopavo*). Approximately 150 acres were mowed to improve conditions for turkeys in 2008.

Exotic vegetation is not an extensive problem on CWMA, but herbicide applications are used to control species such as Chinese tallow (*Sapium sebiferum*), camphor (*Cinnamomum camphora*), cogongrass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), and air potato (*Dioscorea bulbifera*). The primary source of exotic plants is along boundaries with residential areas.

A comprehensive hydrologic assessment has not been conducted on CWMA. Prior to acquisition, ditches were constructed to drain water away from surrounding residential areas and prevent flooding on major roadways. It is not known how these ditches have impacted the habitat suitability for species such as gopher frogs (*Rana capito aesopus*) and wading birds. A hydrologic assessment is recommended to evaluate the need for hydrologic restoration in potentially-impacted areas.

Current species management and monitoring actions include maintenance and monitoring of southeastern American kestrel (*Falco sparverius paulus*) nest boxes and backyard bat houses. Breeding Bird Surveys (BBS) began in 1996 and are conducted annually by FWC staff and volunteers from the Hernando County Audubon chapter. White-tailed deer (*Odocoileus virginianus*) spotlight surveys are conducted on a three year rotation. Recreational opportunities include public hunting, as well as hiking, bird watching and horseback riding.

Section 3: Area Focal Species

FWC's land management is based on restoring the natural form and function of natural communities. However, in some instances it is important to consider the needs of specific species, and necessary to monitor the impacts of natural communities' management on select wildlife. In an effort to ensure a focused, science based approached to species management, the FWC is using the focal species approach embraced by *Closing the Gaps*. The focal species approach incorporates a variety of concepts and considerations that, if applied correctly, allow one to identify the needs of wildlife collectively by strategically selecting a subset of wildlife species. The group of focal species includes umbrella species, keystone species, habitat specialists, and indicator species. For the Public Lands Conservation Planning (PLCP) project, 60 focal species were selected for the statewide assessment. Potential-habitat models were used to create statewide potential habitat maps for each species. Models were created using relevant available data. The base layer for all models was the FWC 2003 landcover data. Additional data layers such as the species range, soils, land use maps, etc were selected based on the natural history of the species. As such, each model is

species specific. Once statewide potential habitat maps were available, a PVA was conducted for each species.

Using the statewide landcover based habitat maps, 21of the 60 focal species were modeled to have potential habitat on CWMA (listed below). Additionally, 1 focal species not modeled to have potential habitat on the area was identified as occurring on the property and 1 additional species was added due to its conservation importance. To create more accurate area-specific potential habitat maps, we used the same statewide model for each focal species on the area but replaced the landcover data with area-specific natural community data. The resulting potential habitat map was then refined based on the input of local managers and species experts. All potential habitat acres provided in section 3.2 are the results of this area-specific model and resulting map. Information on the focal species were compiled and provided in a workbook to allow for informed discussion of the species. The CWMA Wildlife Conservation Prioritization and Recovery (WCPR) Workshop was held to bring decision makers together and allow for discussion on: an assessment of the opportunity and needs; identification of measurable objectives; a description of necessary actions including monitoring; and any coordination efforts that are necessary. To accomplish this, the "level of opportunity and need" for each species was analyzed. This included analyzing the long-term security of the species (i.e., examine PVA results), considering if the species occurs in actively managed communities (Table 1), if the species is management responsive, and any other local overriding considerations (e.g., status of species in the region, local declines/extirpations). A brief summary of this assessment of each species is available in Section 3.2.

Other imperiled species are likely to occur on CWMA in addition to the species described below (Section 3.2.24). All of these imperiled species will continue to benefit from FWC's ongoing management actions that aim to restore natural communities' structure and function. These species, and other imperiled species on the WMA, are adapted to the natural communities found in Florida and have a higher probability of persistence under FWC management actions than in the absence of management.

3.1: Chassahowitzka WMA Focal Species

Gopher frog (*Rana capito aesopus*)[1, 2]
Striped newt (*Notophthalmus perstriatus*)[4]

Eastern indigo snake (*Drymarchon couperi*)
Florida pine snake (*Pituophis melanoleucus mugitus*)
Gopher tortoise (*Gopherus polyphemus*)[1, 2]

American swallow-tailed kite (*Elanoides forficatus*)
Bachman's sparrow (*Aimophila aestivalis*)[2]
Brown-headed nuthatch (*Sitta pusilla*)[2]
Cooper's hawk (*Accipiter cooperii*)
Florida mottled duck (*Anas fulvigula*)[4]
Florida scrub-jay (*Aphelocoma coerulescens*)[1, 2, 3]
Limpkin (*Aramus guarauna*)
Northern bobwhite (*Colinus virginianus*)[2]
Red-cockaded woodpecker (*Picoides borealis*)

Scott's seaside sparrow (*Ammodramus maritimus peninsulae*) [4]
Short-tailed hawk (*Buteo brachyurus*)
Southeastern American kestrel (*Falco sparverius paulus*) [1, 2]
Southern bald eagle (*Haliaeetus leucocephalus*)
Wading birds (*Multiple species)*

Florida black bear (*Ursus americanus floridanus*) [1, 3]
Florida mouse (*Podomys floridanus*)
Sherman's fox squirrel (*Sciurus niger shermani*) [3]
Southeastern bat (*Myotis austroriparius*)

[1] Indicates a species for which a measurable objective was identified.
[2] Indicates a species for which a monitoring program was identified.
[3] Indicates a species for which a Strategic Management Area was identified.
[4] Indicates a species which was modeled to have potential habitat on the area when using statewide data; however there is little opportunity to manage for these species on the area and they are not a focus of management on the area.

3.2: Focal Species Opportunity/Needs Assessment

This section provides an assessment of the opportunity and needs of each of the focal species. Unless otherwise noted, all acres of potential habitat are the result of using the area-specific natural community data in the species potential habitat model. We presume that by doing the actions called for in this strategy, we will ensure the area fulfills its role in the conservation of wildlife.

3.2.1: Gopher Frog

Gopher frogs are present on CWMA. Herpetological surveys conducted in 1995 and 1996 detected this species in several management units. Dipnet surveys in May 2010 detected gopher frog tadpoles in 7 of the 21 ponds surveyed on CWMA. Gopher frogs in Florida are a state-listed species of special concern. Considered a moderate priority statewide, this species triggers 2 of 6 prioritization triggers (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend). Gopher frog habitat is a subset of gopher tortoise habitat that contains sufficient fishless ephemeral wetlands for breeding. Post-breeding, gopher frogs move back into surrounding upland habitat within a mile of the breeding pond. In summer 2009, a breeding pond assessment was conducted on CWMA by the Coastal Plains Institute (CPI). This assessment included an evaluation of ephemeral wetlands for suitability as breeding ponds for a variety of amphibian species and also whether these species are utilizing the ponds.

Models indicate 6,065 acres of potential habitat for gopher frogs on CWMA. While we do not know the minimal acres necessary to support a viable population of gopher frogs, there is good reason to believe > 6,000 acres should be enough to support a viable gopher frog population. Ongoing efforts to maintain CWMA's natural community structure and function will benefit this species; therefore, no SMA

is required. The needs of potential breeding ponds on the area are unknown at this time but will be addressed when the ephemeral wetlands assessment is completed. During the previous herpetological surveys, rooting by feral hogs (*Sus scrofa*) was not observed. During a site visit in 2007, extensive damage from rooting hogs was noted and could indicate that the feral hog population on CWMA is expanding. The extent and potential impact of hog rooting on CWMA is not known at this time. A research project to study and document effects of habitat disturbance by hogs and to compare hog exclusion techniques is an ongoing research need on CWMA (Section 5.3.1). Management actions that maintain or enhance habitat for this species include the continued use of prescribed fire in scrub, sandhill, mesic flatwoods, and isolated wetlands. Additional land management recommendations can be found in Section 4.3.1 and monitoring recommendations can be found in Section 5.2.1. As the gopher frog monitoring protocol is dependent upon specific weather events occurring, when this species is monitored will be influenced by the weather.

The area goal is to maintain habitat in suitable conditions to maintain a viable population of gopher frogs on CWMA. The measurable objectives are to:

1) Conduct a baseline survey to determine extent of distribution and the number of breeding ponds by 2011.
2) Use standard call count monitoring protocol to monitor distribution on the area.

3.2.2: Striped Newt

The striped newt has never been detected on CWMA. Striped newts are not known to occur in Hernando County but have been documented in neighboring Sumter County. Herpetological surveys were conducted in 1995 and 1996 on CWMA. Neighboring Croom WMA, Chinsegut WEA and the Withlacoochee State Forest have all been surveyed for striped newts with no recorded occurrences.

While models indicate 9,812 acres of potential habitat for striped newts on CWMA, it is possible CWMA is outside of the range of this species. Striped newts are a moderate to high statewide priority and trigger 4 of 6 prioritization parameters (Millsap biological and supplemental scores, Legacy population trend and population status). However, because this species has not been detected on CWMA or adjacent conservation or private lands and CWMA may be outside of the range of this species, there is little opportunity to impact the statewide population of striped newts on CWMA.

Ongoing land management on CWMA includes applying prescribed fire to depressional wetlands, which will benefit many species, including striped newts, if they are present. There are potential ephemeral breeding ponds on the area but assessments have not been conducted to determine the status of these ponds since the herpetological surveys in 1995. In summer 2009, a breeding pond assessment will be conducted on CWMA by the CPI. After this assessment, land management needs for ephemeral ponds and associated species will be reviewed and implemented. Because this species is unlikely to occur on the area, there is no need for an SMA, measurable objectives, monitoring or area goal. However, the needs of striped newts will be re-evaluated and addressed should this species be detected on or near CWMA.

3.2.3: Eastern Indigo Snake

Eastern indigo snakes are occasionally observed on CWMA and were detected in herpetological surveys conducted in 1995 and 1996. In 2009, a trial survey method for indigo snakes using scent dogs was tested. During this period, a shed indigo snake skin was found by the researcher. Live indigo snakes have been found on the area as recently as March 2009. The indigo snake was added to the focal species list because it is a federal and state listed species and triggers 3 of 4 of the available prioritization parameters (Millsap supplemental score, Legacy population trend and population status).

The body of research for indigo snakes suggests that at least 4,000 acres of habitat are required to support a viable population. Commonly associated with scrub, sandhill and scrubby flatwoods, indigo snakes are also found in pine flatwoods, dry prairie, hardwood hammocks, marsh edges and agricultural fields. Models indicate 12,804 acres of potential habitat for indigo snakes on CWMA; of that, approximately 4,500 acres are sandhill, scrub and scrubby flatwoods. Unfortunately, this habitat is a long narrow strip bordered by highway 19, which may have implications on the long-term persistence of this species on CWMA. Gopher tortoise burrows are important refuge sites for indigo snakes and provide protection from cold and desiccation. Indigo snakes are also known to use cotton rat burrows, hollowed tree stumps, ground litter, trash piles and rock piles. Indigo snakes have large home ranges, and are vulnerable to habitat fragmentation and the resultant loss of travel corridors between areas of suitable habitat within a home range.

Ongoing efforts to maintain CWMA's natural community structure and function will benefit indigo snakes; therefore no SMA is required. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure and function. Stumps and other coarse woody debris should be retained during land management activities as potential refuge sites (Section 4.3.2).

Because it is unlikely that monitoring is capable of detecting changes in the local population, no measurable objectives have been identified. However, opportunistic monitoring is recommended (Section 5.2.7) and the results should be shared with FWRI (Section 6.1.4). While drift-fence arrays will not provide population level information on this species, future drift-fence surveys conducted on the area should include the use of upland snake traps to ensure adequate detection of large snakes such as the indigo or pine snake.

The area goal is to maintain and enhance the suitability of habitat to support indigo snakes on CWMA. However, even if CWMA is managed to accommodate the needs of this species, the continued presence of this species on CWMA is likely dependent on conditions that influence the regional population.

3.2.4: Florida Pine Snake

The Florida pine snake was detected in herpetological surveys in 1995 and 1996 on CWMA, but is not often encountered by staff or recreational users. The Florida pine snake triggers 3 of 6 prioritization parameters (PLCP PVA proportion of

populations to persist on public lands, Millsap supplemental score and Legacy Population trend) and is a state-listed species of special concern.

According to the literature, pine snakes and indigo snakes have similar home range sizes, and at least 1,000 acres of suitable habitat are required to support a viable population of pine snakes on a given area. Pine snakes are closely tied to upland pine and sandhill communities and prefer areas with sandy soil for burrowing. Models indicate 6,407 acres of potential habitat for Florida pine snakes on CWMA. Pocket gophers are a major source of food for this species and it appears that pine snakes actively seek out pocket gopher mounds and burrow in to capture prey. On CWMA, pocket gopher mounds are not often observed on the area west of US 19 but are common at the Annutteliga Hammock tract. However, the absence of pocket gopher burrows does not mean that pine snakes are also absent.

Ongoing efforts to maintain CWMA's natural community structure and function will benefit pine snakes, therefore no SMA is required. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure and function. Stumps and other coarse woody debris should be retained during land management activities as potential refuge sites (Section 4.3.2).

Because it is unlikely that monitoring is capable of detecting changes in the local population, no measurable objectives have been identified. However, opportunistic monitoring is recommended (Section 5.2.7). While drift-fence arrays will not provide population level information on pine snakes, future drift-fence surveys conducted on the area should include the use of upland snake traps to ensure adequate detection of large snakes.

The area goal is to maintain and enhance the suitability of habitat to support Florida pine snakes on CWMA. However, even if CWMA is managed to accommodate the needs of this species, the continued presence of pine snakes on CWMA is likely dependent on conditions that influence the regional population.

3.2.5: Gopher Tortoise

Gopher tortoises are commonly observed on CWMA. CWMA was assessed in 2007 as part of the statewide restocking initiative by FWC. Tortoise densities in the surveyed areas indicated a moderate to high tortoise density within areas of suitable habitat and that CWMA would not meet the criteria for accepting additional tortoises. In 2011, FWC contracted with FNAI to conduct a gopher tortoise burrow survey on CWMA. This survey covered 21% of potential gopher tortoise habitat on CWMA. Within transects, 582 potentially occupied burrows were counted. A total of 2,694 potentially occupied burrows were estimated for all suitable habitats on the area. In addition, burrows were categorized by size (juvenile < 5 in; subadult 5-8 in; adult >8 in). The population was found to have a high percentage of juvenile and subadult burrows relative to other populations, indicating a growing population.

The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. This species is often considered a keystone species because many other species use their burrows, including focal species such as the Florida mouse and gopher frog. This state-listed

threatened species triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap biological score, Millsap supplemental score and Legacy population trend), making it a high priority species statewide. A management plan that places emphasis on increasing the number of tortoises on public lands was recently approved by the FWC.

Models indicate 6,469 acres of potential habitat for gopher tortoises on CWMA. The suggested minimum acreage required to support a viable population is 200 acres, providing the habitat is suitable. Other sources suggest a minimum population size of 50 individuals is needed. Either way, with proper management, CWMA likely has enough potential habitat to support a viable population. Therefore, a high level of opportunity exists on CWMA to promote habitat suitability for gopher tortoises and to increase and maintain tortoise densities on the area.

Ongoing efforts to maintain CWMA's natural community structure and function will benefit the gopher tortoise. Improving and maintaining habitat for gopher tortoises will benefit a number of other wildlife species. Management actions that maintain or enhance habitat for this species include the frequent use of prescribed fire. Much of the potential gopher tortoise habitat has been managed through the use of prescribed fire, mechanical treatment, chemical treatment or a combination. Areas in need of restoration are not considered to be essential to the current population to maintain or increase tortoise density; however restoration of these sites combined with natural re-colonization by gopher tortoises will help enhance the statewide population. These areas will be treated and maintained in conjunction with current suitable habitat management on CWMA, therefore no SMA is required. Additional land management considerations for this species can be found in Section 4.3.3 and monitoring recommendations in Section 5.2.2.

The area goal is to maintain habitat in suitable conditions to allow gopher tortoises to flourish on the area. The measurable objective is to:

1) Use standardized monitoring protocol to assess gopher tortoise density area-wide by 2012.

3.2.6: American Swallow-Tailed Kite

The American swallow-tailed kite is occasionally seen on CWMA. Nesting has not been documented on the area, but is suspected by the Avian Research and Conservation Institute (ARCI), a research organization that conducts statewide research on swallow-tailed kite and short-tailed hawk populations. As a habitat generalist, swallow-tailed kites likely utilize a variety of natural communities on CWMA. Tall trees are an important component of nesting habitat, and open areas are used for foraging. Trees that are dominant or taller than surrounding trees are preferred as nest trees. Shrub height and density tends to be higher around nest sites. Because this species has high nest site fidelity, maintaining suitability of nesting areas is important. Models indicate 6,529 acres of potential habitat for swallow-tailed kites on CWMA. Kites are a moderate statewide priority and trigger 4 of 6 statewide prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and probability of a 50% decline on public lands, Legacy population status and population trend).

American swallow-tailed kites are not typically considered management-dependent and the opportunity to impact this species at the management-unit level on CWMA is low. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit kites. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. Habitat suitability for kites should increase with management.

Because this species naturally occurs in relatively low densities, local monitoring would unlikely detect a change in the local population. Area-specific objectives for this species are not needed as this species is more appropriately monitored at the regional level. There is no need to establish a SMA as there is no specific management that could be applied specifically for the benefit of this species. If nests are located on the area, management considerations around these sites will be used (Section 4.3.4) and the nest will be reported to ARCI (Section 6.6). If kite activity is observed during the nesting season, this information should be documented (Section 5.2.7).

The area goal is to promote suitable foraging and nesting habitat for the American swallow-tailed kite that will allow kites using CWMA to function as part of a regional population. However, the continued presence of this species on CWMA is dependent on conditions that influence the regional population of American swallow-tailed kites.

3.2.7: Bachman's Sparrow

Bachman's sparrows are not recently been detected on CWMA. This species was detected in BBS 10 years ago but has not been detected in subsequent BBS. In 2008, 3 sites within CWMA and CWNWR were monitored as part of an avian sandhill pine study. Bachman's sparrows were not detected during this study. The nearest population on conservation lands occurs on the Citrus tract of the Withlacoochee State Forest, which is within reasonable dispersal distance for this species. In April, 2009 a Bachman's sparrow was detected in BBS conducted on Chinsegut WEA. It is possible that Bachman's sparrows are present on CWMA even though they have not been detected recently; therefore habitat management efforts could increase the population and subsequently the chance of detection. If Bachman's sparrows are truly absent, dispersal from neighboring natural areas would be necessary to establish a population on CWMA.

The Bachman's sparrow triggers 2 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend) and is currently experiencing range-wide population declines. Models indicate 5,616 acres of potential habitat for Bachman's sparrows on CWMA, which is enough to support a viable population.

Across CWMA, restoration of the potential habitat for Bachman's sparrows is being achieved through mechanical treatment and prescribed fire. This species prefers mature pine forests with a healthy herbaceous groundcover and habitat maintained with frequent prescribed fire. The fire return interval on CWMA in the past was likely too long to adequately meet the needs of Bachman's sparrows, but the

intent is to shorten the fire return interval now that mechanical restoration has been achieved. Ongoing efforts to maintain CWMA's natural community structure and function combined with a shorter fire return interval will improve the suitability of habitat for Bachman's sparrows, therefore no SMA is required. Additional land management considerations can be found in Section 4.3.5. Monitoring will continue to be conducted via annual BBS (Section 5.2.3).

The area goal is to establish and maintain a viable population of Bachman's sparrows on CWMA. Actions taken to achieve this goal will be to manage potential Bachman's sparrow habitat with the assumption that it will disperse onto the area naturally from neighboring conservation lands. If Bachman's sparrows are not present on CWMA by 2020, species management actions may need to be considered. Because a population of this species is not known to be established on CWMA at this time, no measurable objectives have been identified. By providing suitable foraging and nesting sites that lead to the establishment of Bachman's sparrows on the area, CWMA will fulfill its role in reversing the ongoing decline of this focal species.

3.2.8: Brown-Headed Nuthatch

Brown-headed nuthatches are not known to occur on CWMA and have not been detected by BBS which have been conducted on CWMA since 1996. In 2008, 3 sites within CWMA and CWNWR were monitored as part of an avian sandhill pine study. Brown-headed nuthatches were not detected during this study. Brown-headed nuthatches have been detected at Richloam WMA, to the east of CWMA and at Starkey Park in Pasco County. This species is dependent on open stands of mature pine interspersed with snags for excavating nesting cavities. The brown-headed nuthatch triggers 2 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend) and is currently experiencing range-wide declines due to habitat loss and degradation.

Models indicate 5,616 acres of potential habitat for brown-headed nuthatches on CWMA. This would be enough to support a population. However, pine stands within the potential habitat on CWMA are likely too young to be considered optimal brown-headed nuthatch habitat. Ongoing efforts to maintain CWMA's natural community structure and function will improve habitat suitability for the brown-headed nuthatch; therefore no SMA is required. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. A shorter fire return interval and the protection of snags during land management activities will further improve habitat suitability (Section 4.3.3). A parameter of snags > 5 inch DBH should be added to the DFCs for actively-managed natural communities on CWMA to reflect the importance of snags for this species, as well as the southeastern American kestrel (Section 4.2.1). Species management actions such as the creation of snags or the use of artificial cavities may be necessary in the future (Section 5.1.1). Annual BBS surveys will continue on CWMA (Section 5.2.3). Because this species is a poor disperser, it may be necessary to evaluate the need for translocation as a means to establish a population of brown-headed nuthatches on CWMA as the habitat suitability increases.

The area goal is to promote suitable future foraging and nesting habitat for brown-headed nuthatches on CWMA to provide the opportunity for future occupation by this species. Because a population of this species is not established on CWMA at this time, no measurable objectives have been identified.

3.2.9: Cooper's Hawk

The Cooper's hawk is occasionally observed on CWMA. Commonly associated with woodlands, this species nests in a variety of habitats including swamps, floodplain and bottomland forests, sand pine scrub and baygalls. Nests are usually placed near the crown of a tree close to an edge in dense stands of oaks. Cooper's hawks primarily feed on other birds, so nests are located in proximity to suitable hunting areas. Models indicate 16,068 acres of potential habitat for Cooper's hawks on CWMA. It is likely that this species is nesting on CWMA given the large amount of potential habitat. The Cooper's hawk triggers 1 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands).

Cooper's hawks are not typically considered management-dependent and the opportunity to impact this species at the management-unit level on CWMA is low. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit the Cooper's hawk. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. Habitat suitability for this species should increase with management.

Because this species naturally occurs in relatively low densities, local monitoring would unlikely detect a change in the area's population. It would be impractical to establish measurable objectives for this species given these conditions. It would be inappropriate to establish a SMA as there is no specific management that could be applied specifically for the benefit of the Cooper's hawk. During the nesting season (April-July), the Cooper's hawk is secretive and sensitive to human disturbance near the nest site. No attempt will be made to actively search for nests, but if individuals are observed exhibiting nesting behavior (carrying nesting material to/from an area, acting aggressively), the location will be noted (Section 5.2.7) and the area will be protected from disturbance (Section 4.3.7).

The area goal is to promote suitable foraging and nesting habitat for the Cooper's hawk that will allow individuals using CWMA to function as part of a regional population. However, the continued presence of Cooper's hawks on CWMA is dependent on conditions that influence the regional population.

3.2.10: Florida Mottled Duck

Mottled ducks are occasionally observed on CWMA, but breeding has not been documented. Upland areas near wetlands are preferred by nesting females. Mottled ducks have been documented nesting in dry marshes, pine flatwoods, citrus groves and urban areas. Habitats that are avoided include wet prairies, shrub and forested wetlands, open water and flooded areas. This species prefers shallow water less than 10 inches deep and wetlands with emergent vegetation. Potential foraging

habitat can be enhanced through management activities that promote a mosaic of open water and cover within shallow emergent wetlands. There are few wetlands on CWMA that meet these criteria; however, mottled ducks have been known to nest greater than 0.6 miles from suitable brood habitat.

Models indicate 312 acres of potential habitat for mottled ducks on CWMA. This is not enough to support an independent population. One of 2 game species addressed by the WCPR program, the mottled duck is not listed at either the state or federal level. This species triggers 2 of the 6 statewide prioritization parameters (Millsap supplemental score and Legacy population trend), making it a medium priority statewide. Given the small amount of potential habitat on CWMA, the mottled duck is not a priority species for management at this time. However, ongoing efforts to maintain CWMA's natural community structure and function will provide some benefit to this species in the form of a minimal amount of foraging habitat and even the potential for occasional nesting.

Nesting birds have never been observed in the uplands on CWMA; observed nesting would be considered significant and should be noted (Section 5.2.7) and shared with FWRI (Section 6.1.4). CWMA falls within the potential habitat areas surveyed annually by FWRI as part of their statewide mottled duck surveys. These surveys are not specific to CWMA but rather apply to potential mottled duck habitat within the region. There is no need to initiate additional surveys on the area at this time given the relatively small amount of potential habitat available.

The potential for land management actions on CWMA to impact the regional population of mottled ducks is minimal given the amount of potential habitat. Therefore, there is no need to designate an area goal, measurable objectives or a SMA for mottled ducks on CWMA.

3.2.11: Florida Scrub-Jay

The Florida scrub-jay has not been detected on CWMA. Call-response surveys are conducted in June-July. These are not systematic in nature, but represent an attempt to document jays that may have moved onto the area during the breeding season. The Southwest Florida Water Management District (SWFWMD) conducts systematic surveys on adjacent areas. Scrub habitat on CWMA is located at the south end of the WMA in the Weeki Wachee Scrub tract. This tract was surveyed for scrub-jays by Archbold Biological Station (ABS) in the early 1990s as part of a statewide scrub-jay population assessment. Birds were found in the vicinity, but no groups were detected on CWMA. Scrub-jays were last observed on adjacent SWFWMD property in 2004. Incidental observations of scrub-jays in the surrounding areas have been reported over the years and the West Central Florida Uplands Working Group (WCFUWG) is currently trying to determine the status of these birds.

The Florida scrub-jay is listed as threatened both at the federal and state levels. It triggers 6 of 6 prioritization parameters, making it a high statewide priority. Models indicate 337 acres of potential habitat for this species on CWMA. Scrub habitat relies heavily on fire to maintain vegetation in optimal conditions for many scrub species, including scrub-jays. Fire suppression in scrub often results in an

increased oak and sand pine density, as well as a decrease in bare patches of sand. At this time, there is not enough suitable scrub-jay habitat to support a stable population of scrub-jays on CWMA alone. However, if the > 300 acres of scrub could be restored to suitable conditions, it could support a population that would be likely to sustain itself in the short-term, especially if done in conjunction with scrub management on the SWFWMD scrub. If scrub-jays could be re-established in the area, this would facilitate the area playing a role in supporting the greater scrub-jay population in west-central Florida. Cooperation with the WCFUWG and neighboring land owners will be necessary to achieve this (Section 6.1.1 and 6.2).

To ensure that the Weeki Wachee Scrub tract fulfills its potential to support scrub-jays and other scrub species, a SMA has been established that encompasses OBVM management units 1 - 13 and 996 (Section 4.1.1). Within this SMA, the goals and objectives will be directed towards habitat as the target species is not currently present on the area. Current monitoring will continue in order to detect scrub-jays should they move onto the area from neighboring lands (Section 5.2.4).

The area goal is to restore and maintain habitat in suitable condition for scrub-jays to potentially occupy the area in the future. The measurable objective is to:

1) Restore all potential scrub-jay habitat within the SMA to suitable conditions by 2019.

While steps can be taken to improve habitat suitability for scrub-jays, occupancy of scrub habitat on CWMA is dependent on whether scrub-jays persist in the surrounding area and if they disperse to the Weeki Wachee tract. It may be necessary at some point to explore translocation as an option for establishing a population of scrub-jays in this area if natural dispersal does not occur.

3.2.12: Limpkin

Limpkins are rare on CWMA. Primarily observed foraging along the Weeki Wachee River, they are also often detected on the river in surveys conducted by the SWFWMD. Limpkins typically inhabit freshwater marshes, swamps, springs and spring runs. Limpkins are highly mobile and influenced by regional water levels and the availability of prey items, primarily apple snails. In March 2009, approximately 0.5 mile (1 km) of the upper portion of the spring run on the Weeki Wachee River was surveyed for apple snails by Wetland Solutions, Inc. The average density found in the survey area was 4.7 snails per 10 square feet (1 square meter). During the apple snail surveys, limpkins were observed in the survey area. This survey did not cover the portion of the river adjacent to CWMA, but the researcher reports that egg masses are relatively common on the length of the river between the head springs pool and Roger's Park in Hernando County, where the river becomes more estuarine.

Limpkins are a state species of special concern and trigger 1 of 6 prioritization parameters (Legacy population trend). Models indicate 1,226 acres of potential habitat for this species on CWMA. It is not known if this is enough to support an independent population of limpkins, but it is likely that limpkins using CWMA are part of a larger regional population. While limpkins live in wetland habitats that are typically not actively managed, the use of prescribed fire in flatwoods and marsh habitats will improve the quality of these habitats for this species by enhancing

foraging opportunities and preventing the encroachment of shrubby species. The level of opportunity to directly impact the local population of this species at the management unit level on CWMA is low and ongoing efforts to maintain natural community structure and function should meet the needs of this species, therefore no SMA is recommended.

