

13.3 Public Input

13.3.1 Management Advisory Group Meeting Results

**J.W. Corbett Wildlife Management Area (JWCWMA)
Management Advisory Group (MAG)
Consensus Meeting Results**

September 18, 2013 in Juno Beach, Florida

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

The MAG consensus meeting was held on the morning of *September 18, 2013* at John B. MacArthur State Park, in Juno, Florida in Palm Beach County. The ideas found below were provided by stakeholders for consideration in the 2014 - 2024 Management Plan (MP) with priority determined by vote. These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by FWC, the Acquisition and Restoration Council (ARC), and the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

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

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

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
1.	[11]	[30]	10. Continue to initiate prescribed fire every three years to maintain fire dependent ecological environment. Maintain pyrogenic natural communities with prescribed fire. Benefits wildlife.
2.	[9]	[15]	11. Continue to protect, manage, and maintain biodiversity and ecosystem-based management. Maintain the native character of the area. Numerous ways to maintain biodiversity (e.g., manage exotics, utilize prescribed fire). Maximize staff time to accomplish. Keep exotics out, keep looking like Florida.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
3.	[9]	[21]	12. Increase funding and presence and dedicate Law Enforcement positions specifically for JWCWMA. Other areas seem to get priority for law enforcement officers, which takes away from enforcement on the JWCWMA. Additional funding for staff is necessary.
4.	[8]	[22]	5. Eliminate/removal of exotic and invasive species. Control and removal of exotic plants.
5.	[8]	[26]	29. Eliminate illegal alcohol/party use and other inappropriate uses including illegal off-trail and off-road vehicle use. Adverse impacts from illegal uses (e.g., off-road use, partying) is a huge issue that needs to be addressed. Off-road vehicle use is destroying native ecosystems and is currently the number one violation in the WMA.
6.	[8]	[27]	18. Enhance the Everglades Youth Conservation Center infrastructure, landscape, operations, education to become a premier residential conservation facility for Florida citizens and beyond. 5,000-10,000 individuals, 30-50 groups, use the facilities every year. Would be great to be premiere site for environmental education; emphasize conservation education. Facility is 50 years old. Need security in and around educational camp.
7.	[6]	[20]	32. Preserve and conserve cultural and historical sites and conserve and interpret Big Mound City and Big Gopher cultural sites. Big Mound City most important historical resource in the County. No interpretation and little is known.
8.	[5]	[16]	59. Increase and incentivize retention of quality staff. Includes land management and law enforcement staff.
9.	[4]	[8]	13. Restore natural hydroperiod length in general. Self explanatory.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
10.	[4]	[9]	6. Become fully integrated with the Ocean to Lake Greenway including ecological landscape activity. JWCWMA is part of designated Ocean to Lake Greenway, access into JWCWMA through Dupuis and through Hungryland Slough Natural Area is not possible for users other than those on foot. Integrate into the greenway in order to improve access. Do not exclude other recreational users (i.e., horses).
11.	[3]	[7]	17. Avoid and minimize adverse water quality impacts on wildlife. With regard to flood protection, drainage, there's a proposed levee system. Should levee be on JWCWMA? Why don't we look at alternatives. If water quality is poor, biodiversity is threatened. If water is going to go on JWCWMA in the future, water quality should be monitored.
12.	[3]	[9]	35. Continue to manage for imperiled and endangered species. Managing for keystone species will benefit other species (e.g., red-cockaded woodpeckers).

Three items of equal rank:

13.	[3]	[10]	1. Continue to provide recreational use for all user groups. High recreational use at JWCWMA; encompass all uses, not just hiking, birding, but hunting and others as well.
13.	[3]	[10]	9. Ensure appropriate hydroperiods in wet flatwoods. Wet flatwoods have very specific/defined hydroperiods. If water levels are appropriate here, will be in other natural communities.
13.	[3]	[10]	27. Maintain roads and firelines in good condition. Self explanatory.
16.	[3]	[13]	41. Remove and eliminate iron ranger and require management stamp for access. Being abused. Would like visitors to get a Wildlife Management Area stamp.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
17.	[3]	[14]	46. Work with intra-agency groups to achieve and coordinate management objectives including connecting with Hungryland Slough. Contiguous systems, although do have large canal separating properties that restricts access. Coordinate on exotic removal, hydrology, prescribed fire, etc.
18.	[2]	[6]	36. Facilitate ecological research and monitoring, catalog all known species on the area. Monitor management activities (e.g., burning frequency) to see how well we're doing.
19.	[2]	[7]	43. Conduct a cultural resources survey for the entire area. Self explanatory.
20.	[2]	[9]	42. Repair, maintain, and upkeep equipment. Self explanatory.

Three items of equal rank:

21.	[1]	[3]	8. Maintain off road access and gladesman culture. Keep in the management plan. Maintain off road use during hunting season; maintain gladesman culture.
21.	[1]	[3]	15. Address significant drainage concerns/communities surrounding JWCWMA. Recent phenomenon that's been observed that needs to be addressed.
21.	[1]	[3]	53. Develop multi-agency collaboration on improvement/maintenance on Seminole Pratt Whitney Road. Self explanatory.
24.	[1]	[4]	38. Improve public perception of JWCWMA. Local culture to believe that JWCWMA can be abused. Keeps people away. To get people to support FWC, culture needs to change.

Two items of equal rank:

25.	[1]	[5]	49. Encourage/improve Law Enforcement and staff to work with stakeholders. Self explanatory.
-----	-----	-----	---

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
25.	[1]	[5]	50. Provide quality hunting experience. 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.

[]	[]	4.	Continue to work with Friends of Corbett to support the area. Friends of Corbett are available and do what they can to assist. Valuable resource.
[]	[]	7.	Construct crossing at Pratt Canal for management and access purposes. Pratt Canal runs on the eastern border of JWCWMA, strip in between canal and boundary of the Palm Beach County Hungryland Slough Natural Area. This strip has many exotics. Construct an urban crossing with culverts. Would improve access for management and trail crossing.
[]	[]	14.	Continue mowing and maintaining food plots. Maintain mowing and food plots- has made a big difference. Continue cost share program with the National Wild Turkey Federation.
[]	[]	16.	Shorten fire return intervals where appropriate to 2-3 years. Can benefit ground nesting birds. Keep emphasis on burn interval.
[]	[]	19.	Maintain and protect existing buffer zone.
[]	[]	25.	Initiate and sponsor youth events. Self explanatory.
[]	[]	26.	Reconnect hydrologic connection between JWCWMA and Hungryland Slough. Ways to slowly divert and distribute water.
[]	[]	33.	Maintain waste management and control illegal dumping, continue to maintain/supply dumpsters at north and south entrances. Self explanatory.
[]	[]	37.	Clean the canals. Self explanatory.

<u>Rank</u>	<u># of Votes</u>	<u>Score</u>	<u>Idea</u>
	[]	[]	39. Clean and maintain ponds around camps. Self explanatory.
	[]	[]	47. Manage water levels to benefit JWCWMA. Self explanatory.
	[]	[]	48. Improve and maintain camping facilities and designated trails. Funding and staffing issue but it is important. Areas and parking are not always accessible (e.g., horse trailers).
	[]	[]	54. Work in coordination/cooperation with the Everglades Youth Conservation Center. Self explanatory.
	[]	[]	55. Improve paddling opportunities. Self explanatory.
	[]	[]	58. Maintain Dark Sky principles for building, construction, and lighting.

**J.W. Corbett Wildlife Management Area
MAG Meeting Participants**

<u>Name</u>	<u>Affiliation</u>
Active Participants	
Gene Colwell	FWC Area Biologist
Lt Richard Orndorf	FWC Law Enforcement
Jim Schuette	South Florida Water Management District
Linda Stanley	Friends of Corbett
Barry Smith	Environmental Resources Management
Bryan Davis	County Planning Department
John Marshall	Florida Forest Service
Kelly Egan	Florida Department of Environmental Protection
Rosa Reyes	NRCS
Lynn Sweetay	Florida Native Plant Society
Jim Compton	Landowner
Rickey Lackey	National Wild Turkey Confederation
Susan Kennedy	NETA Florida Greenways and Trails Council
Tom McWatters	Florida Sportsman Conservation Association
Maura Heffernan	Pratt and Whitney
Paul Gray	Audubon
Mary Ann Westwood	Palm Beach County Airboat & Halftrack Conservation Club, Inc.
Chris Hill	Florida Atlantic University
Lori Haynes	Florida Youth Conservation Centers Network
Nick Larsen	Palm Beach Soil & Water Conservation District
Supportive Participants	
Lindsay Nester	FWC Habitat and Species Conservation (HSC), Regional Biologist
David Sweetay	FWC HSC, District Biologist
Tim Towles	FWC HSC, Landowner Assistance Program
Rich Noyes	FWC Office of Public Access and Wildlife Viewing Services (OPAWVS)
Tom M. Matthews	FWC OPAWVS
Jeff Haynes	FWC Law Enforcement
John C. Suggs	FWC Law Enforcement
Indar Jagnarine	Florida Department of Environmental Protection
Carlos Valle	Pratt & Whitney
Jackie Smith	FWC Invasive Plant Management
Todd Hallman	Florida Youth Conservation Centers Network
Invited but Unable to Attend	
Mike Wisenbaker	Division of Historical Resources
Eric Mason	Florida Trail Association
Dan Hipes	Florida Natural Areas Inventory
Barbara Jean Powell	Everglades Coordinating Council
Jeffrey Stephens	Running Stakeholder
Stephen Hinkle	Northeastern Everglades Trail Association

Chris Davenport

Palm Beach County Historic Preservation Office

FWC Planning Personnel

Gary Cochran

Land Conservation and Planning Administrator,
Facilitator

Larame Ferry

Recorder

Julie Kilgore

Recorder

Peter van de Burgt

Recorder

13.3.2 Public Hearing Notice and Advertisements

NOTICE

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

PUBLIC HEARING

for the

J.W. Corbett

Wildlife Management Area

Management Plan

Palm Beach County, Florida

7:00 P.M. Wednesday October 30th, 2013

Palm Beach County Vista Center

2300 N Jog Rd

West Palm Beach, FL 33411

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the J.W. Corbett Wildlife Management Area (JWCWMA). This hearing is being held **EXCLUSIVELY** for discussion of the **DRAFT J.W. Corbett 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 J.W. Corbett WMA is available upon request. For a copy, please contact Julie Kilgore, Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-7063.

This event is not sponsored by or affiliated with Palm Beach County

NOTICE:

The Florida Fish and Wildlife Conservation Commission (FWC) announce a PUBLIC HEARING for the FWC Lead Managed Portions of J.W. Corbett Wildlife Management Area located in Palm Beach County, Florida.

7:00 P.M. Thursday, October 30th, 2013
Palm Beach County Vista Center
2300 N. Jog Rd
West Palm Beach, FL 33411

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of J.W. Corbett Wildlife Management Area (JWCWMA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT J.W. Corbett 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 J.W. Corbett 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) 487-7063 or by e-mail at Julie.Kilgore@myfwc.com

This event is not sponsored by or affiliated with Palm Beach County

13.3.3 Management Prospectus

Management Prospectus
J.W. CORBETT WILDLIFE MANAGEMENT AREA
October 2013
Florida Fish and Wildlife Conservation Commission



Introduction

Spanning over 60,000 acres nestled near the highly populated Gold Coast of southeast Florida, the J.W. Corbett Wildlife Management Area (JWCWMA), provides crucial habitat for a large assemblage of imperiled, rare and more common wildlife species including snail kites, Florida sandhill cranes, southeastern kestrels, Audubon's caracaras, red-cockaded woodpeckers, deer, and turkey, to name a few species. Serving as a transitional zone for the uplands of Central Florida and the relatively flat Everglades, the lands of the JWCWMA offer one of the only public hunting areas in the vicinity along with stellar wildlife viewing opportunities along such popular trails as the Hungryland Boardwalk and Trail.

Additionally, the JWCWMA features two significant archeological sites (i.e., Big Mound City, Big Gopher). Providing an important hub within a network of conservation lands, the JWCWMA serves as an integral part of larger system of parks, greenways, and wildlife management areas within this region of Florida that provide important water quality protection, conserve vital wildlife habitat, and enhance the quality of life in the region and State.

One of the oldest wildlife management areas in the State, the JWCWMA is managed by the Florida Fish and Wildlife Conservation Commission (FWC) for the purpose of operating a wildlife management area, providing ecological diversity, providing managed habitat for both imperiled and common wildlife, and for providing the public with fish and wildlife-oriented outdoor recreational opportunities. Hunting, fishing, wildlife viewing, camping, horseback-riding, scenic driving, bicycling, and hiking are included among the outstanding recreational opportunities offered on the JWCWMA.

The JWCWMA is located in north central Palm Beach County approximately five miles south (using straight-line distance) of Indiantown (Figure 1) and nearby the cities of Jupiter, Canal Point, and West Palm Beach lying directly east of Lake Okeechobee and west of West Palm Beach. Encompassing 60,348 acres that span approximately 13 miles from north to south and 12 miles from west to east, all the lands comprising the JWCWMA can be found in one contiguous zone as illustrated by the red border in Figure 2. Bee Line Highway borders the northeastern edge of the JWCWMA. The northern border of the JWCWMA lies along the northern border of the Palm Beach County in Townships 40 and 42S, Ranges 39 and 40E. The following section details the public property and conservation lands that are located nearby the JWCWMA.

Adjacent Public and Private Conservation Lands and Florida Forever Projects

As noted above, the JWCWMA is located in the vicinity of an extensive network of conservation lands, including lands managed by the South Florida Water Management District [SFWMD (e.g., Dupuis Reserve, River of Grass, C-51/L-8 Reservoir)]; lands managed by the United States Fish and Wildlife Service (USFWS) within the Loxahatchee National Wildlife Refuge (NWR); and (lands managed by Palm Beach County (e.g., J.W. Corbett to Loxahatchee NWR Connector, Royal Palm Beach Pines Natural Area, Acreage Pines Natural Area, Loxahatchee Slough Natural Area, Sweetbay Natural Area, Pines Glades Natural Area). FWC also manages the nearby John C. and Mariana Jones/Hungryland Wildlife and Environmental Area. Private land owners manage the nearby R.G. Reserve Mitigation Bank. Also, the Florida Department of Environmental Protection (DEP); USFWS, Department of Interior (DOI); Martin County; local municipalities; and private as well as public conservation organizations manage lands within the extensive network of conservation lands within the vicinity of the JWCWMA. Additionally, there are two Florida Forever projects located adjacent to the JWCWMA (Table 1, Figure 3).

Table 2 lists the conservation lands within a 15-mile radius of the JWCWMA, including lands managed by public and private entities, that conserve cultural and natural resources within this region of Florida. Most of the conservation lands are owned in full-fee by a public entity. However, some of these areas fall within a less-than-fee ownership classification where the land is owned and being managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement on the land.

Table 1. Florida Forever Projects in the Vicinity (within 15 miles)

Project Name	GIS Acres
Pal-Mar Florida Forever BOT Project	36,229
Atlantic Ridge Ecosystem Florida Forever BOT Project	14,403

Table 2. Conservation Lands in the Vicinity (within 15 miles)

Federal Government	Managing Agency
Arthur R. Marshall Loxahatchee NWR	DOI, FWS
Hobe Sound NWR	DOI, FWS
Jupiter Inlet Lighthouse Outstanding Natural Area	DOI, Bureau of Land Management
Loxahatchee Slough Research Natural Area	DOI, FWS
State of Florida	Managing Agency
Atlantic Ridge Preserve State Park	DEP, Div. of Recreation and Parks
John C. and Mariana Jones/Hungryland WEA	FWC
John D. MacArthur Beach State Park	DEP, Div. of Recreation and Parks
Jonathan Dickinson State Park	DEP, Div. of Recreation and Parks

Table 2. Conservation Lands in the Vicinity (within 15 miles)

Pine Jog Environmental Education Center	Florida Atlantic University
Water Management District	Managing Agency
Allapattah Flats	SFWMD
Atlantic Ridge Ecosystem	SFWMD
C-44 Stormwater Treatment Area	SFWMD
C-51 and L-8 Reservoir	SFWMD
Cypress Creek/Loxahatchee	SFWMD
Dupuis Reserve	SFWMD
Gentle Ben Flowage Easement	SFWMD
Herbert Hoover Dike	SFWMD
Hungryland/SFWMD Parcels	SFWMD
Lake Okeechobee Watershed Water Quality Treatment Facilities	SFWMD
Lakeside Ranch Storm Treatment Area	SFWMD
River of Grass	SFWMD
Stormwater Treatment Areas	SFWMD
Strazzulla Tract	SFWMD
Martin County	Managing Agency
Atlantic Ridge Parcels	Martin County
Banner Lake Park Conservation Area	Martin County
C-44 Park Parcel	Martin County
County Line Scrub Conservation Area	Martin County
Delaplane Peninsula Blueway Preserve	Martin County
Halpatiokee Regional Park Conservation Area	Martin County
Hawks Hammock	Martin County
Kitching Creek	Martin County
Lake Okeechobee Ridge	Martin County
Loxahatchee River Park	Martin County
Orchid Island	Martin County
Oxbow	Martin County
Phipp's Park Conservation Area	Martin County
South Fork Addition	Martin County
Timer Powers Park Conservation Area	Martin County
Palm Beach County	Managing Agency
Acreage Pines Natural Area	Palm Beach County
C-18 Triangle Natural Area	Palm Beach County
Carlin Park	Palm Beach County
Coral Cove Park	Palm Beach County
Cypress Creek Natural Area	Palm Beach County
Delaware Scrub Natural Area	Palm Beach County
DuBois Park	Palm Beach County

Table 2. Conservation Lands in the Vicinity (within 15 miles)

Frenchman's Forest	Palm Beach County
Hungryland Slough Natural Area	Palm Beach County
J. W. Corbett to Loxahatchee NWR Connector	Palm Beach County
Jackson Riverfront Pines Natural Area	Palm Beach County
Juno Dunes Natural Area	Palm Beach County
Juno Park	Palm Beach County
Jupiter Beach Park	Palm Beach County
Jupiter Mangroves Natural Area	Palm Beach County
Jupiter Ridge Natural Area	Palm Beach County
Lake Okeechobee Connector	Palm Beach County
Lake Park Scrub Natural Area	Palm Beach County
Limestone Creek Natural Area	Palm Beach County
Loggerhead Park	Palm Beach County
Loxahatchee Slough Natural Area	Palm Beach County
North Jupiter Flatwoods Natural Area	Palm Beach County
Okeehoelee Park North	Palm Beach County
Okeehoelee Park South	Palm Beach County
Paw-Paw Preserve	Palm Beach County
Pine Glades Natural Area	Palm Beach County
Pond Cypress Natural Area	Palm Beach County
Radnor	Palm Beach County
Riverbend Park	Palm Beach County
Royal Palm Beach Pines Natural Area	Palm Beach County
Sweetbay Natural Area	Palm Beach County
Winding Waters Natural Area	Palm Beach County
City	Managing Agency
Grassy Waters Preserve	City of West Palm Beach
Pahokee Marina and Campground	City of Pahokee
Wellington Environmental Preserve	Village of Wellington
Private/Public Conservation Organization	Managing Agency
Barley Barber Swamp	Florida Power & Light Company
Blowing Rocks Preserve	The Nature Conservancy
Citrus Boulevard Nature Sanctuary	Audubon of Martin County, Inc.
Four Rivers Nature Sanctuary	Audubon of Martin County, Inc.
R. G. Reserve Mitigation Bank	R. G. Reserve, LLC
South Fork Nature Sanctuary	Audubon of Martin County, Inc.

Acronym Key	Agency Name
DEP	Florida Department of Environmental Protection
DOI	Department of Interior
FWC	Florida Fish and Wildlife Conservation Commission
FWS	U.S. Fish and Wildlife Service
NWR	National Wildlife Refuge
SPWMD	South Florida Water Management District
WEA	Wildlife and Environmental Area

Acquisition History and the Purpose for Acquisition

In 1947, FWC purchased approximately 52,000 acres from the Southern States Land and Timber Company LLC and designated it the JWCWMA. In 1956, 6,000 acres of land in the northern portion JWCWMA was exchanged with the Pratt and Whitney Aircraft Division of United Aircraft Corporation for a contiguous 9,000 acre strip along the southern boundary. Since 1958, the JWCWMA has been consolidated through long-term leases on approximately 1,200 interior acres from the Florida Board of Education and the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Board of Trustees). In addition, several small inholding parcels have been purchased from private landowners. Presently, private landowners own several inholdings in the Big Mound portion of the JWCWMA. In 1993, 2,331 acres adjacent to the southern boundary were purchased through the CARL Program and leased to FWC by the Board of Trustees. In 2012, Palm Beach County donated 60 acres to FWC and the SPWMD added another 130 acres to allow access to the L-8 levee that was previously adjacent to the JWCWMA. The JWCWMA presently comprises approximately 60,478 acres as detailed below.

FWC Acquisitions:	56,440 Acres
Donated Lands:	60 Acres
Other State of Florida Acquisitions:	
Lease Number 2606:	168 Acres
Amendment 1:	171 Acres
Amendment 2:	2,331 Acres
Amendment 3:	1,118 Acres
Amendment 4:	60 Acres
Contract Number 09126:	130 Acres

The vast majority of the land within the JWCWMA was acquired by FWC for wildlife conservation, restoration and management, and public wildlife recreational opportunities that include hunting using funds from the Federal Aid and Wildlife Restoration Act (Pittman-Robertson Act). Subsequently, additional acquisitions were made under the State of Florida's Preservation 2000 Land Acquisition Program (P-2000) and Conservation and

Recreation Lands Acquisition (CARL) program. FWC will continue to manage JWCWMA for the original purposes for acquisition and to conserve and restore natural wildlife habitat for an array of imperiled and other native wildlife, and to provide opportunities for fish and wildlife-based public outreach recreation.

Natural Resources

Through the services of the Florida Natural Areas Inventory (FNAI), FWC has mapped the natural and anthropogenic communities of JWCWMA, which describes ten natural and anthropogenic community types existing on JWCWMA (Table 3, Figure 4). FWC biologists, along with contracted surveys through FNAI, have documented the native plants species (Table 4) known or expected to occur on the JWCWMA, as well as a variety of imperiled and rare plant species (Table 5) occurring on the the area.

Table 3. Natural Community Types on the JWCWMA

Community Type	Acres*	Percentage
Basin marsh	1,395	2.29%
Depression marsh	13,752	22.56%
Dome swamp	2,189	3.59%
Hydric hammock	65	0.11%
Mesic flatwoods	16,867	27.68%
Mesic hammock	319	0.52%
Ruderal, agriculture	1,361	2.23%
Ruderal, canal/ditch	400	0.66%
Ruderal, clearing/regeneration	694	1.14%
Ruderal, developed	71	0.12%
Ruderal, road	28	0.05%
Ruderal, utility corridor	1,177	1.93%
Strand swamp	11,772	19.32%
Wet flatwoods	9,253	15.18%
Wet prairie	1,603	2.63%

*Approximate acreage for natural community type is calculated through GIS and may differ from the total acreage listed in the Establishment Order or other documents.