Because this species has significant dispersal capabilities and is impacted by regional water levels, local monitoring would be unlikely to detect a change in the area's population and is not recommended. However, it is important for CWMA staff to keep informed on issues regarding this species in the region, and to communicate with neighboring conservation agencies to share information if necessary (Section 6.2, 6.3 and 6.4.1).

The area goal is to promote suitable foraging habitat for limpkins that will allow individuals using CWMA to function as part of a regional population. However, the long-term persistence of limpkins on CWMA will be influenced by factors affecting the regional population.

3.2.13: Northern Bobwhite

Northern bobwhite are not commonly observed on CWMA. Spring whistle counts were conducted on the area from 1995 to 1997, but were discontinued because the data gathered were not statistically vigorous enough to index population changes. The BBS conducted annually in the spring have detected calling quail and are currently the only avian surveys conducted on the area by CWMA staff. Northern bobwhite have experienced significant range-wide population declines since the 1980's and are currently a major focus of many initiatives including the Upland Ecosystem Restoration Project (UERP). Northern bobwhite are typically associated with open canopy forests and grassland communities dominated by warm-season grasses, legumes, and patchy bare ground. Areas with dense herbaceous cover are used for brooding and foraging; shrubs or other thickets are useful as roosting habitat or escape cover.

One of 2 game species addressed by the WCPR program, northern bobwhite trigger 2 of 6 prioritization parameters (Legacy population trend and population status). Models indicate 8,272 acres of potential habitat for this species on CWMA. Northern bobwhite appear to be highly dependent on habitat quality and require a mosaic of habitats to meet their foraging and brooding needs. On CWMA, the level of opportunity for this species is high given the large amount of potential habitat within actively managed communities. Ongoing efforts to maintain CWMA's natural community structure and function combined with a shorter fire return interval will improve the suitability of habitat for this species, therefore no SMA is required. Management actions that maintain or enhance habitat for northern bobwhite include prescribed fire and mechanical actions that aid in restoring natural community structure. See Section 4.3.8 for additional land management considerations.

The area goal is to promote suitable foraging, brooding and nesting habitat to increase the current bobwhite quail population on CWMA. Measurable objectives are not recommended because no specific species or land management actions are proposed by which to measure success. Current BBS surveys will continue on the

area, and as habitat suitability increases, it may become necessary to coordinate with current research initiatives involving this species to implement species-specific monitoring on the area (Section 5.2.3).

3.2.14: Red-Cockaded Woodpecker

Red-cockaded woodpeckers have never been detected on CWMA. The nearest known active population is on the Citrus tract of the Withlacoochee State Forest, to the northeast of CWMA, which currently supports approximately 60 active clusters. The red-cockaded woodpecker is a federally endangered species that is also a state species of special concern. It triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap biological score, Legacy population trend and population status). A FWC Management Plan and USFWS Recovery Plan have been developed for this species, making it a high priority. Red-cockaded woodpeckers inhabit open, mature pine woodlands with a diversity of grass, forbs and shrub species. A basal area of 40-80 ft^2/acre is preferred. As cavity nesters, individuals excavate their own cavity in the heartwood of older (typically > 60 years) living pine trees. Suitable cavities and potential cavity trees are often the limiting factor for this species, as is the case on CWMA. Artificial cavities have been effective in increasing local populations when combined with appropriate habitat management.

Models indicate 832 acres of potential habitat within mesic flatwoods and sandhill for red-cockaded woodpeckers on CWMA. The mapped potential habitat for red-cockaded woodpeckers on CWMA is located at the Seville and Annutteliga Hammock tracts, and not on the main part of the property. This is likely a function of the model, and not reflective of all true potential habitat. Across the WMA, an additional 4,784 acres of mesic flatwoods and sandhill habitats and 1,400 acres of pine plantations could be available. With a home range size of 100-400 acres, between 17 and 70 territories could be possible within the potential habitat on CWMA. A population of this size would be moderately secure, considering the proximity to the Citrus population. However, translocation would likely be required to establish occupancy on CWMA.

Ongoing efforts to maintain CWMA's natural community structure and function will improve the suitability of habitat over time for red-cockaded woodpeckers. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. While habitat can be moved toward conditions that will support red-cockaded woodpeckers, it will take time for the pine trees to become suitable as potential cavity trees. At this time, no SMA is required for the red-cockaded woodpecker, but this species will be considered during land management activities to ensure protection of potential cavity trees (Section 4.3.9).

The area goal is to enhance the suitability of habitat for red-cockaded woodpeckers on CWMA to provide the opportunity for future occupation by this species. Species management or monitoring needs are not proposed at this time, but future needs will likely include translocation and associated monitoring and management according to the Red-cockaded Woodpecker Management Plan. This is

a long-term need, and will not be addressed for many years. However, part of ensuring future potential is coordinating with other areas currently managing for this species to ensure corridors between areas are established (Section 6.5).

3.2.15: Scott's Seaside Sparrow

The status of Scott's seaside sparrow is currently unknown on CWMA. This state species of special concern occupies narrow coastal marshes with expanses of smooth cordgrass (*Spartina alterniflora*), saltgrass (*Distichlis spicata*), dropseed (*Sporobolus virginicus*) and black needlerush (*Juncus roemerianus*). Open muddy areas, long pools and creek edges are preferred for foraging. This species triggers 2 of 6 prioritization parameters (Millsap supplemental score and Legacy population trend). Models indicate 126 acres of potential habitat for this species on CWMA. Scott's seaside sparrows utilize specific parts of the marsh that cannot be easily modeled, such as muddy areas along pools and creek edges; therefore it is likely that the potential habitat estimate for this species is higher than what is actually present.

The potential habitat for Scott's seaside sparrows on CWMA is primarily within the marshes that are managed by the USFWS as part of the CNWR. The USFWS has never detected this species in the marsh, and neither has the Audubon Society, who regularly surveys the marshes. Chassahowitzka marshes may not have the grassy vegetation structure preferred by this species, and likely do not meet the specific habitat requirements for this species, regardless of management techniques. As such, there is no need for an area goal, SMA, or measurable objective. If this species is detected on or near CWMA in the future, coordination with other managing and monitoring agencies will be necessary to further evaluate the regional needs of seaside sparrows (Sections 6.2, 6.3 and 6.4.1).

3.2.16: Short-Tailed Hawk

Short-tailed hawks are rarely observed on CWMA. Dr. Ken Meyer (ARCI) located a nest in the hardwood swamp in 2001 by tracking a radio-tagged female banded in the Everglades. This nest was active in 2001; the status has not been re-evaluated since that time. In May 2009, a short-tailed hawk was documented on CWMA during BBS. This focal species was not modeled to have potential habitat on CWMA using Landcover data, but was added because of the nest. The short-tailed hawk triggers 6 of 6 prioritization parameters, making it a high priority.

The short-tailed hawk is an elusive species that breeds in dense or open woodland stands in wetlands, cypress swamps and bayheads. Vegetation surrounding nest trees is often very dense, making it difficult to locate and assess nests from the ground. This species exhibits high nest-site fidelity, emphasizing the need to locate and preserve historic nest sites. Foraging habitat includes prairies and open areas adjacent to breeding areas. Transitional zones and ecotones may be important components of foraging habitat for this species.

Models using area-specific natural community data indicate 1,433 acres of potential habitat for short-tailed hawks on CWMA. This species is not typically considered management-dependent and the opportunity to impact this species at the

management-unit level on CWMA is low. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit short-tailed hawks by improving the suitability of foraging habitat. Management actions that maintain or enhance foraging habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. Foraging habitat suitability for this species should increase with management.

Because this species naturally occurs in relatively low densities, local monitoring would be unlikely to detect a change in the area's population. There is no need for an SMA or area objective. The nest on CWMA is located in an area that is infrequently visited by staff or recreational users, and is outside of areas impacted by land management activities. However, if future management actions are proposed that could impact the nest site, the nest tree and surrounding habitat will be protected according the recommendations in Section 4.3.10. Monitoring for this species will be opportunistic, and should include season and color phase (Section 5.2.7). Observations of this species should be shared with ARCI (Section 6.6).

The area goal is to promote suitable foraging and nesting habitat for the short-tailed hawk that will allow individuals using CWMA to function as part of a regional population. However, the continued presence of short-tailed hawks on CWMA is dependent on conditions that influence the statewide population.

3.2.17: Southeastern American Kestrel

The southeastern American kestrel is rarely observed on CWMA but has been observed more frequently since 2008 when 6 kestrel nest boxes were installed. Two boxes at the Annutteliga Hammock were occupied by breeding southeastern American kestrels in 2009. One box contained 5 eggs and the other contained 3 eggs during the third monitoring period. These boxes were checked at a later date to determine the final status and were found to be non viable. Kestrels were observed brooding during the monitoring period but it is not known why these eggs did not hatch.

Southeastern American kestrels utilize upland habitats, including sandhills and longleaf savannas, pastures, sand pine scrub and prairies. As a secondary cavity nesting species, southeastern American kestrels use previously-excavated cavities in large snags. They will utilize artificial cavities when placed in areas of suitable habitat. They require adequate perch sites within foraging areas for hunting, and low ground cover (<1 ft) and an open canopy (<20%) are ideal for this species. Average breeding territory size is 125 acres, though more area may be necessary if the habitat quality is marginal. Southeastern American kestrels are a state threatened species and trigger 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap updated biological score, Legacy population trend and population status).

Models indicate 5,884 acres of potential habitat for southeastern American kestrels on CWMA. The level of opportunity on CWMA is moderate to high, given the large amount of potential habitat and the fact that there are breeding pairs on the area. Ongoing efforts to maintain CWMA's natural community structure and function combined with a shorter fire return interval will improve the suitability of

habitat for kestrels, therefore no SMA is required. Management actions that maintain or enhance habitat for this species include prescribed fire and mechanical actions that aid in restoring natural community structure. Protection and creation of snags will benefit this species (Section 4.3.11). A parameter of snags > 5 inch DBH should be added to the DFCs for actively-managed natural communities on CWMA to reflect the importance of snags for this species, as well as the brown-headed nuthatch (Section 4.2.1). Monitoring for southeastern American kestrels will be conducted on the nest boxes according to protocol developed by FWRI as part of a statewide kestrel nest box monitoring program (Section 5.2.5). The results of this monitoring will be shared with FWRI (Section 6.1.4) and used on CWMA to assess the need for additional boxes.

The area goal is to promote suitable foraging and nesting habitat for southeastern American kestrels that will allow individuals using CWMA to function as part of a regional population. However, the continued presence of this species on CWMA is dependent on conditions that influence the regional population. The measurable objective is to:

1) Maintain at least 6 functional nest boxes within suitable habitat on CWMA.
2) Evaluate the use of the available nest boxes and the suitability of recently restored habitat to determine the need for additional nest boxes by 2019.

3.2.18: Southern Bald Eagle

Bald eagles are commonly observed on CWMA. There are at least 7 documented bald eagle nests on CWMA, all of which are located along the western edge of the swamp. Two nests were active in 2008 and 2 were inactive. Bald eagles maintain on average 1.5 nests within a given nesting territory, so the inactive nests could be included in a territory with an active nest. The status of the remaining nests is unknown. The bald eagle does not trigger any of the prioritization parameters, but is protected by specific legal rules and requirements under the Bald and Golden Eagle Protection Act. The FWC Bald Eagle Management Plan was approved in 2008 to ensure the continued recovery of this species.

Models indicate 12,345 acres of potential habitat for bald eagles on CWMA. Bald eagles are not typically considered management-dependent and the opportunity to impact them at the management-unit level on CWMA is low. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit this species. Management actions that maintain or enhance habitat for this species include managing for mature stands, prescribed fire and mechanical actions that aid in restoring natural community structure. Habitat suitability for this species should increase with management.

Because eagles naturally occur in relatively low densities, local monitoring would be unlikely to detect a change in the area's population. There is no need to establish measurable objectives given these conditions, and there is no need to establish a SMA. Any activity around nest sites will be conducted according to the guidance in the management plan (Section 4.3.12). Documentation and reporting of nesting sites is recommended (Sections 5.2.7 and 6.1.1).

The area goal is to promote suitable foraging and nesting habitat for the bald eagle that will allow individuals using CWMA to function as part of a regional population. However, the continued presence of bald eagles on CWMA is dependent on conditions that influence the regional population.

3.2.19: Wading Birds

Six of the 8 focal species of wading birds [great egret (*Ardea alba*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), little blue heron (*Egretta caerulea*), wood stork (*Mycteria Americana)*, and white ibis (*Eudocimus albus*)] are occasionally observed on CWMA. The roseate spoonbill (*Platalea ajaja*) and the reddish egret (*Egretta rufescens*) have not been documented. Statewide, this group of species is a moderate priority. Several species are state listed species of special concern and the wood stork is state and federal listed as endangered. The Millsap biological scores for the reddish egret, little blue heron and wood stork are high. The snowy egret, little blue heron, and roseate spoonbill are believed to have declining population trends while the tricolored heron and white ibis have unknown trends.

Models indicate 17,433 acres of potential habitat for wading birds on CWMA. Wading birds may travel great distances between foraging and roosting habitat, and the opportunity to directly impact the regional populations of these species at the management unit level on CWMA is low. Wading bird population levels are highly influenced by regional conditions, especially water level conditions, therefore no SMA or measurable objectives are recommended. At least 5 historic colonies have been documented in the vicinity of CWMA since 1990. These are all located in the Chassahowitzka marsh, which is managed by the USFWS. Colonies on South Point, Crawl Key and Bird Key are still active. Colonies on Saddle Key and Buckthorn Key have been abandoned, possibly as a result of increased raccoon predation. The USFWS conducts surveys in the marshes several times a year to monitor the wading bird colonies; the Audubon Society also surveys in the marshes. The SWFWMD conducts surveys along the Weeki Wachee River and monitored a wood stork colony along the river that was last active in 2005.

If colonies are established on CWMA in areas managed by FWC, a 330 ft buffer around the new colonies will be maintained (Section 4.3.13). Current monitoring is conducted by the USFWS and SWFWMD in the Chassahowitzka marsh and along the Weeki Wachee River; no additional monitoring is recommended at this time. However, it is important for CWMA staff to keep informed on issues regarding this group of species in the region, and to communicate with neighboring conservation agencies to share information if necessary (Section 6.2, 6.3 and 6.4.1).

The area goal is to promote suitable foraging habitat for wading birds that will allow individuals using CWMA to function as part of the regional populations. However, the continued presence of these species on CWMA is dependent on conditions that influence the regional population.

3.2.20: Florida Black Bear

CWMA lies within the Big Bend Bear Management Unit as identified in the FWC Bear Management Plan (2012) and bears or bear sign are occasionally observed. The Florida black bear is FWC-listed as threatened. However, a 2011 review of the biological status of bears in Florida found they no longer meet the criteria for this listing and the species will be de-listed once the bear management plan is finalized and approved, likely in 2012. This species triggers 2 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands and Millsap biological score).

The Florida black bear is a wide-ranging species capable of significant dispersal. Home range sizes vary according to resource availability and the level of habitat fragmentation on the landscape. A mosaic of flatwoods, swamps, scrub oak ridges, bayheads and hammocks provides foraging opportunities, cover when traveling between these habitat types and adequate den sites.

From 1997-2001, The University of Kentucky, FWC and SWFWMD conducted an ecological study of the Chassahowitzka bear population. This population is the smallest known population of Florida black bears in the state, and one of the smallest known black bear populations worldwide. When this report was published, the population estimate for this bear population was approximately 20 individuals. It is estimated that 50 individuals are necessary for short-term survival and greater than 200 for long-term population persistence. During the study period, successful reproduction was documented. However, only 1 of the 9 cubs handled by researchers was documented to be alive after a year (2 more cubs were sampled as adults in the 2009-2010 hair snare study discussed below, indicating increased survival). Reports of sightings of female(s) with cubs and a female killed on the road with two cubs (rescued) indicate reproduction is occurring. Also, an unmarked male killed on the road indicates either recruitment or immigration. An isolated population of this size is at risk of genetical impoverishment. A separate study found that the genetic variation among bears within the Chassahowitzka bear population was among the lowest ever reported.

The Chassahowitzka bear population appears to be highly impacted by habitat fragmentation caused by roads; vehicle mortality was identified as the number one known cause of death in the ecological study conducted from 1997-2001. This study suggested these bears appear to have become adapted to living in a landscape dominated by humans. Timing of daily activities appears to be altered to reduce chances of encountering people, vehicles, and associated disturbances. This could be the cause of the relatively low number of nuisance calls reported for the area, and also the low detection by CWMA staff. It may be necessary in the future to coordinate with the Big Bend Bear Management Unit sub-team to work with the Florida Department of Transportation (FDOT) to install wildlife underpasses/overpasses on CR 550 to allow for safer passage of wildlife between conservation areas (Section 6.1.7). A wildlife underpass designed to benefit bears is planned for the Suncoast Parkway extension.

FWRI conducted a hair snare study of this bear population during 2009 and 2010. The goal of this project was to accurately define the occupied range of bears in

the Chassahowitzka area (Citrus, Pasco and Hernando counties). DNA analysis of hair samples collected from a grid of barbed-wire hair snares was used to estimate occupied bear range. GIS analysis was used to create a detailed range map for the Chassahowitzka bear population. Only 11 bears were sampled during this study, and only two were female. Three bears were from the Ocala bear population, indicating possible movement between population areas. However, at least one of the bears with Ocala genetics was a nuisance bear that was captured between population areas and released in CWMA because it was closer; as such, it is unknown if the Ocala genetics came in through natural dispersal, from a release, or a combination thereof. Hair samples were only found on snares on CWMA and Weeki Wachee Preserve, further illustrating the importance of these areas for black bears.

Models indicate 19,363 acres of potential habitat for Florida black bears on CWMA. This is not enough habitat to sustain a viable population in the long-term and the continued presence of bears on CWMA may be limited by factors that are outside the control of local staff, such as genetics and small population size. Ongoing efforts to maintain CWMA's natural community structure and function in actively-managed natural communities could result in a change in the amount of cover for bears. However, the non-actively managed natural communities and the number and interspersion of wetland habitats associated with managed natural communities will ensure this area always provides suitable bear habitat. Employing land management practices that keep bears in mind will lessen the impact on the population while still providing suitable foraging habitat for bears (Section 4.3.14). Promoting habitat conditions that are favorable for bears will benefit this species but it is not known if that will overcome problems associated with an aging population with a high male to female ratio. Extirpation may occur regardless of habitat conditions or management activities.

The relationship between habitat conditions and the bear population status is not well understood, but the fact that bears in this population appear to spend most of their time on CWMA may increase the sensitivity of the population to land management activities. Extending the fire return interval in non-sandhill uplands, such as flatwoods and hammocks, on CWMA could potentially benefit bears by promoting increased food production and providing adequate cover, denning and forage habitat. However, smoke management issues, wildfire danger and the proximity of portions of the non-sandhill uplands to major roadways or neighborhoods limit the widespread application of a longer fire return interval. Furthermore, other species such as gopher tortoise and gopher frog utilize non-sandhill upland habitat on CWMA and require frequent fire for optimal habitat conditions. To address these issues and ensure that the needs of bears are specifically considered during annual burn planning and land management activities, a CWMA Bear Habitat Management Plan is recommended. This plan should include an assessment of management units in which extending the fire return interval could be detrimental to gopher tortoises and gopher frogs, using available monitoring data.

An SMA is proposed for MU 997 to maintain habitat connectivity between the main part of CWMA and the Weeki Wachee area. There are no specific management actions proposed for this SMA. Instead, habitat within the SMA will be left as is and allowed to remain in a dense, forested condition to promote cover for

bears moving across the landscape. See Section 4.1.3 for more discussion on the Bear SMA. Monitoring for this species is best done at the landscape level, however, documenting opportunistic observations (Section 5.2.7) of bears or bear sign will assist in identifying potential travel corridors between natural communities on CWMA for protection during land management actions.

The area goal is to promote suitable foraging habitat and adequate denning habitat on CWMAto maintain the imperiled black bear population. However, the potential for long-term persistence of bears on CWMA is unknown and may be dependent on what happens to bears in other parts of the Big Bend Management Unit. The measurable objective is to:

1) Develop and initiate implemenation of a CWMA Black Bear Habitat Management Plan by the end of 2013.

3.2.21: Florida Mouse

The Florida mouse was detected in small mammal surveys conducted on CWMA in 2006 and 2007. These surveys were conducted for 2 seasons to create a baseline inventory of small mammal species occurring on CWMA. The Florida mouse triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, PLCP PVA probability of a 50% decline on public lands, Millsap supplemental score, Legacy population trend and population status) and is a state species of special concern.

The Florida mouse is found in sandhill and scrub habitats and relies almost exclusively on gopher tortoise burrows for refuge. Acorns are an important food source for this species. Models indicate 4,729 acres of potential habitat for the Florida mouse on CWMA. Literature suggests 75 – 200 acres are needed to support a viable population; therefore it is likely the area can support a viable population. As the SWFWMD owns a number of parcels east of Highway 19 that have sandhill habitat, cooperation with SWFWMD on management of these parcels could further benefit the Florida mouse.

Within CWMA, ongoing efforts to maintain natural community structure and function will benefit this species. Management actions that maintain or enhance habitat for this species include prescribed fire and non-ground disturbing mechanical actions that aid in restoring natural community structure. The Florida mouse benefits from a mosaic of vegetation conditions in a given management unit achieved by applying a variety of land management techniques, such as practicing the 'sloppy chop' method during mechanical treatments to leave patches of oaks untouched and by promoting patchy burns during prescribed fire activities. Other than ongoing natural community management, there are no specific management actions to be taken for the Florida mouse on CWMA; therefore no SMA is required. However, a lower limit should be established for the hardwood stems <6ft Density parameter in the desired future conditions (DFC) for sandhill to better meet the requirement for mast-producing hardwoods (Section 4.2.1). It would be desirable to track the trend of this species through time. However, as monitoring would be labor intensive, monitoring is not a priority for Florida mice on CWMA. If additional resources become available, this decision should be revisited. Measurable objectives are not

recommended because monitoring actions by which success could be measured are not proposed.

The area goal is to promote suitable habitat for the Florida mouse on CWMA to support a viable population.

3.2.22: Sherman's Fox Squirrel

Sherman's fox squirrels are present on CWMA. This state species of special concern triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap supplemental score, Legacy population trend and population status). Suitable habitat for Sherman's fox squirrel includes longleaf pine sandhills or flatwoods with a mixture of pines and oaks, such as along the edges of longleaf pine savannas and live oak forests. Large oaks are often used for nest sites and fox squirrels have a large home range size.

Models indicate 6,198 acres of potential habitat for Sherman's fox squirrels on CWMA. The fox squirrel is a wide-ranging species and it is not known if the potential habitat on CWMA could support an independent population of this species. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit this species. As the SWFWMD owns a number of parcels east of Highway 19 that have sandhill habitat, cooperation with SWFWMD on management of these parcels could further benefit the fox squirrel. Management actions that maintain or enhance habitat for fox squirrels include prescribed fire and mechanical actions that aid in restoring natural community structure. Habitat suitability for fox squirrels should increase with management. However, the Seville and Annutteliga Hammock tracts have been identified as areas in need of direct management actions to improve habitat suitability for this species. These areas have a high opportunity for direct management actions to restore sandhill habitat. For these reasons, a SMA is proposed for these areas (Section 4.1.2). The purpose of this SMA is to designate these areas as key to the persistence of fox squirrels on CWMA, and as such, ensure future management actions consider the needs of fox squirrels. Measurable objectives and monitoring needs have been established for the SMA, but do not apply across the area for this species. Monitoring recommendations are found in Section 5.2.6. Given the wide-ranging nature of this species, it may be necessary to coordinate with adjacent land owners to enhance the conditions of the sandhill on neighboring lands (Section 6.2 and 6.5).

The area goal is to promote suitable habitat for Sherman's fox squirrels on CWMA that allow the fox squirrels on CWMA to function as part of a regional population. However, the continued presence of this species on CWMA may be dependent on conditions that influence the regional population.

3.2.23: Southeastern Bat

The southeastern bat is known to forage on CWMA. In 2007, the FWC contracted with the Florida Bat Conservancy (FBC) to conduct a bat species inventory on CWMA. A total of 6 bat species were identified, including the southeastern bat. This species triggers 2 of 6 prioritization parameters (PLCP PVA

probability of a 50% decline on public lands and Millsap updated supplemental score) and is a moderate statewide priority.

The southeastern bat forages primarily over rivers, creeks and lakes and also along hammock edges and in flatwoods. Roosting habitat varies seasonally. Outside the breeding season, individuals may roost in caves, culverts, bridges, hollow trees and occasionally houses. During the maternity season, most known maternity roosts in Florida are formed in caves where females gather to bear and rear young. The nearest known cave roost is approximately 20 miles away at the Sumter county bat cave. Hollow trees and manmade structures also serve as maternity sites, but the prevalence and importance of these to the population is not fully understood. According to the FBC, the presence of southeastern bats on CWMA at the time of year the surveys were conducted could indicate that reproduction is occurring on or in the immediate vicinity of the area. However, it is also possible that southeastern bats detected in the surveys were males, which would not be indicative of maternity roosts on or near the area.

Models indicate 21,184 acres of potential habitat for southeastern bats on CWMA. This species is not typically considered management dependent and the opportunity to impact this species at the management-unit level on CWMA is low. However, ongoing efforts to maintain CWMA's natural community structure and function will benefit southeastern bats. Management actions that maintain or enhance habitat for this species included the use of prescribed fire along habitat edges to prevent shrubby encroachment.

In 2007, 4 backyard bat houses were installed on CWMA. Occupancy was detected in 2 of the boxes in fall 2008. Acoustic surveys by FBC at the occupied bat houses indicated that the species utilizing these boxes is the Brazilian free-tailed bat (*Tadarida brasiliensis*). These bat houses will be checked periodically to assess status. Coordination with the FBC (Section 6.7) and the taxa coordinator (Section 6.1.1) for this species will be required to check for southeastern bats in occupied boxes in the future.

Because the ability to detect population changes at the management unit level is low, local monitoring or measurable objectives are not recommended. There is no need to establish a SMA. As southeastern bats are known to roost in culverts, bridges, hollow trees and structures, such items will be checked for the presence of bats prior to removal (Section 4.3.15).

The area goal is to promote suitable foraging and non-maternity roosting habitat for southeastern bats that will allow individuals using CWMA to function as part of a regional population. However, the continued presence of this species on CWMA is dependent on conditions that influence the regional population.

3.2.24: Other Imperiled Species

Other imperiled species potentially on or near CWMA include the American alligator (*Alligator mississippiensis*), short-tailed snake (*Stilosoma extenuatum*) and the Homosassa shrew (*Sorex longirostris eionis*).

American alligators are found on CWMA. Ongoing efforts to maintain and enhance the suitability of wetland communities on CWMA should ensure the persistence of this species on the area.

A short-tailed snake was observed on the Citrus WMA tract of the Withlacoochee State Forest in May 2009. Little is known about the habitat requirements of this species, including the potential impact of land management. Short-tailed snakes likely occur on CWMA and opportunistic observations should be documented and reported (Section 5.2.7 and 6.1.4).

The Homosassa shrew is a sub-species of the southeastern shrew. Previously thought to be exceedingly rare, studies have shown that this species is actually more abundant across its range. Incidental observations could be notable and should be reported (Section 6.1.1).

It is possible other imperiled species occur on CWMA. Imperiled species on CWMA should continue to benefit from FWC's ongoing management actions that aim to restore natural communities' structure and function. Florida's imperiled species are adapted to these natural communities and have a higher probability of persistence under FWC management actions than in the absence of management.

To ensure CWMA fulfills its role in the protection of listed plants, it is recommended that a rare plant inventory be conducted when resources are available.

Section 4: Land Management Actions and Considerations

While 23 focal species were modeled to have potential habitat on the area (Section 3.1), not all of these species have the same level of management opportunity or need (Section 3.2). The FWC's natural community-based management will promote the habitat conditions necessary for most of these species, without the need for further strategic management actions.

When actions over and above ongoing natural community management are required, a Strategic Management Area (SMA) may be designated (Section 4.1). The designation of SMAs allow for identification of an area in which a specific land or species management action(s) can be taken to facilitate conservation of a species or group of species. A SMA is an area in which specific actions will occur that typically will not occur area-wide and can be used to do the following:

- Identify the area in which to apply specific land or species management that creates the highest probability for persistence/conservation of a species/suite of species. These specific actions may aid in restoring, enhancing or maintaining the habitat or population.
- Identify an area in which to focus specific management actions (land management or species management) for the best chance of success on large areas with more restoration/enhancement than can be accomplished in short order. This might be the first or next step in a sequential series of management actions that will increase the likelihood of occupation and/or persistence of a specific species.
- Identify an area that is so critical to the persistence of a species on the area that it warrants identification to ensure protection against negative alteration.