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Alabama supplejack	<i>Berchemia scandens</i>
Alabama swamp flatsedge	<i>Cyperus ligularis</i>
Alligator lily	<i>Hymenocallis palmeri</i>
American beautyberry	<i>Callicarpa americana</i>
American black nightshade	<i>Solanum americanum</i>
American bluehearts	<i>Buchnera americana</i>
American cupscale	<i>Sacciolepis striata</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
American pokeweed	<i>Phytolacca americana</i>
American white waterlily	<i>Nymphaea odorata</i>
Annual salt marsh aster	<i>Aster subulatus</i>
Arrowfeather threeawn	<i>Aristida purpurascens</i>
Artillery plant	<i>Pilea microphylla</i>
Axillflower	<i>Mecardonia acuminata</i> subsp. <i>peninsularis</i>
Bald cypress	<i>Taxodium distichum</i>
Baldwin's eryngo	<i>Eryngium baldwinii</i>
Baldwin's flatsedge	<i>Cyperus croseus</i>
Baldwin's milkwort	<i>Polygala baldwinii</i>
Baldwin's nutrush	<i>Scleria baldwinii</i>
Ballmoss	<i>Tillandsia recurvata</i>
Bandana-of-the-Everglades	<i>Canna flaccida</i>
Bartram's rosegentian	<i>Sabatia bartramii</i>
Beach false foxglove	<i>Algalinis fasciculata</i>
Beggar's-ticks	<i>Desmodium incanum</i>
Big carpet grass	<i>Axonopus furcatus</i>
Big floatingheart	<i>Nymphoides aquatica</i>
Bighead rush	<i>Juncus megacephalus</i>
Black bogrush	<i>Schoenus nigricans</i>
Blackeyed Susan	<i>Rudbeckia hirta</i>
Blackroot	<i>Pterocaulon pycnostachyum</i>
Blue maidencane	<i>Amphicarpum muhlenbergianum</i>
Blue mistflower	<i>Conoclinium coelestinum</i>
Blue water-hyssop	<i>Bacopa caroliniana</i>
Bluejoint panicum	<i>Panicum tenerum</i>
Bog smartweed	<i>Polygonum setaceum</i>
Bog white violet	<i>Viola lanceolata</i>
Bottlebrush threeawn	<i>Aristida spiciformis</i>
Brace's aster	<i>Aster bracei</i>
Brazilian satintail	<i>Imperata brasiliensis</i>
Broadleaf arrowhead	<i>Sagittaria latifolia</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Browne's blechum	<i>Blechum pyramidatum</i>
Bulltongue arrowhead	<i>Sagittaria lancifolia</i>
Bushy bluestem	<i>Andropogon glomeratus</i> var. <i>hirsutior</i>
Button rattlesnake-master	<i>Eryngium yuccifolium</i>
Cabbage palm	<i>Sabal palmetto</i>
Calusa grape	<i>Vitis shuttleworthii</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Camphorweed	<i>Heterotheca subaxillaris</i>
Canada spikerush	<i>Eleocharis geniculata</i>
Canada toadflax	<i>Linaria canadensis</i>
Carolina cranesbill	<i>Geranium carolinianum</i>
Carolina mosquito fern	<i>Azolla caroliniana</i>
Carolina redroot	<i>Lachnanthes caroliniana</i>
Carolina wild petunia	<i>Ruellia caroliniensis</i>
Carolina yelloweyed grass	<i>Xyris caroliniana</i>
Chaffhead	<i>Carphephorus corymbosus</i>
Chalky bluestem	<i>Andropogon virginicus var. glaucus</i>
Chamber bitter	<i>Phyllanthus urinaria</i>
Chapman's beaksedge	<i>Rhynchospora chapmanii</i>
Chapman's goldenrod	<i>Solidago odora var. chapmanii</i>
Chestnutleaf falsecrotton	<i>Caperonia castaneifolia</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Climbing aster	<i>Aster carolinianus</i>
Climbing hempvine	<i>Mikania scandens</i>
Clustered bushmint	<i>Hyptis alata</i>
Clustered mille graine	<i>Hedyotis uniflora</i>
Coast cockspur	<i>Echinochloa walteri</i>
Coastal sandbur	<i>Cenchrus insertus</i>
Coastalplain milkwort	<i>Polygala setacea</i>
Coastalplain St. John's-wort	<i>Hypericum brachyphyllum</i>
Coastalplain staggerbush	<i>Lyonia fruticosa</i>
Coastalplain willow	<i>Salix caroliniana</i>
Coastalplain yelloweyed grass	<i>Xyris ambigua</i>
Coco-plum	<i>Chrysobalanus icaco</i>
Combleaf mermaidweed	<i>Proserpinaca pectinata</i>
Common bushy bluestem	<i>Andropogon glomeratus var. pumilus</i>
Common buttonbush	<i>Cephalanthus occidentalis</i>
Common carpetgrass	<i>Axonopus fissifolius</i>
Common dayflower	<i>Commelina diffusa</i>
Common persimmon	<i>Diospyros virginiana</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Common reed	<i>Phragmites australis</i>
Common wireweed	<i>Sida acuta</i>
Common yellow woodsorrel	<i>Oxalis corniculata</i>
Corkystem passionflower	<i>Passiflora suberosa</i>
Creeping primrosewillow	<i>Ludwigia repens</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Cuban jute	<i>Sida rhombifolia</i>
Curtiss' nutrush	<i>Scleria ciliata</i> var. <i>curtissii</i>
Cypress panicgrass	<i>Dichantherium dichotomum</i> var. <i>ensifolium</i>
Dahoon	<i>Ilex cassine</i>
Dense gayfeather	<i>Liatris spicata</i>
Denseflower knotweed	<i>Polygonum densiflorum</i>
Devil's gut	<i>Cassytha filiformis</i>
Ditch fimbry	<i>Fimbristylis schoenoides</i>
Dixie iris	<i>Iris hexagona</i>
Dog fennel	<i>Eupatorium capillifolium</i>
Dog's-tongue	<i>Pseudelephantopus spicatus</i>
Drumheads	<i>Polygala cruciata</i>
Dwarf Canadian horseweed	<i>Conyza canadensis</i> var. <i>pusilla</i>
Dwarf St. John's-wort	<i>Hypericum mutilum</i>
Earleaf greenbrier	<i>Smilax auriculata</i>
Early paspalum	<i>Paspalum praecox</i>
Early whitetop fleabane	<i>Erigeron vernus</i>
Eastern gamagrass	<i>Tripsacum dactyloides</i>
Eastern poison-ivy	<i>Toxicodendron radicans</i>
Eastern purple bladderwort	<i>Utricularia purpurea</i>
Elderberry	<i>Sambucus canadensis</i>
Elliott's aster	<i>Aster elliotii</i>
Elliott's bluestem	<i>Andropogon gyrans</i>
Elliott's lovegrass	<i>Eragrostis elliotii</i>
Elliott's milk pea	<i>Galactia elliotii</i>
Elliott's yelloweyed grass	<i>Xyris elliotii</i>
Erect leaf witch grass	<i>Dichantherium erectifolium</i>
Everglades morning-glory	<i>Ipomoea sagittata</i>
False daisy	<i>Eclipta prostrata</i>
False mastic	<i>Sideroxylon foetidissimum</i>
False nettle	<i>Boehmeria cylindrica</i>
False fennel	<i>Eupatorium leptophyllum</i>
Farkleberry	<i>Vaccinium arboreum</i>
Fetterbush	<i>Lyonia lucida</i>
Fewflower milkweed	<i>Asclepias lanceolata</i>
Fireflag	<i>Thalia geniculata</i>
Fire-on-the-Mountain	<i>Poinsettia cyathophora</i>
Fireweed	<i>Erechtites hieracifolius</i>
Flattened pipewort	<i>Eriocaulon compressum</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Flaxleaf false foxglove	<i>Algalinis linifolia</i>
Floating-heart	<i>Nymphoides cordata</i>
Florida butterfly orchid	<i>Encyelia tampensis</i>
Florida hammock sedge	<i>Carex vexans</i>
Florida ironweed	<i>Vernonia blodgettii</i>
Florida pellitory	<i>Parietaria floridana</i>
Florida threeawn	<i>Aristida rhizomophora</i>
Florida tickseed	<i>Coreopsis floridana</i>
Forked fimbry	<i>Fimbristylis dichotoma</i>
Fourleaf vetch	<i>Vicia acutifolia</i>
Fourpetal St. John's-wort	<i>Hypericum tetrapetalum</i>
Fragrant beaksedge	<i>Rhynchospora odorata</i>
Fragrant ladies tresses	<i>Spiranthes odorata</i>
Fringed nutrush	<i>Scleria ciliata</i>
Fringed yellow stargrass	<i>Hypoxis juncea</i>
Gallberry	<i>Ilex glabra</i>
Gaping panicum	<i>Panicum hians</i>
Giant cut-grass	<i>Zizaniopsis miliacea</i>
Giant leather fern	<i>Acrostichum danæifolium</i>
Giant whitetop	<i>Rhynchospora latifolia</i>
Glabrescent roughhair witchgrass	<i>Dichanthelium strigosum var. glabrescens</i>
Glade lobelia	<i>Lobelia glandulosa</i>
Glassleaf rush	<i>Juncus marginatus</i>
Golden polypody	<i>Phlebodium aureum</i>
Gophertail love grass	<i>Eragrostis ciliaris</i>
Grassleaf lettuce	<i>Lactuca graminifolia</i>
Green arrow arum	<i>Peltandra virginica</i>
Greenvein ladies tresses	<i>Spiranthes praecox</i>
Groundnut	<i>Apios americana</i>
Groundsel bush	<i>Baccharis halimifolia</i>
Guinea hen weed	<i>Petiveria alliacea</i>
Gulf coast spikerush	<i>Eleocharis cellulosa</i>
Gulf graytwig	<i>Schoepfia chrysophylloides</i>
Gulfdune paspalum	<i>Paspalum monostachyum</i>
Hackberry	<i>Celtis laevigata</i>
Hairy partridge-pea	<i>Chamaecrista nictitans var. aspera</i>
Hairy pod cowpea	<i>Vigna luteola</i>
Harper's beaksedge	<i>Rhynchospora harperi</i>
Haspan flatsedge	<i>Cyperus haspan</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Hedge false bindweed	<i>Calystegia sepium subsp. limnophila</i>
Hemlock witchgrass	<i>Dichantherium portoricense</i>
Herb-of-Grace	<i>Bacopa monnieri</i>
Hilograss	<i>Paspalum conjugatum</i>
Horned bladderwort	<i>Utricularia cornuta</i>
Hottentot fern	<i>Thelypteris interrupta</i>
Hurricane-grass	<i>Fimbristylis cymosa</i>
Husk tomato	<i>Physalis pubescens</i>
Innocence	<i>Hedyotis procumbens</i>
Jack-in-the-bush	<i>Chromolaena odorata</i>
Juba's bush	<i>Iresine diffusa</i>
Juniperleaf	<i>Polypremum procumbens</i>
Lacy bracken fern	<i>Pteridium aquilinum var. caudatum</i>
Lancewood	<i>Ocotea coriacea</i>
Largeflower rosegentian	<i>Sabatia grandiflora</i>
Lateflowering thoroughwort	<i>Eupatorium serotinum</i>
Laurel greenbrier	<i>Smilax laurifolia</i>
Laurel oak	<i>Quercus laurifolia</i>
Lax hornpod	<i>Mitreola petiolata</i>
Leafy bladderwort	<i>Utricularia foliosa</i>
Leatherleaf airplant	<i>Tillandsia variabilis</i>
Leavenworth's tickseed	<i>Coreopsis leavenworthii</i>
Licorice weed	<i>Scoparia dulcis</i>
Lilac tassleflower	<i>Emilia sonchifolia</i>
Limestone sandmat	<i>Chamaesyce blodgettii</i>
Little floating bladderwort	<i>Utricularia radiata</i>
Live oak	<i>Quercus virginiana</i>
Lizard's tail	<i>Saururus cernuus</i>
Long strap fern	<i>Campyloneurum phyllitidis</i>
Longleaf threeawn	<i>Aristida palustris</i>
Lopsided Indiangrass	<i>Sorghastrum secundum</i>
Low flatsedge	<i>Cyperus pumilus</i>
Low nutrush	<i>Scleria verticillata</i>
Maidencane	<i>Panicum hemitomon</i>
Manyspike flatsedge	<i>Cyperus polystachyos</i>
Marlberry	<i>Ardisia escallonioides</i>
Marsh fern	<i>Thelypteris palustris var. pubescens</i>
Marsh gentain	<i>Eustoma exaltatum</i>
Marsh mermaidweed	<i>Proserpinaca palustris</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Mexican primrosewillow	<i>Ludwigia octovalvis</i>
Mexican sprangletop	<i>Leptochloa uninervia</i>
Millet beaksedge	<i>Rhynchospora miliacea</i>
Mohr's thoroughwort	<i>Eupatorium mohrii</i>
Moonflowers	<i>Ipomoea alba</i>
Muhly grass	<i>Muhlenbergia capillaris</i>
Muscadine	<i>Vitis rotundifolia</i>
Myrsine	<i>Rapanea punctata</i>
Narrowfruit horned beaksedge	<i>Rhynchospora inundata</i>
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>
Narrowleaf yellowtops	<i>Flaveria linearis</i>
Narrow-leaved waterwillow	<i>Justicia angusta</i>
Needleleaf witchgrass	<i>Dichantherium aciculare</i>
Needlepod rush	<i>Juncus scirpoides</i>
Netted nutrush	<i>Scleria reticularis</i>
Nodding club-moss	<i>Lycopodiella cernua</i>
Nuttall's meadowbeauty	<i>Rhexia nuttallii</i>
Oakleaf fleabane	<i>Erigeron quercifolius</i>
Openflower witchgrass	<i>Dichantherium laxiflorum</i>
Orange milkwort	<i>Polygala lutea</i>
Ovateleaf Indian plantain	<i>Arnoglossum ovatum</i>
Pale meadow-beauty	<i>Rhexia mariana</i>
Pan-American balsamscale	<i>Elionurus tripsacoides</i>
Papaya	<i>Carica papaya</i>
Paradisetree	<i>Simarouba glauca</i>
Partridge pea	<i>Chamaecrista fasciculata</i>
Pepper vine	<i>Ampelopsis arborea</i>
Pickeralweed	<i>Pontederia cordata</i>
Piedmont marshholder	<i>Iva microcephala</i>
Pigeonplum	<i>Coccoloba diversifolia</i>
Pineharren goldenrod	<i>Solidago fistulosa</i>
Pine-hyacinth	<i>Clematis baldwinii</i>
Pineland daisy	<i>Chaptalia tomentosa</i>
Pineland heliotrope	<i>Heliotropium polyphyllum</i>
Pineland snakeherb	<i>Dyschoriste angusta</i>
Pinewoods fingergrass	<i>Eustachys petraea</i>
Pink sundew	<i>Drosera capillaris</i>
Pond cypress	<i>Taxodium ascendens</i>
Pond-apple	<i>Annona glabra</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Potatotree	<i>Solanum erianthum</i>
Potbelly airplant	<i>Tillandsia paucifolia</i>
Procession flower	<i>Polygala incarnata</i>
Purple bluestem	<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>
Purple passionflower	<i>Passiflora incarnata</i>
Purple thistle	<i>Cirsium horridulum</i>
Queen's delight	<i>Stillingia aquatica</i>
Queensdelight	<i>Stillingia sylvatica</i>
Rabbitbells	<i>Crotalaria rotundifolia</i>
Recline Florida bully	<i>Sideroxylon reclinatum</i>
Red bay	<i>Persea borbonia</i>
Red cedar	<i>Juniperus virginiana</i>
Red maple	<i>Acer rubrum</i>
Red mulberry	<i>Morus rubra</i>
Redtop panicum	<i>Panicum rigidulum</i>
Resurrection fern	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>
Rhizomatus bluestem	<i>Schizachyrium rhizomatum</i>
Rice button aster	<i>Aster dumosus</i>
Richard's yelloweyed grass	<i>Xyris jupicai</i>
Road-side flatsedge	<i>Cyperus sphacelatus</i>
Rock Carolina leafflower	<i>Phyllanthus caroliniensis</i> subsp. <i>saxicola</i>
Rosy camphorweed	<i>Pluchea rosea</i>
Rougeplant	<i>Rivina humilis</i>
Rough witchgrass	<i>Dichanthelium leucothrix</i>
Roundpod St. John's-wort	<i>Hypericum cistifolium</i>
Royal fern	<i>Osmunda regalis</i> var. <i>spectabilis</i>
Rusty staggerbush	<i>Lyonia ferruginea</i>
Saltmarsh fingergrass	<i>Eustachys glauca</i>
Saltmarsh umbrellasedge	<i>Fuirena breviseta</i>
Sand cordgrass	<i>Spartina bakeri</i>
Saw palmetto	<i>Serenoa repens</i>
Sawgrass	<i>Cladium jamaicense</i>
Scarlet milkweed	<i>Asclepias curassavica</i>
Seagrape	<i>Coccoloba uvifera</i>
Seaside brookweed	<i>Samolus valerandi</i> subsp. <i>parviflorus</i>
Seaside goldenrod	<i>Solidago sempervirens</i>
Seaside primrosewillow	<i>Ludwigia maritima</i>
Semaphore thoroughwort	<i>Eupatorium mikanioides</i>
Shiny blueberry	<i>Vaccinium myrsinites</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Shoe-button ardisia	<i>Ardisia elliptica</i>
Shoestring fern	<i>Vittaria lineata</i>
Shortbeak beaksedge	<i>Rhynchospora nitens</i>
Shortleaf wild coffee	<i>Psychotria sulzneri</i>
Showy milkwort	<i>Polygala grandiflora</i>
Shrubby false buttonweed	<i>Spermacoce verticillata</i>
Sicklepod	<i>Senna obtusifolia</i>
Silver dwarf morning-glory	<i>Evolvulus sericeus</i>
Skyflower	<i>Hydrolea corymbosa</i>
Slender fimbry	<i>Fimbristylis autumnalis</i>
Slender goldenrod	<i>Euthamia caroliniana</i>
Slenderfruit nutrush	<i>Scleria georgiana</i>
Smallfruit beggarticks	<i>Bidens mitis</i>
Smallfruit primrosewillow	<i>Ludwigia microcarpa</i>
Small's bogbutton	<i>Lachnocaulon minus</i>
Small's yelloweyed grass	<i>Xyris smalliana</i>
Snow squarestem	<i>Melanthera nivea</i>
Sourgrass	<i>Digitaria insularis</i>
South Florida slash pine	<i>Pinus elliottii</i> var. <i>densa</i>
Southeastern primrosewillow	<i>Ludwigia linifolia</i>
Southeastern sneezeweed	<i>Helenium pinnatifidum</i>
Southern beaksedge	<i>Rhynchospora microcarpa</i>
Southern beeblossom	<i>Gaura angustifolia</i>
Southern cattail	<i>Typha domingensis</i>
Southern club-moss	<i>Lycopodiella appressa</i>
Southern crabgrass	<i>Digitaria ciliaris</i>
Southern cutgrass	<i>Leersia hexandra</i>
Southern dewberry	<i>Rubus trivialis</i>
Southern needleleaf	<i>Tillandsia setacea</i>
Southern pineland rayless goldenrod	<i>Bigelovia nudata</i> susp. <i>australis</i>
Southern sandbur	<i>Cenchrus echinatus</i>
Southern shield fern	<i>Thelypteris kunthii</i>
Southern umbrellasedge	<i>Fuirena scirpoidea</i>
Southern wiregrass	<i>Aristida beyrichiana</i>
Spadeleaf	<i>Centella asiatica</i>
Spanish moss	<i>Tillandsia usneoides</i>
Spanish needle	<i>Bidens alba</i> var. <i>radiata</i>
Spatterdock	<i>Nuphar lutea</i> subsp. <i>advena</i>
Splitbeard bluestem	<i>Andropogon tremarius</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Spotted water-hemlock	<i>Cicuta maculata</i>
Spreading beaksedge	<i>Rhynchospora divergens</i>
Spring ladies tresses	<i>Spiranthes vernalis</i>
St. Andrew's-cross	<i>Hypericum hypericoides</i>
St. Augustine grass	<i>Stenotaphrum secundatum</i>
St. John's-wort	<i>Hypericum fasciculatum</i>
Starrush whitetop	<i>Rhynchospora colorata</i>
Stiff marsh bedstraw	<i>Galium tinctorium</i>
Stiff yellow flax	<i>Linum medium var. texanum</i>
Stinking camphorweed	<i>Pluchea foetida</i>
Strangler fig	<i>Ficus aurea</i>
Sugarcane plumegrass	<i>Saccharum giganteum</i>
Swamp bay	<i>Persea palustris</i>
Swamp dock	<i>Rumex verticillatus</i>
Swamp dogwood	<i>Cornus foemina</i>
Swamp fern	<i>Blechnum serrulatum</i>
Swamp flatsedge	<i>Cyperus distinctus</i>
Swamp hornpod	<i>Mitreola sessilifolia</i>
Swamp lily	<i>Crinum americanum</i>
Swamp rosemallow	<i>Hibiscus grandiflorus</i>
Swamp smartweed	<i>Polygonum hydropiperoides</i>
Swamp sunflower	<i>Helianthus angustifolius</i>
Sweet bay	<i>Magnolia virginiana</i>
Sweetscent	<i>Pluchea odorata</i>
Switchgrass	<i>Panicum virgatum</i>
Tailed bracken fern	<i>Pteridium aquilinum var. pseudocaudatum</i>
Tall pinebarren milkwort	<i>Polygala cymosa</i>
Tall threeawn	<i>Aristida patula</i>
Taperleaf waterhoarhound	<i>Lycopus rubellus</i>
Tarflower	<i>Befaria racemosa</i>
Tenangle pipewort	<i>Eriocaulon decangulare</i>
Thin paspalum	<i>Paspalum setaceum</i>
Toothachegrass	<i>Ctenium aromaticum</i>
Toothcup	<i>Rotala ramosior</i>
Toothpetal false reinorchid	<i>Habenaria floribunda</i>
Tracy's beaksedge	<i>Rhynchospora tracyi</i>
Tropical flatsedge	<i>Cyperus surinamensis</i>
Tuberous grasspink	<i>Calopogon tuberosus</i>
Turkey tangle frogfruit	<i>Phyla nodiflora</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Twisted airplant	<i>Tillandsia flexuosa</i>
Twistedleaf goldenrod	<i>Solidago tortifolia</i>
Variable witchgrass	<i>Dichanthelium commutatum</i>
Vente conmigo	<i>Croton glandulosus</i>
Virginia buttonweed	<i>Diodia virginiana</i>
Virginia chain fern	<i>Woodwardia virginica</i>
Virginia creeper	<i>Parthenocissus quinquefolia</i>
Virginia marsh St. John's-wort	<i>Triadenum virginicum</i>
Virginia pepperweed	<i>Lepidium virginicum</i>
Walter's groundcherry	<i>Physalis walteri</i>
Wand goldenrod	<i>Solidago stricta</i>
Warty panicgrass	<i>Panicum verrucosum</i>
Warty sedge	<i>Carex verrucosa</i>
Water cowbane	<i>Oxypolis filiformis</i>
Water oak	<i>Quercus nigra</i>
Waterspider false reinorchid	<i>Habenaria repens</i>
Wax myrtle	<i>Myrica cerifera</i>
White crownbeard	<i>Verbesina virginica</i>
White lobelia	<i>Lobelia paludosa</i>
White mulberry	<i>Morus alba</i>
White stopper	<i>Eugenia axillaris</i>
White sunnybell	<i>Schoenolirion albiflorum</i>
White twinevine	<i>Sarcostemma clausum</i>
Whitehead bogbutton	<i>Lachnocaulon anceps</i>
Whorled marshpennywort	<i>Hydrocotyle verticillata</i>
Whorled milkweed	<i>Asclepias verticillata</i>
Wild Boston fern	<i>Nephrolepis exaltata</i>
Wild coffee	<i>Psychotria nervosa</i>
Wild lime	<i>Zanthoxylum fagara</i>
Wild pennyroyal	<i>Piloblephis rigida</i>
Wild-coco	<i>Eulophia alta</i>
Winged loosestrife	<i>Lythrum alatum var. lanceolatum</i>
Winged primrosewillow	<i>Ludwigia alata</i>
Winged sumac	<i>Rhus copallinum</i>
Wood Sage	<i>Teucrium canadense</i>
Woodland false buttonweed	<i>Spermacoce assurgens</i>
Woodsgrass	<i>Oplismenus hirtellus</i>
Wrinkled jointtail grass	<i>Coelorachis rugosa</i>
Yellow alamand	<i>Allamanda cathartica</i>