- Focus efforts on restoration/enhancement of a natural community that will benefit a priority species or a group of focal species. The SMA should identify the area in which these actions have the greatest positive impact for the species of interest.
- Identify areas that are more critical for research or monitoring.
- Recommend specific OBVM DFCs in a specific area to benefit a specific species when we would not want to change the DFCs in the natural community area-wide.

In order to ensure natural community management addresses the needs of these focal species, the OBVM DFCs are evaluated (Section 4.2). Some species have specific protective measures or land management considerations that are necessary to ensure their continued use of the property. These are prescribed in Section 4.3.

4.1: Strategic Management Areas

While the intent on CWMA is to restore all restorable natural communities to a more natural condition that will better suit these species, SMAs allow focus on areas with the highest possibility of success and/or areas most critical for the conservation of a species on the area. The WCPR process resulted in the identification of 2 species for which a SMA was established on CWMA. For the SMAs, species-specific goals and strategies were developed to guide management. In this document, goals, objectives and strategies are defined as follows: Goals are broad statements of a condition or accomplishment to be achieved in the future; goals may be unattainable, but provide direction and inspiration. Objectives are a measurable, time-specific statement of results responding to pre-established goals. Strategies are the actions that will be taken to accomplish a goal or objective, and strategies may be measurable.

4.1.1: Florida Scrub-Jay

This SMA was designated to draw attention to the land management needs of the Weeki Wachee Scrub tract. Designed primarily to focus attention on restoring and maintaining the area within the SMA to conditions that are compatible with the needs of Florida scrub-jays, this SMA is unique in that: 1) goals and objectives are primarily habitat-based and not designed to detect changes in the target species' population on the area, and 2) the target species does not occur on the WMA. This SMA contains 291 acres of potential scrub-jay habitat on CWMA. In addition, this SMA is contiguous with the Weekiwachee Scrub Preserve (Preserve) of the SWFWMD, which contains approximately 300 acres of scrub. Continued management of the scrub within the SMA should increase the potential of this area to support scrub-jays in the future. Cooperation with the SWFWMD to conduct controlled burns along the boundaries will further increase the area's potential. Scrub-jays have not been detected within the SMA and were last documented on the Preserve in 2004. Reports of urban jays persisting in neighborhoods are frequent, but a systematic evaluation of the area has not been conducted. Restoring scrub habitat within the SMA and coordinating with the SWFWMD to restore and maintain scrub habitats on the Preserve could potentially provide a place for residual urban jays to colonize. Additionally, management of scrub communities within the SMA will

benefit other wildlife species such as the Florida mouse, gopher frog, northern bobwhite, eastern indigo snake, and other scrub-dependent species.

SMA Goal: Restore and maintain habitat in suitable conditions for this species to potentially occupy the area in the future.

SMA Objective: Restore all potential scrub-jay habitat within the SMAs to suitable conditions by 2019.

Description of the SMA: This SMA contains scrub habitats within the Weeki Wachee Tract. OBVM Management units 1 – 13 and 996 are contained within the SMA boundaries (Figure 1). Total acreage of potential scrub jay habitat within the SMA is 291 acres.

Strategy: The Florida scrub-jay is a habitat specialist that relies heavily on fire to maintain optimal habitat conditions for foraging and breeding. Florida scrub-jays live in groups consisting of a breeding pair and up to 6 adult helpers and 1 - 5 juveniles. Family groups require approximately 25 acres of suitable habitat per group territory. Each family group's territory should contain $\geq$ 50% scrub oak cover with a large portion being 4 – 5.5 feet in height, $\leq$ 1 acre of oaks 6-9 feet in height, no more than 1 pine per acre, and 10 – 50% bare sand or sparse herbaceous vegetation. Territories >1,000 feet from forest edges are preferred. These habitat conditions are compatible with current OBVM DFCs for scrub on CWMA with the exception of average maximum shrub height. This parameter should be reduced from $\leq$ 7 ft to $\leq$ 5.5 ft (Section 4.2). A new parameter should be added to track the number of pine stems within scrub habitats. This parameter is number of pine stems > 15 ft/acre and the acceptable value is < 1 stem/acre.

A majority of the Weeki Wachee Scrub tract was harvested for sand pine timber in 1999. The burn history prior to timber harvest is unknown. Neighboring SWFWMD property was harvested for sand-pine timber in 2000-01. Existing infrastructure within the Weeki Wachee Scrub tract includes a parking lot for public access, and sand and shell roads serving as management unit boundaries. There are also two beach access areas on the Weeki Wachee River that are closed to the public. Within the SMA are plots that were part of a research project conducted by FWRI in 2000-2004. This study evaluated the vegetative response to combinations of treatments over time. Some plots were harvested and subsequently burned in 2000. Others were harvest-only, and the rest were burn-only. In the harvest/burn plots bare ground was higher and oak cover lower than in the other treatment plots. The percentage of litter was the same regardless of treatment early in the study, but was significantly lower in the harvest/burn plots by the end of the study.

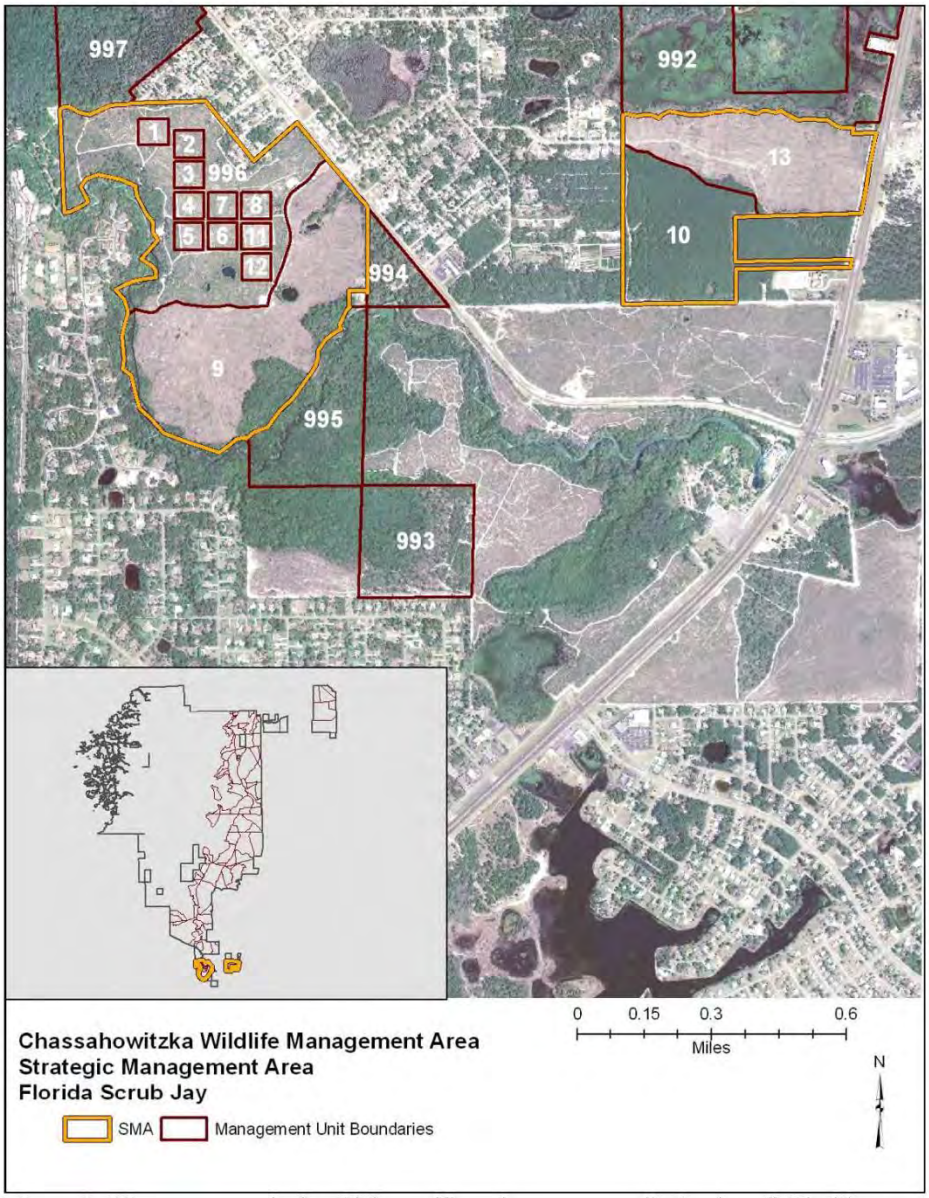


Figure 1: Management units in which specific actions are prescribed to benefit Florida scrub-jays on Chassahowitzka Wildlife Management Area.

Currently, the habitat within the SMA is overgrown with sand pines. The pines are approximately 9-15 feet tall. The oak overstory is also overgrown. Due to a lack of prescribed fire, there is a considerable amount of logging debris left on the ground, which has reduced the amount of bare ground within portions of the SMA. While the conditions within some of the research plots would be acceptable for scrub jays, overall, this area is currently sub-optimal.

The preferred land management action within the SMA is prescribed fire. Potential barriers to land management include issues associated with surrounding urban and suburban area and the current vegetation density, particularly sand pines, within the SMA. Prior to applying prescribed fire to scrub habitat within the SMA, it will be necessary to coordinate with DOF and SWFWMD to ensure that conditions are adequate to meet the objectives of each burn. Illustrating adequate planning and preparation for each prescribed burn is necessary to promote a positive public opinion and ensure that prescribed fire operations continue in light of the wildland-urban interface present on CWMA. Cooperation with SWFWMD could lead to the treatment of additional acreage within the greater Weeki Wachee Scrub area, further improving the potential of this area to support scrub-jays.

To safely apply prescribed fire within the SMA, current fire lines need to be evaluated and additional line created if necessary to decrease the size of management units. Using a tree-cutter to mow strips along fire lines and then allowing the mowed vegetation to cure prior to a burn will increase the ability of fire to penetrate the oak overstory and will increase staff safety during ignition operations. This will also provide protection from potentially intense conditions as sand pine ignites and burns.

Scrub within the SMA should continue to be managed with prescribed fire after the initial restoration burns are completed. A mosaic of burned and unburned patches within each management unit is preferred to ensure suitable habitat is available within and near recently burned areas. A fire return interval that keeps vegetation across most of the management unit below 5.5 ft is preferred; however the length of this interval may vary between different scrub types and individual sites. Mosaic burns will ensure that suitable habitat is available within and near recently burned areas. As acorns are an important food item for scrub-jays and Florida mice, burns should not be conducted so frequently as to inhibit oak mast production. It generally takes 3 - 4 years for most oak species to produce acorns after a burn. Snags and perch trees increase the potential for predation and limit suitability of scrub habitat for scrub-jays. Pine density within the SMA should be reduced to less than 1 tree/acre within the next 10 years.

Monitoring recommendations that will be used to determine whether scrub-jays begin utilizing the area as habitat suitability increases are described in Section 5.2.2. Habitat monitoring to ensure we are affecting the desired habitat outcome will be completed in accordance with OBVM.

4.1.2: Sherman's Fox Squirrel

These SMAs were designated to draw attention to the potential role of the Annutteliga Hammock and Seville Tracts for Sherman's fox squirrels. The purpose of this SMA is to designate these areas as key to the persistence of fox squirrels on

CWMA, and as such, ensure future management actions consider the needs of fox squirrels. The designation of an SMA in these management units will also benefit a number of other species on the area, including gopher tortoise, Florida mouse, northern bobwhite and southeastern American kestrel. Further, this area may serve as a critical corridor connecting CWMA with the Citrus WMA Tract of the Withlacoochee State Forest. As such, focusing management on this area may provide benefits to a large number of species.

SMA Goal: Manage the natural communities to optimize the potential for fox squirrels and ensure management is done in consideration of the needs of this species.

SMA Objective 1: To reduce the oak overstory to meet the OBVM desired future conditions for sandhill by 2015.

SMA Objective 2: To apply prescribed fire 3 times within the SMAs by 2020.

Description of the SMA: These SMAs contain sandhill habitat on the Annutteliga Hammock and Seville Tracts (Figure 2). Strategic management area 1, at the Annutteliga Hammock, consists of sandhill natural communities in OBVM management units 114 – 15, 117 - 19 and 91 and contains 444 acres of potential fox squirrel habitat. Strategic management area 2, at the Seville Tract, consists of sandhill natural communities in OBVM management units 95, 97 and 108 and contains 372 acres of potential fox squirrel habitat.

Strategy: The Sherman's fox squirrel has a relatively large home range size. Often associated with open, park-like habitat, fox squirrels are wide-ranging and solitary in nature. In Florida, the average home range size is approximately 100 ac (43 ha) for males and 40 ac (17 ha) for females. Optimal habitat for this species includes sandhills of mature pine and mixed pine-hardwood types with a broad diversity of mast-producing trees scattered throughout. The diet of fox squirrels varies seasonally and consists primarily of seeds and acorns, as well as other nuts, fruits, fungi, bulbs, buds and insects. Acorns from live oak trees may be an important component of their diet. Large, mature hardwood trees are used by fox squirrels and should be retained during land management activities. These habitat conditions are compatible with the current OBVM DFCs for sandhill on CWMA. However, the current value for hardwood stems > 6ft is 10 stems/acre and this should be adjusted to 5-10 stems/acre (Section 4.2) to provide an acceptable range.

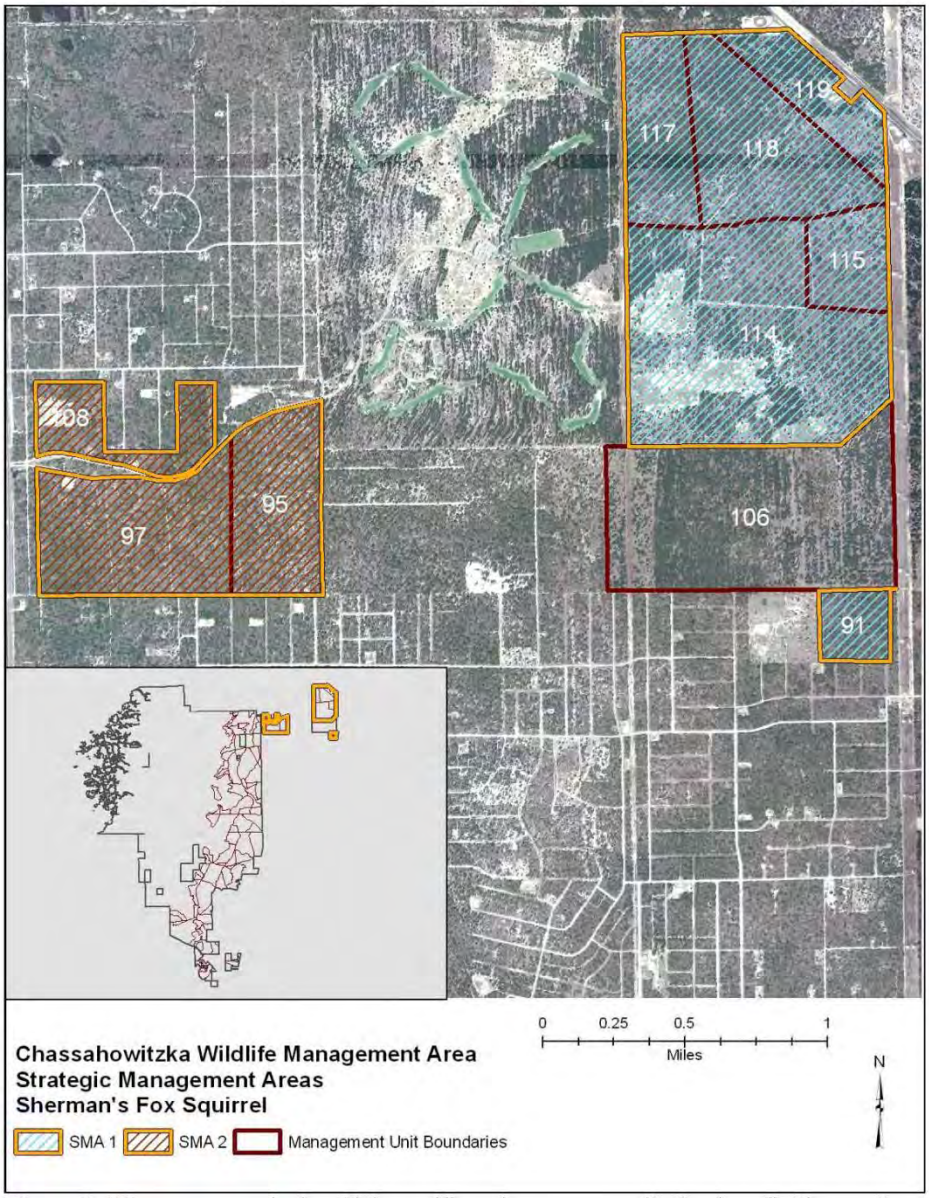


Figure 2: Management units in which specific actions are prescribed to benefit Sherman's fox squirrels on Chassahowitzka Wildlife Management Area.

The Annutteliga Hammock tract is a mix of native sandhill and disturbed pine plantation and ruderal areas. The sandhill portion falls within SMA 1; this habitat is marginal. Management units 115 and the native sandhill portion of 114 were treated with prescribed fire in March 2003. Units 117 and 118 were burned in March 2004 and unit 91 in March 2005. Across much of the SMA, the sandhill is still in a condition under which the use of prescribed fire can successfully restore optimal conditions. However, it will be necessary to mechanically reduce areas of high oak density to promote ground cover. Because of the amount of wiregrass and other desirable native plants, mechanical treatment, such as tree-cutting or rollerchopping is not an ideal tool for restoration within this SMA. Hand crews using chainsaws to selectively remove a portion of the oaks in areas with a higher oak density will achieve the goal of reducing oaks while preserving the seed source to prevent non-target species loss.

Sherman's fox squirrels utilize the portion of the Annutteliga Hammock that is outside of the SMA, as do gopher tortoises and other sandhill species. This area consists of 2 ruderal areas that have been impacted by the illegal use of off-road vehicles. The remainder of the portion outside of the SMA is a mixed-pine plantation of slash and sand pines, with large scattered gaps. Many of the rows were planted close together, except in the southern portions where the trees are widely spaced and park-like. These areas were not included within the SMA because there is currently little opportunity to achieve the objectives in these areas; however, they are being used by the target species.

The Seville Tract is primarily composed of overgrown sandhill. The western half of management unit 97 was burned in July 2002 and the remainder of that unit was burned in January 2003, along with management unit 95. The oak densities at this site are higher than at the Annutteliga Hammock, and will require a different approach. Within management units where the native groundcover is intact and approaching conditions that are ideal, the hand crew approach should be used to minimize impacts to existing groundcover. However, across most of the SMA, it will be necessary to mechanically treat the oak overstory to promote groundcover. A shredder or tree-cutter should be used in these areas, with emphasis on reducing impacts to existing groundcover during mechanical operations.

The preferred land management action within both SMAs is prescribed fire. However, in some management units, it is necessary to apply mechanical treatment to promote the ability of fire to adequately move through the unit by reducing the hardwood canopy and promoting wiregrass and other herbaceous fine fuels. During mechanical removal of oaks, whether by chainsaw or shredder, patches of dense areas should be left on the landscape, and a selection of larger oaks protected to meet the habitat requirement of fox squirrels. Patchy treatment through mechanical means and prescribed fire will ensure a mosaic of habitat conditions is available within the SMAs. This will ensure that mast production remains adequate across the entire area, as acorns are an important component in the diets of fox squirrel and Florida mice.

Experience has shown a fire return interval of 2-5 years is recommended for this habitat type to reach the OBVM DFC parameters for sandhill. An average fire return interval of 3 years will likely be required to meet the OBVM DCFs. Growing season burns are preferred to promote groundcover and reduce hardwood

encroachment; however, dormant season burns are acceptable to initially restore a fire regime to these areas and to allow for the fire return interval to be maintained when conditions are not suitable for growing season burns.

Within the SMA, staff will perform time-area counts following standardized protocol currently under development (Section 5.2.6). The purpose of this monitoring is to track the trend of the fox squirrels in the SMA over time. These counts will occur once every 5 years.

4.1.3: Florida Black Bear

This SMA is intended to draw attention to a critical area of CWMA for long-term use by black bears. The purpose of this SMA is to limit management of habitat within the SMA to only those actions that are necessary for boundary maintenance or dealing with emergencies.

Located on the Weeki Wachee Tract of CWMA, this SMA provides a dense, forested area adjacent to areas heavily used by bears and provides cover and escape habitat. Furthermore, it provides a connection between suitable bear habitat south of CWMA and the main part of the area north of CR 550.

SMA Goal: Facilitate continued bear use and maintain a vital bear travel corridor in this important patch of habitat.

Description of the SMA: This 75-acre SMA contains scrub, baygall, hydric hammock, mesic flatwoods, sandhill, dome swamp and depression marsh natural communities in OBVM management unit 997 (Figure 3).

Strategy: The only action necessary to facilitate this is to limit active management in this MU. This SMA draws attention to the fact that area staff will not apply prescribed fire or mechanical treatments to this MU, except as needed to maintain boundaries or handle emergencies.

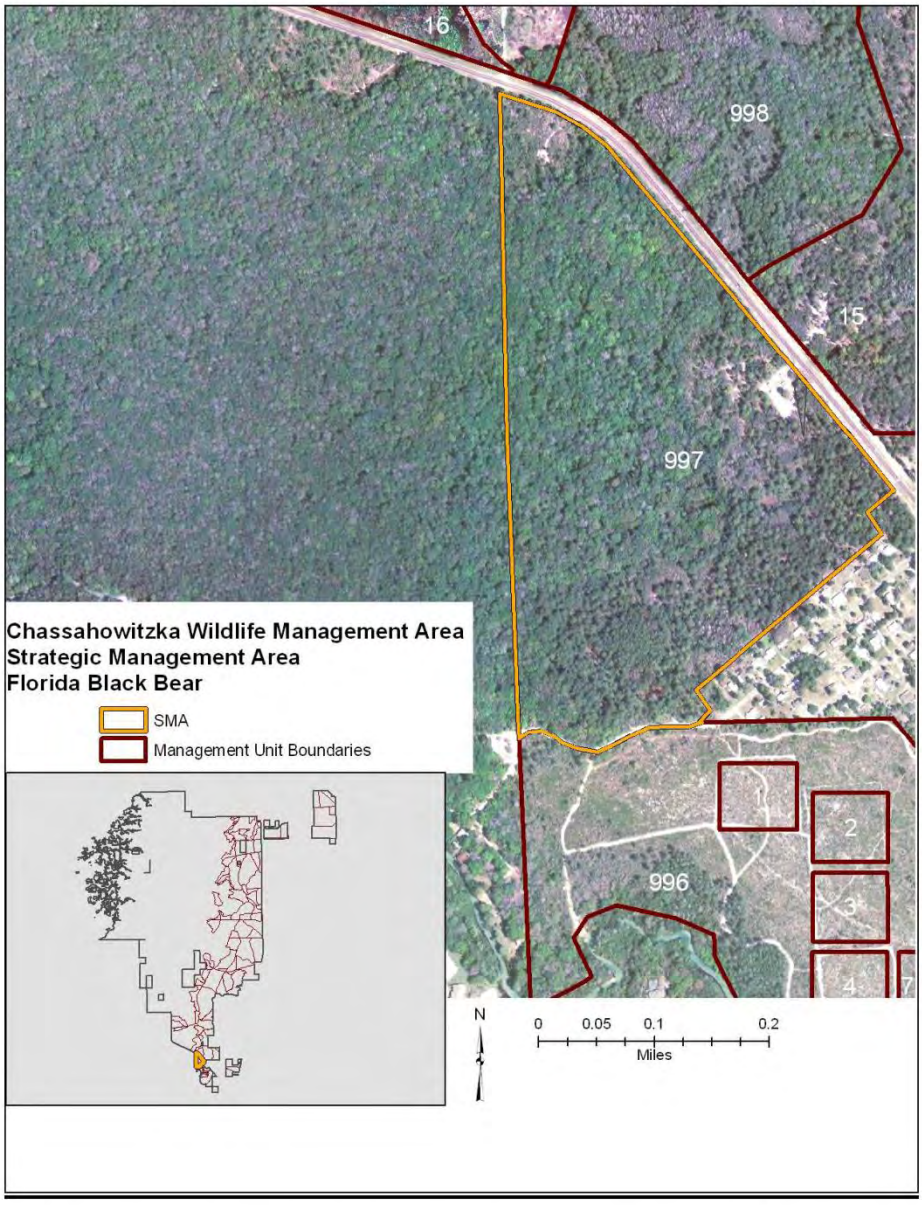


Figure 3: Management unit in which specific actions are prescribed to benefit Florida black bears on Chassahowitzka Wildlife Management Area.

4.2: Objective-Based Vegetation Management Considerations

Objective-Based Vegetation Management (OBVM) will be used to monitor progress towards Desired Future Conditions (DFCs) of various natural community parameters (Table 2). As such, OBVM will be effective in monitoring progress towards land management strategies.

The OBVM DFCs were designed to target a range in values for various habitat parameters within actively managed communities. However, some focal species require a more restricted range in habitat parameters than is reflected in the DFCs. If habitat parameters important to a particular species are not currently monitored as part of OBVM, suggestions are made as to which parameters should be added (Section 4.2.1). If the needs of the species require a change in the DFC area-wide, this is recommended in Section 4.2.1.

Table 2. Desired Future Conditions for specific vegetative parameters in actively managed natural communities at CWMA as identified via the OBVM workshop process.

Scrub	**Mesic Flatwoods**
Canopy Cover: ≤ 5	Basal Area: ≤ 60
Avg. Max. Shrub Height: ≤ 7 ft.	Palmetto Cover: ≤ 45%
Total Shrub Cover: ≤ 75%	Avg. Max. Shrub Height: ≤ 4 ft.
Weedy Cover: ≤ 10%	Herb Cover: ≥ 25%
Exotic Cover: 0%	Shrub Cover: ≤ 60%
Bare Ground: ≥ 10%	Weedy Cover: ≤ 15%
Herb Cover: ≥ 10%	Exotics: 0%
Sandhill	
Basal Area: ≤ 40	
Palmetto Cover: ≤ 15%	
Hardwood Stem 6 ft. Density: 10 stems/acre	
Herb Cover: ≥ 50%	
Shrub Cover: ≤ 25%	
Weedy Cover: ≤ 5%	
Exotics: 0%	

4.2.1: Modifications to Desired Future Conditions

Scrub

Average Maximum Shrub Height (ft):
All management units: change from ≤ 7 ft to < 5.5 ft
Justification: Shrub height is an important parameter that influences scrub-jay use of habitat. As average shrub height exceeds 5.5 feet, habitat suitability drops significantly. Modifying the DFC for this parameter will ensure management is successfully maintaining the habitat in a condition that will provide the greatest chance for successfully meeting species objectives.

Number of Pine stems >15 ft/acre (New parameter to be added):
All management units: ≤ 1 stem/acre
Justification: As the number of pine stems per acre increases, the suitability of the habitat for scrub-jays decreases. Adding this parameter will allow OBVM monitoring to track this important aspect of the habitat.

Sandhill

Basal Area:
All management units: change from ≤ 40 to 30-80
Justification: Basal area is an important parameter that influences suitability of habitat for red-cockaded woodpeckers. Modifying the DFC for this parameter will increase the future suitability of sandhill on CWMA for the red-cockaded woodpecker.

Hardwood Stem > 6 ft. Density:
All management units: change from 10 stems/acre to 5-10 stems/acre
Justification: Species such as the Florida mouse and Sherman's fox squirrel depend heavily on mast-producing hardwoods. Establishing an acceptable range for this parameter ensures that the needs of these species will continue to be met during land management activities on CWMA.

Shrub Cover:
All management units: change from ≤ 25% to ≤ 20%
Justification: Species such as the gopher tortoise, gopher frog, Bachman's sparrow and northern bobwhite can be detrimentally affected by increased shrub cover. Altering this parameter will better meet the needs of species with a high level of opportunity to be positively impacted by land management on CWMA.

Mesic Flatwoods

Basal Area:
All management units: change from ≤ 60 to 30-80
Justification: Basal area is an important parameter that influences suitability of habitat for red-cockaded woodpeckers. Modifying the DFC for this parameter will increase the future suitability of flatwoods on CWMA for the red-cockaded woodpecker.

Herb Cover and Shrub Cover:
All management units:
Herb Cover: change from ≥ 25 to ≥ 50%
Shrub Cover: change from ≤ 60% to ≤ 50%
Justification: Species such as the gopher tortoise, gopher frog, Bachman's sparrow and northern bobwhite quail require a higher density of herbaceous cover and can be detrimentally affected by increased shrub cover. Altering these parameters will better

meet the needs of species with a high level of opportunity to be positively impacted by land management on CWMA.

4.3: Further Land Management Considerations

The designation of SMAs allows management efforts to be focused in areas that have the highest potential of becoming suitable habitat for focal species known to be management responsive and have high need and opportunity. It is commonly believed that most generalist or wide ranging species will likely benefit from management that restores the natural structure and function of natural communities they use. However, for some species, specific management recommendations and precautions are necessary to ensure the continued suitability of the area for the species. The following recommendations should help ensure CWMA continues to fulfill its role in the conservation of these species.

4.3.1: Gopher Frog/Striped Newt

Gopher frogs and striped newts frequently move between wetland breeding ponds and adjacent uplands. Firebreaks should not be placed along wetland ecotones because they can alter/destroy the herbaceous component of pond margins preferred by these species and other amphibians. Wet-lining can be an alternative to mineral firebreaks around wetlands if necessary; however it is preferred to allow fire to burn through the wetland. Prescribed fire will be used as the primary tool to remove shrubs and other thick vegetation from pond margins; mechanical and chemical treatments should be used sparingly to reduce effects on gopher frogs and striped newts.

4.3.2: Eastern Indigo Snake/Florida Pine Snake

Large upland snakes such as the eastern indigo and Florida pine snake are relatively wide-ranging and elusive. Ongoing land management activities will enhance the suitability of habitat for this species, but could also be directly detrimental. When using heavy equipment during land management activities, it is important to avoid direct mortality if possible. Heavy equipment should be kept at least 25 feet from areas with a high density of pocket gophers, as pine snakes regularly use their burrows. Gopher tortoise burrows, even abandoned burrows, should be avoided as well. Coarse woody debris and residual stumps should be left intact when possible to provide cover for these species. In general, avoid harvesting stumps. While it is acceptable to pile and burn excess logging slash if this is necessary to reduce smoke management issues, ensure some debris remain in the stand to provide cover for these species. Creating brush piles can provide cover for these species if escape cover is lacking.

4.3.3: Gopher Tortoise

The timing of roller-chopping will, whenever appropriate, occur during the dormant season to minimize negative impacts to gopher tortoises. Gopher tortoises

are generally less active and remain in burrows during the winter months. Therefore, roller-chopping at this time will be less likely to crush or otherwise harm foraging tortoises. Regardless of timing, efforts should be made to minimize impacts to known burrows, whether active or inactive/abandoned.

4.3.4: American Swallow-Tailed Kite

Because swallow-tailed kites exhibit high nest site fidelity, any known nest sites should be protected from disturbance and alteration, and all of the tallest pines in the area of nest sites should be retained. When possible, kite nesting areas should be allowed to have a higher shrub height and density than surrounding areas as this may reduce the likelihood of nest predation. If kite activity is observed during nesting season, particularly if kites are observed carrying nesting material, mobbing, or congregating in groups of 3 or more, this information should be documented and an effort to locate the nest should be made. For information on how to locate nests, see:

Meyer, K. D., and M. W. Collopy. 1995. Status, distribution, and habitat requirements of the American swallow-tailed kite (*Elanoides forficatus*) in Florida. Project Report, Florida Game and Fresh Water Fish Commission, Tallahassee. http://research.myfwc.com/publications/publication_info.asp?id=47206

While no kites have been documented nesting on CWMA, it is still important to preserve future potential nest trees. This can be done by retaining the largest, oldest trees on the landscape during land management activities.

4.3.5: Bachman's Sparrow

Prescribed fire improves the quality of habitat for Bachman's sparrows, and is the primary land management tool recommended to promote habitat for Bachman's sparrow on CWMA. Suitable habitat can be created/maintained through frequent (≤3 year rotation) use of prescribed fire. The occurrence of fire is critical to sustaining this species as use of an area by Bachman's sparrows declines rapidly around 18 months post-fire, and Bachman's sparrows may abandon habitat if fire is excluded for more than 3 years. When mechanical treatments are used to reduce understory, an effort should be made to retain some small patches of shrubs, which are used by singing males as singing perches during the breeding season. The treatment should be followed with a prescribed burn.

4.3.6: Brown-Headed Nuthatch

Brown-headed nuthatches have not been documented on CWMA and current conditions are not optimal. This species is a cavity nester and is dependent on the presence of snags for suitable nesting habitat. As such, an effort should be made to retain snags during land management activities. Old stumps or snags with flaking bark or soft wood are important nesting sites for this species and care should be taken to keep this particular type of snag.

If brown-headed nuthatches are documented in any management unit in CWMA during the breeding season, an effort should be made to avoid prescribed fire during February and March in the management unit. The loss of nests early in the season frequently results in re-nesting attempts. Most re-nesting occurs during periods of increased snake activity which results in greater predation on nesting females and their eggs and young. However, if this is the only time in which suitable conditions occur for a burn, it is better to burn than to avoid burning.

4.3.7: Cooper's Hawk

During the nesting season (April-July), Cooper's hawks are secretive and intolerant of human disturbance near the nest site. Males show a strong fidelity to traditional territories. For this reason, whenever possible, known nesting sites should be protected from disturbance during land management activities by maintaining a 50 ft buffer around the nest during the nesting season, and avoiding heavy alteration of the nesting location. Whenever signs of Cooper's hawk nesting (e.g., carrying nesting material, aggressive dive bombing) are encountered, the location should be documented and an effort made to protect the nest.

4.3.8: Northern Bobwhite

The primary land management tool used to benefit northern bobwhite is the frequent use of prescribed fire. Fires should be ignited using a variety of firing techniques and environmental conditions with the goal of promoting a mosaic burn. Mosaic burns result in a patchwork of burned and unburned areas that meet different habitat requirements for northern bobwhite. Growing season fires are generally preferred. Growing season fires are required to trigger flowering and viable seed production in many native species. Recent evidence suggests that the frequency of fire in flatwoods communities may be just as important as the seasonality of burn. Thus, if growing season burns do not occur, it is better to burn the unit during the following dormant season rather than waiting until the following summer. In general, smaller burn units (50 – 200 acres) are preferred over larger burn units (> 1,000 acres) to provide habitat diversity. On CWMA, the fire return interval should be enhanced to allow for more frequent fire in actively managed natural communities utilized by northern bobwhite for food and cover. This is an overall goal of the prescribed fire program on the area, and will benefit a number of other species.

Pine stands with basal areas > 80 ft^2/acre should be thinned to trigger herbaceous growth and improve habitat conditions for this species. Ruderal areas can be managed for northern bobwhite through mechanical actions like mowing and/or disking strips during the summer months to promote herbaceous growth.

4.3.9: Red-Cockaded Woodpecker

Following habitat restoration, red-cockaded woodpecker colonization of CWMA is unlikely to occur without active assistance. Existing pines are likely >20 years away from becoming suitable for use as cavity trees, and the forest structure is

not in a condition preferred by this species. As such, there are no current plans for red-cockaded woodpecker specific management. However, it is essential to protect future potential cavity trees on CWMA during ongoing land management activities. Additionally, in areas that have been harvested for timber, it may be necessary to re-plant longleaf pine if pine densities are currently too low to support red-cockaded woodpeckers. Restoration of natural community structure and function will enhance the suitability of habitat for this species over time. After the habitat has been restored to suitable conditions, a reintroduction plan should be developed to guide reintroduction of this focal species to the area. Actions for this species should be consistent with the state management plan available at http://myfwc.com/imperiledspecies/pdf/RCW.pdf, and the federal recovery plan available at http://www.fws.gov/rcwrecovery/files/RecoveryPlan/finalrecoveryplan.pdf.

4.3.10: Short-Tailed Hawk

The short-tailed hawk nest at CWMA is in an area that is not frequented by staff or recreational users, and is not actively managed. Nests of this species are difficult to locate and monitor. If nest sites are located, protective action should be taken if/when nests are known to be active. Known nesting sites should be protected from disturbance during land management activities by maintaining a 330 ft buffer around the nest during the nesting season, and avoiding heavy alteration of the nesting location. Short-tailed hawks exhibit high nest site fidelity, and historic nest areas are often used for multiple years, even if not active every year. Trees in the vicinity of the nest should be protected to preserve the integrity of the nest area, and future potential nest trees across the area protected as well. This can be accomplished by retaining the largest, oldest trees on the landscape during land management activities. New nests should be reported to ARCI (Section 6.6).

4.3.11: Southeastern American Kestrel

Southeastern American kestrels are dependent on the occurrence of open upland habitats that contain a number of snags for nest sites. While ongoing management will encourage the open foraging condition this species requires, an effort should be made to retain large snags during land management activities. The practice of snag management (i.e. protecting snags when safe and practical, promoting the creation of new snags in areas currently lacking) will benefit southeastern American kestrels. If nesting is documented, the amount of mechanical activity within 500 feet of the nest will be minimized during the nesting season and the snag will be protected during prescribed fire activities.

4.3.12: Southern Bald Eagle

State and federal law requires protection of bald eagles, including avoiding disturbance of nesting eagles. Managers will consider the management guidelines available at: http://myfwc.com/docs/WildlifeHabitats/Eagle_Plan_April_2008.pdf (or

any subsequent version) when planning activities within 660 ft of known eagle nests. Any new nests that are located will be documented. As this species is surveyed annually on a statewide basis, the bald eagle database coordinator will be contacted annually to request status of current nests and if any new nests are detected via the survey. As it is undesirable to have unnaturally dense stands around eagle nests, when eagle nests occur in actively managed stands the nest buffer area should continue to be managed but with proper planning to avoid negative impacts to the eagles, per the guidance of the management plan. Large, mature pines should be preserved as potential future eagle nesting sites during management activities.

4.3.13: Wading Birds

It is possible that ongoing actions (e.g., prescribed fire, timber harvest) could have negative impacts on wading birds if the needs of the species are not considered during the planning of these activities. The potential to have negative impacts on these species can be reduced by taking actions to avoid disturbing colonies of nesting wading birds. This will be accomplished by providing a 330 ft buffer around colonies during nesting season. Additionally, if chemical treatment is planned at colony sites, the application of herbicides must be conducted without impact to nesting substrate.

4.3.14: Florida Black Bear

Bears require large areas of dense vegetation for escape and denning. Efforts to restore natural communities will result in a more open- landscape with reduced tree density and lower shrub height. However, the non-actively managed natural communities and the number and interspersion of wetland habitats associated with managed natural communities will ensure this area always provides suitable bear habitat. During the planning of land management activities on CWMA, consideration should be given to promoting and protecting travel corridors for bears within the WMA and across boundaries to other managed areas. During mechanical treatment along the transitional zone between the hardwood swamp and the uplands, patches of dense vegetation should be left in place to provide cover for bears. Also, connectivity between cypress heads, depressional wetlands and the hardwood swamp should be preserved to allow bears to move across the area with appropriate cover. To reduce impacts on denning females, plan to avoid mechanical treatments or prescribed fire in areas with dense cover during denning season (December – April). Bears depend on palmetto for forage and den sites. Land management activities that promote a mosaic habitat structure within a given management unit will provide multi-aged palmetto patches for use by bears.

4.3.15: Southeastern Bat

Large hollow trees, particularly hardwoods or cypress in the hydric hammock are potential roost sites for southeastern bats and should be protected when possible during land management activities. If old culverts or abandoned buildings are to be removed, they should be checked first for occupancy by bats. Some bat species may

roost in leaf litter on the ground on extremely cold nights and some bat experts recommend delaying prescribed fire on extremely cold mornings until the air temperatures have warmed sufficiently for the bats to become active enough to escape fire.

Section 5: Species Management Opportunities

The focal species approach taken here represents a science-based approach to ecosystem management. Though this method relies on a suite of individual species, land management actions focused on these species directly benefit associated species. However, for some species land management actions alone are insufficient in aiding recovery. Species that are currently not present on a site and have limited dispersal capabilities are unlikely to occupy a site without re-introduction once habitat restoration is complete. Additionally, species that are currently present at low densities, have low reproduction potential, or have other limitations that inhibit recovery may require species-specific management. This section provides species management recommendations (Section 5.1) as well as monitoring recommendations (Section 5.2) to assess species response to land management and to determine the need for additional species management. Any research necessary to guide future management is suggested in Section 5.3.

5.1: Species Management

Species management as used here refers to non-monitoring actions taken for a specific species. It can include actions such as translocation, restocking, installing artificial cavities, etc. Monitoring related actions, including banding or tagging, will be covered in Section 5.2. Most land management actions, such as prescribed fire or mechanical treatments, are covered in Section 2 and Section 4.

5.1.1: Brown-Headed Nuthatch

The brown-headed nuthatch is a cavity-nesting bird that prefers to nest in cavities in decaying hardwood snags. Due to their preference for decaying snags, it may be necessary to either create snags or erect nesting boxes for this species. During restoration, the availability of suitable snags for cavity construction should be evaluated, and a program of snag creation should be initiated if deemed necessary. Snags can be created by girdling select hardwoods that are > 6 inches DBH. For more information on the importance of snags to primary cavity-nesting species including the brown-headed nuthatch, please see:

McComb, W. C., S. A. Bonney, R. M. Sheffield, and N. D. Cost. 1986. Snag Resources in Florida: Are They Sufficient for Average Populations of Primary Cavity-Nesters. Wildlife Society Bulletin 14:40-48.

Due to the limited dispersal capability of this species, translocation may be necessary in the future should this species be unable to establish a population naturally once habitat conditions become suitable.

5.1.2: Southeastern American Kestrel

Six southeastern American kestrel nest boxes were installed in May 2008 on CWMA, and occupancy was confirmed for 2 boxes during the 2009 breeding season. These boxes are maintained and monitored by area staff according to protocol developed by FWRI as part of a statewide effort to erect and monitor southeastern American kestrel nest boxes and collect data on habitat structure around these boxes to gain a greater understanding of preferred nesting habitat. New nest boxes will be erected, maintained, and monitored in coordination with this project as a need for more boxes is identified through current monitoring and land management activities. The goal of the southeastern American kestrel nest box program on CWMA is to promote nesting opportunities for this species on the area.

5.1.3: Florida Black Bear

The need for wildlife underpasses on CR 550 and CR 595 was identified in the publication on the status of the Greater Chassahowitzka Bear Population. FWC is currently preparing a statewide bear management plan which will guide decisions involving bear habitat management and species management such as wildlife underpasses. Coordination through the sub-team assigned to this bear population and the FDOT will be necessary to implement wildlife underpasses.

5.2: Species Monitoring

Monitoring is critical to evaluating the impact of the management actions described in this Strategy. While we are unable to monitor all of the focal species on CWMA, the recommended monitoring will assess species in all actively managed communities, select wetland dependent species, and includes opportunistic monitoring for uncommon or hard to monitor species. The FWC is currently developing a monitoring database. When this is in place, all WMA species monitoring data will be loaded into the database. Until the monitoring database is functional, data collected will be reported to the regional conservation biologist for inclusion in the appropriate database. Monitoring data will be made available to cooperating agencies and organizations such as FNAI (Sections 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 and 6.7).

This section provides the list of monitoring actions recommended for the area, and provides the purpose for the monitoring. The FWC is in the process of standardizing monitoring protocols for a number of these species. When protocols are finalized, they will be implemented in accordance with the timeframe described in this Strategy.

5.2.1: Gopher Frog Monitoring

The purpose of gopher frog monitoring is to determine the distribution of this species on the area and to track changes in the distribution of this species in suitable wetlands over time. Call surveys will be completed following a protocol modified from the United States Geological Survey's North American Amphibian Monitoring Program (http://www.pwrc.usgs.gov/NAAMP/). As an opportunistic breeder that

responds quickly to heavy rains, surveys should occur around potential wetlands after major rain events during winter/early spring months. The monitoring protocol is available at http://portal.fwc.state.fl.us/DOI/Divisions/HSC/THCR/wcpr/Standard%20Monitoring%20Protocols/Forms/AllItems.aspx.

5.2.2: Gopher Tortoise Monitoring

Previous surveys on CWMA were conducted to evaluate CWMA's potential to serve as recipient sites for translocated tortoises. Areas that were known to be well stocked with tortoises and areas that were not suitable at the time were not assessed for tortoise density. Many of the previously unsuitable areas have since been treated and are likely suitable for occupation by tortoises. Further, it would be beneficial to conduct an area-wide survey to establish an area-wide baseline based on standard monitoring protocol. Repeating this survey on a regular basis would allow us to track the population trend over time.

The purpose of gopher tortoise monitoring is to evaluate the trend over time. This trend is based on the number of burrows, and is not considered an actual population or density estimate. To convert the burrow density into an actual tortoise density would require determining the actual occupancy rate of burrows on the area during the survey. While this is worthwhile information, it requires additional resources and is not necessary for basic trend evaluation. In order to evaluate response over time, the survey should be repeated at least every 10 years.

5.2.3: Breeding Bird Survey

Staff has conducted avian surveys on CWMA using a standard BBS approach (http://www.pwrc.usgs.gov/bbs/participate/instructions.html) since 1996. The purpose of these surveys is to gather presence/absence data for avian species occurring on CWMA. The current route includes much of the uplands on the area; there is no need to modify it at this time. The BBS surveys will continue on the area, and will serve to meet the monitoring needs of 3 focal species on the area. Staff will add a Bachman's sparrow playback survey at each BBS point in appropriate habitat to search for the presence of this species on the area. Coordination with Chinsegut Nature Center (Section 6.1.5) and the Hernando County Audubon (Section 6.4.2) is necessary as BBS surveys are conducted by CWMA staff in cooperation with these entities. As habitat becomes more suitable for species such as the northern bobwhite, it may be necessary to evaluate using more rigorous monitoring techniques.

5.2.4: Florida Scrub-Jay Monitoring

The purpose of monitoring for Florida scrub-jays on CWMA is to determine scrub-jay occupancy. Unoccupied potential habitat will continue to be surveyed using call response methods to determine if scrub-jays have moved onto the area. Area staff will coordinate with SWFWMD to ensure adequate coverage of the area and to determine if birds have moved onto areas across the boundaries of CWMA

(Section 6.2). Methodologies for scrub-jay monitoring should be adapted from:

J.W. Fitzpatrick, G.E. Woolfenden and M.T. Kopeny. 1991. Ecology and development-related habitat requirements of the Florida scrub-jay (Aphelocoma coerulescens). Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 8. Tallahassee, FL. 49pp. http://research.myfwc.com/publications/publication_info.asp?id=46526

If scrub-jays are detected on CWMA, the monitoring needs will be re-evaluated and adjusted as necessary.

5.2.5: Southeastern American Kestrel Nest Box Monitoring

Kestrel nest boxes on CWMA were installed as part of a regional initiative to promote breeding activity across WMAs in the Southwest Region. The purpose of monitoring kestrel nest boxes is to determine the extent of nesting by southeastern American kestrels on CWMA, and to track nesting in boxes over time. Southeastern American kestrel monitoring will be conducted by area staff according to protocol developed by FWRI as part of a study to determine the range and nesting habitat preferences of kestrels in Florida. Data will be reported to the Conservation Biologist for submission to FWRI for consideration as part of the statewide study (Section 6.1.4).

5.2.6: Sherman's Fox Squirrel Monitoring

For area-wide monitoring, area biologists will create a map showing areas in which fox squirrels are readily observed. This map will be updated on an annual basis to allow comparison over time. Staff will not document sightings of fox squirrels in the areas in which they are regularly observed. Staff will document incidental observations of fox squirrels in areas where they are not commonly observed. This level of monitoring will provide information on the proportion of the area in which the species is readily observed which should provide insight into how the species is responding to management.

Within the SMA, staff will perform time-area counts following standardized protocol currently under development. The purpose of this monitoring is to track the trend of the fox squirrels in the SMA over time. These counts will occur once every 5 years.

5.2.7: Opportunistic Monitoring Opportunities

The purpose of opportunistic monitoring is to document the presence of specific species. Opportunistic monitoring is the process of recording important information as it is encountered. Documentation of opportunistic sightings including approximate lat/long or appropriate management unit, number of individuals, behavior, habitat type and a photo, if available, should be forwarded to the regional

conservation biologist. An example data sheet is available at the WCPR SharePoint site at http://portal.fwc.state.fl.us/DOI/Divisions/HSC/THCR/wcpr/Standard Monitoring Protocols/Forms/AllItems.aspx. Monitoring data will be made available to cooperating agencies and organizations. Encounters with or sign of the following focal species will be recorded:

- American swallow-tailed kite (aggregations of 3 or more birds on regular basis in one area during spring and any nesting activity)
- Short-tailed hawk (also record color phase)
- Florida black bear
- Sherman's fox squirrel (sightings of individuals in any management unit not mapped as having the species commonly occurring)
- Eastern indigo snake
- Florida pine snake
- Florida mottled duck (nesting females or females with juveniles)
- Short-tailed snake
- Wading bird colonies
- Homosassa shrew
- Any listed species that does not have a monitoring protocol in this section.

5.3: Species Research Needs

Species management recommendations in other sections of this document are based on the most current information regarding management strategies for a given species. However, cases arise when little or no information is available to guide management. This section outlines research needs identified through the WCPR process.

5.3.1: Effects of Habitat Disturbance by Feral Hogs

Habitat disturbance from feral hogs in ephemeral wetlands on CWMA appears to be increasing. The effect of this disturbance on herpetofauna species richness, distribution and abundance is unknown. There is a need to evaluate ephemeral wetlands on CWMA for damage from hog rooting, and to determine an effective solution.

Section 6: Intra/Inter Agency Coordination

Throughout the WCPR process many recommendations were made regarding possible management strategies for focal species. Most proposed management actions can be handled by THCR staff; however, cases may arise when coordination with other sections in FWC or other agencies is necessary or increases efficiency. This section identifies cases in which coordination is necessary outside of THCR, identifies the entity to coordinate with, and provides position contacts for these entities.

An attempt is made to provide the name, position and contact information for the people holding the position when this Strategy is drafted. As positions experience turnover,

when in doubt, contact the current Section Leader /supervisor to determine the appropriate individual.

6.1: Florida Fish & Wildlife Conservation Commission

6.1.1: Species Conservation Planning Section

Monitoring animal populations on a WMA/WEA gives managers a way to gauge animal response to management. If this information is not shared with others, valuable data that can be used to assess state-wide conservation efforts often is lost. Therefore, monitoring data should be shared with the appropriate taxa coordinator and program coordinator for species in which conservation initiatives or other management programs have been developed. The regional SCP biologist is a good source of information on the regional status of non-game species. Additionally, FWC staff is authorized to handle federally listed species if it is done consistent with the requirements of the agency's Endangered Species Act Section 6 Cooperative Agreement. To meet these requirements, reporting as outlined in the Agreement will be provided to the agency's Endangered Species Coordinator. Please note some contacts will also be covered under Section 6.1.4; FWRI.

Contacts:
Elsa Haubold, Species Conservation Planning Section Leader: (850) 488-3831
Robin Boughton, Avian Taxa Coordinator: (352) 732-1225
Melissa Tucker, Mammalian Taxa Coordinator:(386) 758-0525 ext 114
Bill Turner, Herpetofauna Taxa Coordinator: (850) 410-0656 ext 17331
Nancy Douglass, Regional Non-game Biologist: (863) 648-3200
Craig Faulhaber, Scrub Jay Conservation Coordinator: (352) 732-1225
Ulganda Kirkpatrick, Bald Eagle Management Plan Coordinator: (352) 840-7570
Brad Gruver, Endangered Species Coordinator, (850) 488-3831
Heather Rigby, Gopher Tortoise Permitting Biologist: (941) 721-2068

6.1.2: Division of Hunting & Game Management

As the FWC has a statewide quail strategy, information collected on northern bobwhite should be shared with the small game coordinator. Additionally, staff should keep informed with monitoring protocol changes for northern bobwhite and other grassland birds (i.e., Bachman's sparrow) being developed via the UERP and Tall Timbers Research Station. The FWC small game coordinator is the current contact for this program.

Contacts:
Paul Schulz, Game Species Management Section Leader: (850) 488-3831
Chuck McKelvy, FWC Small Game Program Coordinator: (850) 342-0256

6.1.3: Aquatic Habitat Restoration/ Enhancement Subsection (AHRE)

A number of focal and imperiled species on CWMA depend on high quality aquatic ecosystems to meet their life requirements (wading birds, limpkin). FWC should maintain contact with AHRE when conducting hydrologic evaluations to determine opportunities for hydrologic improvements on CWMA.

Contact:
Don Fox, Aquatic Habitat Conservation and Restoration Section Biological Administrator II: (863) 462-5190

6.1.4: Fish and Wildlife Research Institute

Indigo snake, short-tailed hawk, southern bald eagle, nesting mottled ducks and southeastern American kestrel sightings will be shared with FWRI when appropriate. Also, work with Walt McCown if needed for bear hair study on CWMA.

Contacts:
Tim O'Meara, Wildlife Research Section Leader: (850) 488-3831
Jeff Gore, FWRI Biological Administrator (bats): (850) 265-3677
Ron Bielefeld, FWRI Wildlife Biologist (Florida mottled duck): (772) 228-9125
Janell Brush, FWRI Wildlife Biologist (bald eagle): (352) 955-2081
Karl Miller, FWRI Wildlife Biologist (avian): (352) 955-2081
Kevin Enge, Associate Research Scientist (herps): (386) 758-0525
Walter McCown, FWRI Wildlife Biologist (bears): (352) 955-2081

6.1.5: Office of Recreational Services, Chinsegut Nature Center

Staff at Chinsegut Nature Center coordinate volunteer activities and assist with annual BBS on CWMA.

Contact:
Anne Glick, Wildlife Viewing Section Leader: (850) 922-0664
Kristen Wood, Nature Center Director: (352) 754-6722

6.1.6: Habitat and Species Scientific Services

CWMA staff will coordinate with HCSS on issues involving private lands surrounding the area. HCSS works with many private landowners and may be able to assist in making contacts or providing incentives for management activities on neighboring private lands. Maintaining communication regarding current and future projects will be critical. This includes outreach and education on land management, as well as species management.

Contact:
Scott Sanders, HCSS Section Leader: (850) 488-3831
Kim Mortimer, SW Regional Coordinator: (863) 648-3200

6.1.7: Imperiled Species Management Section

Staff at CWMA will maintain communication with the Bear Management Team to address bear mortality factors and prevention on highways around CWMA as well as CWMA's role in the statewide bear management plan.

Contact:
Kipp Frohlich, Section Leader: (850) 922-4330
Mike Orlando, Assistant Bear Program Coordinator: (386) 965-2464

6.1.8: Florida's Wildlife Legacy Initiative (FLWI)

FLWI can be helpful in identifying and assisting with partnering efforts, and might be a source of funding via the State Wildlife Grants program. Therefore, regular communication with this section will be a priority.

Contacts:
Katherine Haley, Program Coordinator: (850) 410-0656 x17297
Kelly Rezac, Legacy Biologist: (863) 648-3200

6.1.9: Invasive Plant Management Section

The Invasive Plant Management Section provides technical and financial assistance to assist in the control of upland and aquatic invasive exotic plants. As exotic invasive aquatic plants can have a negative impact on aquatic systems and the species dependent on them, any occurrence of exotic invasive aquatic plants on the area should be documented and reported to the Invasive Plant Management Section. The Invasive Plant Management Section may serve as a resource in determining appropriate solutions to and identifying funding for solutions for exotic plant issues.

Contact:
Jeff Schardt, Aquatics sub-section administrator: (850) 245-2815
Greg Jubinsky, Uplands sub-section administrator: (850) 245-2821
Jackie Smith, Invasive Plant Management-Savannas State Park: (772) 871-5407

6.2: Southwest Florida Water Management District

The SWFWMD currently owns and manages neighboring property to CWMA. There may be opportunities to coordinate management actions or initiate monitoring/research efforts for focal species, particularly wading birds, limpkin, Florida scrub-jay, Florida mouse and Sherman's fox squirrel with SWFWMD. CWMA staff should seek the results of SWFWMD wildlife surveys.

Contacts:
Mary Barnwell, Sr. Land Management Specialist: (352) 796-7211

6.3: United States Fish and Wildlife Service (USFWS)

The USFWS manages the Chassahowitzka Marsh National Wildlife Refuge, including a portion of coastal marsh habitat included in CWMA. There may be opportunities to coordinate management and/or monitoring and research for focal species, particularly wading birds, limpkin, and seaside sparrows with USFWS. CWMA staff should seek the results of wildlife surveys conducted on the refuge.

Contact:
Joyce Kleen, Wildlife Biologist: (352) 563-2088

6.4: Audubon Society

6.4.1: Florida Coastal Islands Sanctuary

The Audubon Society conducts bird surveys in areas adjacent to CWMA. There may be opportunities to coordinate surveys and other research efforts with the Audubon Society. CWMA staff should seek results of the Audubon society's monitoring of avian species in the Chassahowitzka marsh.

Contact:
Anne Hodgson, Gulf Coast Ecosystem Science Coordinator: (813) 623-6826
http://fl.audubon.org/specialplaces_sanctuaries_tampabaycoastalislands.html

6.4.2: Hernando County Audubon

The Hernando County Audubon conducts bird surveys and participates in volunteer activities on CWMA.

Contact:
Mary Dowdell, President: (352) 428-2629
http://www.hernandoaudubon.org/

6.5: Florida Division of Forestry (DOF), Withlacoochee State Forest

DOF provides authorizations for prescribed burning and will assist on escaped fires. DOF can provide assistance with timber management including administration of contracts for thinning operations. CWMA staff should continue to coordinate prescribed fire and timber management activities with DOF.