Table 4. Native Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Yellow bristlegrass	<i>Setaria parviflora</i>
Yellow colic-root	<i>Aletris lutea</i>
Yellow flatsedge	<i>Cyperus flavescens</i>
Yellow hatpins	<i>Syngonanthus flavidulus</i>
Zigzag bladderwort	<i>Utricularia subulata</i>

Table 5. Threatened and Endangered Plant Species of the JWCWMA

Common Name	Scientific Name
Cardinal airplant	<i>Tillandsia fasciculata</i> var. <i>densispica</i>
Catesby's lily	<i>Lilium catesbaei</i>
Celestial lily	<i>Nemastylis floridana</i>
Giant airplant	<i>Tillandsia utriculata</i>
Giant orchid	<i>Pteroglossaspis ecristata</i>
Giant sword fern	<i>Nephrolepis biserrata</i>
Hand fern	<i>Ophioglossum palmatum</i>
Lacelip ladies tresses	<i>Spiranthes laciniata</i>
Manyflower grasspink	<i>Calopogon multiflorus</i>
Northern needleleaf	<i>Tillandsia balbisiana</i>
Pinepink	<i>Bletia purpurea</i>
Satinleaf	<i>Chrysophyllum oliviforme</i>
Snakemouth orchid	<i>Pogonia ophioglossoides</i>
Snowy orchid	<i>Habenaria nivea</i>
West Indian mahogany	<i>Swietenia mahagoni</i>

Table 6. Exotic Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Asian sword fern	<i>Nephrolepis multiflora</i>
Australian pine	<i>Casuarina equisetifolia</i>
Bahiagrass	<i>Paspalum notatum</i>
Balsampear	<i>Momordica charantia</i>
Bermudagrass	<i>Cynodon dactylon</i>
Brazilian pepper	<i>Schinus terebinthifolius</i>
Burmareed	<i>Neyraudia reynaudiana</i>
Caesar's weed	<i>Urena lobata</i>
Castorbean	<i>Ricinus communis</i>
Catclaw mimosa	<i>Mimosa pigra</i>
Centipede grass	<i>Eremochloa ophiuroides</i>
Chinese brake fern	<i>Pteris vittata</i>
Cogongrass	<i>Imperata cylindrica</i>
Columbian waxweed	<i>Cuphea carthagenensis</i>

Table 6. Exotic Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Common air-potato	<i>Dioscorea bulbifera</i>
Common water-hyacinth	<i>Eichhornia crassipes</i>
Downy rose myrtle	<i>Rhodomyrtus tomentosa</i>
Durban crowfootgrass	<i>Dactyloctenium aegyptium</i>
Dwarf papyrus	<i>Cyperus prolifer</i>
Earleaf acacia	<i>Acacia auriculiformis</i>
Elephantgrass	<i>Pennisetum purpureum</i>
Florida tassleflower	<i>Emilia fosbergii</i>
Grapefruit	<i>Citrus x paradisi</i>
Guava	<i>Psidium guajava</i>
Guineagrass	<i>Panicum maximum</i>
Hydrilla	<i>Hydrilla verticillata</i>
Indian cupscale	<i>Sacciolepis indica</i>
Indian goosegrass	<i>Eleusine indica</i>
Indian laurel	<i>Ficus microcarpa</i>
Jaragua	<i>Hyparrhenia rufa</i>
Java plum	<i>Syzygium cumini</i>
Javanese bishopwood	<i>Bischofia javanica</i>
Lanceleaf rattlebox	<i>Crotalaria lanceolata</i>
Lantana	<i>Lantana camara</i>
Lawn orchid	<i>Zeuxine strateumatica</i>
Lemon	<i>Citrus limon</i>
Limpograss	<i>Hemarthria altissima</i>
Llima	<i>Sida cordifolia</i>
Loquat	<i>Eriobotrya japonica</i>
Malaysian false pimpernel	<i>Lindernia crustacea</i>
Melaleuca	<i>Melaleuca quinquenervia</i>
Mexican petunia	<i>Ruellia brittoniana</i>
Mexican tea	<i>Chenopodium ambrosioides</i>
Old World climbing fern	<i>Lygodium microphyllum</i>
Para grass	<i>Urochloa mutica</i>
Peruvian primrosewillow	<i>Ludwigia peruviana</i>
Pouzolz's bush	<i>Pouzolzia zeylanica</i>
Rosary pea	<i>Abrus precatorius</i>
Rose apple	<i>Syzygium jambos</i>
Rose natalgrass	<i>Rhynchelytrum repens</i>
Sea hibiscus	<i>Hibiscus tiliaceus</i>
Smooth rattlebox	<i>Crotalaria pallida var. obovata</i>
Smut grass	<i>Sporobolus indicus</i>

Table 6. Exotic Plant Species Known or Expected to Occur on the JWCWMA

Common name	Scientific name
Sour orange	<i>Citrus aurantium</i>
Suckering Australian-pine	<i>Casuarina glauca</i>
Surinam cherry	<i>Eugenia uniflora</i>
Sweet orange	<i>Citrus sinensis</i>
Thalia lovegrass	<i>Eragrostis atrovirens</i>
Threeflower ticktrefoil	<i>Desmodium triflorum</i>
Torpedograss	<i>Panicum repens</i>
Tropical Mexican clover	<i>Richardia brasiliensis</i>
Tropical soda apple	<i>Solanum viarum</i>
Tuberous sword fern	<i>Nephrolepis cordifolia</i>
Vaseygrass	<i>Paspalum urvillei</i>
Water spangles	<i>Salvinia minima</i>
Water-lettuce	<i>Pistia stratiotes</i>
Wedelia	<i>Wedelia trilobata</i> (syn. <i>Sphagneticola trilobata</i>)
West Indian chickweed	<i>Drymaria cordata</i>
West Indian dropseed	<i>Sporobolus indicus</i> var. <i>pyramidalis</i>
West Indian marsh grass	<i>Hymenachne amplexicaulis</i>
Wild bushbean	<i>Macroptilium lathyroides</i>
Woman's tongue	<i>Albizia lebeck</i>
Yellow nutsedge	<i>Cyperus esculentus</i>

FNAI Natural Community Descriptions

Basin Marshes and Depression Marshes

Basin marshes are isolated wetlands situated in shallow, relatively large and irregularly shaped basins. Basin marshes usually develop in large solution depressions that were formerly shallow lakes. The lake bottom has slowly filled with sediments from the surrounding uplands and with peat derived from plants. The hydroperiod is generally around 200 days per year.

On Corbett, basin marshes range in size from less than one acre to over 500 acres. They are usually imbedded in mesic flatwoods. Nearly all basin marshes have some type of included community, ranging from small shrubby patches of willow, dahoon, swamp bay, wax myrtle, and pond apple to well developed "islands" of mesic flatwoods or mesic hammock that occupy slightly elevated areas within the basin. In some marshes, dense patches of sawgrass or cattail occupy the deeper areas. The transition from the basin marsh to the surrounding uplands may be abrupt or may be gradual with an ecotone of wet prairie or wet flatwoods.

Basin marshes are usually dominated by grasses and sedges, although extensive stands of St. John's-wort and queen's delight are found in some marshes. The most frequently encountered grass species is maidencane; the most common sedge is Tracy's beaksedge. Other common grasses include blue maidencane and one of the low panic grass species. A variety of herbaceous species occur in basin marshes, sometimes creating beautiful flowering displays. These include purple and yellow bladderworts, blue water-hyssop, Leavenworth's tickseed, hatpins, redroot, floating-hearts, yellow-eyed grass, and Baldwin's milkwort.

Fire every one to ten years maintains the open herbaceous character of basin marshes by restricting shrub invasion. On the JWCWMA, basin marshes are usually severed from fire-maintained uplands by broad ORV tracks that encircle and cut across the marshes.

Depression marshes are distinguished from basin marshes by their smaller size and circular or oval shape. They form 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. 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. Depression marshes occur as included communities in nearly of all of the JWCWMA's natural community types, but are more abundant in the eastern half of the WMA.

Because water depth in depression marshes usually increases toward the center, vegetation typically forms distinctive zones corresponding to depth. On the JWCWMA, there is usually an inner, central zone occupied by sawgrass, cattail, or fireflag or even a small shrubby hammock of pond apple, willow, wax myrtle, and dahoon. The zone encircling the center is often dominated by maidencane or Tracy's beaksedge, followed by an outer herbaceous zone that often includes dense to scattered St. John's-wort and Queen's delight. Most of the herbaceous and graminoid species found in basin marshes also occur in depression marshes.

Depression marshes on the JWCWMA suffer from the same degree of ORV use as do basin marshes, cutting the marsh off from natural fire processes and directly destroying vegetation.

Dome Swamps

Dome swamps are isolated, forested, depression wetlands occurring within a fire-maintained community such as mesic flatwoods. Dome swamps are generally smaller in size and circular or oval in shape. They form where sand has slumped around or over a sinkhole and thereby created a conical depression subsequently filled by peat accumulation. These cypress-dominated communities present the classic domed profile, with taller trees toward the wetter center and shorter trees around the periphery which is exposed to fire.

On the JWCWMA, dome swamps are dominated by bald cypress; with an occasional slash pine. The tall shrub layer consists of myrsine, wax myrtle, dahoon, buttonbush, willow, and pond apple. Sawgrass, swamp fern, and sword fern are usually common. Herbs, such as hatpins, tall milkwort, bladderwort, maidencane, blue maidencane, Tracy's beaksedge, umbrella sedge, and white-topped sedge, are diverse around the sunnier edges but become less frequent toward the center. In many domes, the center is occupied by a shrub hammock, sawgrass marsh, or "flag marsh" of fireflag or pickerelweed.

The hydroperiod of dome swamps is generally 200 - 300 days per year. They may have a perched water table or be connected with underground channels to the water table. Occasional light fires are essential to prevent the conversion of dome swamps into hardwood-dominated communities such as a bayhead or hydric hammock. Cypress is tolerant of light surface fires but deep-burning peat fires will kill root systems and trees, thus converting the swamp into a pond, marsh, or shrub hammock. As with most of the isolated wetlands on the JWCWMA, most dome swamps are ringed by ORV tracks or firebreaks, thus severing the fire connection with surrounding communities.

On the JWCWMA, dome swamps are especially susceptible to invasion by Old World climbing fern. Entire domes have been taken over and smothered by the fern.

Mesic Flatwoods

Mesic flatwoods are upland forests with an open slash pine canopy, scattered cabbage palm subcanopy, and understory dominated by saw palmetto or gallberry, with a wide variety of other shrubs, herbs, ferns, grasses, and sedges. Mesic flatwoods comprise approximately 16,867 acres on the JWCWMA, primarily as extensive matrix communities that contain small open patches of wet flatwoods.

There are also hundreds of small "pine-palm islands" contained within strand swamps, basin marshes, and wet flatwoods. Approximately 90 of the larger "pine-palm islands" were delineated for this project and were classified as mesic flatwoods although they are not matrix communities. They total approximately 370 acres, with an average size of about four acres. Pine-palm islands go for long periods without fire and are very dense with shrubs and small trees.

Mesic flatwoods that have been frequently burned on the JWCWMA – primarily those that support red-cockaded woodpecker colonies – are of high quality and have very high numbers of grass, sedge, and forb species. Some of the common or characteristic species of high quality mesic flatwoods are: wiregrass, toothache grass, blue maidencane, muhly grass, beaksedges, saw grass, bracken fern, wild pennyroyal, rattlesnake-master, Leavenworth's tickseed, wild petunia, yellow-tops, rosy camphorweed, chaffhead, and semaphore thoroughwort.

Less frequently burned mesic flatwoods have dense understories of saw palmetto, gallberry, myrsine, tarflower, wax myrtle, and fetterbush. The high shrub density generally precludes the development of a diverse herbaceous layer.

Two rare plant species, both orchids, occur in mesic flatwoods on the JWCWMA: many-flowered grass-pink and giant orchid. Both respond to fire by flowering and will disappear in the long-term absence of fire.

Mesic flatwoods are fragmented on the JWCWMA by roads and ORV trails although they are more resilient than wetland communities to these impacts. Patches of Old World climbing fern were observed in many mesic flatwoods.

Mesic Hammocks and Hydric Hammocks

Mesic hammocks are closed-canopy forests dominated by tree species of temperate affinities with a diverse shrub layer that includes many tropical species. Mesic hammocks are naturally protected from fire by their position on the landscape, typically as a “tree island” in a wetland. Soils in mesic hammocks are moist due to a dense litter layer and the humid conditions that prevail under the closed canopy, but are rarely inundated. Mesic hammocks with significant tropical components are found as far north in coastal Florida as Brevard County. However, the mesic hammocks on the JWCWMA are among some of the furthest north of the known inland “tropical” hammocks. Hammocks on the JWCWMA occur on elevated islands that are part of a narrow curving swathe of hammocks that runs from the Loxahatchee River southwest through the Hungryland Slough to the eastern edge of the Everglades (Cox 1988).

On the JWCWMA, the canopy and subcanopy of mesic hammocks contain live oak, laurel oak, persimmon, cabbage palm, red bay, sweet bay, or hackberry. Some of the tropical species found in the understory of Corbett’s mesic hammocks include myrsine, strangler fig, wild lime, marlberry, wild coffee, white stopper, lancewood, and graytwig. Saw palmetto, wax myrtle, and groundsel bush are also found in the shrub layer of mesic hammocks.

Hydric hammocks are a very minor component of the landscape on the JWCWMA, occurring in only six locations and totaling less than 40 acres. They occur as inclusions in low, wet areas of mesic hammocks, or in fire-protected areas within strand swamps and basin marshes. Their vegetative structure resembles mesic hammocks, although some lack the canopy of oaks and are dominated by bayhead species, such as sweetbay and redbay. On the JWCWMA, they tend to have a weedy, disturbed aspect and may represent an advanced stage of fire suppression.

Ruderal

Lands that have experienced heavy anthropogenic disturbances are referred to as ruderal. On the JWCWMA, over 3,700 acres are classified as ruderal and are divided into six

different categories: agriculture, clearing/ditch, clearing/regeneration, developed, road, and utility corridor.

Ruderal, agriculture

FNAI defines agriculture areas as including row crops, citrus groves, and sod fields that are generally being maintained to grow products for human or domesticated animal use. On the JWCWMA, agricultural land accounts for approximately 1,361 acres.

Ruderal, clearing/ditch

Canal/ditch ruderal areas are areas where the historic natural community has been altered by an artificial drainage way. Approximately 400 acres of the JWCWMA fall into this category due to the presence of canals and ditches.

Ruderal, clearing/regeneration

FNAI defines clearing/regeneration areas as including dove fields, wildlife food plots, recent or historic clearings that have significantly altered the groundcover and/or overstory of the original natural community. Wildlife food plots make up the vast majority of the approximately 694 acres that are classified as clearing/regeneration on the JWCWMA.

Ruderal, developed

FNAI classifies land as developed if it contains check stations, ORV use areas, parking lots, buildings, maintained lawns (as part of recreational, business, or residential areas), botanical or ornamental gardens, campgrounds, and recreation, industrial, and residential areas. There are approximately 71 acres of developed land on the JWCWMA, which is primarily due to the presence of offices, check stations, campgrounds, and the Everglades Youth Camp.

Ruderal, road

The JWCWMA contains approximately 28 acres that are classified as road, due to the presence of either paved or unpaved roads or trails.

Ruderal, utility corridor

FNAI classifies land as a utility corridor if it contains electric, gas, or telephone right-of-ways. The JWCWMA contains several such right-of-ways, with approximately 1,177 acres classified as utility corridor.

Strand Swamps

Strand swamps are forested wetlands that occupy shallow, elongated depressions or channels. Water may flow in some strand swamps, although on the JWCWMA water

movement is imperceptibly slow if at all. The normal hydroperiod for a strand swamp is 200 - 300 days per year with water reaching a maximum depth of 18 - 30 inches in the center of the strand. On the JWCWMA, strand swamps are most extensive in the south and west, perhaps flowing imperceptibly toward Lake Okeechobee or the Everglades. Two types of strand swamp are recognized on the JWCWMA. A typical deep-water strand swamp, with full-sized bald cypress occupies channels, flats, and depressions; because the tallest trees occur toward the center, these strands have the classic domed profile of most cypress communities. The second strand type is applied to the extensive plains or savannas of widely spaced, dwarfed cypress that occur largely (although not exclusively) in broad swathes alongside deep strands in the western half of the JWCWMA. Although small (6 - 15 feet tall), the large size of the buttresses attest to their maturity.

Full-sized cypress strands on the JWCWMA have a dense understory of shrubs, ferns, and graminoids. Dominant shrubs and subcanopy species include myrsine, wax myrtle, dahoon, St. John's-wort, pond apple, cabbage palm, slash pine, and red maple. Swamp fern and sword fern are usually common. Some strand swamps are impenetrable due to a thick understory of sawgrass. One of the most striking aspects of strand swamps is the abundance of epiphytes; at least nine species of bromeliad have been observed on the JWCWMA (Institute for Regional Conservation 2003), most in strand swamps. Soils in the center of the strand are highly organic, with deep peat accumulations that wick water from the groundwater table during droughts. Fires occur infrequently in deep water strand swamps but are necessary every 30 - 200 years to prevent conversion of the community to a hydric hammock.

Except for the dominance of cypress, dwarf cypress savannas have more in common vegetatively with wet prairies and flatwoods than with strand swamps. The herbaceous and low shrub layers are diverse and are maintained by frequent fire. Shrub species in the savannas - St. John's-wort, wax myrtle, dahoon, and queen's delight - are low and scattered. Maidencane, blue maidencane, Tracy's beaksedge, umbrella sedge, and white-topped sedge are common. Dwarf cypress savannas have little or no organic accumulation over a sandy to marly soil. Without frequent fire, savannas are invaded by slash pines.

On the JWCWMA, strand swamps have been largely protected from fire by firebreaks and broad bands of ORV tracks.

Wet Flatwoods and Wet Prairies

Wet flatwoods have a sparse canopy of widely scattered slash pine, usually less than 25% coverage, with a relatively open understory of scattered shrubs, typically with less than 50% coverage. Saw palmetto is lacking or with very low coverage. Wet flatwoods support a rich ground layer of grasses, forbs, and sedges. Wet flatwoods occur on Corbett primarily as extensive matrix communities or in smaller patches interspersed with mesic flatwoods. In the western half of Corbett, wet flatwoods form broad ecotones around strand swamps. These communities are inundated for at least a month each year, with soils saturated to the

surface for 3 - 4 months in some years. They are dependent on frequent fire, every 2 to 4 years, to prevent shrub invasion and conversion to hammock vegetation.

Wet flatwoods often include or grade into wet prairie and share many of the same species. Wet prairies have less than 5% cover of slash pine or cypress, and these are usually small and stunted. Shrubs, usually St. John's-wort and queen's-delight, are common but small and sparsely distributed. On Corbett, wet prairies usually occupy ecotones around marshes or small openings within wet flatwoods. Wet prairies are seasonally inundated or saturated for 50 to 100 days each year and burn every 2 to 4 years.

The ground cover in wet flatwoods and prairies is usually dominated by wiregrass, mubly grass, and blue maidencane. Frequently burned wet flatwoods have a highly diverse ground layer of grasses and sedges including three-awns, toothache-grass, beaksedges, umbrella-sedges, white-topped sedges, nutrushes, and plumegrass. Black bogrush occurs in some wet flatwoods and prairies and is an indicator of marl, less acid, soils.

The diversity of flowering forb species in wet flatwoods and prairies on the JWCWMA is high, especially in frequently burned areas. Tall milkwort, yellow colic-root, white sunnysbells, rattlesnake-master, blazing-star, hatpins, yellow-eyed grass, and many others put on an impressive display throughout the year.

Algal mats (periphyton layer), composed of many species of blue-green algae, are characteristic of wet flatwoods and wet prairies on Corbett. During the rainy season, mats can be up to 1.6 inches thick, blanketing the ground and low vegetation (USFWS 1998). During the dry season, the periphyton layer is a dry, crunchy layer underfoot.

Fish and Wildlife

Rare and Imperiled Species

As described above, the JWCWMA has a variety of natural communities and currently supports many wildlife species. Active wildlife management practices and a diversity of natural communities make the JWCWMA an excellent place to view wildlife. The JWCWMA has a variety of wildlife indigenous to the mesic flatwoods, depression marsh, and strand swamp. Table 7 lists some of the rare and imperiled wildlife species that have been documented as occurring on or in the vicinity of the JWCWMA.

Table 7. Rare and Imperiled Wildlife Species Known or Expected to Occur on or near the JWCWMA

Common name	Scientific name	Status
Amphibians		
Florida gopher frog	<i>Lithobates capito</i>	SSC
Birds		
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	FT

Table 7. Rare and Imperiled Wildlife Species Known or Expected to Occur on or near the JWCWMA

Common name	Scientific name	Status
Florida sandhill crane*	<i>Grus canadensis pratensis</i>	ST
Least tern	<i>Sterna antillarum</i>	ST
Limpkin*	<i>Aramus guarana</i>	SSC
Little blue heron*	<i>Egretta caerulea</i>	SSC
Osprey*	<i>Pandion haliaetus</i>	SSC
Red-cockaded woodpecker*	<i>Picoides borealis</i>	FE
Roseate spoonbill**	<i>Platalea ajaja</i>	SSC
Snail kite**	<i>Rostrhamus sociabilis</i>	FE
Snowy egret*	<i>Egretta thula</i>	SSC
Southeastern American kestrel*	<i>Falco sparverius paulus</i>	ST
Tricolored heron*	<i>Egretta tricolor</i>	SSC
White ibis*	<i>Eudocimus albus</i>	SSC
Wood stork*	<i>Mycteria americana</i>	FE
Mammals		
Florida mouse	<i>Peromyscus floridanus</i>	SSC
Florida panther	<i>Puma concolor coryi</i>	FE
Rice rat	<i>Oryzomys palustris</i>	FE
Reptiles		
American alligator*	<i>Alligator mississippiensis</i>	FT(S/A)
Eastern indigo snake*	<i>Drymarchon corais couperi</i>	FT
Florida brown snake	<i>Storeria victa</i>	ST
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	SSC
Gopher tortoise*	<i>Gopherus polyphemus</i>	ST
Peninsula ribbon snake*	<i>Thamnophis sauritus sackenii</i>	ST

* = Species which have been verified as occurring on the JWCWMA

** = rare sightings

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

The FWC wildlife observations and FNAI element occurrences are shown in Figure 5. A FWC Wildlife Conservation Prioritization and Recovery (WCPR) strategy was completed for the JWCWMA in 2011. A standardized focal species list is shown in Table 8. Of the 60 focal species, 15 were modeled to have potential habitat on the JWCWMA. Occasionally,

models indicate a species has potential habitat on the area when using statewide data; however, the local assessment indicates there is little opportunity to manage for the species on the area and the species should not influence management. These species are identified with an “*”. Species that have a measurable objective are indicated with a 1 and species for which monitoring is recommended are indicated with a 2. Objectives are identified for three species on this area including Bachman’s sparrow, northern bobwhite, and red-cockaded woodpecker.