The DOF manages lands adjacent to portions of CWMA. Coordination with DOF may be necessary in the future regarding red-cockaded woodpeckers on the Citrus tract of Withlacoochee State Forest.

Contact:
Harvey Sellers, Forest Area Supervisor, Hernando County: (352) 754-6777
Vince Morris, Ecology Unit Leader: (352) 754-6777
Denise Wilde, Ecology Forester: (352) 754-6777

6.6: Avian Research and Conservation Institute

The ARCI has been studying the Florida population of short-tailed hawks since 1998 and is currently conducting research on nesting and wintering ecology using radio-telemetry. The study seeks to identify critical nesting sites and concentrations of hawks to determine area and habitat needs. Threats, causes of mortality and demographic features that most influence population trends will also be identified to develop a monitoring plan and recommend management and conservation action. Short-tailed hawk sightings or nesting information, as well as observations of nesting behavior in swallow-tailed kites should be shared with the ARCI.

Contact:
Dr. Ken Meyer, avian researcher: (352) 335-415; meyer@arcinst.org

6.7: Florida Bat Conservancy

The FBC conducted surveys and assisted in locating bat houses on CWMA. The FBC conducted acoustic surveys to determine which species occupy bat houses on CWMA. Continued coordination with FBC will be necessary if additional surveys are needed, or if additional bat houses need to be located on the area. Occupancy information from current bat houses should be shared periodically with FBC, as well as any other incidental encounters with bats.

Contact:
Cyndi Marks, Executive Director: (727) 710-2287

6.8: The Nature Conservancy

The Nature Conservancy's (TNC) JayWatch Program is a central repository for scrub-jay monitoring data. The FWC and TNC have established a Memorandum of Understanding for the sharing of scrub-jay data collected on FWC areas. Monitoring information from scrub-jay surveys on CWMA should be shared with the JayWatch Coordinator periodically.

Contact:
Cheryl Millet, JayWatch Program Coordinator: (863) 635-7506

Section 7: Beyond the Boundaries Considerations

There is enough potential habitat (with management) to support many of CWMA's focal species, such as the gopher frog, gopher tortoise, northern bobwhite and Florida mouse. There is the potential to maintain a population of Bachman's sparrows and brown-headed nuthatches if these species can be successfully established on the area. The CWMA could play a significant role in the conservation of the Florida scrub-jay and the red-cockaded woodpecker if these species could be established on the area. However, a number of CWMA's species (i.e. Florida black bear, southern bald eagle) cannot be supported on CWMA in isolation. Species that require large home ranges or are dependent on dispersal for maintaining a population are particularly affected by the impacts of highways and by adjacent land management or development. Long-term planning for species such as the Florida black bear would include establishing landscape linkages between CWMA and the bear populations of the Apalachicola and Ocala National Forests. Many of CWMA's species are dependent on the availability of suitable habitat on adjacent private and public lands. As such, the actions of adjacent landowners will determine if some of these focal species will persist on CWMA.

Ongoing land management actions on CWMA will continue to improve the habitat suitability on the area for a number of focal species, especially sandhill dependent species. However, coordination with neighboring landowners and land managers will do more to ensure that CWMA fulfills its role in the overall conservation of these species. Communication with private landowners within the boundaries of CWMA and homeowner's associations on the perimeter through outreach and education will ensure that the prescribed fire program and eradication of exotic vegetation will be successful. A number of private landowners adjacent to CWMA have significant acreage of natural communities that are used by focal species. Area staff should make every effort to cooperate in the conservation of focal species with these neighbors by coordinating with HCSS to ensure willing private landowners get the proper technical assistance and are informed of incentive programs to encourage conservation-based management (Section 6.1.6). Coordination with the SWFWMD on sandhill and scrub management on adjacent properties would benefit many focal species by increasing the amount of suitable potential habitat available in the area, and would improve habitat connectivity and travel corridors between natural areas (Section 6.2). Positive relationships with neighboring landowners may encourage conservation partnerships; this is critical to the long-term persistence of many species.

Acquisition of land to improve connectivity between managed lands in the area is an essential step in ensuring the success of many of the focal species on CWMA. The Annutteliga Hammock tract is part of a greater acquisition project involving many agencies. Acquisition efforts should focus initially on parcels that connect the Seville and Annutteliga Hammock tracts of CWMA, and then expand the connection between the main body of CWMA and the Withlacoochee State Forest. Finally, the parcel that lies between the Seville tract and US 19 is in private ownership. This parcel could be developed as a commercial or industrial site in the future, which would seriously impact the ability to use prescribed fire as a management tool in adjacent management units. Targeting this parcel for acquisition should be a high priority.

Document Map

Species	Species Assessment	Land Management Actions	Species Management Actions	Species Monitoring	Research	Coordination
Gopher frog	Section 3.2.1	Section 4.3.1		Section 5.2.1	5.3.1	
Striped newt	Section 3.2.2				5.3.1	
Eastern indigo snake	Section 3.2.3	Section 4.3.2		Section 5.2.6		Section 6.1.4
Florida pine snake	Section 3.2.4	Section 4.3.2		Section 5.2.6		
Gopher tortoise	Section 3.2.5	Section 4.3.3		Section 5.2.2		
American swallow-tailed kite	Section 3.2.6	Section 4.3.4		Section 5.2.6		Section 6.6
Bachman's sparrow	Section 3.2.7	Section 4.3.5		Section 5.2.3		
Brown-headed nuthatch	Section 3.2.8	Section 4.3.6	Section 5.1.1	Section 5.2.3		
Cooper's Hawk	Section 3.2.9	Section 4.3.7				
Florida mottled duck	Section 3.2.10					Section 6.1.4
Florida scrub-jay	Section 3.2.11	Section 4.1.1		Section 5.2.4		Section 6.1.1, 6.2
Limpkin	Section 3.2.12					Section 6.2, 6.3, 6.4.1
Northern bobwhite	Section 3.2.13	Section 4.3.8		Section 5.2.3		Section 6.1.2, 6.1.5, 6.4.2
Red-cockaded woodpecker	Section 3.2.14	Section 4.3.9				Section 6.5
Scott's seaside sparrow	Section 3.2.15					Section 6.2, 6.3, 6.4.1
Short-tailed hawk	Section 3.2.16	Section 4.3.10		Section 5.2.6		Section 6.6
Southeastern American kestrel	Section 3.2.17	Section 4.3.11	Section 5.1.2	Section 5.2.5		Section 6.1.4
Southern bald eagle	Section 3.2.18	Section 4.3.12				Section 6.1.1
Wading birds	Section 3.2.19	Section 4.3.13				Section 6.2, 6.3, 6.4.1
Florida black bear	Section 3.2.20	Section 4.1.3, Section 4.3.14	Section 5.1.3	Section 5.2.6		Section 6.1.7
Florida mouse	Section 3.2.21					
Sherman's fox squirrel	Section 3.2.22	Section 4.1.2				Section 6.2, 6.5
Southeastern bat	Section 3.2.23	Section 4.3.15				Section 6.1.1, 6.7

Appendix 1

Text from Sections 3.2.1, 3.2.5 and 3.2.20 of the Chassahowitzka Species Management Strategy was originally approved in October 2009. This text was replaced with the text in the updated Strategy, identified as Revised 7/9/2012 for the reasons described in the Explanation of Revisions Page.

3.2.1: Gopher Frog

Gopher frogs are present on CWMA. Herpetological surveys conducted in 1995 and 1996 detected this species in several management units. Gopher frogs in Florida are a state-listed species of special concern. Considered a moderate priority statewide, this species triggers 2 of 6 prioritization triggers (PLCP PVA proportion of populations modeled to persist on public lands and Legacy population trend). Gopher frog habitat is a subset of gopher tortoise habitat that contains sufficient fishless ephemeral wetlands for breeding. Post-breeding, gopher frogs move back into surrounding upland habitat within a mile of the breeding pond. In summer 2009, a breeding pond assessment will be conducted on CWMA by the Coastal Plains Institute (CPI). This assessment will include an evaluation of ephemeral wetlands for suitability as breeding ponds for a variety of amphibian species and also whether these species are utilizing the ponds.

Models indicate 6,065 acres of potential habitat for gopher frogs on CWMA. While we do not know the minimal acres necessary to support a viable population of gopher frogs, there is good reason to believe > 6,000 acres should be enough to support a viable gopher frog population. Ongoing efforts to maintain CWMA's natural community structure and function will benefit this species; therefore, no SMA is required. The needs of potential breeding ponds on the area are unknown at this time but will be addressed when the ephemeral wetlands assessment is completed. During the previous herpetological surveys, rooting by feral hogs (*Sus scrofa*) was not observed. During a site visit in 2007, extensive damage from rooting hogs was noted and could indicate that the feral hog population on CWMA is expanding. The extent and potential impact of hog rooting on CWMA is not known at this time. A research project to study and document effects of habitat disturbance by hogs and to compare hog exclusion techniques is an ongoing research need on CWMA (Section 5.3.1). Management actions that maintain or enhance habitat for this species include the continued use of prescribed fire in scrub, sandhill, mesic flatwoods, and isolated wetlands. Additional land management recommendations can be found in Section 4.3.1 and monitoring recommendations can be found in Section 5.2.1. As the gopher frog monitoring protocol is dependent upon specific weather events occurring, when this species is monitored will be influenced by the weather.

The area goal is to maintain habitat in suitable conditions to maintain a viable population of gopher frogs on CWMA. The measurable objectives are to:

3) Conduct a baseline survey to determine extent of distribution and the number of breeding ponds by 2011.
4) Use standard call count monitoring protocol to monitor distribution on the area.

3.2.5: Gopher Tortoise

Gopher tortoises are commonly observed on CWMA. CWMA was assessed in 2007 as part of the statewide restocking initiative by FWC. Tortoise densities in the surveyed areas indicated a moderate to high tortoise density within areas of suitable habitat and that CWMA would not meet the criteria for accepting additional tortoises. No other population assessments have been conducted.

The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. This species is often considered a keystone species because many other species use their burrows, including focal species such as the Florida mouse and gopher frog. This state-listed threatened species triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap biological score, Millsap supplemental score and Legacy population trend), making it a high priority species

statewide. A management plan that places emphasis on increasing the number of tortoises on public lands was recently approved by the FWC.

Models indicate 6,469 acres of potential habitat for gopher tortoises on CWMA. The suggested minimum acreage required to support a viable population is 200 acres, providing the habitat is suitable. Other sources suggest a minimum population size of 50 individuals is needed. Either way, with proper management, CWMA likely has enough potential habitat to support a viable population. Therefore, a high level of opportunity exists on CWMA to promote habitat suitability for gopher tortoises and to increase and maintain tortoise densities on the area.

Ongoing efforts to maintain CWMA's natural community structure and function will benefit the gopher tortoise. Improving and maintaining habitat for gopher tortoises will benefit a number of other wildlife species. Management actions that maintain or enhance habitat for this species include the frequent use of prescribed fire. Much of the potential gopher tortoise habitat has been managed through the use of prescribed fire, mechanical treatment, chemical treatment or a combination. Areas in need of restoration are not considered to be essential to the current population to maintain or increase tortoise density; however restoration of these sites combined with natural re-colonization by gopher tortoises will help enhance the statewide population. These areas will be treated and maintained in conjunction with current suitable habitat management on CWMA, therefore no SMA is required. Additional land management considerations for this species can be found in Section 4.3.3 and monitoring recommendations in Section 5.2.2.

The area goal is to maintain habitat in suitable conditions to allow gopher tortoises to flourish on the area. The measurable objective is to:

1) Use standardized monitoring protocol to assess gopher tortoise density area-wide by 2012.

3.2.20: Florida Black Bear

The Florida black bear or its sign is occasionally observed on CWMA. This state listed threatened species triggers 2 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands and Millsap biological score). The Florida black bear is a wide-ranging species capable of significant dispersal. Home range sizes vary according to resource availability and the level of habitat fragmentation on the landscape. A mosaic of flatwoods, swamps, scrub oak ridges, bayheads and hammocks provides foraging opportunities, cover when traveling between these habitat types and adequate den sites.

The CWMA lies within the Big Bend Bear Management Unit as identified in the Bear Management Plan (2008). From 1997-2001, the Chassahowitzka bear population was the subject of an ecological study conducted by The University of Kentucky, FWC and SWFWMD. This population is the smallest known population of Florida black bears in the state, as well as among the smallest known black bear populations worldwide. When this report was published, the population estimate for this bear population was approximately 20 individuals. It is estimated that 50 individuals are necessary for short-term survival and greater than 200 for long-term persistence of the population. During the study period, successful reproduction was documented. However, only one of the 9 cubs handled by researchers was documented to be alive after a year. Reports of sightings of female(s) with cubs and a female killed on the road with two cubs (rescued) indicate reproduction is occurring. Also, an unmarked male killed on the road indicates either recruitment or immigration. An isolated population of this size is likely to be genetically impoverished. A separate study found that the genetic variation among bears within the Chassahowitzka bear population was among the lowest ever reported.

The Chassahowitzka bear population appears to be highly impacted by habitat fragmentation caused by roads; vehicle mortality was identified as the number one known cause of death in the ecological study conducted from 1997-2001. This study suggested these bears appear to have become adapted to living in a landscape dominated by humans. Timing of daily activities appears to be altered to reduce chances of encountering people, vehicles, and associated disturbances. This could be the cause of the relatively low number of nuisance calls reported for the area, and also the low detection by CWMA staff. It may be necessary in the future to coordinate with the Big Bend Bear Management Unit sub-team to work with the Florida

Department of Transportation (FDOT) to install wildlife underpasses/overpasses on CR 550 to allow for safer passage of wildlife between conservation areas (Section 6.1.7). A wildlife underpass designed to benefit bears is planned for the Suncoast Parkway extension.

The Chassahowitzka bear population will be further evaluated during a research project to begin in summer, 2009. The goal of this project, conducted by FWRI, is to accurately define the primary and secondary ranges of bears in the Chassahowitzka area (Citrus and Hernando counties). DNA analysis of hair samples collected from barbed-wire hair snares will be used to determine the primary (presence of females) and secondary (presence of bears) ranges. GIS analysis will be used to create a detailed range map for the Chassahowitzka bear population.

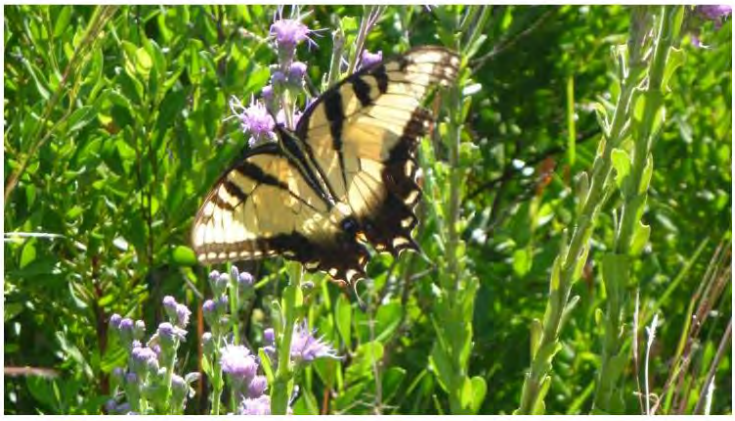
Models indicate 19,363 acres of potential habitat for Florida black bears on CWMA. This is not enough habitat to sustain a population in the long-term and the continued presence of bears on CWMA is dependent on regional conditions. Ongoing efforts to maintain CWMA's natural community structure and function in actively-managed natural communities could result in a change in the amount of cover for bears. However, the non-actively managed natural communities and the number and interspersion of wetland habitats associated with managed natural communities will ensure this area always provides suitable bear habitat. Employing land management practices that keep bears in mind will lessen the impact on the population while still providing suitable foraging habitat for bears (Section 4.3.14). Because suitable bear habitat occurs across the area and there is no specific management that could be applied specifically to benefit this species, no SMA is recommended.

Because this species naturally occurs in relatively low densities and is difficult to detect, no measurable objectives are recommended. However, documenting opportunistic observations (Section 5.2.7) of bears or bear sign will assist in identifying potential travel corridors between natural communities on CWMA for protection during land management actions.

The area goal is to promote suitable foraging habitat and ensure adequate denning habitat is available for Florida black bears on CWMA. However, the long-term persistence of bears on CWMA is dependent on what happens to bears in the Big Bend Management Unit.

13.11 Recreation Master Plan

Recreation Plan
for
Chassahowitzka WMA



Florida Fish and Wildlife Conservation Commission

Office of Public Access and
Wildlife Viewing Services

July 2014

Chassahowitzka Wildlife Management Area
Recreation Master Plan

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I. Introduction

Purpose of Plan/Planning Process

This Recreation Master Plan serves as a guide for providing recreational and educational experiences focused on wildlife viewing and nature study on Chassahowitzka Wildlife Management Area (CWMA). The RMP contains specific recommendations for recreational enhancements and educational products and programs. It also provides guidelines for monitoring recreation-related use to ensure resource protection and meaningful visitor experiences. The plan was developed by the Florida Fish and Wildlife Conservation Commission (FWC) Office of Public Access and Wildlife Viewing Services (PAWV) in collaboration with Chassahowitzka Field Staff with input from other FWC divisions and a Technical Assistance Group of recreational stakeholders.

Location

(Figure 1)

The Chassahowitzka Wildlife Management Area is located in Hernando County, Florida and is managed by the Florida Fish and Wildlife Conservation Commission (FWC).
Bordered on the west by the Chassahowitzka National Wildlife Refuge (CNWR), a portion of which is established as part of CWMA, this 34,597 acre conservation area is part of a nearly unbroken crescent of public conservation lands stretching 200 miles from Pasco County to the Apalachicola River. CWMA contains diverse natural communities that sustain a large variety of wildlife species. Extensive hardwood swamps in association with uplands creates good habitat conditions for wildlife and allows for seasonal movement of animals in response to fluctuating water levels and food supplies. The CWMA contributes to the conservation of an array of imperiled and other native wildlife including the Florida black bear (*Ursus americanus floridanus*), gopher tortoise (*Gopherus polyphemus*), Florida mouse (*Podomys floridanus*), Eastern indigo snake (*Drymarchon couperi*), and Sherman's fox squirrel (*Sciurus niger shermani*). The WMA supports opportunities for hunting, fishing, wildlife viewing, hiking, bicycling, paddling, cave and cavern scuba-diving, horseback riding, and scenic driving.

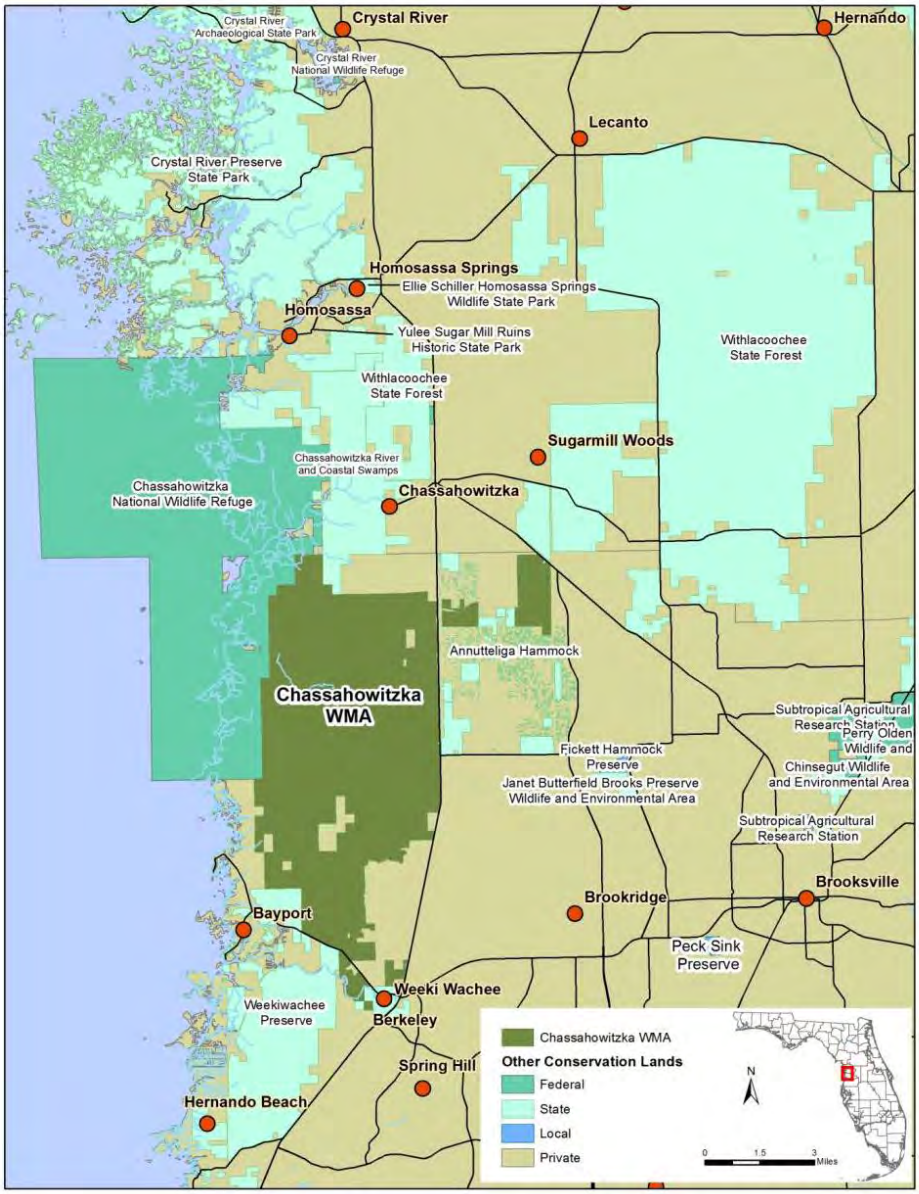


Figure 1: Chassahowitzka WMA Location

II. Resource Inventory

Topography and Hydrology

The CWMA is characterized by relatively flat topography. The uplands range in elevation from 10 to 20 feet above mean sea level (MSL), with higher elevations associated with a low ridge of relict coastal dunes. The bottomlands are typically less than 10 feet above MSL.
There are no launch sites for paddlecraft on the WMA but there is excellent paddling in the nearby Gulf of Mexico, Chassahowitzka River, and Weeki Wachee River. Diving is popular in Buford Spring and Eagle Nest Sink for experienced cave divers.

Natural Communities

(Figure 2)
Hydric hammock, mostly in the western portion of the property, comprises 57% of the WMA, making it the most prevalent natural community on CWMA. Sandhill, the next most common community at 15%, is found primarily on the east and south side of the WMA. Mesic flatwoods represent 7% of the area and are found interspersed on the east side in a matrix with sandhill. Basin swamp makes up 5% of the WMA. Pine plantation, basin marsh, restoration sandhill, and scrub each comprise 2 % of the area, and the remaining 13 natural communities each represent 1% or less of the area. Several of these natural communities are ecologically or recreationally significant. For example, scrub and sandhill have a number of unique and rare plant and animal species with low growing vegetation and sparse understory respectively, making them excellent communities for wildlife viewing and hiking trails.

Most of the natural communities on CWMA are in excellent condition and represent benchmark examples of native north Florida landscapes. They would be appropriate for interpretation of land management practices.

Sensitive Areas

CWMA is home to the largest area of coastal hardwood swamp south of the Suwannee River along the Gulf of Mexico. The water quality, natural hydrology, and wetlands are particularly sensitive to physical disturbance, which may impact the diversity of rare and endangered species found in these ecosystems as well as the freshwater, tidal and spring system functionality and the communities dependent on them. Scrub areas are home to a diverse array of sensitive plant and animal species, and sandhill areas have an understory of wiregrass. Access to these areas should be controlled and monitored to avoid damage.

Wildlife and Plant Species

Wildlife viewing can be good at almost any spot on the WMA, especially near the freshwater swamps and in the upland areas. Neotropical migrants such as common nighthawks, blue grosbeaks, and a variety of warblers, offer seasonal variety. Approximately 235 bird species are documented or expected to occur on the area and several are among the “top 40 most sought-after birds” compiled by the PAWV Wildlife Viewing Section: Bachman’s sparrow, bald eagle,

hairy woodpecker, black skimmer, Florida burrowing owl, purple gallinule, sandhill crane, wood stork, and swallow-tailed kite.

Over 100 species of butterflies have been identified in Hernando County and many may occur on the area including common buckeye, cassius blue, Eastern black swallowtail, barred yellow sulphur, confused cloudywing, Cofaqui giant-skipper, great purple hairstreak, Eastern tiger swallowtail, Henry's elfin hairstreak, monarch, Meske's skipper, painted lady, question mark, Texan crescent and zebra heliconian.

Other species of particular interest to visitors include the Eastern indigo snake, Florida mouse, Florida black bear, gopher tortoise, gopher frog, Sherman's fox squirrel, Florida pine snake, nine species of bats, and bobcats. There are also several imperiled plant species found on CWMA including angle pod, blue-flower butterwort, cardinal flower, *Garberia*, nodding pinweed, and yellow-flowered butterwort.

Cultural Resources

The Florida Master Site File contains 26 archaeological and historic sites recorded within the boundary of CMWA. Archaeological sites include a lithic scatter site, a homestead, campsites, and middens ranging from prehistoric to Spanish-American War and World War I. Historic sites include a turpentine camp, lumber mill, ceramic scatter, and building remains.

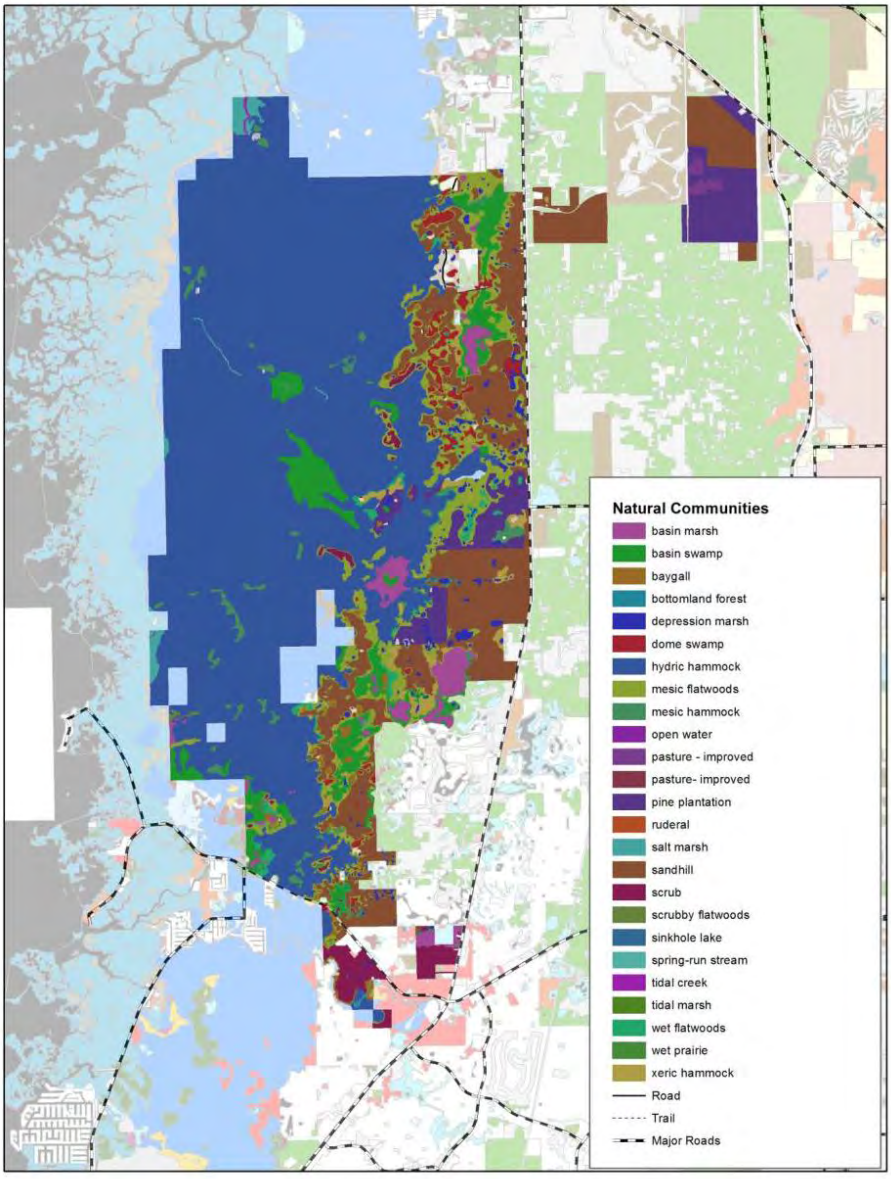


Figure 2: Chassahowitzka WMA Natural Communities

Scenic Resources

CWMA offers a variety of scenic vistas including springs, creeks, cypress swamps, hydric hammock, sandhill, and scrubby flatwoods. The sinkhole lakes and floodplain swamps along the spring-runs are particularly scenic. They feature a sparse to moderate understory, a high canopy and a variety of aquatic and epiphitic plants. Scrub areas are home to several species that are rare, endangered, threatened or of special concern and may provide visitors with views of these uncommon flora and fauna. Karst formations such as the Eagle Nest Sink and Buford Spring are of particular interest to experienced cave divers. Seasonal wildflowers at CWMA include white water lily (*Nymphaea odorata*), tarflower (*Bejaria racemosa)*, common buttonbush (*Cephalanthus occidentalis),* coastalplain chaffhead (*Carphephorus corymbosus*), and yellow-eyed grasses (*Xyris* sp.).