Table 8. Focal Species Identified as having Potential Habitat on the JWCWMA

Common name	Scientific name	Status
American swallow-tail kite	<i>Elanoides forficatus</i>	FS
Audubon’s crested caracara	<i>Polyborus plancus audubonii*</i>	FT
Bachman’s sparrow	<i>Aimophila aestivalis</i> ^{1, 2}	FS
Cooper’s hawk	<i>Accipiter cooperii</i>	FS
Florida black bear	<i>Ursus americanus floridanus*</i>	FS
Florida mottled duck	<i>Anas fulvigula</i> ²	FS
Florida sandhill crane	<i>Grus canadensis pratensis</i> ²	ST
Gopher tortoise	<i>Gopherus polyphemus*</i>	ST
Limpkin	<i>Aramus guarauna</i> ²	SSC
Northern bobwhite	<i>Colinus virginianus</i> ^{1, 2}	FS
Red-cockaded woodpecker	<i>Picooides borealis</i> ^{1, 2}	FE
Sherman’s fox squirrel	<i>Sciurus niger shermani</i>	SSC
Short-tailed hawk	<i>Buteo brachyurus</i>	FS
Snail kite	<i>Rostrhamus sociabilis</i>	FE
Southeastern American kestrel	<i>Falco sparverius paulus*</i>	ST
Southern bald eagle	<i>Haliaeetus leucocephalus</i>	FS
Wading birds	<i>Multiple spp.</i> ²	FS

Abbreviation	Status
FE	Federal Endangered
FS	Focal Species
FT	Federal Threatened
SSC	State Species of Special Concern
ST	State Threatened

All abbreviations and status determinations were derived from *Florida’s Endangered and Threatened Species* published by FWC in October 2012. FWC maintains the state list of animals designated as Federally-designated Endangered or Threatened, State-designated Threatened, or State-designated Species of Special Concern, in accordance with Rules 68A-

27.003 and 68A-27.005, respectively, of the Florida Administrative Code <https://www.flrules.org/>.

In January, 2013, new threatened species rules approved by the FWC went into effect. The list of wildlife presented here reflects those changes to the rules. All federally listed species that occur in Florida are now included on Florida's list as Federally-designated Endangered or Federally-designated Threatened species. In addition, the state has a listing process to identify species that are not federally listed but at risk of extinction. These species will be called State-designated Threatened. All State-designated species that have recently undergone status reviews were presented and approved at the June 2011 Commission meeting. FWC will continue to maintain a separate Species of Special Concern category until all the species have been reviewed and those species are either designated as State-Threatened and given a management plan or removed from the list. More detailed descriptions and management prescriptions are available on the FWC website: <http://www.myfwc.com/wildlifehabitats/profiles/>.

Table 9. Mammal species known or expected to occur on the JWCWMA

Common name	Scientific name
Bobcat*	<i>Lynx rufus</i>
Brazilian free-tailed bat*	<i>Tadarida brasiliensis</i>
Cotton mouse	<i>Peromyscus gossypinus</i>
Eastern cottontail*	<i>Sylvilagus floridanus</i>
Eastern gray squirrel*	<i>Sciurus carolinensis</i>
Eastern mole	<i>Scalopus aquaticus</i>
Eastern pipistrelle*	<i>Perimyotis subflavus</i>
Evening bat*	<i>Nycticeius humeralis</i>
Florida black bear	<i>Ursus americanus floridanus</i>
Gray fox*	<i>Urocyon cinereoargenteus</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
Least shrew*	<i>Cryptotis parva</i>
Long-tailed weasel	<i>Mustela frenata</i>
Marsh rabbit*	<i>Sylvilagus palustris</i>
Mink	<i>Mustela vison</i>
Northern yellow bat*	<i>Lasiurus intermedius</i>
Oldfield mouse	<i>Peromyscus polionotus</i>
Raccoon*	<i>Procyon lotor</i>
River otter*	<i>Lutra canadensis</i>
Round-tailed muskrat	<i>Neofiber alleni</i>
Seminole bat*	<i>Lasiurus seminolus</i>
Sherman's fox squirrel*	<i>Sciurus niger shermani</i>
Short-tailed shrew	<i>Blarina brevicauda</i>
Southeastern big-eared bat	<i>Corynorhinus rafinesquii</i>
Southern flying squirrel*	<i>Glaucomys volans</i>
Spotted skunk	<i>Spilogale putorius</i>

Table 9. Mammal species known or expected to occur on the JWCWMA

Common name	Scientific name
Striped skunk	<i>Mephitis mephitis</i>
Virginia possum*	<i>Didelphis virginiana</i>
White-tailed deer*	<i>Odocoileus virginianus</i>

* = species which have been verified as occurring on the JWCWMA

Table 10. Amphibian species known or expected to occur on the JWCWMA

Common name	Scientific name
Barking treefrog	<i>Hyla gratiosa</i>
Dwarf salamander	<i>Eurycea quadridigitata</i>
Eastern narrowmouth toad*	<i>Gastrophryne carolinensis</i>
Eastern spadefoot	<i>Scaphiopus holbrookii holbrookii</i>
Everglades dwarf siren	<i>Pseudobranchius striatus belli</i>
Florida chorus frog	<i>Pseudacris nigrita verrucosa</i>
Florida cricket frog*	<i>Acris gryllus dorsalis</i>
Greater siren	<i>Siren lacertina</i>
Green treefrog*	<i>Hyla cinerea</i>
Greenhouse frog*	<i>Eleutherodactylus planirostris</i>
Little grass frog	<i>Pseudacris ocularis</i>
Oak toad*	<i>Bufo quericus</i>
Peninsula newt	<i>Notophthalmus viridescens piaropicola</i>
Pig frog*	<i>Rana grylio</i>
Pine woods treefrog	<i>Hyla femoralis</i>
Southern leopard frog*	<i>Rana utricularia</i>
Southern toad	<i>Bufo terrestris</i>
Squirrel treefrog*	<i>Hyla squirrela</i>
Two-toed amphiuma*	<i>Amphiuma means</i>

* = species which have been verified as occurring on the JWCWMA

Table 11. Reptile species known or expected to occur on the JWCWMA

Common name	Scientific name
Banded water snake*	<i>Nerodia fasciata fasciata</i>
Brown water snake*	<i>Nerodia taxispilota</i>
Common musk turtle	<i>Sternotherus odoratus</i>
Corn snake*	<i>Elaphe guttata guttata</i>
Dusky pygmy rattlesnake*	<i>Sistrurus miliarius barbouri</i>
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>
Eastern coral snake*	<i>Micrurus fulvius fulvius</i>
Eastern diamondback rattlesnake*	<i>Crotalus adamanteus</i>

Table 11. Reptile species known or expected to occur on the JWCWMA

Common name	Scientific name
Eastern garter snake*	<i>Thamnophis sirtalis sirtalis</i>
Eastern glass lizard*	<i>Ophisaurus ventralis</i>
Eastern hognose snake	<i>Heterodon platirhinos</i>
Eastern kingsnake	<i>Lampropeltis getula getula</i>
Eastern mud snake	<i>Farancia abacura abacura</i>
Eastern slender glass lizard*	<i>Ophisaurus attenuatus longicaudus</i>
Florida box turtle*	<i>Terrapene carolina bauri</i>
Florida chicken turtle	<i>Deirochelys reticularia chrysea</i>
Florida cottonmouth*	<i>Agkistrodon piscivorus conanti</i>
Florida green water snake	<i>Nerodia floridana</i>
Florida kingsnake	<i>Lampropeltis getula floridana</i>
Florida mud turtle	<i>Kinosternon subrubrum steindachneri</i>
Florida redbelly turtle*	<i>Pseudemys nelsoni</i>
Florida scarlet snake	<i>Cemophora coccinea coccinea</i>
Florida snapping turtle*	<i>Chelydra serpentina osceola</i>
Florida softshell*	<i>Apalone ferox</i>
Florida water snake*	<i>Nerodia fasciata pictiventris</i>
Green anole*	<i>Anolis carolinensis</i>
Ground skink	<i>Scincella lateralis</i>
Island glass lizard	<i>Ophisaurus compressus</i>
Peninsula cooter*	<i>Pseudemys floridana peninsularis</i>
Rough green snake*	<i>Opheodrys aestivus</i>
Scarlet kingsnake	<i>Lampropeltis triangulum elapsoides</i>
Six-lined racerunner	<i>Cnemidophorus sexlineatus sexlineatus</i>
South Florida swamp snake*	<i>Seminatrix pygaea cyclas</i>
Southeastern five-lined skink*	<i>Eumeces inexpectatus</i>
Southern black racer*	<i>Coluber constrictor priapus</i>
Southern ringneck snake*	<i>Diadophis punctatus punctatus</i>
Striped crayfish snake	<i>Regina alleni</i>
Striped mud turtle*	<i>Kinosternon bauri</i>
Yellow rat snake*	<i>Elaphe obsoleta quadrivittata</i>

* = species which have been verified as occurring on the JWCWMA

Table 12. Fish species known or expected to occur on the JWCWMA

Common name	Scientific name
Black crappie*	<i>Pomoxis nigromaculatus</i>
Bluefin killifish	<i>Lucania goodii</i>
Bluegill*	<i>Lepomis macrochirus</i>
Bluespotted sunfish*	<i>Enneacanthus gloriosus</i>
Bowfin*	<i>Amia calva</i>

Table 12. Fish species known or expected to occur on the JWCWMA

Common name	Scientific name
Brook silverside*	<i>Labidesthes sicculus</i>
Chain pickerel	<i>Esox niger</i>
Channel catfish*	<i>Ictalurus punctatus</i>
Dollar sunfish*	<i>Lepomis marginatus</i>
Flagfish*	<i>Jordanella floridae</i>
Florida gar*	<i>Lepisosteus platyrhinchus</i>
Golden shiner*	<i>Notemigonus crysoleucas</i>
Golden topminnow*	<i>Fundulus chrysotus</i>
Lake chubsucker*	<i>Erimyzon sucetta</i>
Largemouth bass*	<i>Micropterus salmoides</i>
Least killifish	<i>Heterandria formosa</i>
Marsh killifish*	<i>Fundulus confluentus</i>
Mosquitofish*	<i>Gambusia holbrooki</i>
Redear sunfish*	<i>Lepomis microlophus</i>
Sailfin molly*	<i>Poecilia latipinna</i>
Seminole killifish*	<i>Fundulus seminolis</i>
Spotted sunfish*	<i>Lepomis punctatus</i>
Taillight shiner*	<i>Notropis maculatus</i>
Warmouth*	<i>Chaenobryttus gulosus</i>
Yellow bullhead*	<i>Ameiurus natalis</i>

* = species which have been verified as occurring on the JWCWMA

Table 13. Bird species known or expected to occur on the JWCWMA

Common name	Scientific name
America woodcock**	<i>Scolopax minor</i>
American avocet	<i>Recurvirostra americana</i>
American bittern*	<i>Botaurus lentiginosus</i>
American coot	<i>Fulica americana</i>
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch*	<i>Carduelis tristis</i>
American redstart*	<i>Setophaga ruticilla</i>
American robin*	<i>Turdus migratorius</i>
American widgeon	<i>Anas americana</i>
Anhinga*	<i>Anhinga anhinga</i>
Bachman's sparrow*	<i>Aimophila aestivalis</i>
Baltimore oriole	<i>Icterus galbula</i>
Barn owl*	<i>Tyto alba</i>
Barn swallow*	<i>Hirundo rustica</i>
Barred owl*	<i>Strix varia</i>

Table 13. Bird species known or expected to occur on the JWCWMA

Common name	Scientific name
Belted kingfisher*	<i>Ceryle alcyon</i>
Black vulture*	<i>Coragyps atratus</i>
Black-and-white warbler*	<i>Mniotilta varia</i>
Black-crowned night heron*	<i>Nycticorax nycticorax</i>
Black-necked stilt	<i>Himantopus mexicanus</i>
Blue jay*	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher*	<i>Polioptila caerulea</i>
Blue-headed vireo*	<i>Vireo solitarius</i>
Blue-winged teal*	<i>Anas discors</i>
Boat-tailed grackle*	<i>Quiscalus major</i>
Brown thrasher*	<i>Toxostoma rufum</i>
Brown-headed cowbird*	<i>Molothrus ater</i>
Brown-headed nuthatch*	<i>Sitta pusilla</i>
Bufflehead*	<i>Bucephala albeola</i>
Carolina wren*	<i>Thryothorus ludovicianus</i>
Cattle egret*	<i>Bubulcus ibis</i>
Cedar waxwing*	<i>Bombycilla cedrorum</i>
Chimney swift	<i>Chaetura pelagica</i>
Chipping sparrow	<i>Spizella passerina</i>
Chuck-will's-widow*	<i>Caprimulgus carolinensis</i>
Common grackle*	<i>Quiscalus quiscula</i>
Common ground dove*	<i>Columbina passerina</i>
Common moorhen*	<i>Gallinula chloropus</i>
Common nighthawk*	<i>Chordeiles minor</i>
Common snipe*	<i>Gallinago gallinago</i>
Common yellowthroat*	<i>Geothlypis trichas</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Double-crested cormorant*	<i>Phalacrocorax auritus</i>
Downy woodpecker*	<i>Picoides pubescens</i>
Eastern bluebird*	<i>Sialis sialis</i>
Eastern kingbird*	<i>Tyrannus tyrannus</i>
Eastern meadowlark*	<i>Sturnella magna</i>
Eastern phoebe*	<i>Saynoris phoebe</i>
Eastern screech owl*	<i>Otus asio</i>
Eastern towhee*	<i>Pipilo erythrophthalmus</i>
Field sparrow	<i>Spizella pusilla</i>
Fish crow*	<i>Corvus ossifragus</i>
Florida wild turkey*	<i>Meleagris gallopavo osceola</i>
Forster's tern	<i>Sterna forsteri</i>
Fulvous whistling-duck*	<i>Dendrocygna bicolor</i>
Gadwall	<i>Anas strepera</i>
Glossy ibis*	<i>Plegadis falcinellus</i>

Table 13. Bird species known or expected to occur on the JWCWMA

Common name	Scientific name
Grasshopper sparrow	<i>Ammodramus savannarum</i>
Gray catbird*	<i>Dumetella carolinensis</i>
Great blue heron*	<i>Ardea herodias</i>
Great crested flycatcher*	<i>Myiarchus crinitus</i>
Great egret*	<i>Ardea alba</i>
Greater yellowlegs*	<i>Tringa melanoleuca</i>
Great-horned owl*	<i>Bubo virginianus</i>
Green heron*	<i>Butorides virescens</i>
Green-winged teal	<i>Anas crecca</i>
Hairy woodpecker*	<i>Picoides villosus</i>
Hermit thrush	<i>Catharus guttatus</i>
Herring gull	<i>Larus argentatus</i>
Hooded merganser*	<i>Lophodytes cucullatus</i>
House wren	<i>Troglodytes aedon</i>
Indigo bunting	<i>Passerina cyanea</i>
Killdeer*	<i>Charadrius vociferus</i>
King rail	<i>Rallus elegans</i>
Lark sparrow	<i>Chondestes grammacus</i>
Least bittern*	<i>Ixobrychus exilis</i>
Least sandpiper	<i>Calidris minutilla</i>
Lesser black-backed gull	<i>Larus fuscus</i>
Lesser scaup	<i>Aythya affinis</i>
Lesser yellowlegs*	<i>Tringa flavipes</i>
Lincoln's sparrow	<i>Melospiza lincolni</i>
Loggerhead shrike*	<i>Lanius ludovicianus</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Mallard*	<i>Anas platyrhynchos</i>
Marbled godwit	<i>Limosa fedoa</i>
Marsh wren	<i>Cistothorus palustris</i>
Merlin	<i>Falco columbarius</i>
Mottled duck*	<i>Anas fulvigula</i>
Mourning dove*	<i>Zenaida macroura</i>
Northern bobwhite*	<i>Colinus virginianus</i>
Northern cardinal*	<i>Cardinalis cardinalis</i>
Northern flicker*	<i>Colaptes auratus</i>
Northern harrier*	<i>Circus cyaneus</i>
Northern mockingbird*	<i>Mimus polyglottos</i>
Northern parula*	<i>Parula americana</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Northern waterthrush	<i>Seiurus noveboracensis</i>
Orange-crowned warbler	<i>Vermivora celata</i>

Table 13. Bird species known or expected to occur on the JWCWMA

Common name	Scientific name
Ovenbird	<i>Seiurus aurocapillus</i>
Painted bunting	<i>Passerina ciris</i>
Palm warbler*	<i>Dendroica palmarum</i>
Peregrine falcon	<i>Falco peregrinus</i>
Pied-billed grebe*	<i>Podilymbus podiceps</i>
Pileated woodpecker*	<i>Dryocopus pileatus</i>
Pine warbler*	<i>Dendroica pinus</i>
Prairie warbler*	<i>Dendroica discolor</i>
Purple gallinule	<i>Porphyryla martinica</i>
Red-bellied woodpecker*	<i>Melanerpes carolinus</i>
Red-headed woodpecker*	<i>Melanerpes erythrocephalus</i>
Red-shouldered hawk*	<i>Buteo lineatus</i>
Red-tailed hawk*	<i>Buteo jamaicensis</i>
Red-winged blackbird*	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Ring-necked duck	<i>Aythya collaris</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Sedge wren	<i>Cistothorus platensis</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-tailed hawk*	<i>Buteo brachyurus</i>
Smooth-billed ani*	<i>Crotophaga ani</i>
Solitary sandpiper*	<i>Tringa solitaria</i>
Sora*	<i>Porzana carolina</i>
Southern bald eagle*	<i>Haliaeetus leucocephalus</i>
Spotted sandpiper	<i>Actitis macularia</i>
Stilt sandpiper	<i>Calidris himantopus</i>
Swallow-tailed kite*	<i>Elanoides forficatus</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Tree swallow*	<i>Tachycineta bicolor</i>
Tufted titmouse	<i>Baeolophus bicolor</i>
Turkey vulture*	<i>Cathartes aura</i>
Virginia rail	<i>Rallus limicola</i>
Whip-poor-will*	<i>Caprimulgus vociferus</i>
White pelican**	<i>Pelecanus erythrorhynchos</i>
White-eyed vireo*	<i>Vireo griseus</i>
White-winged dove	<i>Zenaida asiatica</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Wood duck*	<i>Aix sponsa</i>
Yellow rail	<i>Coturnicops noveboracensis</i>

Table 13. Bird species known or expected to occur on the JWCWMA

Common name	Scientific name
Yellow-bellied sapsucker*	<i>Sphyrapicus varius</i>
Yellow-billed cuckoo*	<i>Coccyzus americanus</i>
Yellow-crowned night heron*	<i>Nyctanassa violacea</i>
Yellow-rumped warbler*	<i>Dendroica coronata</i>
Yellow-throated warbler*	<i>Dendroica dominica</i>

* = species which have been verified as occurring on the JWCWMA

** = rare sightings

Table 14. Exotic Fauna Known or Expected to Occur on JWCWMA

Common name	Scientific name
Amphibians	
Giant toad*	<i>Bufo marinus</i>
Cuban treefrog*	<i>Osteopilus septentrionalis</i>
Birds	
Common peafowl*	<i>Pavo cristatus</i>
Eurasian collared dove	<i>Streptopelia decaocto</i>
European starling	<i>Sturnus vulgaris</i>
House sparrow	<i>Passer domesticus</i>
Rock dove	<i>Columba livia</i>
Fish	
Grass carp*	<i>Ctenopharyngodon idella</i>
Spotted tilapia	<i>Tilapia mariae</i>
Striped bass x. White bass hybrid*	<i>Morone saxatilis x. chrysops</i>
Walking catfish*	<i>Clarias batrachus</i>
Mammals	
Black rat*	<i>Rattus rattus</i>
Coyote* ¹	<i>Canis latrans</i>
House mouse	<i>Mus musculus</i>
Nine-banded armadillo* ¹	<i>Dasypus novemcinctus</i>
Norway rat	<i>Rattus norvegicus</i>
Wild hog*	<i>Sus scrofa</i>
Reptiles	
Brown anole*	<i>Anolis sagrei</i>
Green iguana*	<i>Iguana iguana</i>
Indo-Pacific gecko*	<i>Hemidactylus garnotti</i>

Table 14. Exotic Fauna Known or Expected to Occur on JWCWMA

Common name	Scientific name
Nile monitor*	<i>Varanus niloticus</i>
Northern curlytail lizard	<i>Leiocephalus carinatus armouri</i>

* = Species which have been verified as occurring on the JWCWMA

† = Native to North America

Management Intent

The JWCWMA is managed by FWC as a wildlife management area in conformance with the original purposes for acquisition noted above in order to ensure the preservation of fish and wildlife resources, other natural and cultural resources, and for fish and wildlife based public outdoor recreation. The FWC uses a comprehensive resource management approach to managing FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. FWC uses Objective-based Vegetation Management (OBVM) to monitor how specific vegetative parameters are responding to FWC management. OBVM includes the delineation of management units and quantification of the desired future condition for the natural community.

In addition, FWC uses the WCPR program to ensure management is having the desired effect on wildlife as another important component of FWC's comprehensive resource management approach to managing FWC-managed areas. The goal of WCPR is to provide assessment, recovery and planning support for FWC-managed areas to enhance management of focal species and recovery of imperiled species. The WCPR program objectives include prioritizing what FWC does for imperiled and focal species on FWC-managed areas; ensuring the actions taken on these areas are part of statewide conservation programs and priorities; and informing others about the work accomplished on lands FWC manages. As noted above, the WCPR strategy for the JWCWMA was completed in 2011.

Conditions Affecting Intensity of Management

Resources described in this management prospectus indicate conditions affecting intensity of management. These include natural community types, topography and soils, surface and ground water conditions, extent of historic disturbance and already existing improvements. Environmentally sensitive areas, such as erosion-prone sites, important habitats and outstanding natural areas and wetlands shall be identified, appropriately managed and protected.

The FWC conducts analysis of historic vegetation of natural community types when necessary to determine appropriate desired future conditions. Upland wildlife management concentrates on appropriate vegetative manipulations, primarily the application of

prescribed fire, to achieve conditions acceptable to a broad range of wildlife species. Areas sometimes require ecological restoration of ground cover, control of invasive species and reforestation. Such resource management projects may be necessary to accomplish restoration objectives to attain the desired future condition. This is especially important for conservation of habitats and populations of imperiled or rare species. Landscape ecology is also important. Land use changes in the vicinity of a managed area may affect attainment of resource conservation goals for the area and effectiveness of necessary resource management projects.

Timetable for Implementing Management Provisions

A management plan has been developed by FWC describing the management goals and objectives, along with short-term (2 years) and long-term (3-10 years) completion timelines, necessary to implement future resource management. The management plan also establishes the current and future roles of cooperating entities including governmental agencies, non-governmental organizations and other stakeholders.

Long-range plans will stress ecosystem management and the protection and management of focal, species of special concern, rare and imperiled species. Historic analysis of natural communities and vegetation types may be conducted if deemed necessary. Quantified vegetation management objectives shall be developed. The FWC shall continue to assess the condition of wildlife resources and provide planning support to enhance management of focal species and recovery of imperiled species on the JWCWMA. Use of prescribed fire and other essential resource management activities have been implemented to maintain and restore natural communities and vegetation types to benefit native wildlife resources.

Estimate of Revenue-Generating Potential

The revenue generating potential of the JWCWMA will depend upon future uses to be approved in the management plan. However, revenue from JWCWMA may include sales of various permits and recreational user fees and ecotourism activities, if such projects could be economically developed. Revenue may also be generated from special opportunity hunts. The annual area regulations can be consulted to clarify the necessary and required permits, fees and regulations. The long-term values of ecosystem services to local and regional land and water resources, and to human health, are expected to be significant. The Legislature appropriates funds for land management.

Recreational Use Economic Impacts

Authorized recreational uses are managed consistent with the purposes of acquisition of the JWCWMA that include preserving the conservation and ecological integrity of the area while managing for low intensity, multiple-uses, thereby providing areas for fish and wildlife-based public outdoor recreation. The JWCWMA provides a range of recreational opportunities for Florida's citizens and visitors, including hunting, fishing, wildlife viewing,

bird watching, hiking, bicycling, picnicking, horseback riding, scenic driving, and camping. The JWCWMA is a highly utilized area. In the 2011-2012 fiscal year, an estimated 145,080 visitors visited the JWCWMA. An FWC economic analysis indicates that the JWCWMA generated an estimated annual economic benefit of \$1,681,477 for the State and South Florida region and a multiplier (ripple) effect of \$28,347,181. This estimated annual economic impact has aided in the creation of an estimated 289 jobs.