Resource Management

The FWC's resource management goals for the area include supporting swamp and upland natural communities, while working cooperatively with partner agencies to adequately protect the hydrological resources the WMA. To accomplish this objective, the FWC is restoring and improving wildlife habitat, implementing prescribed fire, managing imperiled species, and eliminating or controlling nonnative, invasive plants through mechanical and chemical treatments. Plants such as air potato (*Dioscorea bulbifera*), Japanese climbing fern (*Lygodium japonicum*), and cogongrass (*Imperata cylindrica*) are problematic on the area.

III. Recreation Planning Context

The 2010 population estimate for Hernando County was 173,104 people with a projected growth to 201,023 (16.1% increase) in 2020 and 262,388 (51.6% increase) by 2040 (Office of Economic and Demographic Research 2013). Hispanic or Latino groups comprise 10.3% of the county's population (US Census 2010). The proportion of Hispanic or Latino residents in Hernando County is currently fifty percent lower than the statewide percentage, and the African American population proportion in the county is almost seventy five percent lower than the statewide percentage. In other respects, the population demographics of Hernando County fall closely in line with statewide proportion. These demographic data will inform the design of infrastructure and interpretive materials in order to accommodate the full spectrum of potential visitors to the WMA.

	Hernando County		Florida		
Race/Ethnicity	**#**	**%**	**#**	**%**	**Difference**
Hispanic or Latino	17,796	10.3%	4,223,806	22.5%	-12.2%
Non-Hispanic or Latino	154,982	89.7%	14,577,504	77.5%	12.2%
White	154,598	89.5%	14,109,162	75.0%	14.5%
African American	8,816	5.1%	2,999,862	16.0%	-10.9%
Asian	1,859	1.1%	454,821	2.4%	-1.3%
American Indian/Alaskan Native	613	0.4%	71,458	0.4%	0.0%
Native Hawaiian/Pacific Islander	74	0.0%	12,286	0.1%	-0.1%
Other	3,318	1.9%	681,144	3.6%	-1.7%
2 or more	3,500	2.0%	472,577	2.5%	-0.5%

Population age distribution is slightly older than the state distribution with a larger percentage of people over 65 and all other age groups being close to the statewide percentages.

	Hernando County		Florida		
Age/Gender	**#**	**%**	**#**	**%**	**Difference**
Male	82,534	47.8%	9,189,355	48.9%	-1.1%
Female	90,244	52.2%	9,611,955	51.1%	1.1%
<18	34,158	19.8%	4,002,091	21.3%	-1.5%
18+	138,620	80.2%	14,799,219	78.7%	1.5%
20-24	7,823	4.5%	1,228,758	6.5%	-2.0%
25-34	15,359	8.9%	2,289,545	12.2%	-3.3%
35-49	30,865	17.9%	3,832,456	20.4%	-2.5%
50-64	36,412	21.1%	3,677,959	19.6%	1.5%
65+	44,523	25.8%	3,259,602	17.3%	8.5%

As the regional population increases, the public use pressures on the WMA will likely increase. Recreational user groups can be expected to urge connections to trails on lands outside the WMA as well as better access to divable springs. CWMA is within 15 miles of several other public recreation areas that offer a variety of recreation opportunities:

Area	Hiking	Biking	Camping	Paddling	Fishing	Horseback Riding	Hunting	Wildlife Viewing
Annutteliga Hammock (SWFWMD)	✓	☒	✓	☒	☒	✓	☒	✓
Chassahowitzka National Wildlife Refuge (USFWS)	☒	☒	☒	✓	✓	☒	✓	✓
Chinsegut Wildlife and Environmental Area (WEA) (FWC)	✓	☒	☒	☒	☒	☒	☒	✓
Crews Lake Wilderness Park (Pasco Co)	✓	✓	✓	✓	✓	☒	☒	✓
Crystal River Archaeological SP (DEP)	☒	☒	☒	☒	✓	☒	☒	✓
Crystal River National Wildlife Refuge (USFWS)	☒	☒	☒	✓	☒	☒	☒	✓
Crystal River Preserve State Park (DEP)	✓	✓	☒	✓	✓	☒	☒	✓
Ellie Schiller Homosassa Springs Wildlife State Park (DEP)	✓	☒	☒	☒	☒	☒	☒	✓
Fort Cooper State Park (DEP)	✓	☒	✓	☒	☒	☒	☒	✓
Perry Oldenburg Mitigation Park WEA (FWC)	✓	☒	☒	☒	☒	☒	☒	✓
Weeki Wachee Springs State Park (DEP)	☒	☒	☒	✓	☒	☒	☒	✓
Werner-Boyce Salt Springs State Park (DEP)	✓	☒	☒	☒	✓	☒	☒	✓
Withlacoochee State Forest (FFS)	✓	✓	✓	✓	✓	✓	✓	✓
Withlacoochee State Trail (DEP)	✓	✓	☒	✓	☒	✓	☒	✓

The Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) collects data on participation levels in various outdoor recreation activities for different regions of Florida. The results for the Central West Region are summarized below:

Activity	Resident Participation (%)	Tourist Participation (%)
Paddling	30	10
Picnicking	40	37
Hiking	29	22
Unpaved Bicycle Trails	15	4
Wildlife Viewing	46	47
Nature Study	19	18
Equestrian Activities	6	6
Geocaching	3	3

The Central West Region is at approximately 30% of the statewide average level of service (miles of trail/1000 participants) for hiking. Hiking/walking trails are one of the top five desired facilities in Florida among residents. With the expected population growth for this region, and statewide, addition facilities will be needed to meet current and projected levels of service. Levels of service for the other listed activities are very close to the statewide mean.

Hernando County has developed a Bicycle/Pedestrian Advisory Committee (BPAC) under the Metropolitan Planning Organization (MPO) that will assist with proposing and reviewing alternative transportation modes in the Long Range Transportation Plan (LRTP). The LRTP also includes information about the major hiking trails in Hernando County such as the Croom, Richloam, Green Swamp, and Citrus Hiking Trails. There is potential for a wildlife corridor in the MPO plan from Chassahowitzka to Seville on US 19. The Hernando County Comprehensive Plan classifies CWMA as Conservation Land in the Current and Future Land Use components. US Highway 19 is slotted to be extended to a six-lane divided highway in the 2015-2035 plan. This highway is currently a four-lane divided highway. Impacts to sensitive environmental areas and wildlife corridors will be taken into consideration, and the county will conduct a detailed study of the modifications to land use and development.

Currently, there is one approved residential development, Glen Lakes, to the south and adjacent to CWMA off Highway 19. Developments have the potential to increase recreational demand and impact the area and its natural and recreation resources.

IV. Interpretation

In this plan, emphasis is placed on integrating recreation and interpretive planning. Using this approach, the type of recreational experience offered and the location of recreation amenities provided, is strongly influenced by the interpretive goals for the area. Recreation opportunities thus become a means to an end - reaching visitors with important themes and concepts about an area's natural resources, plant communities, wildlife and wildlife management.

Visitor Experience Goals

CWMA has the potential to provide visitors with opportunities to see and learn about a variety of natural communities while engaging in recreational activities focused on fish and wildlife resources. Visitor experience goals are those concepts and experiences we want visitors to take away from their time at CWMA. These goals guide both interpretive and recreation planning.

At CWMA, the FWC will provide opportunities for visitors to:

1. Become oriented to and participate in a range of recreational activities on CWMA and adjoining natural areas while:

- Becoming acquainted with wildlife and natural plant communities
- Understanding CWMA's natural, cultural and commercial history within the context of the state's prehistory and modern history
- Appreciating CWMA as an oasis providing a retreat from the pressures of urban life and an opportunity to connect with the natural world

2. Learn information and stories associated with major interpretive themes and other related information, through interpretive materials at welcome kiosks, trails and wildlife viewing sites.

3. Have an enjoyable recreational experience without impairing the natural and cultural values of the site. In terms of wildlife viewing, FWC's goal will be to facilitate positive, memorable experiences that keep wildlife disturbances to a minimum.

4. Understand the management goals and activities of the FWC on CWMA.

Interpretive Themes

Interpretive concepts are categorized into themes and subthemes. All interpretive materials revolve around one or two primary themes, which allow visitors to understand and remember important messages. Primary themes also help set visitor experience goals and priorities and are considered in the design of amenities offered to nature-based recreationists. Subthemes expand upon and support the primary themes. These guide the development of all interpretive

products, which may include sign panels, printed materials, electronic media and educational programming. This detailed media prescription will be developed at a later date.

Central Theme: CWMA is managed for diverse habitats that support healthy wildlife populations and offer a good selection of recreational opportunities.

Subtheme 1. CWMA is a key piece of a 200-mile stretch of protected public land along Florida's west coast.

A. Chassahowitzka Swamp is the largest forested coastal wetland south of the Suwannee River.
B. Chassahowitzka's swamps, creeks, marshes, sandhills, pine flatwoods and scrub habitats protect the quality and quantity of water in sinkhole lakes, springs and in the underlying Floridan aquifer, a primary source of the region's drinking water.
C. Habitats at Chassahowitzka provide flood protection and storm buffering to nearby communities; shelter wildlife; and provide fresh water to the productive coastal salt marshes to the west.
D. Chassahowitzka is home to species such as gopher tortoises, gopher frogs, eastern indigo snakes, Sherman's fox squirrels, turkeys, deer, swallow-tailed kites, bald eagles, butterflies and a small, but significant, population of Florida black bears.

Subtheme 2: FWC places a high value on habitat and wildlife management and employs a variety of management and restoration tools to achieve specific goals.

A. Each habitat at Chassahowitzka receives a unique management prescription with science-based goals and objectives.
B. Both wetlands and uplands are managed and restored using tools such as prescribed fire, low-water crossings, timber clearing or thinning, control of invasive nonnatives and reforestation.
C. Restored and well-managed habitats benefit a wide range of species and improve the quality of recreation for all users.
D. High-quality sandhill and scrub habitats are restored and managed at Chassahowitzka.
E. Habitat restoration is a long-term solution that may appear destructive in the short-term.
F. Restored habitat is better able to support wildlife populations and may increase species' resilience to environmental changes and stressors.

Subtheme 3: The WMA preserves evidence of the historical significance of the region, which included subsistence hunting and fishing by native peoples, logging and milling of cypress, red cedar and longleaf pine, and turpentine production.

A. In the early 1900s, most native cypress and red cedar trees were removed from the swamp by railroad. Today, the elevated tramways are used as roads and recreational trails.
B. Uplands that are undergoing restoration and reforestation today are the legacy of the pulpwood production industry that converted the longleaf pine forest to pine plantations.
C. The WMA was once the site of Centralia, a booming mill town that operated in the early 1900s.
D. The native longleaf pines supplied early settlers with resin used to produce tar, pitch, turpentine and rosin.

V. Recreation Assessment

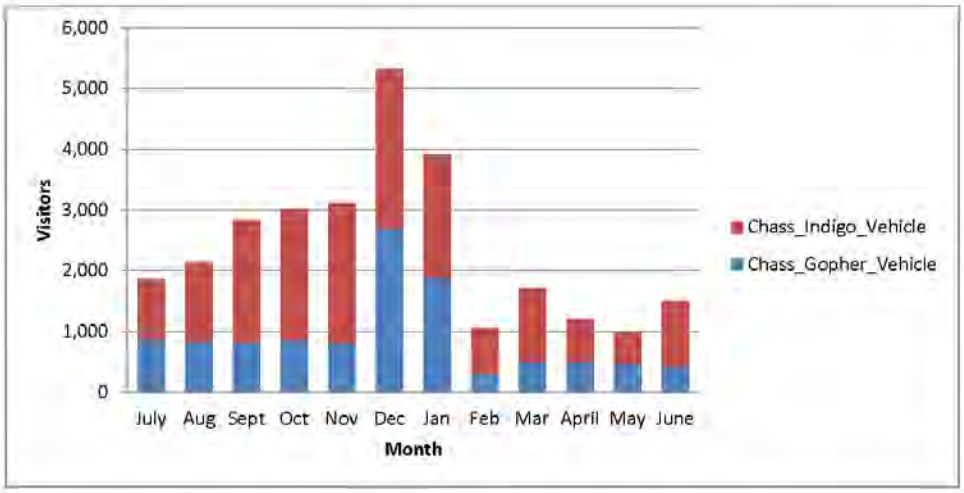
Existing Recreational Use and Facilities

The purpose of this section is to identify and describe the existing recreational uses and facilities on CWMA and note their status and condition (Figure 3). This informs recommendations for achieving visitor experience goals and meeting future recreation demands and needs.

CWMA offers opportunities for a variety of high quality, wildlife-focused recreation activities. Based on the approved uses and activities as stated in the 2014-2024 Management Plan (MP), the analysis of existing resources and uses, and the interpretive themes developed for the area, the following activities should be continued and enhanced as described in this section. Conditional activities are those that require additional permits or permission.

- Astronomy (Conditional)
- Bicycling
- Primitive Camping (Conditional)
- Ecotourism (Conditional)
- Environmental Education
- Fishing (Conditional)
- Geocaching (Conditional)
- Hiking
- Horseback riding
- Hunting (Conditional)
- Wildlife Observation

Visitation, as recorded by two separate vehicle counters installed and monitored by FWC, has averaged 71 visitors/day for July 2012 to June 2013. Seasonally, use peaks during deer hunting season from September to December with another, smaller peak in March and April for spring turkey hunting season.



Chass_Indigo_Vehicle is on Indigo Road west of the main entrance and just west of the road to the private hunt club. Chass_Gopher_Vehicle is at the main entrance just south of Indigo road on Gopher Road.

Visitor Contact Points and Roads/Vehicle Access - The main entrance for CWMA is on the west side of US HWY 19 just south of Homassassa Springs. The check station and two kiosks are located at this point. This entrance is the only visitor access and leads to two other use areas: the hiking trailhead with three picnic shelters, parking, a bear can, and a kiosk and the use area at Eagle Nest Sink with two picnic tables, a bear can, parking, and a dive/viewing platform with a boardwalk and two benches. Other than visitor contact kiosks there are four other interpretive signs with frames as well as an interpretive driving tour.

Vehicles are allowed on named roads. Tracked vehicles, airboats, and unlicensed/unregistered motorcycles are prohibited.

Most named roads are well-maintained limerock roads and can be traversed in two-wheel drive vehicles.

Wayfinding signage on interior roads is to FWC standards. There are approach signs for CWMA on SR19.

Hunting - Currently, hunting opportunities include archery, muzzleloading gun, general gun, wild hog-dog, raccoon, spring turkey, youth spring turkey and migratory bird seasons. There are 145 days of hunting each year excluding migratory birds. Between September and May there is

hunting 29 out of 39 weekends and 4 of those weekends are spring turkey season with shooting hours only until 1pm. There are 5 days of hunting in March and 7 days in April. The area is open to other users during hunt days. Quotas limit the number of hunters accessing the area during most hunting seasons to provide a high-quality hunting experience.

Boating/Paddling –There is no boating access on the WMA. There are numerous paddling opportunities around the WMA at such places as the Chassahowitzka National Wildlife Refuge where paddlers can launch at a ramp on the Chassahowitzka River three miles upriver at the end of State Road 480.

Fishing and Frogging - Fishing and frogging are allowed year round. There are a variety of freshwater fish in the small and remote water bodies on the WMA providing minimal opportunities to fish.

Trail Use – Hiking is allowed throughout CWMA. Horseback riding is allowed on designated (named) roads only. During periods open for hunting, and during a seven-day scouting period prior to each hunt, bicycles are allowed throughout the area. During non-hunting periods, bicycles are allowed on designated (named) roads only.

Trail infrastructure - There are 9.4 miles of trails available for public recreation on CWMA. All of these start at the Indigo Road trailhead. The hiking trails traverse mesic flatwoods, sandhill, and a dome swamp via a footbridge. Most of the trails are shady with some areas passing through open areas of early regeneration. The driving tour follows Indigo Road south to Rattlesnake Road and east to Gopher Road where it ends at the check station at the entrance to the WMA.

Wildlife Viewing and Nature Study - Wildlife viewing opportunities are available throughout CWMA, with some of the best, most accessible, opportunities located along the designated trails and driving tour. The sandhill and flatwoods provide viewing for a wide variety of birds including turkey, vireos, and woodpeckers and the more open, wetter areas provide viewing opportunities for eagles and wading birds. There is one structure platform at Eagle Nest Sink that is designed for scuba-diving use but may be used for wildlife viewing purposes.

Picnicking - There are currently three picnic shelters and one picnic table on the WMA at the Indigo Road trailhead, one picnic table at the check station, one picnic table on North Road and two picnic tables at the Eagle Nest Sink use area.

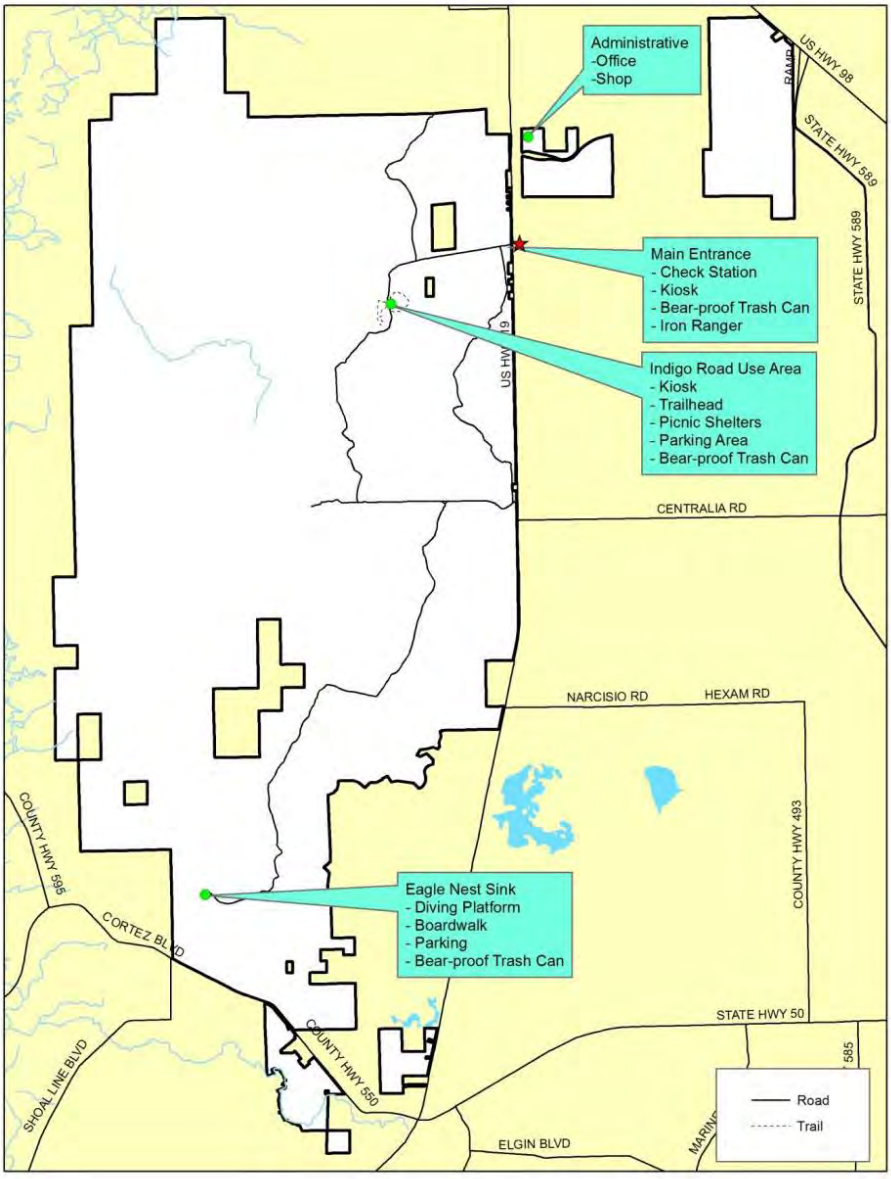


Figure 3: Chassahowitzka WMA Existing Facilities

Camping - Camping is not available at CWMA.

Geocaching - Geocaching is allowed on the area. There are currently no permitted geocaches on CWMA. Approval of new geocaches and disposition of existing geocaches is at the discretion of the site manager and coordinated by FWC's Office of Public Access and Wildlife Viewing Services.

Special Events/Tours – There are no regular tours or special events at CWMA.

Staff/Volunteers - A Fisheries and Wildlife Biological Scientist III, two Fisheries and Wildlife Biological Scientist II, two Wildlife Technicians, and one administrative assistant are assigned to CWMA. Volunteers are occasionally used to assist with wildlife surveys.

Recreation Zoning

Research of recreational use demonstrates that visitors come to recreate on public lands with many different expectations (NPS, 1997). Providing a variety of settings allows visitors to select the type of experience they desire, simplifies management and reduces conflicts between visitors who are seeking different types of experiences. The zones delineated by the planning team are provided in Figure 5. Each zone is described below in terms of the type of experience it offers, the natural resources related to the experience and the level of management required.

Primitive Zone
This zone offers an experience of solitude deep in a natural landscape with no evidence of human development. This zone can encompass sensitive natural resources. Access is difficult and the number of people should be limited. Only limited recreation and interpretation opportunities should be developed in this zone. A minimal level of management is necessary for resource protection and safety.

Semi-Primitive Zone
The semi-primitive zone provides a sense of being immersed in a natural landscape with opportunities for solitude. Observation structures, boardwalks, interpretative signs and unpaved trails are the types of recreational facilities that are appropriate in this zone. A moderate level of management is provided for resource protection and safety. In areas with vehicle access on roads, the semi-primitive motorized zone provides a sense of being in a natural landscape with minimal human modification and moderate opportunities for solitude. Interpretative signs, wayfinding signs, vehicle pull-offs, unimproved parking locations and unpaved roads are the types of recreational facilities that are appropriate in this zone. Roads are passable by two-wheel drive vehicle. A moderate level of management is provided for resource protection and safety.

Developed Zone

Developed zones are areas with visitor facilities such as parking, picnicking and toilets. The visitor's experience in this zone is highly social. Trails may be paved or hardened for access by people with disabilities. Visitors and facilities are intensively managed in this zone for resource protection and safety purposes. Staff should monitor visitor behavior and attend to maintenance needs. The most intensive interpretation is provided in the developed zone. This is the most appropriate zone for building construction.

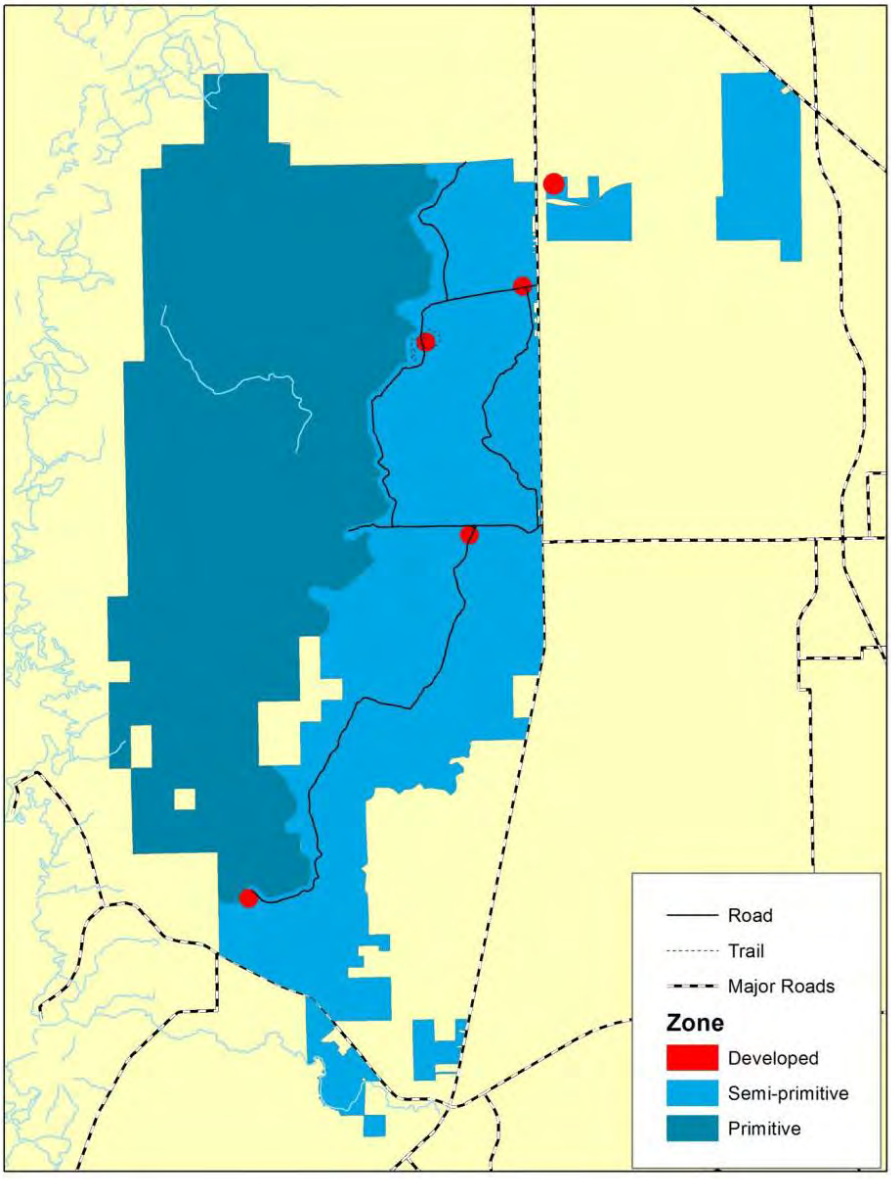


Figure 4: Chassahowitzka WMA Recreation Zones

Carrying Capacity

In order to minimize disturbance of wildlife and other natural resources and to provide an enjoyable experience for visitors, FWC calculates a carrying capacity for its managed areas (Appendix 3). This carrying capacity takes into consideration natural community sensitivity, known locations of sensitive natural communities, known archaeological and historic sites, existing recreation facilities and wildlife disturbance distances with a turnover rate that varies with the activity or facility. This capacity is not a visitation goal but rather is a level at which the natural and recreation resources of the area can sustain use without damage. Current capacity for CWMA is 550 people per day (including hunting capacity).

Chassahowitzka WMA Recreation Use Potential

CWMA provides an opportunity for visitors to learn about and see examples of natural communities that are rapidly being converted to other uses on the west coast of Florida. The following sections of the plan provide for comprehensive interpretation of these communities, common and listed species of interest to visitors, and FWC's management. Recommended recreation enhancements are those that provide a range of enjoyable opportunities to view wildlife without negatively impacting resources.

Goals and Objectives

Careful design and placement of recreational facilities can provide desirable visitor experiences and minimize impacts to the natural and cultural resources of the area. Construction and improvements will not harm wildlife, fragile habitats or historic and cultural sites. All planning and implementation should be done in accordance with guidelines in Appendix 2. A conceptual site plan for proposed recreation facilities is provided in Figure 6.

Goal A. Orient visitors to the area and its recreation opportunities and interpret WMA resources

1. If feasible, relocate main entrance to Rattlesnake Road including development of a parking area, kiosk, check station and picnic shelter
2. In conjunction with the relocation of the main entrance, investigate alternatives to maintain the loop driving tour, including development of additional road segments.
3. Develop one new information sign and trailhead at the Annutteliga Hammock north entrance.
4. Design and develop an elevated walkway to Buford Spring.

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

Goal B. Enhance existing trail opportunities

1. Monitor trail use and demand to determine the need for expanded trail opportunities.

Goal C. Direct and manage recreational use to minimize negative resource impacts and maximize visitor satisfaction

1. Collect and evaluate information about visitor use and satisfaction:
    - Number of visitors to the area and patterns of visitation
    - User group conflicts
    - Origin and length of stay
    - Motivations for visiting and preferred experiences
    - What visitors already know about the area and primary interpretive themes.
    - Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards.
2. Revise the recreation guide.
3. Develop a trail map.
4. Install cave diving warning sign at Eagle Nest Sink and other appropriate locations.
5. Stock recreation and driving tour guides, regulation summaries and bird list in brochure boxes at the main entrance and walk-in entrance.
1. Maintain up-to-date information about the area on the FWC website.