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

Recommendations as to Other Governmental Agency Involvement

FWC will cooperate with other state and local governmental agencies including Martin County, Palm Beach County, DEP, SFWMD, and Florida Forest Service among others, in the continuing management of the property.

Estimate of Costs

Following is an estimate of costs to operate and manage the JWCWMA under the JWCWMA Management Plan. Optimal management of the JWCWMA would require twelve full-time equivalent (FTE) positions to optimally manage the area. Salary requirements for these FTE positions, as well as those of other needed FWC staff, and costs to operate and manage the JWCWMA are reflected in the cost estimates below. All land management funding is dependent upon annual legislative appropriations.

J.W. Corbett WMA Management Plan Cost Estimate
Maximum expected one year expenditure

<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	<u>Priority schedule:</u>
Exotic Species Control	\$778,823	(1)	(1) Immediate (annual)
Prescribed Burning	\$136,805	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	\$32,920	(1)	(3) Other (5+ years)
Timber Management	\$0	(1)	
Hydrological Management	\$75,552	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	\$579,846	(1)	
Subtotal	\$1,603,947		
<u>Administration</u>			
General administration	\$182,529	(1)	
<u>Support</u>			
Land Management Planning	\$86,457	(1)	
Land Management Reviews	\$0	(3)	
Training/Staff Development	\$24,054	(1)	
Vehicle Purchase	\$475,732	(2)	
Vehicle Operation and Maintenance	\$141,008	(1)	
Other (Technical Reports, Data Management, etc.)	\$11,896	(1)	
Subtotal	\$739,147		
<u>Capital Improvements</u>			
New Facility Construction	\$0	(2)	
Facility Maintenance	\$308,897	(1)	
Subtotal	\$308,897		
<u>Visitor Services/Recreation</u>			
Info./Education/Operations	\$629,043	(1)	
<u>Law Enforcement</u>			
Resource protection	\$55,118	(1)	
<u>Total</u>	\$3,518,682	*	

*Based on the characteristics and requirements of this area, 12 FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

J.W. Corbett WMA Management Plan Cost Estimate
Ten-year projection

<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	<u>Priority schedule:</u>
Exotic Species Control	\$6,842,824	(1)	(1) Immediate (annual)
Prescribed Burning	\$1,201,983	(1)	(2) Intermediate (3-4 years)
Cultural Resource Management	\$289,239	(1)	(3) Other (5+ years)
Timber Management	\$0	(1)	
Hydrological Management	\$663,812	(1)	
Other (Restoration, Enhancement, Surveys, Monitoring, etc.)	\$5,094,592	(1)	
Subtotal	\$14,092,450		
<u>Administration</u>			
General administration	\$1,603,723	(1)	
<u>Support</u>			
Land Management Planning	\$759,622	(1)	
Land Management Reviews	\$9,952	(3)	
Training/Staff Development	\$211,339	(1)	
Vehicle Purchase	\$1,674,120	(2)	
Vehicle Operation and Maintenance	\$1,238,912	(1)	
Other (Technical Reports, Data Management, etc.)	\$104,522	(1)	
Subtotal	\$3,998,466		
<u>Capital Improvements</u>			
New Facility Construction	\$586,132	(2)	
Facility Maintenance	\$2,714,003	(1)	
Subtotal	\$3,300,136		
<u>Visitor Services/Recreation</u>			
Info./Education/Operations	\$5,526,844	(1)	
<u>Law Enforcement</u>			
Resource protection	\$484,276	(1)	
<u>Total</u>	\$29,005,894	*	

*Based on the characteristics and requirements of this area, 12 FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

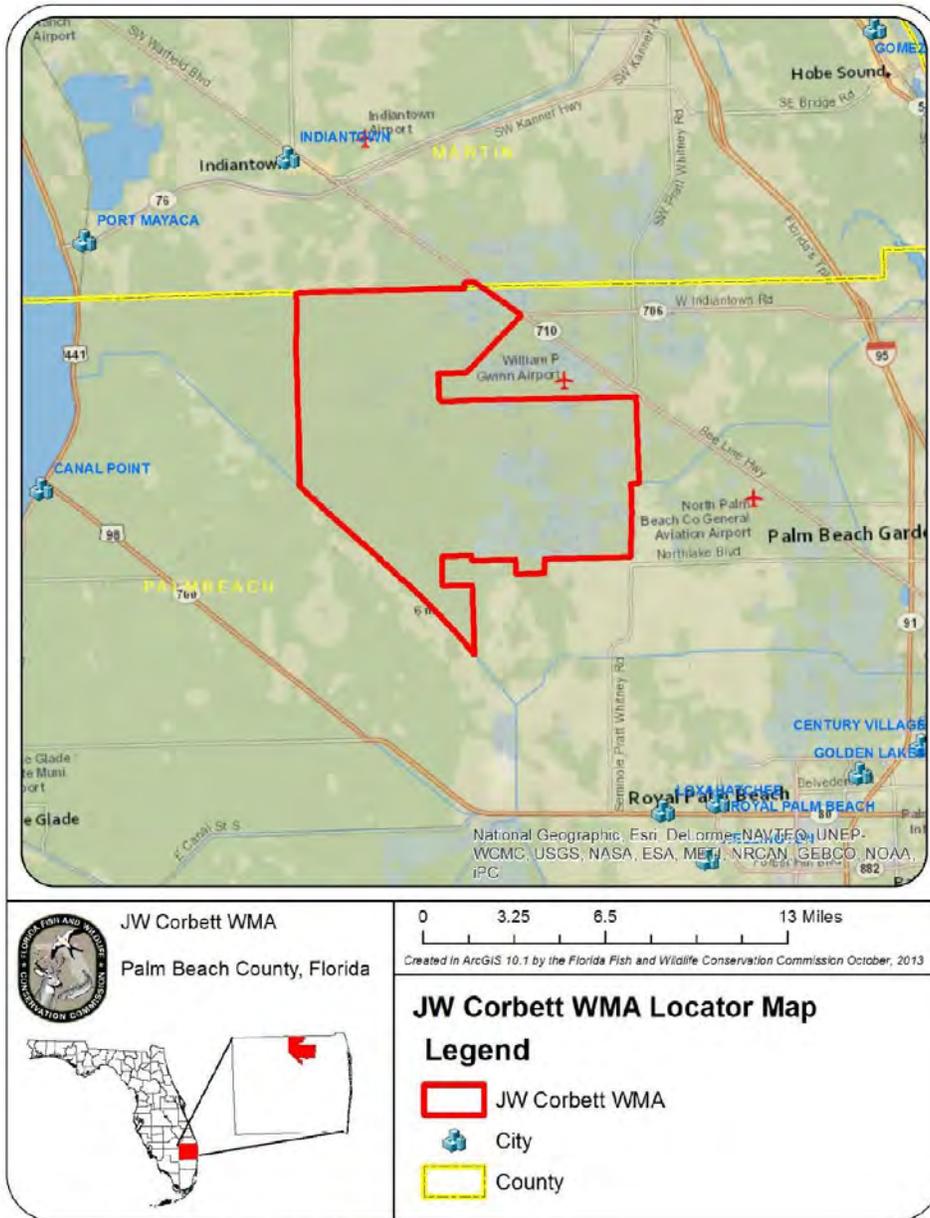


Figure 1. Location of JWCWMA

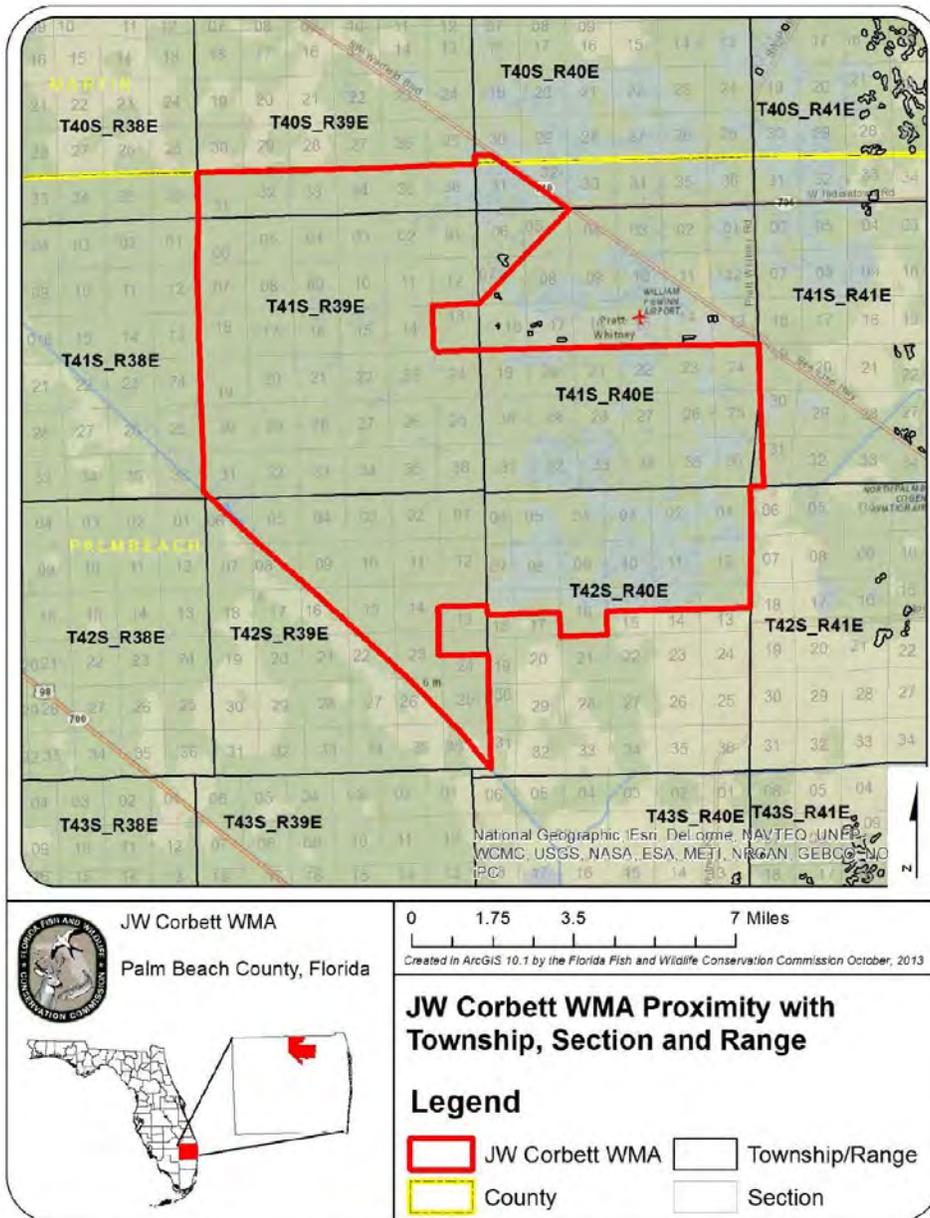


Figure 2. JWCWMA Proximity Map with Section, Township and Range

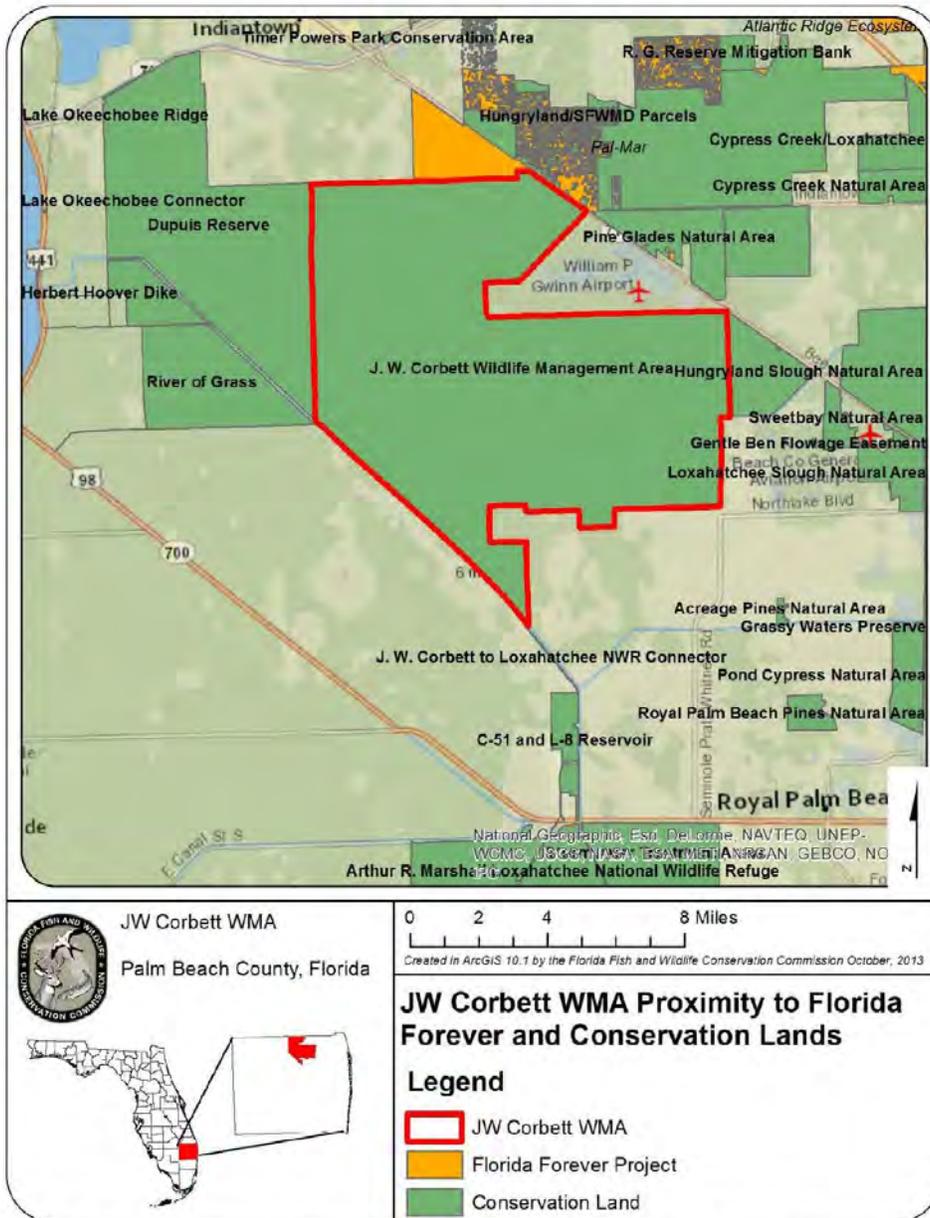


Figure 3. Vicinity Map with Conservation Land and Florida Forever Projects

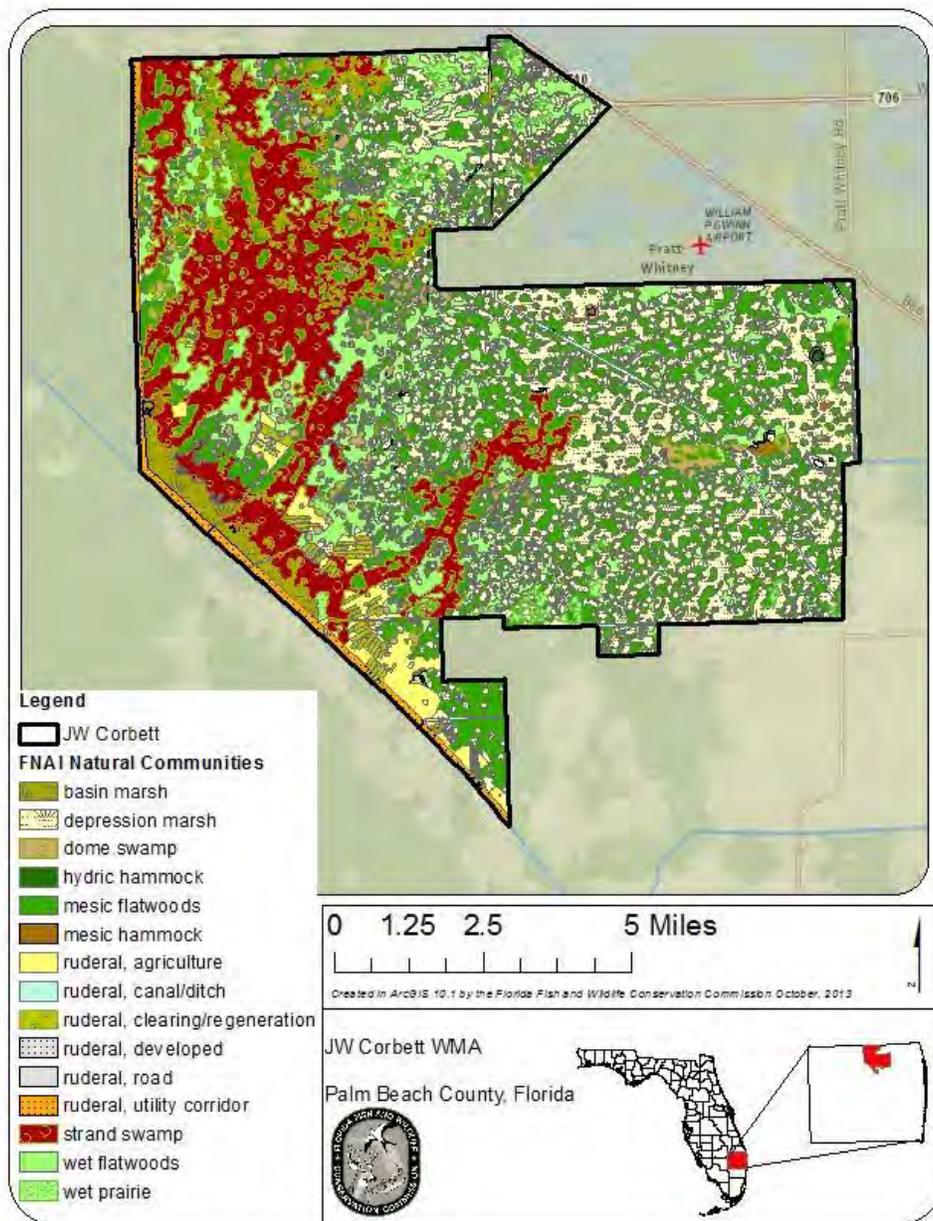


Figure 4. JWCWMA Natural Communities

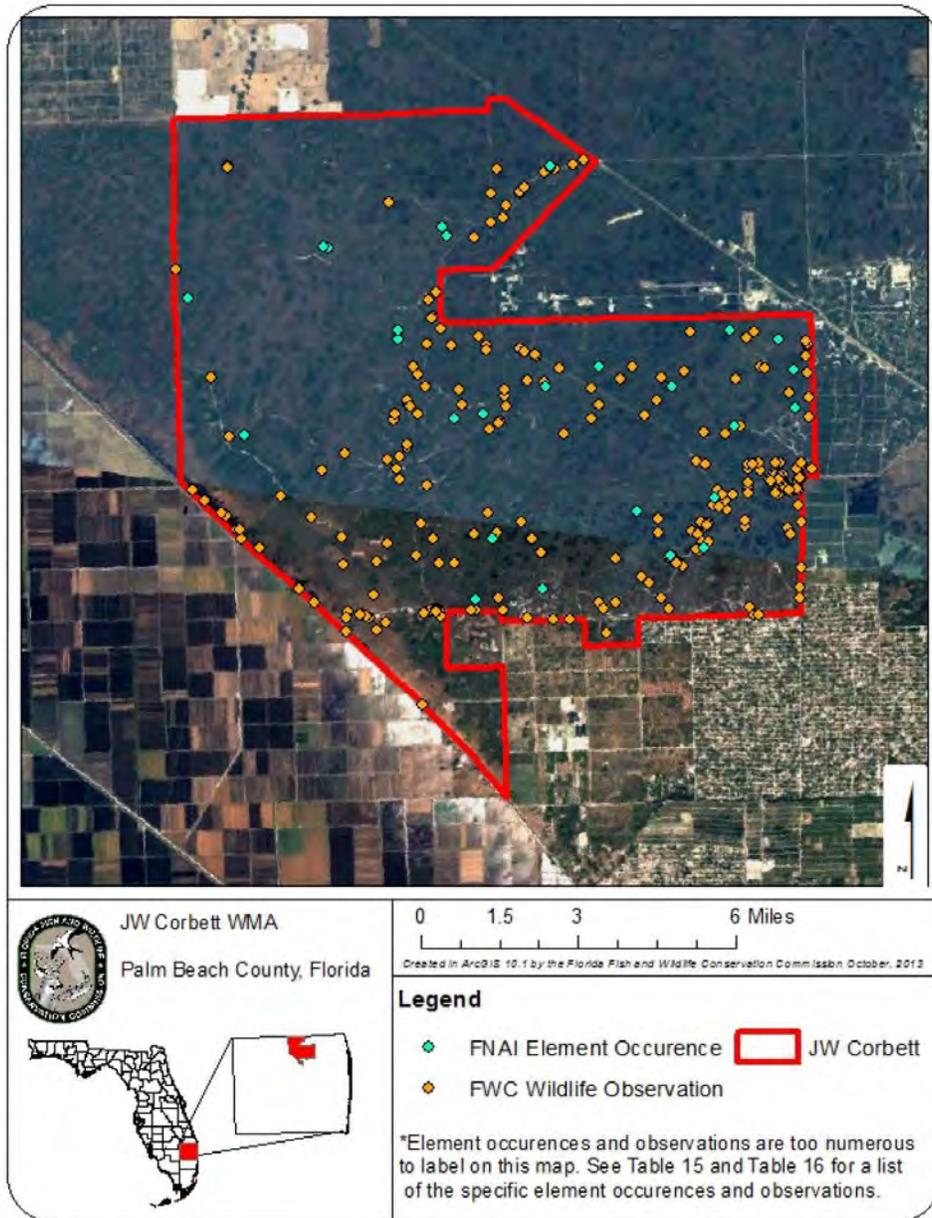


Figure 5. FWC Wildlife Observations and FNAI Element Occurrences

Table 15. FWC Wildlife Observations Displayed on Figure 5

Common name	Scientific name	# of Observations
American bittern	<i>Botaurus lentiginosus</i>	2
American coot	<i>Fulica americana</i>	1
American redstart	<i>Setophaga ruticilla</i>	4
American white pelican	<i>Pelecanus erythrorhynchos</i>	2
American woodcock	<i>Scolopax minor</i>	3
Bachman's sparrow	<i>Aimophila aestivalis</i>	12
Bald eagle	<i>Haliaeetus leucocephalus</i>	20
Barn owl	<i>Tyto alba</i>	5
Barred owl	<i>Strix varia</i>	4
Belted kingfisher	<i>Ceryle alcyon</i>	2
Black vulture	<i>Coragyps atratus</i>	2
Black-and-white warbler	<i>Mniotilta varia</i>	3
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	6
Black-necked stilt	<i>Himantopus mexicanus</i>	1
Blackpoll warbler	<i>Dendroica striata</i>	1
Black-throated blue warbler	<i>Dendroica caerulescens</i>	2
Black-throated green	<i>Dendroica virens</i>	2
Blue-headed vireo	<i>Vireo solitarius</i>	2
Blue-winged teal	<i>Anas discors</i>	2
Bobcat	<i>Lynx rufus</i>	1
Brown thrasher	<i>Toxostoma rufum</i>	3
Bufflehead	<i>Bucephala albeola</i>	2
Cape may warbler	<i>Dendroica tigrina</i>	1
Carolina wren	<i>Thryothorus ludovicianus</i>	4
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	2
Common ground-dove	<i>Columbina passerina</i>	2
Common yellowthroat	<i>Geothlypis trichas</i>	4
Cottonmouth	<i>Agkistrodon piscivorus</i>	4
Crested caracara	<i>Caracara plancus</i>	15
Cuban treefrog	<i>Osteopilus septentrionalis</i>	4
Downy woodpecker	<i>Picoides pubescens</i>	3
Eastern bluebird	<i>Sialia sialis</i>	8
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>	2
Eastern indigo snake	<i>Drymarchon corais</i>	1
Eastern kingbird	<i>Tyrannus tyrannus</i>	2
Eastern meadowlark	<i>Sturnella magna</i>	1
Eastern screech-owl	<i>Otus asio</i>	14
Evening bat	<i>Nycticeius humeralis</i>	1
Florida Sandhill crane	<i>Grus Canadensis pratensis</i>	54
Florida softshell turtle	<i>Apalone ferox</i>	1
Glossy ibis	<i>Plegadis falcinellus</i>	2
Golden-winged warbler	<i>Vermivora chrysoptera</i>	1

Table 15. FWC Wildlife Observations Displayed on Figure 5

Common name	Scientific name	# of Observations
Gopher tortoise	<i>Gopherus polyphemus</i>	7
Gray-cheeked thrush	<i>Catharus minimus</i>	1
Great blue heron	<i>Ardea herodias</i>	12
Great egret	<i>Casmerodius albus</i>	6
Great horned owl	<i>Bubo virginianus</i>	1
Greater yellowlegs	<i>Tringa melanoleuca</i>	1
Green anole	<i>Anolis carolinensis</i>	1
Green heron	<i>Butorides striatus</i>	2
Green treefrog	<i>Hyla cinerea</i>	1
Hairy woodpecker	<i>Picoides villosus</i>	3
Hooded merganser	<i>Lophodytes cucullatus</i>	6
House wren	<i>Troglodytes aedon</i>	2
Killdeer	<i>Charadrius vociferus</i>	1
Least tern	<i>Sterna antillarum</i>	1
Lesser yellowlegs	<i>Tringa flavipes</i>	2
Limpkin	<i>Aramus guarana</i>	25
Little blue heron	<i>Egretta caerulea</i>	17
Loggerhead shrike	<i>Lanius ludovicianus</i>	2
Marsh wren	<i>Cistothorus palustris</i>	12
Merlin	<i>Falco columbarius</i>	3
Mottled duck	<i>Anas fulvigula</i>	2
Northern bobwhite	<i>Colinus virginianus</i>	3
Northern flicker	<i>Colaptes auratus</i>	2
Northern waterthrush	<i>Seiurus noveboracensis</i>	2
Osprey	<i>Pandion haliaetus</i>	6
Ovenbird	<i>Seiurus aurocapillus</i>	2
Painted bunting	<i>Passerina ciris</i>	2
Palm warbler	<i>Dendroica palmarum</i>	3
Perigrine falcon	<i>Falco peregrinus</i>	1
Pileated woodpecker	<i>Dryocopus pileatus</i>	2
Pine warbler	<i>Dendroica pinus</i>	1
Prairie warbler	<i>Dendroica discolor</i>	6
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	2
Red-eyed vireo	<i>Vireo olivaceus</i>	4
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	2
Red-shouldered hawk	<i>Buteo lineatus</i>	16
Red-tailed hawk	<i>Buteo jamaicensis</i>	4
Ring-necked duck	<i>Aythya collaris</i>	2
River otter	<i>Lutra canadensis</i>	38
Roseate spoonbill	<i>Platalea ajaja</i>	6
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	2
Ruby-crowned kinglet	<i>Regulus calendula</i>	2

Table 15. FWC Wildlife Observations Displayed on Figure 5

Common name	Scientific name	# of Observations
Semipalmated sandpiper	<i>Calidris pusilla</i>	1
Snail kite	<i>Rostrhamus sociabilis</i>	33
Snowy egret	<i>Egretta thula</i>	2
Song sparrow	<i>Melospiza melodia</i>	1
Southern black racer	<i>Coluber constrictor priapus</i>	1
Southern cricket frog	<i>Acris gryllus</i>	2
Southern flying squirrel	<i>Glaucomys volans</i>	1
Summer tanager	<i>Piranga rubra</i>	2
Swainson's thrush	<i>Catharus ustulatus</i>	1
Swallow-tailed kite	<i>Elanoides forficatus</i>	34
Swamp sparrow	<i>Melospiza georgiana</i>	2
Tree swallow	<i>Tachycineta bicolor</i>	1
Tricolored heron	<i>Egretta tricolor</i>	8
Turkey vulture	<i>Cathartes aura</i>	1
Veery	<i>Catharus fuscescens</i>	1
Western sandpiper	<i>Calidris mauri</i>	1
White ibis	<i>Eudocimus albus</i>	2
White-tailed deer	<i>Odocoileus virginianus</i>	2
Wild turkey	<i>Meleagris gallopavo</i>	7
Winter wren	<i>Troglodytes hiemalis</i>	1
Wood duck	<i>Aix sponsa</i>	4
Wood stork	<i>Mycteria americana</i>	4
Worm-eating warbler	<i>Helmitheros vermivorus</i>	1
Yellow rat snake	<i>Elaphe obsoleta</i>	1
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	1
Yellow-rumped warbler	<i>Dendroica coronata</i>	1

Table 16. FNAI Element Occurrences Displayed on Figure 5

Common name	Scientific name	Occurrences
Bald Eagle	<i>Haliaeetus leucocephalus</i>	3
Banded Wild-pine	<i>Tillandsia flexuosa</i>	1
Eastern Indigo Snake	<i>Drymarchon couperi</i>	1
Florida Panther	<i>Puma concolor coryi</i>	1
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	1
Giant Orchid	<i>Pteroglossaspis ecristata</i>	2
Great Egret	<i>Ardea alba</i>	1
Little Blue Heron	<i>Egretta caerulea</i>	1
Many-flowered Grass-pink	<i>Calopogon multiflorus</i>	6
Red-cockaded Woodpecker	<i>Picoides borealis</i>	8
Swallow-tailed Kite	<i>Elanoides forficatus</i>	1
Toothed Maiden Fern	<i>Thelypteris serrata</i>	1

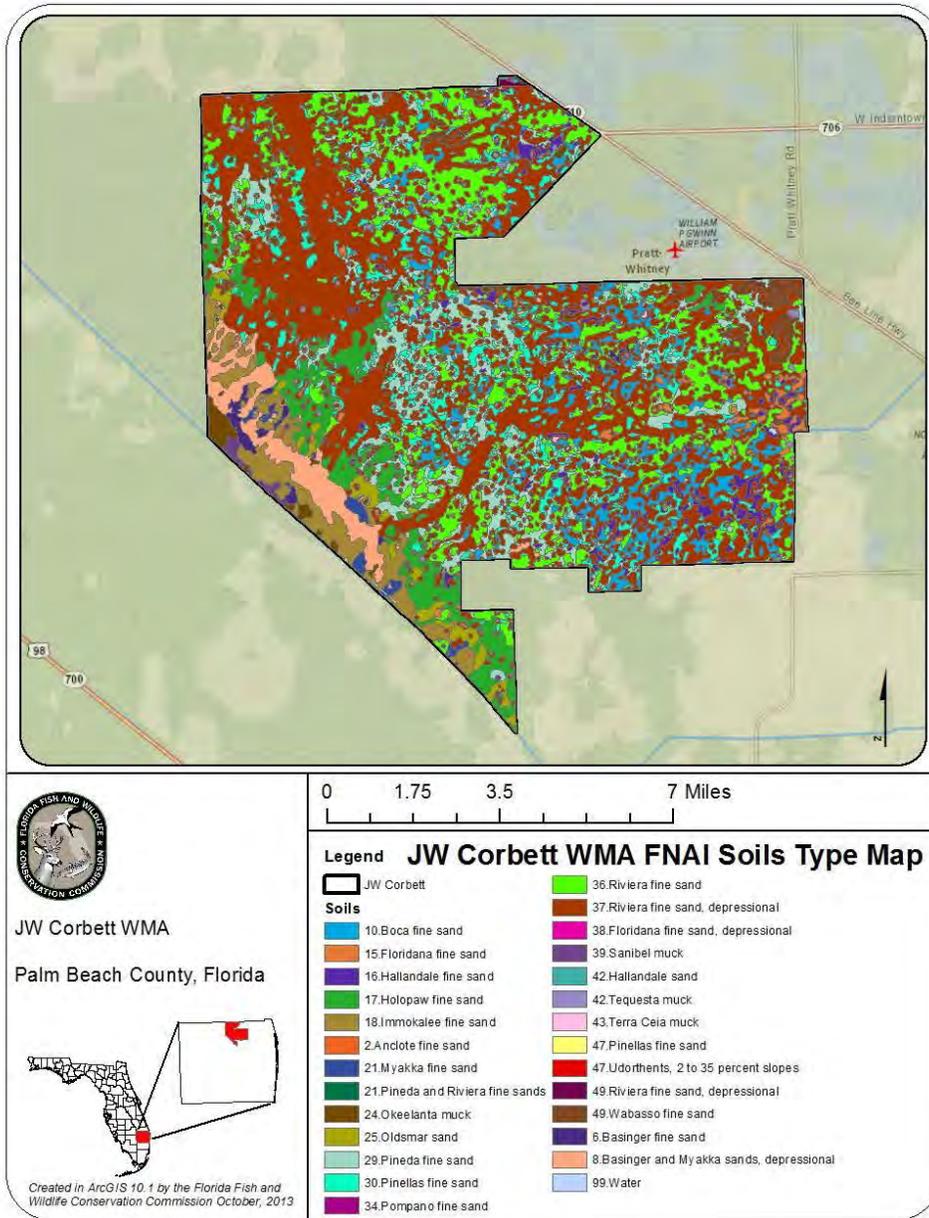


Figure 6. JWCWMA Soils

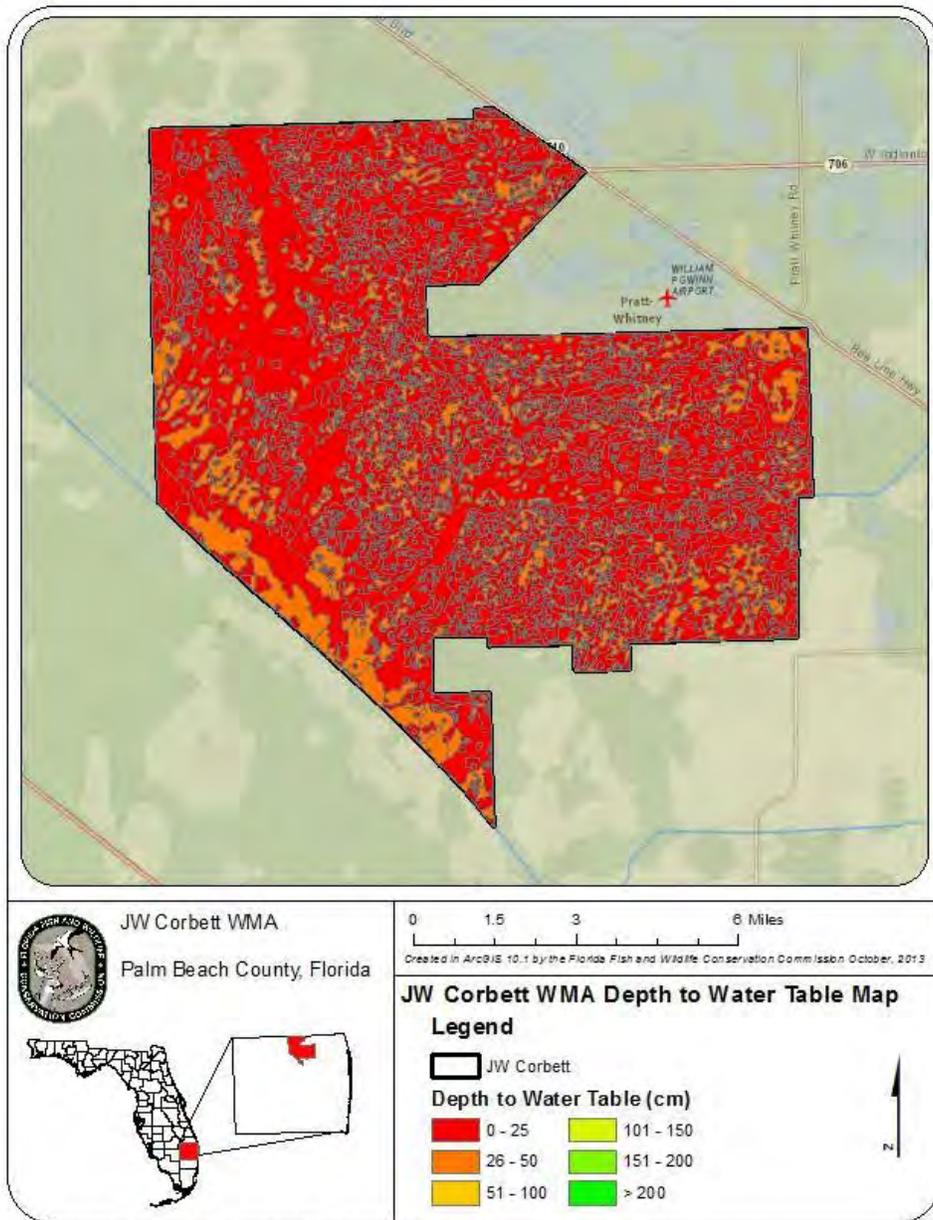


Figure 7. JWCWMA Depth to Water Table

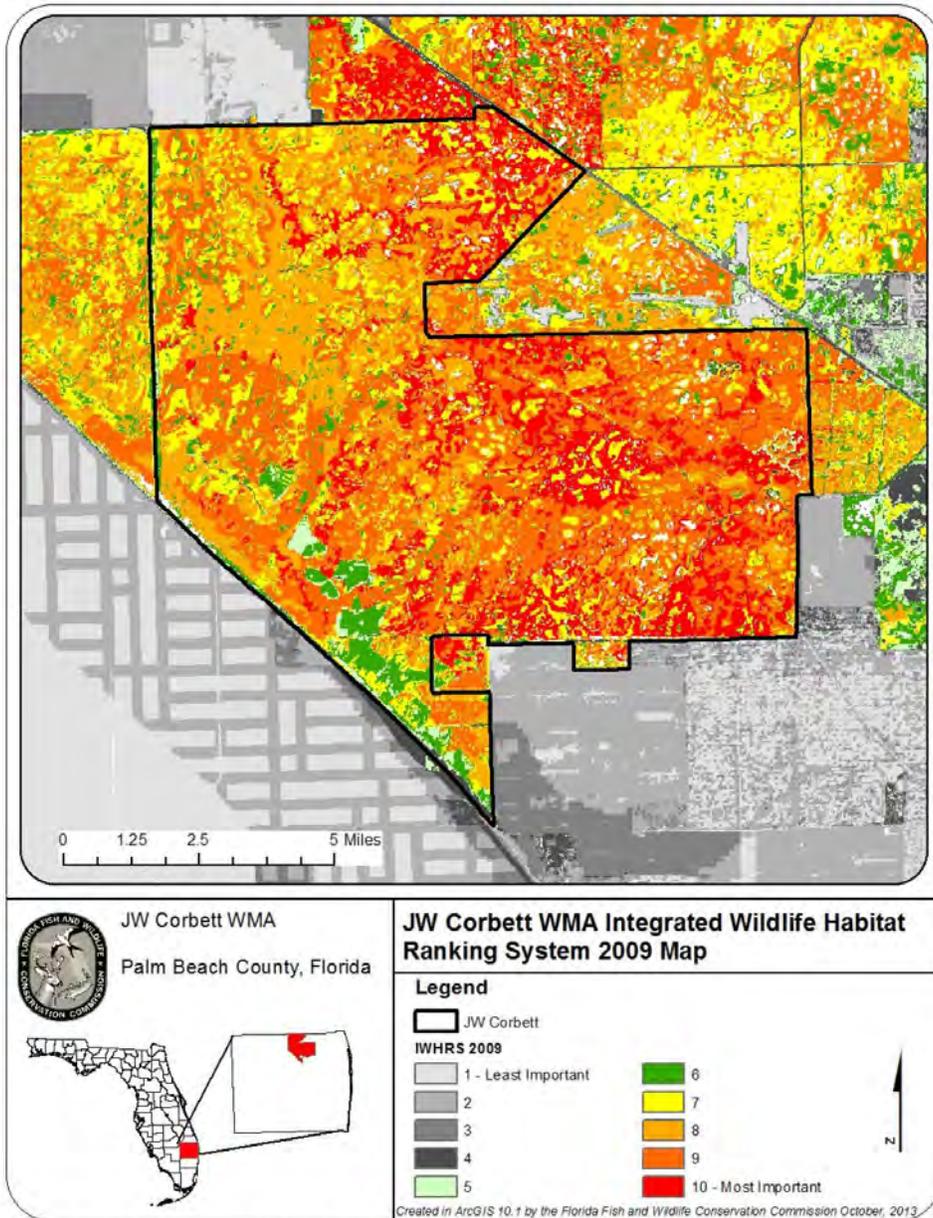


Figure 8. FWC Integrated Wildlife Habitat Ranking System 2009

13.3.4 Public Hearing Meeting Results

PUBLIC HEARING REPORT
FOR THE
J.W. CORBETT WILDLIFE MANAGEMENT AREA
MANAGEMENT PLAN
HELD BY THE
J.W. CORBETT MANAGEMENT ADVISORY GROUP
AND THE
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
OCTOBER 30, 2013 – PALM BEACH COUNTY, FLORIDA

The following report documents the public input that was received at the J.W. Corbett Wildlife Management Area (JWCWMA) Management Advisory Group's (MAG) Public Hearing for the update to the Management Plan for JWCWMA that was held at 7:00-9:00 PM, on October 30, 2013, at the Palm Beach County Vista Center in West Palm Beach, Florida.

JWCWMA Management Advisory Group Introduction:

The meeting was introduced by Ms. Susan Kennedy, a JWCWMA MAG participant, who represented the Florida Greenways and Trails Council of Palm Beach County Florida. Ms. Kennedy indicated that she was one of eighteen stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated MAG meeting held on September 18, 2013. Ms. Kennedy 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. Ms. Kennedy thanked everyone for attending and then introduced FWC staff Mr. Gary Cochran, Land Conservation and Planning Administrator, FWC, to facilitate and coordinate the presentation of an overview of JWCWMA; FWC's planning process, and the draft components of the Management Plan.

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

Planning Process: Mr. Cochran facilitated an informal question and answers session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mr. Cochran again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the draft Management Plan for JWCWMA, and not to discuss area hunting, fishing and use regulations.

An anonymous man asks a series of questions:

Public Question: regarding section 2.7, Forest Resource Management: He wanted to know if FWC was planning on harvesting pines at Corbett.

FWC Response: Mr. Cochran told him that the only harvesting FWC does on any of our lands is for restoration, enhancement, and maintenance. He informed that gentleman that FWC is required to develop a forest assessment on every tract of State-owned land. FWC is focusing on restoring, enhancing and maintaining those communities once we feel that they're at that natural, intact condition of what that community type should be. On Corbett, virtually every natural area is in a maintenance mode and is generally intact so there are not as many large areas that need to be thinned, as we have on many of our other areas. Therefore, there's not a plan to harvest any of the timber on the area currently. Mr. Gene Colwell, FWC Biologist Manager for JWCWMA added that they will look at areas they believe may benefit from an assessment, but may not be harvesting timber in the area.

Public Question: His next question was regarding section 2.8 about exotic invasive species: He wanted to know if FWC was planning on managing the wild hog population.

FWC Response: Mr. Cochran informed the gentleman that FWC is planning on reconsidering the current regulations for hogs at Corbett. Current state regulations have done away with the shoulder height and bagging limit because the hogs are so destructive and yet continue to be thriving. He told the gentleman that this is what FWC has in line for their other lands. He told the gentleman that FWC is going to suggest increasing the bagging limit as well as the shoulder height, if this is approved for the Corbett area.

Public Question: His last question was regarding section 2.9.1 about administrative operations: This had to do with the construction of three new facilities to house land managers and FWC technicians to improve retention. He wanted further clarification on this.

FWC Response: Mr. Cochran told him that in the south, FWC has difficulty maintaining quality staff due to salaries and cost of living so they've found that in those southern areas, where it's difficult, they often will allow the managers and staff to live on the area. He added that FWC does this on many of their lands because they find that it improves

management in those areas.

Public Question: An anonymous gentleman wanted to know why those two particular issues were not brought up at the MAG meeting. He believes that these are very important issues and should have been considered during the meeting discussion.

FWC Response: Mr. Cochran informed him that this was because they were part of additional input FWC received after the meeting. He told him that it's only a recommendation and it may not get approved and FWC would need to find funding as well as a suitable site because they do not want to damage area resources for those facilities.

Presentation of the JWCWMA Draft Management Plan

At this point, Mr. Gene Colwell, the JWCWMA Area Biologist began the presentation of the draft management plan. Mr. Colwell then completed and concluded the presentation of the JWCWMA Draft Management Plan.

Questions and Comments on the JWCWMA Draft Management Plan Presentation

Mr. Cochran encouraged everyone to fill out a speaker card for public testimony. He informed them that all comments either provided as formal public testimony or as comments and questions from the audience will be considered equally.

Public Question: An anonymous gentleman wanted to know what a stakeholder is and what it means to work with them and gain their support (specifically in regards to wild hog regulation). He said that he is part of Airboat Halftrack group and wanted to know if this group would be considered a stakeholder group. The gentleman informed him that they would like to be notified next time Corbett holds any kind of meeting so they can provide input.

FWC Response: Mr. Colwell gave the example of the Florida Sportsman group and explained that stakeholders are generally hunting or recreational users or groups FWC and Corbett rely on to gain support as well as answers on issues concerning those areas (WMAs) and how they affect those individuals. Mr. Colwell replied to him that yes, the Airboat Halftrack would be considered a stakeholder group and we would try to get information to them to try to gain input from that group.

Public Question: The same gentleman wanted to know about the aerial deer surveys and how FWC and Corbett determine which deer are in the area and which are not based on those aerial views. He made the comment that deer sleep during the day so that would make aerial surveys difficult. He suggested possibly using cameras to track the deer.

FWC Response: Mr. Colwell informed the gentleman that Corbett has not done aerial surveys for their population estimates (buck to doe ratios). He said that the numbers are formulated by using both deer seen as well as deer not seen so they're going to determine the feasibility of doing aerial surveys in the area. He told the gentleman that using cameras can be difficult because they're not cheap and have been vandalized in the past. Corbett has done spotlight counts as well that they can use for pre and post estimates of populations, however those can also be unreliable. Mr. Colwell also said that as palmetto

encroachments get larger, it's harder to do counts with spotlight tracks. So they're relying on aerial surveys as a last resource to get an estimate of population.

Public Question: An anonymous man wanted to know how much it cost to build the new JWCWMA office.

FWC Response: Mr. Dave Sweetay, the area's district biologist, gave the gentleman a ball-park estimate of a couple hundred thousand. Mr. Colwell told the gentleman that he would look into it further and would get back to him with that information.

Public Question: An anonymous man asked if there is someplace online people can go to see the schedule of meetings and where they're going to be held. He was concerned because he did not know about the MAG meeting until it after it was over. The gentleman wanted to know specifically if the Airboat Association group was invited.