Goal D. Coordinate with local, state and federal agencies and organizations when planning and implementing nature-based recreation opportunities and enhancements

1. Cross-promote CWMA with other regional public lands.

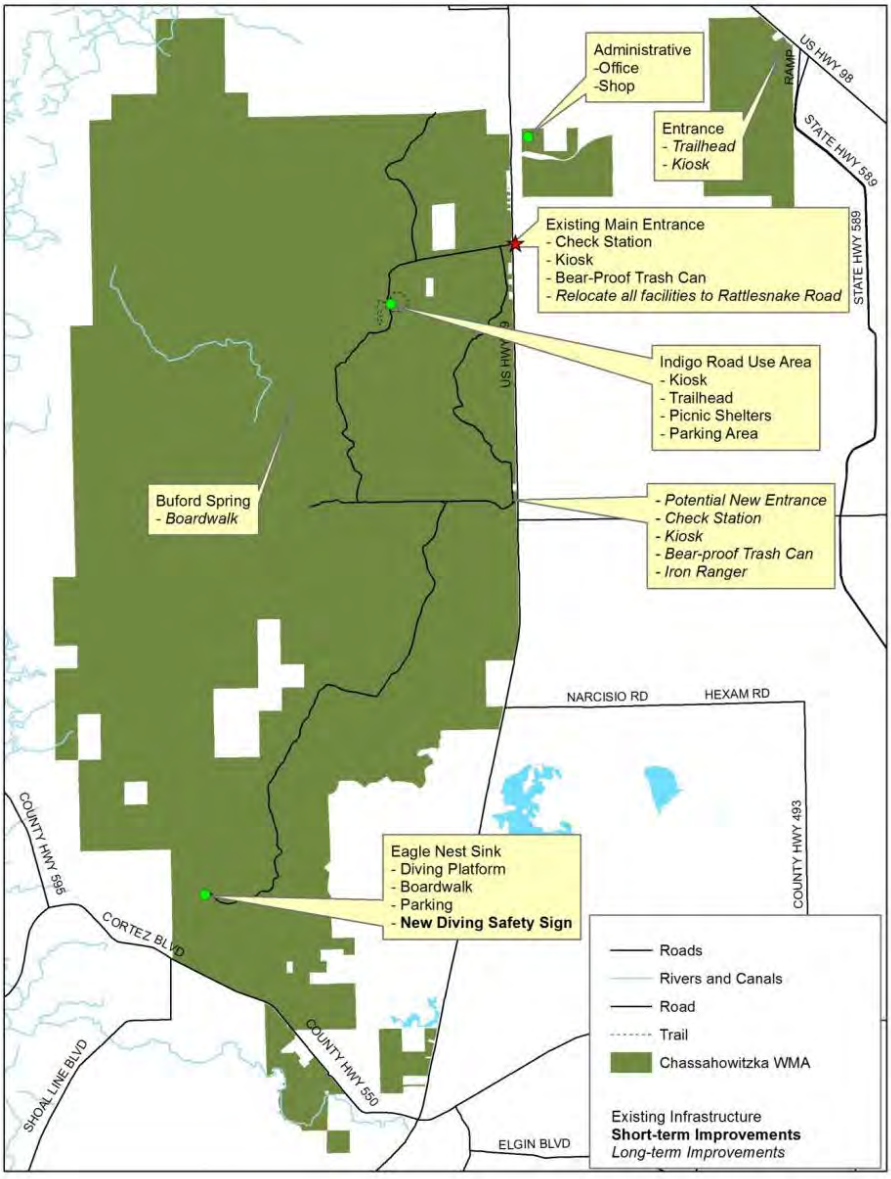


Figure 5: Chassahowitzka WMA Proposed Recreation Facilities

Challenges and Strategies

There are several challenges facing the effective implementation and management of nature-based recreation opportunities on CWMA. Challenges and proposed strategies to address them are discussed in this section.

1. Challenge:

   CWMA is not a well-known recreation destination.

   Strategies:
   - Cross-promote CWMA with other regional conservation lands.
   - Provide rack cards or similar publication at sources in Brooksville, Spring Hill, and Crystal River.
   - Work with Hernando County tourism boards for promotion.
   - Investigate developing an online mapping application on the FWC website to provide location and recreation information for CWMA.

2. Challenge:

   As the population density around CWMA continues to increase, recreational use of the area will increase, potentially resulting in resource damage and wildlife disturbance.

   Strategies:

   - Periodically monitor all public use sites for environmental impacts and implement corrective actions when and where necessary.
   - Recreational use will be directed away from sensitive environments to the greatest degree possible.
   - Environmental protection information will be provided in all interpretive materials.

3. Challenge:

   As recreational use increases, conflicts among user groups may occur.

   Strategies:
   - Provide a range of recreational opportunities in a variety of settings to avoid user conflicts as much as possible.
   - Involve stakeholders and user groups during planning.
   - Ensure that user groups understand how to contact local staff to resolve problems.

- Provide opportunities for different user groups to volunteer together to maintain public access amenities and conduct conservation stewardship activities.
- Display hunting information (dates, times and types) at all entrances to help all users make choices as to when to visit.

Summary of Proposed Infrastructure Enhancements

- Rattlesnake Road New Entrance
  - Relocate main entrance and facilities from Gopher Road entrance
  - Reroute Driving tour to accommodate new entrance and road structure
- Boardwalk to Buford Spring
- Entrance with trailhead and kiosk at Annutteliga Hammock

Work Plans

PAWV will work with local staff to prepare annual work plans and budgets to implement the RMP for CWMA. PAWV will be responsible for 1) developing cost estimates for recreation-related facilities; 2) coordinating design and permitting; and 3) obtaining construction bids and the work of contractors during the construction phase. This includes pre-construction meetings, site visits at construction milestones and final reviews. Generally, the area manager and staff monitor construction sites frequently during the construction process to make sure contractor is not doing damage to the surrounding area.

PAWV will design interpretive materials for the areas in consultation with management area staff. Generally, the cost of producing maps and interpretive products and maps comes from the PAWV budget.

Monitoring and Management of Recreation Facilities

PAWV will monitor recreation infrastructure on the WMA biannually including trail and structure photopoints. PAWV will also create an annual monitoring report at the end of each fiscal year. Any impacts encountered during each monitoring will be brought to the attention of PAWV and WMA staff to determine the best course of action for correction and prevention.

Measurable indicators for monitoring key aspects of the visitor experience and resources at CWMA are described in Appendix 4. Indicators should be monitored for each zone, and when necessary, management actions taken to ensure that visitor use and resource impacts remain within the established standards.

References

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Appendices

Appendix 1: Work Plan for Recreation Enhancements

Based on the prioritization of the goals and objectives listed above, the following list of projects and tasks has been ordered in terms of short and long term completion timeframes.

Long Term Completion and Ongoing Tasks

- Main Entrance Relocation
  - Move check station, kiosk and interpretive materials, iron ranger, and bear can to Rattlesnake Road.
  - Potentially reroute driving tour
  - Relocate traffic counter

Appendix 2: Recreation and Wildlife Viewing Facilities Design Guidelines

- **Entrances**
  Should welcome visitors to the area, identify the Commission, describe the range of potential experiences on the area, and describe the wildlife viewing experiences by season, time of day or wildlife event.

- **Viewing structures**
  Structures should include wildlife identification or other interpretive information. The structure should be surrounded by and focused on wildlife and habitat, rather than being the focus itself. For towers, each level should focus visitor attention to a different habitat or feature.

- **Trails**
  Trails should be described at the trailhead with length or time required. If the focus is wildlife viewing, include best seasons. Interpretive panels or brochure stops should be well-spaced and focused by season.

General considerations in developing facilities:

- Locate viewing facilities on previously disturbed properties wherever possible.
- Preserve a sense of solitude and limit impact on natural resources by concentrating recreation uses in small "developed" zones and along existing road/trail corridors.
- Site facilities and design trails to minimize user conflicts.
- Avoid sensitive areas such as wetlands and route trails to avoid fragmenting habitat.
- Consider physical characteristics and the historical and natural character of the location.
- Adapt parking lots, buildings and other physical developments to existing topography.
- Retain on-site surface water run-off generated by development.
- Use porous pavements where surface hardening is required.
- Consider sewage disposal needs.
- Use native plants representative of the area for all landscaping.
- Design and build trails and observation structures to avoid disturbing wildlife and to minimize negative impacts such as erosion.
- Use elevated boardwalks in wet areas and swamps and walkovers to protect other sensitive areas.
- Incorporate wildlife viewing ethics into all interpretive materials.
- Incorporate interpretive themes into all brochures, trail guides and other materials produced to support recreation opportunities.
- Install interpretive signs and panels as appropriate at all recreation facilities.
- Route trails to interpret restoration and wildlife management activities.

- Insure interpretation of highly desired species viewable on the area.

Universal Access

Nature-based recreation facilities and programs must be developed and implemented in compliance with the Americans with Disabilities Act. All facilities in developed zones should be universally accessible. Recreation facilities in semi-primitive or primitive zones should be planned to be accessible to the degree possible except where:

- compliance will cause harm to cultural, historic or religious sites or significant natural features or characteristics.
- compliance will substantially alter the nature of the setting or purpose of the facility (or a portion of the facility).
- compliance would require construction methods or materials prohibited by federal, state or local regulations or statutes, or compliance would not be feasible due to terrain or prevailing construction practices.

Appendix 3: Carrying Capacity Methodology

FWC Recreation Carrying Capacity

Carrying capacities for recreational users on FWC lands are developed using a methodology employing existing spatial data and models, recommended guidelines for spatial and temporal carrying capacity, recommended guidelines for minimizing wildlife disturbance by outdoor recreation, and site-specific characteristics. The intent of this methodology is to provide a realistic carrying capacity which is based on the best science and data available with a focus on minimizing wildlife and habitat disturbance and providing the type of recreation our visitors desire and FWC's managed areas can support. This methodology also provides a means of monitoring visitor impacts and allows for flexibility in responding to these impacts and adjusting the carrying capacity as necessary. The carrying capacities generated though this process are not a visitation goal but are a guideline included in the overall area Management Plan and used as a tool to help plan and develop recreation opportunities.

Sensitivity Analysis

An initial analysis of site sensitivity to recreation impacts is conducted using:

- Integrated Wildlife Habitat Ranking System model results for the site
- Natural community values based on threat rankings developed for the Florida Wildlife Legacy Initiative using the rankings for Roads, Incompatible Recreation Activities, and Conversion to Recreation Areas
- Natural community values based on the sensitivity guidelines published by the Florida Park Service
- Wetlands
- Slope
- Soils
- Known point locations of species-of-interest
- Known locations of sensitive resources
- Division of Historic Resources Master Site File sites
- Density of existing roads, trails and facilities
- Other datasets as available and appropriate

These data layers are converted to grids as necessary and normalized to a scale of 1-100. Then a weighted sum is calculated for all data resulting in a "Sensitivity Index" for the area with higher values being more sensitive to disturbance from recreation.

Recreation Zoning

Once the results of the Site Sensitivity model are obtained, a Recreation Zone Map is developed incorporating these results and any statutory or rule constraints for recreation

activities. These Recreation Zone Maps will show the different types of recreation experiences appropriate for each zone of the area. This guides potential trail lengths, trail types, types of facilities and other parameters related to recreation infrastructure.

Carrying Capacity Development

For linear recreation facilities (i.e. trails), a physical carrying capacity is developed based on trail length using a 100-meter buffer on either side of the trails. This buffer distance is consistent with the estimated area of wildlife disturbance along the trail. In addition, an additional 100-meter buffer is used between potential trail users to provide an undisturbed 100-meter area between users. This results in an estimate of 1 user or group every 300 meters along the trail. This estimate is generated using GIS and is adjusted to minimize disturbance "hot spots" such as overlapping disturbance buffers. Point facilities (i.e. observation structures) have a single 100-meter radius buffer. The temporal component of carrying capacity is developed based on the Florida Park Service turnover estimate of two per day on primitive hiking trails or four per day on shorter, improved nature trails. In addition, existing and planned parking and other trailhead limitations are factored into the estimate. If the site already has a Recreation Master Plan (RMP) developed, these estimates will be based on existing and planned facilities as detailed in the RMP. If the area does not have an RMP these estimates are based on potential trail corridors and potential point facility sites derived from the Recreation Zoning and site visits by OPAWVS and area staff. Another product of this estimate is a "Wildlife Habitat Disturbance Index" based on the ratio of potentially impacted habitat to impact-free habitat expressed as a percentage of the area potentially impacted by recreation.

Camping Facility Carrying Capacities

- Primitive tent camping with no facilities or limited facilities (fire ring, picnic table): 4 people/site with a turnover of once per day.
- Standard camping site (fire ring, picnic table, improved or paved pad, toilet facilities): 8 people/site with a turnover of once per day.
- Generally group camping will be 30 people per 5 acres of camping area.

Picnic Areas

- 8 tables/acre and 4 people/table with a turnover twice a day.

Structures

- Structures dependent on trails for access will be included in the calculated trail capacity.
- Structures that can be accessed independently of trails will have a carrying capacity determined on a case-by-case basis based on the type and size of the structure.

Shoreline Fishing Areas

- Shoreline fishing areas will have a capacity of 1 angler per 25 linear feet.

Seasonal Hunting

- For those areas with seasonal hunting use carrying capacities range from one hunter per 75 acres to one hunter per 150 acres. The exact density chosen depends on a variety of factors with game management most paramount, but is also influenced by the layout of the area and the chosen hunting framework. Areas with dove fields will have a dove field capacity of one hunter to 1.75 acres of dove fields. This capacity is in addition to the calculated capacity for non-hunting recreation uses. Areas with quota permits will have the hunting capacity established as double the maximum number of permits for any one season to account for guest permits.

As needed, capacities for other uses not listed above will use the carrying capacity guidelines published by the Florida Park Service as a baseline.

Recreation Impact Monitoring

To provide a quantitative measure of recreation impacts, limits will be established as "No impact ranks greater than 1," as observed during each biannual monitoring conducted by OPAWVS field staff. If any ranking values are greater than 1, the site will be assessed to determine the source of the impact. If impacts are the result of recreation activities (as opposed to facility design or other sources), the carrying capacity will be revisited and corrective measures will be developed by OPAWVS and area staff.

Appendix 4: Management and Monitoring

Recreation Facility Monitoring Protocol

Florida Fish and Wildlife Conservation Commission
Office of Public Access and Wildlife Viewing Services

Introduction

In order to better plan and manage recreation opportunities on lands managed by the Florida Fish and Wildlife Conservation Commission (FWC), FWC's Office of Public Access and Wildlife Viewing Services (PAWV) has developed a monitoring program for recreation-related facilities and infrastructure. Using both qualitative and semi-quantitative methods this program will encompass trails, signs, wildlife viewing structures and other facilities. Data obtained through this program will help FWC better plan, construct and maintain facilities to provide the recreation experiences that are meaningful, enjoyable and safe.

Materials

- Digital camera
- Tripod
- Kaidan panoramic photo mount
- VRWorx, or other software for creating panoramic photos
- Monitoring forms
- Tape measure
- Compass
- GPS (loaded with waypoints for monitoring points)
- Hand tools for checking structure hardware

Monitoring Procedures

Frequency

Starting in FY 2013-2014, trails will be monitored annually in the fall and structures monitored annually in the spring. Prior to FY13-14 trails and structures were both monitored biannually.

Photopoints

Panoramic and single photopoints are used to track and document impacts such as trail degradation, corridor condition, structural integrity and vandalism. Single photopoints are taken at use areas to capture the overall condition. Additionally, each amenity and structure has a photopoint associated with it. Panoramic photos are taken at use areas in a central location and at trailheads. Photopoints are predetermined (with the exception of trouble areas along trails), geographically referenced, and consistent. Data are compiled by analyzing panoramas and

photopoints from each monitoring session and combining the findings with impact indices recorded for each site.

Photopoints should be recorded with GPS, which can also be used to navigate back to the photopoint location on future monitoring visits. A description of the location should be recorded to ensure maximum accuracy in relocating the photopoint.

Assemble the panoramic photo gear and set the tripod over the photopoint, making sure the panoramic head is level. Standard photopoint height is 60" to the center of the camera lens while mounted on the panoramic mount. This may be modified for some photopoints depending on surrounding vegetation or other considerations, but the new height should be recorded and used each time that photopoint is taken. The easiest way to set the height is to assemble the tripod, panoramic mount and camera on level ground, adjust the legs to their full length and adjust the center column to achieve the proper lens height. The center column can be marked with a permanent marker, tape, or scored with a small file or engraver and each mark should be labeled with the height and camera model. This will have to be done for each different camera that will be used for photopoints, although it is preferable that the same camera be used for all photopoints.

Cameras should be set to full wide zoom, landscape mode if available, with flash off. All photopoints begin with the detent closest to due north and continue in a clockwise direction. A log should be kept to record the photo numbers and their corresponding photopoint.

After downloading the images they should be processed into a flat panorama (a digital image composed of all of the photos for a particular photopoint). These panoramas along with the component images should be kept in a central location organized by WMA, photopoint number, and photopoint date. Parallel photopoints will not need to be processed but should be organized as above.

Trails

Trails are monitored with a panoramic photopoint centered at the trailhead, and one photopoint wherever problems areas exist: one photo taken facing forward on the trail and one facing the opposite direction on the trail.

Use areas

Use areas have 2 photopoints. One is a panoramic photo taken at the center of the use area that follows the procedure for trailhead photopoints. The other is a single photo taken from the perimeter of the area. The compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint.

Structures

Structures have a single photopoint. This is a single photo, and the compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint. If desired, a panoramic photo can be taken to represent the view from the structure (such as the top of a tower).

Physical Inspections

- Check for presence or absence (smaller amenities such as fire rings and benches)
- Check for proper location (smaller amenities such as fire rings and benches)
- Inspect for damage (signs and structures)
- Check hardware and tighten or replace if necessary (signs and structures)

Trails should be traversed in their entirety, either on foot for shorter trails or by vehicle for longer trails. Trouble spots (erosion, trail braiding, shortcuts, litter, excess vegetation encroachment, etc.) should be recorded by GPS and noted on the monitoring form.

Monitoring Forms and Record Keeping

Monitoring forms are completed in the field. This can be done electronically using the Recon field computer or manually. If done manually they should be transferred to an electronic version by filling out the form on computer. Completed electronic forms are then placed in the appropriate location on the Project Management Site for that WMA along with any relevant GPS data (converted to shapefile), photographs, photopoints and other notes.

Any issues that need attention should be sent to the appropriate Recreation Planner via email. The Recreation Planner is responsible for ensuring that the issue is brought to the attention of the appropriate personnel, both internal and external to FWC, and tracking the issue through resolution.

Litter Impacts		
Rating	**Category**	**Description**
1	None	
2	Very Little	small isolated pieces of litter
3[2]	Some	frequent small pieces or isolated large pieces of litter
4	Extensive	small areas used for trash dumping or multiple areas of high litter
5	Very Extensive	large areas used for trash dumping

Structure or Amenity Damage		
Rating	**Category**	**Description**
1	None	none/ loose bolts on new structures.
2	Very Little	minor graffiti or scratches, dirty, light crazing or oxidation, crooked, minor cracks.
3[2]	Some	minor wood repair; extensive graffiti; cuts or gouges; bullet holes; major cracks, extensive crazing or fading.
4	Extensive	hazardous damage, rotten supports, severe rust, illegible signs, burnt
5	Very Extensive	structure is missing or rendered completely ruined/useless

Trail and Use Area Erosion		
Rating	**Category**	**Description**
1	Very little	mostly natural groundcover distribution or man-made materials (concrete, aggregate, mulch, etc.)
2	Some	localized patches of bare soil from use or runoff from structures or impervious surfaces; vehicle tracks noticeable; standing water; minor hog damage
3[2]	Moderate	large areas of bare soil created by use, ruts from vehicles, areas muddied by use, roots partially exposed, heavy hog damage
4	Extensive	channelization, washout, and/or undercutting banks; roots mostly exposed; deep ruts; trail widening

Trail Corridor Condition		
Rating	**Category**	**Description**
1	Within Standards	minimal vegetation encroachment
2[3]	Exceeds Standards	trail needs some mowing/lopping/chainsawing; minor tree fall
3	Unacceptable	trail is generally overgrown and difficult to find; tree fall that impedes passage

[2]Ratings of three and above exceed PAWV standards for structure and amenity damage or litter impacts and trail erosion.
[3]Ratings of two and above exceed PAWV standards for trail corridor condition.

WMA Visit Checklist

- Trail maintenance needs
- Sign maintenance needs
- Structure maintenance needs
- Day-use area condition/maintenance needs
- Sufficient PAWV publications in field office
- Brochure boxes adequately stocked and installed
- Hunting calendar posted and up-to-date
- Users encountered on area (number, activity, address for future surveys)
- Geocaches inspected
- Manager concerns
- New ideas for area enhancement

13.12 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

Issued by:
Terrestrial Habitat Conservation and Restoration Section
9/1/2010

Enclosed is the HSC/THCR Apiary Policy for all Florida Fish and Wildlife Conservation Commission's Wildlife Management Areas and Wildlife and Environmental Areas.

1

DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

SUBJECT: APIARY SITES ON FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION WILDLIFE MANAGEMENT AREAS AND WILDLIFE AND ENVIRONMENTAL AREAS

STATEMENT OF PURPOSE: It is the intent of this policy to determine which Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas or Wildlife and Environmental Areas (WMA/WEA) may have apiary sites, and provides direction on site location, management and administration of said apiaries.

Definitions

Apiary – A place where bees and beehives are kept, especially a place where bees are raised for their honey.

Apiary Site – An area set aside on a WMA/WEA for the purpose of allowing a beekeeper to locate beehives in exchange for a fee as established by contract between the beekeeper and FWC.

Apiary Wait List – An apiary wait list will be maintained by the Terrestrial Habitat Conservation and Restoration (THCR) Section Leader's Office based on applications received from interested beekeepers. Only qualified apiarists will be added to the list. To become qualified the new apiarist must submit an application form and meet the criteria below under the section titled "Apiary Wait List and Apiary Application."

Beekeeper/Apiarist – A person who keeps honey bees for the purposes of securing commodities such as honey, beeswax, pollen; pollinating fruits and vegetables; raising queens and bees for sale to other farmers and/or for purposes satisfying natural scientific curiosity.

Best Management Practices – The Florida Department of Agriculture & Consumer Services (FDACS; Division of Plant Industry (DPI), Apiary Inspection Section, P.O. Box 147100, Gainesville, FL 332614-1416) provides Best Management Practices (BMP) for maintaining European Honey Bee colonies and FWC expects apiarists to follow the BMP.

Hive/Colony – Means any Langstroth-type structure with movable frames intended for the housing of a bee colony. A hive typically consists of a high body hive box with cover, honey frames, brood chambers and a bottom board and may have smaller super hive boxes stacked on top for the excess honey storage. A hive/colony includes one queen, bees, combs, honey, pollen and brood and may have additional supers stacked on top of a high body hive box.

Establishment of Apiary Sites on WMA/WEA

During the development of an individual WMA/WEA Management Plan, apiaries will be considered under the multiple-use concept as a possible use to be allowed on the area. "Approved" uses are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the agency strategic plan and priorities documents. Items to consider when making this determination can also include:

- Were apiaries present on the area prior to acquisition?
- Are there suitable available sites on the WMA/WEA?
- Will the apiary assist in pollination of an onsite FWC or offsite (adjacent landowner) citrus grove or other agricultural operation?

For those WMA/WEAs that have not considered apiaries in their Management Plan, upon approval of this policy Regional Staff will work with the Conservation Acquisition and Planning (CAP) staff and THCR Section leadership to determine if apiaries are an approved use on the area. If apiaries are considered an approved use then a request will be made to the Division of State Lands to allow this use as part of an amended Management Plan. This request will be made through the THCR's Section Leader's office and coordinated by the CAP.

Determination of apiary site locations on WMA/WEAs should be done using the following guidelines:

- Apiary sites should be situated so as to be at least one-half mile from WMA/WEA property boundary lines, and at least one mile from any other known apiary site. Exceptions to this requirement must be reviewed by the Area Biologist and presented to the THCR Section Leader for approval.

- Site should be relatively level, fairly dry, and not be prone to flooding when bees would normally be present.

- Site should be accessible by roads which allow reasonable transfer of hives to the site by vehicle.

- If a site is to be located near human activity, such as, an agricultural field, food plot, wildlife opening, campsites, etc., or if the site may be manipulated by machinery at a time when bees would be present, then the apiary site should be located at a minimum of 150 to 200 yards from the edge of that activity. This will ensure minimal disturbance to the bees and minimize incidents with anyone working in the area.

3

- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by visitors then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (numerous large trees, dense shrubs) or ground disturbance (including fill).

WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygon(s), including a name or number with coordinates for each apiary site, to the THCR Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue staff should notify the THCR Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firelines around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

Apiary Wait List and Apiary Application

An electronic waiting list for apiary sites will be maintained by the THCR's Contract Manager for each WMA/WEA. To be placed on the waiting list an interested beekeeper must submit an apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site is becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the THCR Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during this drawing will be awarded the contract.

Apiary agreements are non-transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the THCR Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be $40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of $40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is $80.
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is $160.

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pineland communities and no more than 100 hives per site in areas with bountiful resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the

Beekeeper shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see http://www.leg.state.fl.us/Statutes/), Rule Chapter 5B-54, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund – Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 23, 1986
S:\HSC\THCR\APIARY.BACKUP.POLICY\dlissupport@dos.state.fl.us_20100903_111446.pdf

Senate Resolution 580, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

APPROVED:

_____

Division Director or Designee

DATE: _____

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APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as "the COMMISSION," and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as "the USER."

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.

2. The COMMISSION Agrees:

    a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.

    b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.

    c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).

3. The USER Agrees:

    a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.

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b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.

c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.

d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.

e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.

f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.

g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.

h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.

i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.

j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than $300,000 for bodily injury and $100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.

k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.

l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)

m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.

4. The parties mutually agree:

a. This Agreement is not transferable.

b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.

c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.

d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.

e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist

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presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.

f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.

g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.

h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.

i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities are found to be incompatible with the COMMISSION'S management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

_____
USER SIGNATURE

Date: _____

_____
Witness

_____
Witness

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

_____
Mike Brooks, Section Leader
Terrestrial Habitat Conservation and Restoration

Date: _____

Approved as to form and legality

_____
Commission Attorney

Date: _____

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AGREEMENT
ATTACHMENT 1

Use of Electric Fencing to Exclude Bears And Prevent Property Damage

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the “shock”. The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a

bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.
The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or "hot" wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately $200 for a 40' x 40' area (160 linear feet of fence).

Materials:
1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
1 - 50 foot roll 12 gauge insulated wire
20 - 5 foot 5/8 inch dia fiberglass fence posts
5 - plastic gate handles
1 - 110 volt fence charger
1 - 10 foot ground pipe
4 - plastic electric fence signs

Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each

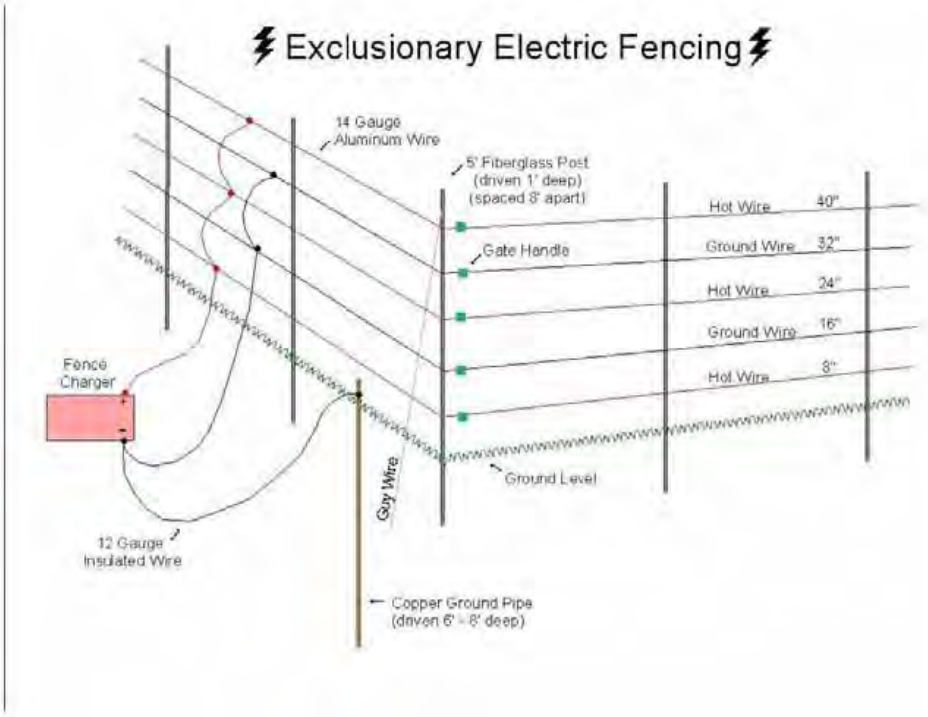
corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

Tips to improve the effectiveness of your electric fence to deter black bears:

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a specific structure (like a shed or rabbit hutch), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.
10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.
11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences*. Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



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AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

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APIARY SITE APPLICATION FORM

Florida Fish and Wildlife
Conservation Commission

RETURN TO: The Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please print or type all information. Attach additional sheets if necessary.