FWC Response: Mr. Cochran told him that FWC posts all their public meetings on the FWC website. The MAG meetings however, are not considered to be a public meeting, the intent of those is to identify and invite what FWC refers to as 'technical advisory group stakeholders' from all the main user groups from resource experts and other agency experts. FWC is required, under law, to assemble this sort of advisory group and get their professional input before the public meeting. Therefore, this type of meeting would not be intended for the public. FWC tries to identify all the important stakeholder groups that would be using the area and make sure they're invited to gain their input. FWC invited representatives from each group that they thought had a historic and on-going use or knowledge about that area. He told the gentleman however, not everyone who is invited necessarily attends. Mr. Cochran assured him that yes, the Airboat Association was invited and that they did attend.

Public Comment: An anonymous gentleman made the comment that he would really like to be a 'fly on the wall' and simply listen in on the topics being discussed instead of necessarily providing input at these MAG meetings. Others seemed interested in this idea as well, to be able to attend these MAG meetings just to hear what those issues were that were being discussed.

Public Question: An anonymous man wanted to know how someone would get invited to these MAG meetings, and why his group did not get an invitation to the meeting. A woman in this same group informed the public that the regional director knows who they are and that they should have been invited. Someone else from the audience, who was able to attend the MAG, informed her that they'd seen her name and that she had been invited.

FWC Response: Mr. Cochran apologized and informed her that there must have been a misconnection in her receiving the email.

Public Question: An anonymous woman wanted to make sure the universities that do research in Corbett or other FWC areas have an exit plan for when they are finished in a particular area. She wanted to make sure they know how important it is to clean up after themselves. She said that many research stations put structures out and forget to clean

them up and now those structures are getting grown over and this can be a big hazard.

FWC Response: Mr. Cochran informed her that it is generally FWC policy to have all structures removed, but he believes the structures that she's referring to were put there a long time ago and so in the past, agencies weren't as rigorous as they should have been.

Ms. Susan Kennedy has a couple different questions she wanted to address:

Public Question: The first one was in regards to the hydrological-greenway highway connection; she wanted to know if FWC was working with the planning and development which is currently going on for Highway 710. She said that there's a meeting about this tomorrow (10/31/13) and that someone from FWC or JWCWMA should attend.

FWC Response: Mr. Cochran informed her that FWC does have staff attending, however for items like this, staffing is a big issue and occasionally our staff is stretched pretty thin. Therefore, to have representatives at every meeting in the region is difficult.

Public Question: Her second question was if Indian trails or SFWMD were going to help with measures to monitor the water quality testing. She said SFWMD may be willing to build on their site because it feeds into their receiving body.

Public Question: She also wanted to know if Corbett is part of Ocean to Lake Greenway because she couldn't find anything where they were. She could not find anything in the Prospectus or in the Management Plan that is part of the Ocean to Lake Greenway, a state designated greenway, and she suggested FWC state it in the Prospectus that they are part of that.

Public Comment: As a MAG participant Ms. Kennedy wanted to add that she supports FWC and JWCWMA in their attempt to receive funding for staff on the site because it's important having key management on site. Ms. Kennedy also indicated that in section 2.4.9 we need to check with forestry because there's a name correction on the Florida Trails Association, the Ocean to Lake Trail, which is no longer part of FNST. Ms. Kennedy also stated that she is looking forward to participating in recreational planning for the 17 miles of non-motorized trails and that they look forward to creating more non-motorized trails in that area and for opportunities for regional recreational activities.

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

Public Testimony Question: Mr. Charles LoBrutto asked if Corbett was doing anything for people with disabilities regarding off-road hunting. He understands that they can hunt off the roads but, they're unable to go scouting around. He has the permit but he says it does not allow him to do that. He said that there's a specific clause that says they cannot go far off trail if they're disabled.

FWC Response: Mr. Colwell assured him that the permit will allow you to use an ATV to do your scouting off the road. However, he will look further into the regulation about that clause, but as he understands it that permit should allow you to do that.

Public Testimony Question: Mr. Tom McWatters asked why there's nothing in the plan about maintenance of machinery.

FWC Response: Mr. Colwell informed him that this is because maintenance of machinery falls under 'normal operational duties' category which is why it's not listed as an objective, equipment is a necessity and a normal operation. Mr. Cochran added that there will be a cost estimate section in the Prospectus and the final Management Plan which will cover cost estimates for vehicles as well as other required duties and expenditures.

Public Testimony Comment: Mr. Bishop Wright Jr, representing the Florida Sportsman Conservation Association, informed the public that they are proud of the Corbett area and the Everglades Youth Conservation Camp (EYCC) and all its traditional uses. He is also proud that JWCWMA does not follow the same guidelines a lot of other WMAs do. JWCWMA is one of many WMAs that does not allow hunters to harvest does during archery season, other than the last weekend. He's also proud of the early 1990s when the JWCWMA implemented the 20 inch shoulder length for hog hunting. He wanted to let the public know that this is a very populated area and the allocated hunting season is relatively short. They (Florida Sportsman Association) fought to get and keep the 20 inch hog regulations and they will continue to fight for it because he believes the younger generations love to hunt that. He also wanted to let the public know that they're not okay with development in areas that are not already developed.

Public Testimony Question: Susan Kennedy: Ms. Kennedy indicated that she made her points earlier in the Q&A session (above).

Public Testimony Comment: Ms. Martha Musgrove, speaking on behalf of the Florida Wildlife Federation, called attention to section 2.6 of the Plan about hydrology which she believes is of great concern because she has also been meeting with the SFWMD on hydrology issues in the region and Corbett vicinity. She stated that there are lots of vacant lots that developers are trying to develop surrounding the Leon Moss Tract. In the hydrology section, we need a part that addresses what we're going to do with the Leon Moss Tract. Due to its location, we need to be prepared to enter into negotiations about what we want to trade or give up.

Ms. Martha Musgrove continued. In regards to recreational aspects (section 2.4.4), JWCWMA has a daily carrying capacity of 965 visitors, from the 2012 reports it was estimated that Corbett had about 135,000 visitors that year (which is about 1/3 of yearly carrying capacity being used). According to this data, recreational use needs to be encouraged because you're going to be surrounded by urban areas that have lots of hunting and other recreational activities. There needs to be more emphasis on recreation to urban residence. She also mentioned that the youth camp needs more sprucing up because it's been in same condition for many years now. She said that there needs to be improvements

to the drainage at the cabins because she believes it's important for our youth to have this outdoor experience and we should support outdoor youth activities.

Public Testimony Comment: Mr. Todd Hallman, representing the Florida Sportsman Conservation Association and Future Hunting of Florida commented regarding scouting for disabilities; He claimed that there's no scouting for anyone regardless of whether or not they have disabilities, it's walking only.

Mr. T Hallman continued and indicated that he agrees with the managing of the hogs but he disagrees with removal of the 20 inch shoulder length requirement. He believes that the south has a problem with hogs, that there are not enough hogs down south and that's not good for the panther population Mr. Hallman also indicated that his final comment was in regards to potential building construction. He objects to new housing for managers and FWC technicians on the site. He suggests that we use money allocated for construction and put it in a bank to let it raise interest, and then use that money to pay staff more.

Adjournment: Mr. Cochran asked if there were any other members of the public that wished to give public testimony. Having received no further requests to give public testimony, Mr. Cochran declared the public hearing adjourned.

13.4 Soil Series Descriptions

Anclote - [Sandy, siliceous, hyperthermic Typic Endoaquolls] The Anclote series consists of deep, rapidly permeable soils that formed in thick beds of sandy marine sediments. These soils occur in depressions, low nearly flat poorly defined drainageways and on flood plains. Under natural conditions, they are saturated and frequently covered with shallow water during the summer rainy season. Slopes are less than 2 percent. These soils have a fluctuating but shallow water table. They formed in thick beds of sandy marine sediments. Mean annual precipitation is about 55 inches, and mean annual air temperature is about 74 degrees F. near the type location. Anclote soils are used mainly for range and forest. A few cleared areas are used for truck, bulb, and flower crops, and improved pasture. Native vegetation consists of cypress, bay, popash, pond pine, scattered cabbage palms, maple trees, and juncus species.

Basinger – [Siliceous, hyperthermic Spodic Psammaquents] The Basinger series consists of very deep, poorly drained and very poorly drained soils in sloughs, depressions, low flats, and poorly defined drainageways. They formed in sandy marine sediments. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent. Poorly drained and very poorly drained; rapid permeability. Most areas of Basinger soil that are cleared are used for rangeland. With water control, the soils are used for winter truck crops and tame pasture. Natural vegetation consists of wax myrtle, St. Johns-wort, maidencane, pineland threeawn, cypress, slash pine, longleaf pine, pond pine, and other water tolerant plants.

Boca – [Loamy, siliceous, superactive, hyperthermic Arenic Endoaqualls] The Boca series consists of moderately deep, poorly drained and very poorly drained, moderately permeable soils in low broad flats, poorly defined drainageways and depressions of the flatwoods and adjacent tidal flats. They formed in sandy and loamy marine sediments deposited over limestone bedrock. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 1 percent. Most areas of Boca soils are used for rangeland. With adequate water control, some areas are used for truck crops, citrus, and pasture. Native vegetation consists of gallberry, saw palmetto, cabbage palmettos, slash pine, and an understory of pineland threeawn.

Chobee – [Fine-loamy, siliceous, superactive, hyperthermic Typic Argiaquolls] The Chobee series consists of very deep, very poorly drained, slowly to very slowly permeable soils in depressions, flats, and occasionally on river flood plains in the lower Coastal Plain. They formed in thick beds of loamy marine sediments. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent. The drained areas are used principally for citrus, pasture, and range. Most of the soils remain in their natural state and have vegetation consisting of pickerelweed, lilies, sawgrass, and scattered swamp maples in treeless areas. Some areas have a growth of ash, gum, maple, and cypress.

Dania – [Euic, hyperthermic, shallow Lithic Haplosaprists] The Dania series consists of nearly level, very poorly drained organic soils that are shallow to limestone. They formed in thin beds of well decomposed, hydrophitic, non-woody, plant remains in fresh water marshes or swamps on the fringes of areas of deeper organic soils. The mean annual rainfall is about 60 inches and the mean annual temperature is about 74 degrees F. Dania soils are very poorly drained. Runoff is slow. Internal drainage is impeded by a very shallow water table. Permeability is rapid. The water table is at depths of less than 10 inches for 6 to 12 months except during extended dry seasons. During wet seasons these soils are flooded. Some small areas are cleared and are used for sod and improved pasture. Most of the areas are undeveloped and are used for water storage and as a wildlife habitat. Native vegetation is sawgrass, lillies, sedges, and other water tolerant plants. Florida elder and scattered cypress are common tree species.

Floridana – [Loamy, siliceous, superactive, hyperthermic Arenic Argiaquolls] The Floridana series consists of very deep, very poorly drained, slowly to very slowly permeable soils on low broad flats, flood plains, and in depressional areas. They formed in thick beds of sandy and loamy marine sediments. Near the type location, the mean annual temperature is about 74 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 1 percent. Many areas of Floridana soils have been cleared and used for pasture. Where water control is adequate, it is used for growing truck crops and citrus. Natural vegetation consists of sand cordgrass, cabbage palmetto, myrtle, and pineland threeawn. In depressional areas, most of the soil has a sparse to dense cover of cypress. In flood plains, the vegetation is mostly sweetgum, blackgum, red maple, and cypress.

Hallandale – [Siliceous, hyperthermic Lithic Psammaquents] The Hallandale series consists of shallow, poorly and very poorly drained, rapidly permeable soils formed in thin deposits of marine sandy materials over limestone. They occur on broad low flats, sloughs, shallow depressions, and adjacent tidal areas in Peninsular Florida. They are saturated during the summer rainy season and after periods of heavy rainfall in other seasons. Slopes are less than 2 percent. In their native state, most of these soils are used for range land and tame pasture. Native vegetation consists of pineland threeawn, paspalum spp., bluejoint panicum, blue maidencane, bluestem, scattered cypress, saw palmettos, and slash pine. In tidal areas the vegetation includes seashore saltgrass, needlegrass rush, Jamaica sawgrass, smooth cordgrass and saltwort.

Holopaw – [Loamy, siliceous, active, hyperthermic Grossarenic Endoaqualfs] The Holopaw series consists of deep and very deep, poorly and very poorly drained soils formed in sandy marine sediments. These soils are rapidly permeable in the A and E horizons and moderately or moderately slowly permeable in the B horizon. These soils are on low lying flats, in poorly defined drainages or depressional areas. Slopes range from 0 to 2 percent. Large areas of Holopaw soils are used for range. With adequate water control, these soils are used for citrus, truck crops, and tame pasture. Native vegetation is scattered slash and

pond pine, cabbage and saw palmettos, scattered cypress, myrtle, sand cordgrass, and pineland threeawn.

Immokalee – [Sandy, siliceous, hyperthermic Arenic Alaquods] The Immokalee series consists of deep and very deep, poorly drained and very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Slopes are dominantly 0 to 2 percent but range to 5 percent. Principal vegetation is longleaf and slash pines and undergrowth of saw palmetto, gallberry, wax myrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblollybay gordonia, red maple, sweetbay, maidencane, blue maidencane, chalky bluestem, sand cordgrass, and bluejoint panicum are more common. Most areas are used for range and forest. Large areas with adequate water management are used for citrus, tame pasture, and truck crops.

Myakka – [Sandy, siliceous, hyperthermic Aeric Alaquods] The Myakka series consists of deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to sloping barrier islands. They have rapid permeability in the A horizon and moderate or moderately rapid permeability in the Bh horizon. Slopes range from 0 to 8 percent. Rainfall averages about 50 to 60 inches annually with mean annual air temperature of about 70 to 74 degrees F. Most areas are used for commercial forest production or native range. Large areas with adequate water control measures are used for citrus, improved pasture, and truck crops. Native vegetation includes longleaf and slash pines with an undergrowth of saw palmetto, running oak, inkberry, wax myrtle, huckleberry, chalky bluestem, pineland threeawn, and scattered fetterbush.

Okeelanta – [Sandy or sandy-skeletal, siliceous, euic, hyperthermic Terric Haplosaprists] The Okeelanta series consists of very deep, very poorly drained, rapidly permeable soils in large fresh water marshes and small depressional areas. They formed in decomposed hydrophytic non-woody organic material overlying sand. Near the type location, the mean annual temperatures is about 74 degrees F., and the mean annual precipitation is about 59 inches. Slopes range from 0 to 2 percent. Many areas of Okeelanta soils are cleared and are used for truck crops, sod, sugarcane, and improved pasture grasses. Some areas are not developed and are used for water storage and as a wildlife habitat. Native vegetation consists of sawgrass, lilies, sedges, and other water tolerant plants. Willow, southern bayberry, and melaleuca are common tree species.

Oldsmar – [Sandy, siliceous, hyperthermic Alfic Arenic Alaquods] The Oldsmar series consists of very deep, poorly drained and very poorly drained soils in flats and depressions of Peninsular Florida. They formed in sandy marine sediments overlying loamy materials. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent. Most areas of Oldsmar soils remain in native vegetation. Areas with water control are used for citrus, truck crops, and tame pasture. Native vegetation consists of cabbage palmetto, saw

palmetto, live oak, slash pine, with an undergrowth of laurel, wax myrtle, and pineland threeawn. In depressions the trees are cypress, blackgum, pond pine, loblolly bay, red maple, and sweetbay. Other plants included maidencane, blue maidencane, chalky bluestem, sand cordgrass, and bluejoint panicum.

Pineda – [Loamy, siliceous, active, hyperthermic Arenic Glossaqualfs] The Pineda series consists of deep and very deep, poorly to very poorly drained, slowly to very slowly permeable soils that formed in thick beds of marine sandy and loamy sediments on the lower Coastal Plain. Slopes range from 0 to 2 percent. Average annual precipitation is about 50 to 60 inches and the mean annual air temperature is about 70 to 74 degrees F. Citrus, truck crops, and tame pasture are grown on drained areas. In their undrained state, these soils are used for range. Natural vegetation is slash pine, cypress, myrtle, cabbage palm, blue maidencane, chalky bluestem, bluepoint panicum, sedges, pineland threeawn, and sand cordgrass.

Pinellas – [Loamy, siliceous, superactive, hyperthermic Arenic Endoaqualfs] The Pinellas series consists of deep, poorly drained sandy soils that formed in sandy marine sediments over loamy sediments. These soils are on nearly level areas bordering sloughs and depressions. Slopes range from 0 to 2 percent. Runoff is slow. Permeability is rapid to moderately rapid. The water table is within depths of 12 inches for less than 3 months and is 12 to 40 inches deep for 2 to 6 months during most years. It may recede to depths of more than 40 inches during extended dry seasons. These soils are used primarily for native range or grazed woodland. A few areas on which water control measures have been established are used for growing citrus or improved pasture. Natural vegetation consists of cabbage palm, saw palmetto, scattered slash pine, inkberry, maidencane, and pineland threeawn.

Pomello - [Sandy, siliceous, hyperthermic Oxyaquic Alorthods] The Pomello series consists of very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils formed in sandy marine sediments in the flatwoods areas of Peninsular Florida. Slopes range from 0 to 5 percent. Precipitation averages 50 to 60 inches, and average air temperature is 70 to 74 degrees F. Pomello soils are mostly used for range and forest production. A few areas are used for pasture. In its northern extent of occurrence many areas are used for urban development. Native vegetation is dominated by scrub oak, dwarf live oak, saw palmetto, longleaf pine, slash pine, and pine land threeawn.

Pompano – [Siliceous, hyperthermic Typic Psammaquents] The Pompano series consists of very deep, very poorly drained, rapidly permeable soils in depressions, drainageways, and broad flats. They formed in thick beds of marine sands. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 50 inches. Slopes range from 0 to 2 percent. Most areas of this soil is used for rangeland. Where drained, it is used for growing truck crops, citrus fruits, and improved pasture.

Natural vegetation consists of palmetto, widely spaced cypress, gum, and slash pine, and native grasses.

Riviera – [Loamy, siliceous, active, hyperthermic Arenic Glossaqualfs] The Riviera series consists of deep, poorly drained, slowly to very slowly permeable soils that formed in stratified marine sandy and loamy sediments on the Lower Coastal Plain. Gradients are less than 2 percent. The soil formed in stratified marine sands and sandy clay loam. Near the type location, mean annual precipitation is about 62 inches; mean annual temperature is about 75 degrees F. With adequate water control, these soils are used for citrus, winter truck crops, and improved pasture. Native vegetation is slash pine, cabbage, and saw palmetto, scattered cypress, maidencane, and pineland threeawn.

Sanibel – [Sandy, siliceous, hyperthermic Histic Humaquepts] The Sanibel series consists of very poorly drained sandy soils with organic surfaces. They formed in rapidly permeable marine sediments. The soils occur on nearly level to depressional areas with slopes less than 2 percent. Near the type location annual precipitation averages about 63 inches and mean annual temperature is about 75 degrees F. Most areas are in natural vegetation which consists mostly of sawgrass, melaleuca, and wax myrtle. Most areas are used for range. A few areas are drained and used for improved pasture or vegetable crops.

Tequesta – [Loamy, siliceous, active, hyperthermic Arenic Glossaqualfs] The Tequesta series consists of very poorly drained, moderately slowly permeable soils that formed in stratified marine sandy and loamy sediments on the Lower Coastal Plain. Slopes are less than 2 percent. Mean annual precipitation is about 62 inches and mean annual air temperature is about 75 degrees F. near the type location. Some areas have been drained and are used for improved pasture and sod production. Most areas remain in natural vegetation of needlegrass, pickerelweed, maidencane, ferns, wax myrtle, and scattered cypress.

Terra Ceia – [Euic, hyperthermic Typic Haplosaprists] The Terra Ceia series consists of very deep, very poorly drained organic soils that formed from nonwoody fibrous hydrophytic plant remains. They occur mostly in nearly level fresh water marshes and occasionally on river flood plains and in tidal swamps or flats. Gradients are less than 1 percent. Climate is humid and warm. Average annual rainfall is 50 to 60 inches; mean annual air temperature is about 70 to 74 degrees F. Drained areas are used for truck and bulb crops, sugarcane, and improved pasture. Natural vegetation includes sawgrass, lilies, sedges, reeds, maidencane, and other aquatic plants. Wooded areas include cypress, blackgum, cabbage palm, carolina ash, loblolly bay, red maple, sweetbay, and pond pine. American and white mangrove trees are dominate in tidal areas. Large undeveloped areas are used for water storage and and as wildlife habitat.

Wabasso – [Sandy, siliceous, hyperthermic Alfic Alaquods] The Wabasso series consists of deep and very deep, poorly drained and very poorly drained soils. They formed in sandy and loamy marine sediments on flatwoods, flood plains, and in depressions in Peninsula

Florida. Slopes range from 0 to 2 percent. Average annual precipitation is 50 to 60 inches and average annual temperature is more than 70 to 74 degrees F. Most of the Wabasso soil is in natural vegetation and is used for native range. Natural vegetation consists of longleaf and slash pines, cabbage palm and live oak, with an understory of saw palmetto, laurel oak, wax myrtle, chalky bluestem and pineland threeawn. Areas with adequate water control measures are used for citrus, truck crops, and tame pasture.

Winder – [Fine-loamy, siliceous, hyperthermic Typic Glossaqualfs] The Winder series consists of deep, poorly drained, slowly to very slowly permeable soils formed in loamy marine materials on the Lower Coastal Plain. Slopes range from 0 to 2 percent. Mean annual precipitation is about 55 inches and mean annual temperature is about 73 degrees F. With adequate water control, areas of Winder soils are used for citrus, winter truck crops, and improved pasture. Natural vegetation consists of cordgrass, maidencane, cabbage and saw palmettos, and pineland threeawn.

13.5 Land Management Review

Name of Site: J.W. Corbett WMA

County: Palm Beach County

Managed by: Fish and Wildlife Conservation Commission

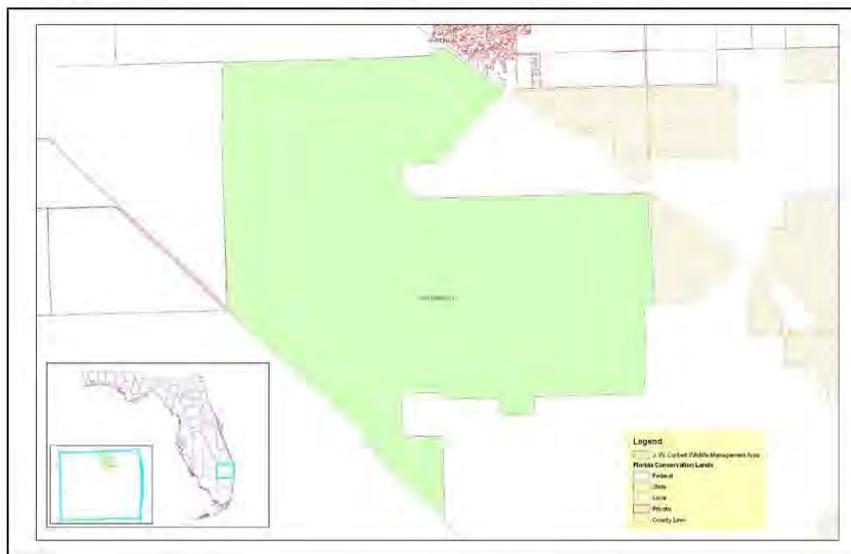
Acres: 1,460 Acres

Area Reviewed: 1,460 Acres

Review Date: 03/14/11

Management Plan Approval Date:

6/6/03



Review Team Determination

Managed in accordance with Acquisition purpose? Yes =7, No = 0



Management practices, including public access, in compliance with the management plan? Yes =7, No = 0



Categories	Management Plan Review	Field Review
Natural Communities	0.88	3.21
Listed Species	0.86	4.00
Natural Resource Survey	0.83	4.15
Cultural Resources	0.93	3.92
Prescribed Fire	0.81	2.67
Exotic Species	0.26	2.91
Hydrology	0.57	2.36
Surface Water Monitoring	0.79	2.77
Resource Protection	0.75	2.86
Adjacent Property Concerns	0.57	3.36
Public Access & Education	0.88	3.73
Management Resources	N/A	3.07
Managed Area Uses	1.00	N/A
Buildings, Equipment, Staff & Funding	N/A	3.11

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 their continued efforts at exotic plant management and monitoring. (VOTE: 7+, 0-)



2. The team commends the FWC on the steps taken towards implementation of their fire management plan, despite constraints, such as heavy public use. (VOTE: 7+, 0-)



3. The team commends the FWC on their initial efforts to increase the hog take through a more liberal harvest. (VOTE: 7+, 0-)



4. The team commends the manager and staff for their effective use of limited funds and use of volunteers for resource management. (VOTE: 7+, 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 to pursue efforts to increase hog harvest through efforts such as removal of shoulder height restrictions and/or increased bag limits. (VOTE: 7+, 0-)



Managing Agency Response: FWC annually evaluates the need to increase or revise area hunting regulations including hunting size and bag limits for wild hog. FWC will continue to monitor hogs, assess impacts on the area, and evaluate the need for future expansion of hog hunting opportunities.