Name _____ Telephone Number _____

Mailing Address _____

City or Town_____ County _____ Zip Code _____

Physical Address (If Different from Mailing Address) _____

Company Name: _____

Email Address _____

Requested Wildlife Management or Wildlife and Environmental Area(s)(see attached list of WMA/WEAs with apiary sites):

WMA/WEA _____ County_____ # of Sites_____

WMA/WEA _____ County_____ # of Sites_____

WMA /WEA_____ County_____ # of Sites_____

WMA /WEA_____ County_____ # of Sites_____

Planned Number of Hives Per Site: _____ Permanent: ____ Seasonal: _____

Member of Beekeepers Association: Yes____ No____

Number of Years a Member_____

Name of Beekeepers Association:_____

Are you registered with Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI):_____Yes _____No _____N/A If yes, please provide proof.

Are you current with any and all special inspection fees:_____Yes _____No _____N/A. If yes, please provide proof.

Do you follow all recommended Best Management Practices from FDACS/DPI?:_____Yes _____No

If no, then please explain on a separate piece of paper.

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Please provide below a chronological history of your beekeeping experience. If you need more space, please provide additional sheets:

References: If a new apiary contractor, please provide on a separate piece of paper at least 3 references who can verify your apiary experience. Provide each reference's name, address, phone number and email address (if applicable). Please attach reference sheet to this document and submit.

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MISSION STATEMENT

Management

Of

Florida Fish and Wildlife Conservation Commission's

Wildlife Management Areas

And

Wildlife and Environmental Areas

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animal's characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR

MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.

2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random survey of colonies using the FABIS (Fast African Bee Identification System) and/or the computer-assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees (AHB) (USDA-ID) or other approved methods by FDACS on a yearly basis or as requested.

3. Honey bee colony divisions or splits should be queened with production queens or queen cells from EHB breeder queens following Florida's Best Management Practices.

4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from EHB queen producers.

5. Florida Beekeepers should practice good swarm-prevention techniques to prevent an abundance of virgin queens and their ready mating with available AHB drones that carry the defensive trait.

6. Maintain all EHB colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of AHB.

7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be attractive to AHB swarms.

8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.

9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.

10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with AHB drones.

11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.

12. Treat all honey bees with respect.

RANDOM

SELECTION PROCESS

FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for this selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist:

1. The THCR Contract Manager will maintain an "Apiary Wait List Folder" on the THCR SharePoint for each WMA/WEA with apiary sites.
2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.
3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an "Apiary Wait List".
4. If a list exists then the qualified applicant will be added to the list.
5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest.
6. The letter will request a response within 10 working days to make them eligible for the random drawing.
7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed from the waiting list*.
8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist.
9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds then the random drawing process will be used to determine who will be awarded the site.

10. Steps to be performed by the THCR Contract Manager to execute the random selection for an available apiary site are listed below:

    a. The names of each interested apiarist will be noted on a 1" X 2" piece of paper and folded in half.

    b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stirred up prior to the selection.

    c. A non-biased person will be selected to reach into the bowl (which will be held above the selection person's eyesight) and randomly select one of the canisters.

    d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.

    e. The apiarist whose name is selected will be awarded the available site.

    f. A new Agreement will be developed by the THCR Contract Manager.

*****A new apiary application must be submitted once requestor's name is removed from a waiting list.

13.13 Land Management Uniform Accounting Council Categories - FWC Operation Plan Fiscal Year 2013 - 2014

Land Management Uniform Accounting Council Categories and Subcategories

1. Resource Management

a. Exotic Species Control. -- Invasive exotic plant and animal removal activities and costs for inventorying, planning, preparing, executing, evaluating, monitoring and reporting. Also includes equipment, chemicals, protective clothing and supplies. Includes nuisance native feral animal and plant control.

b. Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.

c. Cultural Resource Management. -- Management activities and costs for assessing, planning, executing, evaluating and reporting, and for all maintenance, restoration or monitoring activities for prehistoric and historic sites, features and collection objects.

d. Timber Management. -- Activities and costs related to the establishment of a stand of potentially merchantable timber, harvest of merchantable timber, and cultural treatments intended primarily to improve the growth and overall health of a stand of merchantable timber. Also includes activities and costs related to the cutting of merchantable timber in natural community and habitat restoration projects.

e. Hydrological Management. -- Hydrological management and restoration activities and costs for assessing, monitoring, planning, preparing, executing, evaluating and reporting. Includes water level management, repair, removal or back-filling of ditches, canals, berms and dams. Also includes water quality and water quantity monitoring.

f. Other. -- All other resource management activities and costs not captured in other specific subcategories. Examples include natural community and habitat restoration through other techniques; plant, animal or biological community survey, monitoring and research; listed species management; technical assistance; and evaluating and commenting on resource impacts to parks.

2. Administration

a. Central Office/Headquarters. -- Headquarters units conducting general administration of land under management by the agency. Includes upper management direction, administration and fiscal, budget, personnel, purchasing and record keeping required for operations oversight and specific programs. Includes all duties unless they specifically relate to other categories or subcategories.

b. Districts/Regions. -- Sub-state administrative districts or regions conducting general administration of the properties under their management. Includes all duties, unless they specifically relate to other categories or subcategories. General operating costs of district or region administrative facilities are included.

c. Units/Projects. -- Conducting general administration duties at a specific management unit (state park, state forest, state wildlife management area, etc.). Includes supervisory duties, fiscal and record keeping duties, and any other duties that do not specifically relate to other categories or subcategories. General operating costs for the property, such as utilities, telephones and garbage collection, are included.

3. Support

a. Land Management Planning. -- Developing land management plans required by Sec. 253.034, F.S. Includes researching and compiling plan information, materials and maps, coordinating planning activities, conducting review activities (internal reviews, public meetings, advisory group meetings, ARC, etc.), and promulgating draft plans and final plans.

b. Land Management Reviews. -- Planning, organizing and conducting land management reviews by teams created under Sec. 259.036, F.S. Includes preparing and responding to land management review reports. Also includes similar work conducted as part of internal agency land management reviews.

c. Training/Staff Development. -- Staff training and development costs incurred in any facet of the agency's land management activities.

d. Vehicle Purchase. -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

e. Vehicle Operation and Maintenance. -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.

f. Other. -- Any other support activity or cost not captured by other categories or subcategories.

4. Capital Improvements

a. New Facility Construction. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all new facility design and construction activities. Includes new roads, parking and all other infrastructure.

b. Facility Maintenance. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all repairs or renovations to existing facilities, roads or other infrastructure. Also includes ADA accessibility improvements and renovations.

5. Visitor Services/Recreation

a. Information/Education Programs. -- Interpretive, environmental education and marketing programs that explain or promote the agency's mission or instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper use and care. Includes signs, brochures, maps and other public information materials that are produced or disseminated.

b. Operations. -- Includes the non-administrative and non-support costs involved in providing public access to lands. Includes all actions required to manage visitor activities in a way to ensure safe and enjoyable use by the public. Includes routine maintenance, cleaning and other work required to provide safe and efficient utilization of facilities and resources that support visitor use and recreation. Includes protection activities required by staff to safeguard natural and cultural resources, facilities, material, staff and visitors.

6. Law Enforcement

The provision of all activities for enforcing criminal, conservation and boating laws on land, freshwater and marine environments and all costs associated with these services. Includes the provision of uniform patrol. Includes overt and covert criminal investigations. Includes regulation of commercial wildlife trade. Also includes the direction and administration of all law enforcement programs and activities, and all associated costs.

Land Management Uniform Accounting Council Categories and FWC Activity Codes

Resource Management

Exotic Species Control
- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

Prescribed Burning
- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

Cultural Resource Management
- 201 Cultural resource management

Timber Management
- 202 Timber management

Hydrological Management

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

Other

185 GIS
186 Biometrics
200 RESOURCE MANAGEMENT
203 Tree and shrub planting
213 Wildlife management
214 Listed Species management
219 Upland restoration
282 Herbaceous seeding
283 Clearings
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
221 Animal surveys
228 Inland aerial surveys
235 Vegetation and plant surveys
250 MONITORING AND ASSESSMENTS
252 Biomedical monitoring
253 Ecological monitoring
256 Habitat monitoring analysis
263 Nest box monitoring
264 Population demographics
295 Biological data collection, analysis, and reporting
275 Permits and authorizations
276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
296 Habitat protection technical assistance
750 URTD assessment
789 Site Preparation – GCR
790 Irrigation – GCR
791 Seed Collection – Hand
792 Seed Collection – Mechanical

793 Herbicide Maintenance Treatment

Administration

Central Office/Headquarters

100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.

104 Budget/purchasing/accounting

Support

Land Management Planning

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

204 Resource planning

Land Management Reviews

209 Land Management Reviews

101 Project inspection C field inspections of projects.

Training/Staff Development

150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.

Vehicle Purchase

128 New Vehicle and Equipment Purchase

Vehicle Operation and Maintenance

923 FEM C vehicles/equipment

Other

140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION

141 Grant applications

180 SYSTEMS ADMINISTRATION AND MANAGEMENT

182 Data management

184 Metadata development and management

187 IT

188 Web development

721 Geospatial analysis techniques

191 Stamp design coordination

226 Human dimensions surveys

Capitol Improvements

New Facility Construction

910 New facility construction C buildings/structures

912 New construction C roads/bridges

913 New construction C trails

914 New construction C fences

Facility Maintenance

920 Facility and equipment maintenance (FEM) C buildings/structures

921 FEM C utilities

922 FEM C custodial functions

925 FEM C boating access

926 FEM C roads/bridges

927 FEM C trails

928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs
312 Informational signs
320 Outreach and education C attending or developing educational or informational materials or events for the public
327 Becoming an Outdoor Woman C enhancement
331 Wings Over Florida
339 Range safety operations
341 Public use administration (hunting)
342 Public use administration (non-hunting)
350 Customer service support C disseminating written or verbal information or assistance to the public
700 STUDIES
740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

FWC Activity Code Numeric Listing

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

203 Tree and shrub planting
204 Resource planning
205 Prescribed burning
206 Prescribed burning C growing season (April 1 to September 30)
207 Prescribed burning C dormant season (October 1 to March 31)
208 Firebreaks
209 Land Management Reviews
210 Exotic species control
211 Exotic plant control (mechanical)
212 Exotic plant control (chemical)
213 Wildlife management
214 Listed Species management
215 Hydrology management
216 Dams, dikes, levees
217 Canals
218 Water level management
219 Upland restoration
221 Animal surveys
226 Human dimensions surveys
228 Inland aerial surveys
235 Vegetation and plant surveys
250 MONITORING AND ASSESSMENTS
252 Biomedical monitoring
253 Ecological monitoring
256 Habitat monitoring analysis
263 Nest box monitoring
264 Population demographics
275 Permits and authorizations
276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
282 Herbaceous seeding
283 Clearings
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
295 Biological data collection, analysis, and reporting
296 Habitat protection technical assistance
311 Boundary signs

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

Chassahowitzka WMA Operational Plan Cost Estimate - Fiscal Year 2013 - 2014

Activity	Title	Staff Days	Salary	FuelCost	Other	Total	Units
100	Administration	80	$16,927.20	$1,460.00	$14,600.00	$32,987.20	0
150	Personnel management	10	$2,115.90	$182.50	$0.00	$2,298.40	0
202	Timber management	0	$0.00	$0.00	$0.00	$0.00	0
203	Tree and shrub planting	15	$3,173.85	$273.75	$15,000.00	$18,447.60	80
204	Resource planning	75	$15,869.25	$1,368.75	$0.00	$17,238.00	0
205	Burning	0	$0.00	$0.00	$0.00	$0.00	0
206	Prescribed burning - growing season	120	$25,390.80	$2,190.00	$5,000.00	$32,580.80	1250
207	Prescribed burning - dormant season	120	$25,390.80	$2,190.00	$5,000.00	$32,580.80	1250
208	Firebreaks	70	$14,811.30	$1,277.50	$0.00	$16,088.80	50
210	Exotic species control	0	$0.00	$0.00	$0.00	$0.00	0
212	Exotic plant control (chemical)	30	$6,347.70	$547.50	$25,000.00	$31,895.20	200
219	Upland restoration	0	$0.00	$0.00	$0.00	$0.00	0
221	Animal surveys	0	$0.00	$0.00	$0.00	$0.00	0
235	Vegetation and plant surveys	0	$0.00	$0.00	$0.00	$0.00	0
250	Monitoring and assessments	30	$6,347.70	$547.50	$2,000.00	$8,895.20	1
289	Native vegetation management (mechanical)	50	$10,579.50	$912.50	$6,000.00	$17,492.00	150
290	Native vegetation management (chemical)	0	$0.00	$0.00	$0.00	$0.00	0
294	Program coordination and implementation	10	$2,115.90	$182.50	$0.00	$2,298.40	0
295	Biological data collection, analysis, and reporting	0	$0.00	$0.00	$0.00	$0.00	0
341	Public use administration (hunting)	46	$9,733.14	$839.50	$14,847.00	$25,419.64	5

Chassahowitzka WMA Operational Plan Cost Estimate - Fiscal Year 2013 - 2014

Activity	Title	Staff Days	Salary	FuelCost	Other	Total	Units
342	Public use administration (non-hunting)	15	$3,173.85	$273.75	$1,000.00	$4,447.60	0
920	FEM -- buildings/structures	50	$10,579.50	$912.50	$16,000.00	$27,492.00	7
923	FEM -- vehicles/equipment	117	$24,756.03	$2,135.25	$6,500.00	$33,391.28	0
926	FEM -- roads/bridges	100	$21,159.00	$1,825.00	$65,000.00	$87,984.00	26
928	FEM -- fences	40	$8,463.60	$730.00	$2,000.00	$11,193.60	35
All	totals	978	$206,935.02	$17,848.50	$177,947.00	$402,730.52	3054

13.14 Land Management Uniform Accounting Council Categories and FWC Operation Plan Fiscal Year 2013 - 2014

Land Management Uniform Accounting Council Categories and Subcategories

6. Resource Management

a. Exotic Species Control. -- Invasive exotic plant and animal removal activities and costs for inventorying, planning, preparing, executing, evaluating, monitoring and reporting. Also includes equipment, chemicals, protective clothing and supplies. Includes nuisance native feral animal and plant control.

b. Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.

c. Cultural Resource Management. -- Management activities and costs for assessing, planning, executing, evaluating and reporting, and for all maintenance, restoration or monitoring activities for prehistoric and historic sites, features and collection objects.

d. Timber Management. -- Activities and costs related to the establishment of a stand of potentially merchantable timber, harvest of merchantable timber, and cultural treatments intended primarily to improve the growth and overall health of a stand of merchantable timber. Also includes activities and costs related to the cutting of merchantable timber in natural community and habitat restoration projects.

e. Hydrological Management. -- Hydrological management and restoration activities and costs for assessing, monitoring, planning, preparing, executing, evaluating and reporting. Includes water level management, repair, removal or back-filling of ditches, canals, berms and dams. Also includes water quality and water quantity monitoring.

f. Other. -- All other resource management activities and costs not captured in other specific subcategories. Examples include natural community and habitat restoration through other techniques; plant, animal or biological community survey, monitoring and research; listed species management; technical assistance; and evaluating and commenting on resource impacts to parks.

7. Administration

a. Central Office/Headquarters. -- Headquarters units conducting general administration of land under management by the agency. Includes upper management direction, administration and fiscal, budget, personnel, purchasing and record keeping required for operations oversight and specific programs. Includes all duties unless they specifically relate to other categories or subcategories.

b. Districts/Regions. -- Sub-state administrative districts or regions conducting general administration of the properties under their management. Includes all duties, unless they specifically relate to other categories or subcategories. General operating costs of district or region administrative facilities are included.

c. Units/Projects. -- Conducting general administration duties at a specific management unit (state park, state forest, state wildlife management area, etc.). Includes supervisory duties, fiscal and record keeping duties, and any other duties that do not specifically relate to other categories or subcategories. General operating costs for the property, such as utilities, telephones and garbage collection, are included.

8. Support

a. Land Management Planning. -- Developing land management plans required by Sec. 253.034, F.S. Includes researching and compiling plan information, materials and maps, coordinating planning activities, conducting review activities (internal reviews, public meetings, advisory group meetings, ARC, etc.), and promulgating draft plans and final plans.

b. Land Management Reviews. -- Planning, organizing and conducting land management reviews by teams created under Sec. 259.036, F.S. Includes preparing and responding to land management review reports. Also includes similar work conducted as part of internal agency land management reviews.

c. Training/Staff Development. -- Staff training and development costs incurred in any facet of the agency's land management activities.

d. Vehicle Purchase. -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

e. Vehicle Operation and Maintenance. -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.

f. Other. -- Any other support activity or cost not captured by other categories or subcategories.

9. Capital Improvements

a. New Facility Construction. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all new facility design and construction activities. Includes new roads, parking and all other infrastructure.

b. Facility Maintenance. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all repairs or renovations to existing facilities, roads or other infrastructure. Also includes ADA accessibility improvements and renovations.

10. Visitor Services/Recreation

a. Information/Education Programs. -- Interpretive, environmental education and marketing programs that explain or promote the agency's mission or instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper use and care. Includes signs, brochures, maps and other public information materials that are produced or disseminated.

b. Operations. -- Includes the non-administrative and non-support costs involved in providing public access to lands. Includes all actions required to manage visitor activities in a way to ensure safe and enjoyable use by the public. Includes routine maintenance, cleaning and other work required to provide safe and efficient utilization of facilities and resources that support visitor use and recreation. Includes protection activities required by staff to safeguard natural and cultural resources, facilities, material, staff and visitors.

6. Law Enforcement

The provision of all activities for enforcing criminal, conservation and boating laws on land, freshwater and marine environments and all costs associated with these services. Includes the provision of uniform patrol. Includes overt and covert criminal investigations. Includes regulation of commercial wildlife trade. Also includes the direction and administration of all law enforcement programs and activities, and all associated costs.

Land Management Uniform Accounting Council Categories and FWC Activity Codes

Resource Management

Exotic Species Control
- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

Prescribed Burning
- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

Cultural Resource Management
- 201 Cultural resource management

Timber Management
- 202 Timber management

Hydrological Management

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

Other

185 GIS
186 Biometrics
200 RESOURCE MANAGEMENT
203 Tree and shrub planting
213 Wildlife management
214 Listed Species management
219 Upland restoration
282 Herbaceous seeding
283 Clearings
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
221 Animal surveys
228 Inland aerial surveys
235 Vegetation and plant surveys
250 MONITORING AND ASSESSMENTS
252 Biomedical monitoring
253 Ecological monitoring
256 Habitat monitoring analysis
263 Nest box monitoring
264 Population demographics
295 Biological data collection, analysis, and reporting
275 Permits and authorizations
276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
296 Habitat protection technical assistance
750 URTD assessment
789 Site Preparation – GCR
790 Irrigation – GCR
791 Seed Collection – Hand

792 Seed Collection – Mechanical
793 Herbicide Maintenance Treatment

Administration

Central Office/Headquarters

100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
104 Budget/purchasing/accounting

Support

Land Management Planning

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

Land Management Reviews

209 Land Management Reviews
101 Project inspection C field inspections of projects.

Training/Staff Development

150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.

Vehicle Purchase

128 New Vehicle and Equipment Purchase

Vehicle Operation and Maintenance

923 FEM C vehicles/equipment

Other

140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
141 Grant applications
180 SYSTEMS ADMINISTRATION AND MANAGEMENT
182 Data management
184 Metadata development and management
187 IT
188 Web development
721 Geospatial analysis techniques
191 Stamp design coordination
226 Human dimensions surveys

Capitol Improvements

New Facility Construction

910 New facility construction C buildings/structures
912 New construction C roads/bridges
913 New construction C trails
914 New construction C fences

Facility Maintenance

920 Facility and equipment maintenance (FEM) C buildings/structures
921 FEM C utilities
922 FEM C custodial functions
925 FEM C boating access
926 FEM C roads/bridges

927 FEM C trails
928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs
312 Informational signs
320 Outreach and education C attending or developing educational or informational materials or events for the public
327 Becoming an Outdoor Woman C enhancement
331 Wings Over Florida
339 Range safety operations
341 Public use administration (hunting)
342 Public use administration (non-hunting)
350 Customer service support C disseminating written or verbal information or assistance to the public
700 STUDIES
740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

FWC Activity Code Numeric Listing

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

202 Timber management
203 Tree and shrub planting
204 Resource planning
205 Prescribed burning
206 Prescribed burning C growing season (April 1 to September 30)
207 Prescribed burning C dormant season (October 1 to March 31)
208 Firebreaks
209 Land Management Reviews
210 Exotic species control
211 Exotic plant control (mechanical)
212 Exotic plant control (chemical)
213 Wildlife management
214 Listed Species management
215 Hydrology management
216 Dams, dikes, levees
217 Canals
218 Water level management
219 Upland restoration
221 Animal surveys
226 Human dimensions surveys
228 Inland aerial surveys
235 Vegetation and plant surveys
250 MONITORING AND ASSESSMENTS
252 Biomedical monitoring
253 Ecological monitoring
256 Habitat monitoring analysis
263 Nest box monitoring
264 Population demographics
275 Permits and authorizations
276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
282 Herbaceous seeding
283 Clearings
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
295 Biological data collection, analysis, and reporting
296 Habitat protection technical assistance

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

Chassahowitzka WMA Operational Plan Cost Estimate Fiscal Year 2013 - 2014

Activity	Title	Staff Days	Salary	FuelCost	Other	Total	Units
100	Administration	80	$16,927.20	$1,460.00	$14,600.00	$32,987.20	0
150	Personnel management	10	$2,115.90	$182.50	$0.00	$2,298.40	0
202	Timber management	0	$0.00	$0.00	$0.00	$0.00	0
203	Tree and shrub planting	15	$3,173.85	$273.75	$15,000.00	$18,447.60	80
204	Resource planning	75	$15,869.25	$1,368.75	$0.00	$17,238.00	0
205	Burning	0	$0.00	$0.00	$0.00	$0.00	0
206	Prescribed burning - growing season	120	$25,390.80	$2,190.00	$5,000.00	$32,580.80	1250
207	Prescribed burning - dormant season	120	$25,390.80	$2,190.00	$5,000.00	$32,580.80	1250
208	Firebreaks	70	$14,811.30	$1,277.50	$0.00	$16,088.80	50
210	Exotic species control	0	$0.00	$0.00	$0.00	$0.00	0
212	Exotic plant control (chemical)	30	$6,347.70	$547.50	$25,000.00	$31,895.20	200
219	Upland restoration	0	$0.00	$0.00	$0.00	$0.00	0
221	Animal surveys	0	$0.00	$0.00	$0.00	$0.00	0
235	Vegetation and plant surveys	0	$0.00	$0.00	$0.00	$0.00	0
250	Monitoring and assessments	30	$6,347.70	$547.50	$2,000.00	$8,895.20	1
289	Native vegetation management (mechanical)	50	$10,579.50	$912.50	$6,000.00	$17,492.00	150
290	Native vegetation management (chemical)	0	$0.00	$0.00	$0.00	$0.00	0
294	Program coordination and implementation	10	$2,115.90	$182.50	$0.00	$2,298.40	0
295	Biological data collection, analysis, and reporting	0	$0.00	$0.00	$0.00	$0.00	0

Chassahowitzka WMA Operational Plan Cost Estimate Fiscal Year 2013 - 2014

Activity	Title	Staff Days	Salary	FuelCost	Other	Total	Units
341	Public use administration (hunting)	46	$9,733.14	$839.50	$14,847.00	$25,419.64	5
342	Public use administration (non-hunting)	15	$3,173.85	$273.75	$1,000.00	$4,447.60	0
920	FEM -- buildings/structures	50	$10,579.50	$912.50	$16,000.00	$27,492.00	7
923	FEM -- vehicles/equipment	117	$24,756.03	$2,135.25	$6,500.00	$33,391.28	0
926	FEM -- roads/bridges	100	$21,159.00	$1,825.00	$65,000.00	$87,984.00	26
928	FEM -- fences	40	$8,463.60	$730.00	$2,000.00	$11,193.60	35
All	totals	978	$206,935.02	$17,848.50	$177,947.00	$402,730.52	3054

13.15 Arthropod Control Plan

CHARLES H. BRONSON
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Chapters 388.4111, F.S. and 5E-13.042(4)(b), F.A.C.
Telephone: (850) 922-7011

For use in documenting an Arthropod control plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein.

Name of Designated Land:
Chassahowitzka Wildlife Management Area

Is Control Work Necessary: ☒ Yes ☐ No

Location:
West of US 19, east of (US) Chassahowitzka National Wildlife Refuge, North of CR 550, South of Hernando-Citrus County Line.

Land Management Agency:
Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary? ☒ Yes ☐ No
If "Yes", please explain:
Before any treatment is done we need to define and verify the problem by using surveillance measures.

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

☒ Landing Rate Counts	☒ Light Traps	☒ Sentinel Chickens
☒ Citizen Complaints	☒ Larval Dips	☐ Other

If "Other", please explain:

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Arthropod Species for Which Control is Proposed:
Aedes vexans, Ae. infirmatus, Ae. atlantics, Anopheles crucians, An. quadrimaculatus.

Proposed Larval Control:

Proposed larval monitoring procedure: We go back to check larval density to evaluate the success of our treatment.

Are post treatment counts being obtained: ☒ Yes ☐ No

Biological Control of Larvae:

Might predacious fish be stocked: ☐ Yes ☒ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☒ Bti

☒ Bs

☒ Methoprene

☒ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name: Mosquito dunks, Altosid, Agnique oil,

☒ Ground ☐ Aerial

Rate of application: Label rates.

Method of application: Hand distribution, truck-ounted spraying.

Proposed Adult Mosquito Control:

Aerial adulticiding	☐ Yes	☒ No
Ground adulticiding	☒ Yes	☐ No

Please specify the following for each adulticide:

Chemical or common name: Kontrol 4-4

Rate of application: Label rates.

Method of application: Ground truck-mounted ULV spraying

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Adulticiding will only be used while the area is declaired by the State Health Department as Medical Emergency.

Proposed Notification Procedure for Control Activities:
Notify the land user by phone or fax at least 72 hrs in advance (Chassahowitzka WMA Field Office, 17260 Necklace Warbler Rd, Brooksville, FL 34614 352-592-5715); notify the public by advertising in newspapers and County news channel.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☒ Yes ☐ No

Records Location: Hernando County Mosquito Control Department, 1525 E.Jefferson St, Brooksville, FL 34601.

How long are records maintained:
Three years.

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?
None.

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:
No.

Include proposed operational schedules for water fluctuations:
N/A.

List any periodic restrictions, as applicable, for example peak fish spawning times.
N/A

Proposed Modification of Aquatic Vegetation:
None.

Land Manager Comments:
In 1987 Chassahowitzka WMA was designated as environmentally sensitive and biologically highly productive (ESBHP) land. As such, the use of organophosphates is prohibited. Any aerial adulticiding must be approved by FWC.

Arthropod Control Agency Comments:
We do not use any organophosphates. A copy of Florida Statute Ch. 388.4111 is attached. Our contact information is: Hernando County Mosquito Control, Dr. Guangye Hu, Manager 1525 E. Jefferson St., Brooksville, FL 34601 352-540-6549

Signature of Lands Manager or Representative — Date 10/11/10

Signature of Mosquito Control Director / Manager — Date 9/13/2010

13.16 Hernando County Letter of Compliance with Local Government Comprehensive Plan

Board of County Commissioners
Hernando County
PLANNING DEPARTMENT
Government Center / Administration Building
20 North Main Street, Room 262
Brooksville, Florida 34601-2828

Planning - (352) 754-4057
Fax - (352) 754-4420
E-Mail: planning@co.hernando.fl.us

February 19, 2015

David Alden
Florida Fish and Wildlife Conservation Commission
Bryant Building
620 South Meridian Street
Tallahassee, FL 32399-1600

RE: Chassahowitzka Wildlife and Environmental Area Management Plan:
Compliance with Local Comprehensive Plan

Dear Mr. Alden:

Thank you for your email of February 17, 2015 transmitting the link to the referenced draft management plan. We have reviewed the plan and find it consistent with the Hernando County Comprehensive Plan, particularly with respect to future land use and the general nature of planned management activities. Please continue to coordinate with us on previously unanticipated activities that may be contemplated in the future, such as camping (Item 5.5.1.1), to ensure consistency with our land development regulations. We are pleased to know you are completing this important step towards long-term management of this area. Should you have any questions or need additional information or assistance, please do not hesitate to contact me at 352-754-4057, ext. 28016, or, pmcneese@hernandocounty.us, Thank you!

Sincerely,

Patricia L. McNeese

Patricia L. McNeese, AICP
Planner II

cc: Paul Wieczorek, Senior Planner
Dawn Velsor, Lead Environmental Planner
Jim King, Conservation Lands Specialist
Mary Elwin, Planning & Development Operations Assistant

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