2. The team recommends that FWC continue to look for opportunities for mechanical vegetation treatment of flatwoods to reduce heavy fuel loads and palmetto coverage. (VOTE: 7+, 0-)



Managing Agency Response: Overall vegetation management activities will be conducted through continuing implementation of FWC's Objective-based Vegetation Management (OBVM) desired future conditions and associated monitoring protocols. Along with prescribed fire, mechanical treatment of vegetation remains an important management tool for FWC.

3. The team recommends that FWC develop and implement a surface water monitoring program. (VOTE: 7+, 0-)



Managing Agency Response: Regional hydrological monitoring is within the jurisdiction and responsibility of the South Florida Water Management District (SFWMD). While we recognize the importance of this task, FWC does not have the expertise or the resources to independently monitor the hydrological functions and water quality on JWCWMA. FWC will continue to coordinate, consult, and participate with the WMDs' efforts to survey and monitor the hydrological functions of JWCWMA. FWC will continue to consider the results of WMD assessments and water quality monitoring in the development management goals, objectives and strategies. A discussion of any hydrological assessments conducted by the WMDs will be included in the next management plan update.

Field Review Checklist Findings

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

- Natural Communities, regarding cypress/dome swamps and basin marshes.
- Listed Species, regarding animal and plant inventory.
- Natural Resources, regarding listed species or habitat monitoring, other non-game species or habitat monitoring, fire effects monitoring, other habitat management effects monitoring, and invasive species survey/monitoring.
- Cultural Resources, regarding the cultural resource survey, protection and preservation of those resources.
- Resource Management, regarding the areas being burned and the frequency and quality of the burns.
- Non-native, Invasive and Problem Species, regarding control of plants and animals.
- Adjacent Property Concerns, regarding expanding development, inholdings and additions.
- Public Access & Education, regarding roads, parking, wildlife, invasive species, habitat management activities, and recreational opportunities.
- Management Resources, regarding buildings and equipment.

Items Requiring Improvement Actions in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than .5 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. Discussion regarding deficiencies with non-native, invasive and problem species, more specifically the prevention of plants, animals, pets/pathogens and the control of pests/pathogens, with documentation in the management plan.

Managing Agency Response: FWC notes that this is addressed on pages 7, 31, 36 and 37 of the current JWCWMA management plan. Invasive exotic species will be addressed further in the management plan update including plants and animals known to occur on JWCWMA. Natural communities that may have occurrences and densities of non-native plant species will be addressed through FWC's Objective-Based Vegetation Management desired future conditions and associated monitoring protocols. This information will be included in the management plan update.

Use of the terminology "pests/pathogen" is not clear since it is not a required element of management plans. FWC will evaluate the need to address the issue of pests/pathogens in the management plan update.

2. Hydrologic/Geologic Function, specifically the hydroperiod alterations and water level alterations, with documentation in the management plan.

Managing Agency Response: FWC notes that hydroperiod alterations are addressed on pages 31, 35, 42, 44, 61, and 66 of the current JWCWMA management plan. FWC will further expand this discussion in the update of the management plan.

3. Discussion concerning Adjacent Property Concerns, more specifically the inholdings/additions and the surplus lands identified, with documentation in the management plan.

Managing Agency Response: FWC notes that inholdings and additions are discussed on page 3, 7, 38, 39, and 52-57; determination of lands that should be identified as surplus is discussed on page 24. In addition, FWC has developed a comprehensive optimal conservation planning boundary development protocol which will include an analysis of adjacent land use, property concerns, conservation acquisitions, as well

as the further review of potential surplus land designations. This information will be incorporated in the update of the management plan.

PLAN REVIEW		1	2	3	4	5	6	7	AVERAGE
Natural Communities (I.A)									
Pine Flatwoods	I.A.1	1	1	1	1	1	1	0	0.86
Cypress/Dome Swamps	I.A.2	1	1	1	1	1	1	1	1.00
Basin Marsh	I.A.3	1	1	1	1	1	1	0	0.86
Wet Prairies	I.A.4	1	1	1	1	1	1	0	0.86
Mesic Hammocks	I.A.5	1	1	1	1	1	1	1	1.00
Depression Marsh	I.A.6	1	0	1	1	1	1	0	0.71
Listed species:Protection & Preservation (I.B)									
Animal Inventory	I.B.1	1	1	1	1	1	1	1	1.00
Plant Inventory	I.B.2	1	1	1	1	0	1	0	0.71
Natural Resources Survey/Management Resources (I,C)									
Listed species or habitat monitoring	I.C.2	1	1	1	1	1	1	1	1.00
Other non-game species or habitat monitoring	I.C.3	1	1	1	1	1	1	0	0.86
Fire effects monitoring	I.C.4	1	1	1	1	0	1	0	0.71
Other habitat management effects monitoring	I.C.5	1	1	1	1	0	1	0	0.71
Invasive species survey / monitoring	I.C.6	1	1	1	1	1	1	0	0.86
Cultural Resources (Archeological & Historic sites) (II.A,II.B)									
Cultural Res. Survey	II.A	1	0	1	1	1	1	1	0.86
Protection and preservation	II.B	1	1	1	1	1	1	1	1.00
Resource Management, Prescribed Fire (III.A)									
Area Being Burned (no. acres)	III.A.1	1	1	1	1	1	1	0	0.86
Frequency	III.A.2	1	1	1	1	0	1	1	0.86
Quality	III.A.3	1	1	1	1	0	1	0	0.71
Non-Native, Invasive & Problem Species (III.E)									
Prevention									
prevention - plants	III.E.1.a	0	0	0	0	0	0	0	0.00
prevention - animals	III.E.1.b	0	0	0	0	0	0	0	0.00
prevention - pests/pathogens	III.E.1.c	0	0	0	0	0	0	0	0.00
Control									
control - plants	III.E.2.a	1	1	1	1	1	1	1	1.00
control - animals	III.E.2.b	1	0	1	1	0	1	0	0.57
control - pest/pathogens	III.E.2.c	0	0	0	0	0	0	0	0.00
Hydrologic/Geologic function Hydro-Alteration (III.F.1)									
Roads/culverts	III.F.1.a	1	1	1	1	1	1	0	0.86

Ditches	III.F.1.b	1	1	1	1	0	0	0	0.57
Hydro-period Alteration	III.F.1.c	1	1	1	0	0	0	0	0.43
Water Level Alteration	III.F.1.d	1	1	1	0	0	0	0	0.43
Surface Water Monitoring (III.F.3)									
Surface water quality	III.F.3.a	1	0	1	0	1	1	1	0.71
Surface water quantity	III.F.3.b	1	0	1	1	1	1	1	0.86
Resource Protection (III.G)									
Boundary survey	III.G.1	1	0	1	1	1	1	0	0.71
Gates & fencing	III.G.2	1	0	1	1	1	1	0	0.71
Signage	III.G.3	1	0	1	1	1	1	0	0.71
Law enforcement presence	III.G.4	1	1	1	1	1	1	0	0.86
Adjacent Property Concerns (III.H)									
Land Use									
Expanding development	III.H.1.a	1	1	1	1	1	1	1	1.00
Inholdings/additions	III.H.2	1	0	0	0	1	1	0	0.43
Discussion of Potential Surplus Land Determination	III.H.3	1	0	0	0	1	1	1	0.57
Surplus Lands Identified?	III.H.4	1	0	0	0	0	1	0	0.29
Public Access & Education									
Public Access									
Roads	IV.1.a	1	1	1	1	1	1	1	1.00
Parking	IV.1.b	1	0	1	1	1	1	1	0.86
Environmental Education & Outreach									
Wildlife	IV.2.a	1	0	1	1	1	1	1	0.86
Invasive Species	IV.2.b	1	0	1	1	1	1	1	0.86
Habitat Management Activities	IV.2.c	1	0	1	1	1	1	1	0.86
Interpretive facilities and signs	IV.3	1	0	1	1	1	1	1	0.86
Recreational Opportunities	IV.4	1	1	1	1	1	1	1	1.00
Management of Visitor Impacts	IV.5	1	0	1	1	1	1	0	0.71
Managed Area Uses									
Existing Uses									
Hunting	VI.A.1	1	1	1	1	1	1	1	1.00
Fishing	VI.A.2	1	1	1	1	1	1	1	1.00
Horseback Riding	VI.A.3	1	1	1	1	1	1	1	1.00
Environmental Education	VI.A.4	1	1	1	1	1	1	1	1.00
Hiking	VI.A.5	1	1	1	1	1	1	1	1.00
Vehicle Access	VI.A.6	1	1	1	1	1	1	1	1.00
Bicycling	VI.A.7	1	1	1	1	1	1	1	1.00

Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 2.5 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. Management of Natural Communities, specifically pine flatwoods, with documentation in the management plan.

Managing Agency Response: FWC notes that under the field review checklist findings, the land management review team indicates that FWC management actions exceed expectations regarding areas being burned and the frequency and quality of the burns. FWC will continue to maintain a 3-5 year burn rotation in the pine flatwoods as conditions allow. FWC notes that management of natural communities is addressed in the JWCWMA management plan resource management goals beginning on page 34, pages 8-13, and 43-46. FWC has completed through contract with FNAI historic and natural communities mapping. Management of natural communities will be addressed through FWC's Objective-Based Vegetation Management desired future conditions and associated monitoring protocols. This information will be incorporated into the update of the management plan.

2. Discussion regarding Non-Native, Invasive Species, more specifically the prevention of animals, pests/pathogens and control of pests/pathogens, with documentation in the management plan.

Managing Agency Response: FWC notes that this topic appears to address deficiencies related to the management plan but appears in this section under items requiring actions in the field. FWC further notes that under the field review checklist findings, the land management review team indicates that FWC management actions exceed expectations for nonnative invasive and problem species regarding control of plants and animals. FWC notes that this is addressed on pages 7, 31, 36 and 37 of the current JWCWMA management plan. Invasive exotic species will be addressed further in the management plan update including plants and animals known to occur on JWCWMA. Natural communities that may have occurrences and densities of non-native plant species will be addressed through FWC's Objective-Based Vegetation Management desired future conditions and associated monitoring protocols. This information will be included in the management plan update.

Use of the terminology "pests/pathogen" is not clear since it is not a required element of management plans. FWC will evaluate the need to address the issue of pests/pathogens in the management plan update.

3. Hydrologic/Geologic Function, specifically ditches, hydroperiod alteration and water level alterations, with documentation in the management plan.

Managing Agency Response: There is an existing flowage easement which restrains FWC ability to manage and restore hydrological function on JWCWMA. FWC will also continue to participate in the Comprehensive Everglades Restoration Plan to the extent possible. FWC notes that hydroperiod alterations and ditches are addressed on pages 31, 35, 42, 44, 61, 64 and 66 of the current JWCWMA management plan. FWC will further expand this discussion in the update of the management plan.

4. The need for Surface Water monitoring, specifically the quality of the water, with documentation in the management plan.

Managing Agency Response:

Regional hydrological monitoring is within the jurisdiction and responsibility of the SFWMD. While we recognize the importance of this task, FWC does not have the expertise or the resources to independently monitor the hydrological functions and water quality on JWCWMA. FWC will continue to coordinate, consult, and participate with the WMDs' efforts to survey and monitor the hydrological functions of JWCWMA. FWC will continue to consider the results of WMD assessments and water quality monitoring in the development management goals, objectives and strategies. A discussion of any hydrological assessments conducted by the WMDs will be included in the next management plan update.

5. More action needed in Resource Protection, specifically with law enforcement presence, with documentation in the management plan.

Managing Agency Response: FWC will continue to evaluate and provide law enforcement as appropriate and feasible. FWC notes that current JWCWMA management plan addresses the need for additional law enforcement on page 38 and addresses challenges on page 5. FWC Law Enforcement staff will continue to evaluate and provide the appropriate level of law enforcement presence as funding and resources allow..

6. The need for Management Resources, specifically funding, with documentation in the management plan.

Managing Agency Response: FWC evaluates the need for more management resources, specifically staff and funding on a continuous basis, and will continue to seek appropriate funding for staff and resources sufficient to implement the plan's goals and objectives. All land management funding is dependent upon legislative appropriations.

FIELD REVIEW		1	2	3	4	5	6	7	AVERAGE
Natural Communities (I.A)									
Pine Flatwoods	I.A.1	3	2	2	2	3	2	2	2.50
Cypress/Dome Swamps	I.A.2	5	X	4	3	4	4	4	4.00
Basin Marsh	I.A.3	4	X	5	2	3	4	3	3.50
Wet Prairies	I.A.4	4	X	2	2	3	4	3	3.00
Mesic Hammocks	I.A.5	4	X	3	2	3	4	4	3.33
Depression Marsh	I.A.6	4	X	3	2	3	4	3	3.17
Listed species:Protection & Preservation (I.B)									
Animal Inventory	I.B.1	4	3	4	4	4	5	4	4.00
Plant Inventory	I.B.2	4	3	4	5	3	5	4	4.00
Natural Resources Survey/Management Resources (I.C)									
Listed species or habitat monitoring	I.C.2	4	4	4	5	3	5	4	4.14
Other non-game species or habitat monitoring	I.C.3	3	4	4	5	3	5	4	4.00
Fire effects monitoring	I.C.4	3	3	4	4	3	5	4	3.71
Other habitat management effects monitoring	I.C.5	4	4	4		3	5	5	4.17
Invasive species survey / monitoring	I.C.6	5	4	5	5	4	5	5	4.71
Cultural Resources (Archeological & Historic sites) (II.A,II.B)									

Cultural Res. Survey	II.A	5	2	5	5	X	4	3	4.00
Protection and preservation	II.B	5	2	4	5	X	4	3	3.83
Resource Management, Prescribed Fire (III.A)									
Area Being Burned (no. acres)	III.A.1	3	3	3	3	2	3	3	2.86
Frequency	III.A.2	3	3	3	2	2	3	2	2.57
Quality	III.A.3	4	2	2	2	3	3	2	2.57
Non-Native, Invasive & Problem Species (III.E)									
Prevention									
prevention - plants	III.E.1.a	X	3	X	X	2	3	4	3.00
prevention - animals	III.E.1.b	X	2	X	X	2	X	3	2.33
prevention - pests/pathogens	III.E.1.c	X	2	X	X	2	X	3	2.33
Control									
control - plants	III.E.2.a	4	4	4	4	5	5	5	4.43
control - animals	III.E.2.b	3	3	4	5	2	4	4	3.57
control - pest/pathogens	III.E.2.c	X	2	1	1	2	X	3	1.80
Hydrologic/Geologic function Hydro-Alteration (III.E.1)									
Roads/culverts	III.F.1.a	3	2	2	3	3	4	3	2.86
Ditches	III.F.1.b	2	2	2	3	3	3	2	2.43
Hydro-period Alteration	III.F.1.c	2	2	2	X	2	2	2	2.00
Water Level Alteration	III.F.1.d	3	2	2	X	2	2	2	2.17
Surface Water Monitoring (III.E.3)									
Surface water quality	III.F.3.a	3	1	3	2	X	X	3	2.40
Surface water quantity	III.F.3.b	3	1	4	5	3	3	3	3.14
Resource Protection (III.F)									
Boundary survey	III.G.1	2	2	4	5	4	4	3	3.43
Gates & fencing	III.G.2	3	3	3	5	3	4	3	3.43
Signage	III.G.3	3	1	2	4	3	3	3	2.71
Law enforcement presence	III.G.4	2	1	2	3	2	1	2	1.85
Adjacent Property Concerns (III.G)									
Land Use									
Expanding development	III.H.1.a	3	4	4	4	4	4	3	3.71
Inholdings/additions	III.H.2	3	X	X	X	X	X	3	3.00
Public Access & Education									
Public Access									
Roads	IV.1.a	5	4	4	5	4	4	3	4.14
Parking	IV.1.b	4	3	3	4	4	4	3	3.57
Environmental Education & Outreach									
Wildlife	IV.2.a	4	2	4	4	4	3	4	3.57
Invasive Species	IV.2.b	4	2	4	5	4	3	3	3.57
Habitat Management Activities	IV.2.c	4	4	4	4	4	4	4	4.00
Interpretive facilities and signs	IV.3	3	3	5	3	3	4	3	3.43
Recreational Opportunities	IV.4	4	5	4	5	4	5	3	4.29
Management of Visitor Impacts	IV.5	5	3	3	4	3	3	2	3.29
Management Resources									

Maintenance									
Waste disposal	V.1.a	4	2	3	4	3	3	3	3.14
Sanitary facilities	V.1.b	4	2	3	2	3	4	3	3.00
Infrastructure									
Buildings	V.2.a	4	4	4	4	4	5	4	4.14
Equipment	V.2.b	4	4	4	3	4	4	4	3.86
Staff	V.3	2	3	3	3	3	2	2	2.57
Funding	V.4	1	3	2	2	2	1	2	1.86

Fish and Wildlife Conservation Commission Manager and Key Staff Present:

- Linda King, Manager
- Gene Colwell
- Katie Roscoe

APPENDIX:

The following comments represent individual comments, and may not represent the consensus of the land management review team.

I.A. Natural Communities

- Obvious issue is with allocation of available resources as far as funding. Best use of funds. Doing a good job of prioritizing in a tight budget year. There is a burn plan in place but they cannot burn during a drought so the situation is being monitored.
- FWC should continue to pursue funding for reduction of under story in the pine flatwoods to ensure proper fire rotation can be achieved. Marsh needs more prescribed burning when conditions are right.
- Hydrology impacts the majority of the communities preventing them from fully being in maintenance condition. The flatwoods would require extensive mechanical treatment.
- Much of the flatwoods community have heavy fuel loads of palmetto and despite one or more recent burns, remain out of maintenance condition and appear to require roller chopping and/or mowing to help in reducing this shrub component. Most habitats continue to be impacted by external canals and internal ditches. Hydroperiods are shorter than they would have been historically. While vehicle access is not authorized, the edges/ecotones of most of the marshes are heavily impacted by buggy and vehicle activity which is permitted on the rest of Corbett. This has resulted in sandy edges and degradation of these wetland ecotones. FWC has used some of these trails as fire lines; however, the presence of these ecotone buggy trails may also reduce prescribed fire from burning into these marshes. Better signage and law enforcement efforts and relocation of fire lines are encouraged if these ecotones are to return to their natural condition and re-vegetate themselves. Some areas of marsh, due to fire suppression and reduced hydro-periods have become colonized by slash pine which serves to increase evapotranspiration and exasperate shorter hydro-periods. Using fire and timber harvest to remove these trees is recommended. In the flatwoods, the pine canopy exceeds the desired 20-70 basal area in many of the flatwoods areas. Suggest a timber assessment be completed to determine need/opportunity for using timber harvest to reduce the pine canopy. This assessment is also a stationary requirement for state lands over 1000 acres.

I.B. Listed Species

- Staff have done a good job overall on the property documenting locations of rare plants.

I.C. Natural Resource Survey/Monitoring Resources

- Commendable job on controlling exotics, especially considering what the property is used for.
- Recommend more aerial surveys for Lygodium.
- Staff has done a great job of exotic removal and retreatment to maintain much of the area in good condition. Monitoring of these efforts are ongoing.
- Outstanding efforts to monitor for invasive plants- both on part of the exotic crews and FWC staff.

II.A.B. Cultural Resources

- No sites were located on the reviewed lands, however, FWC has done an excellent job of protection of sites on adjacent FWC owned lands (big mound/big gopher).
- May be a good idea to do a survey on section 16 lands.
- There are no listed sites on these 3800 acres. There are no staff trained as an archeological site monitor, however the staff is cooperating routinely with the Palm Beach County archeologist.

III.A. Resource Management

- Strong herbivores diversity in the area was frequently burned.
- Mechanical treatments need to be done along with fire.
- Drought is the reason for not meeting the burn goal. Management is excellent, the conditions must over ride what is in the plan.
- Frequency of fire in Leon moss needs to be increased to achieve desired future conditions. Quality cannot be achieved without treatment of understory prior to burning.

- Flatwoods need mechanical treatment to reach burning goals/Leon Moss tract is behind on burn acreage and frequency.
- More acreage has been burned in the section 16 tract than the 6 on moss tract, however it appears that heavy fuels require a shorter rotation goal, supported by a more aggressive program of mechanical treatments. Burns are executed well enough, however some areas of significant mortality in the flatwoods were observed. Staff has appropriately placed a priority on burning section 16 lands that are in better shape (with fewer palmettos). Increased frequencies of burning will maintain and serve to increase this acreage. As time and funds permit then include the focus on the heavier fuel sites.

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

- Wash stations of entry points are for contractors and FPL. Recommend elimination of shoulder height requirement on hogs. Commendable job controlling vegetative exotics with so many uses on property.
- Procedures need to be implemented to control infestation by contractor's equipment. Excellent progress has been made in control of exotic vegetation.
- Excellent work with contractors to treat and remove non-native invasive plants. Contractors GPS daily all site work which is shared and mapped by FWC. Hog limits during hunts have recently been relocated which will increase the take in the future by 50% or more. Excellent funding of non-native invasive plant treatment efforts.

III.F. Hydrologic/Geologic Function

- Commendable job coordinating with local government on water issues and future hydrological goals. Outside issues preventing hydro restoration at this time.
- Need to develop a surface water monitoring program.
- The WMA relies on WMD to monitor surface water only as needed. Not sure if this information is included in the plan.
- FWC needs to continue to work with other agencies to ensure hydrological needs for Leon Moss tract are being met.
- Additional effort is needed to consolidate assessment and plans for hydrological restoration on this property that defines a scope of work that includes monitoring and restoration priorities.

III.G. Resource Protection

- Try installing more signage. Law enforcement presence seems outside of the staff's control.
- Law enforcement has been addressed and there are inadequate resources/not enough officers available.
- Inadequate law enforcement presence related to reducing illegal off season vehicle access to natural areas.

III.H. Adjacent Property Concerns

- No inholdings were seen on the land that was reviewed.
- Possibility of Leon Moss being sold/deeded to FWC?

IV. Public Access and Education

- Commendable job managing visitor impacts with a large number of users/visitors with minimal staff.

V. Infrastructure/ Management Resources

- Nice new office for staff. More funding is needed to implement more pre burn mechanical treatment of heavy fuel build up in the flatwoods.

13.6 FNAI Data Usage Letter



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

April 11, 2014

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

Dear David,

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

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

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

Sincerely,

Gary Knight
Director
Florida Natural Areas Inventory



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

13.7 FWC Agency Strategic Plan

Florida Fish and Wildlife Conservation Commission
Agency Strategic Plan
2014 – 2019

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.

Strategies:

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 the Florida Youth Conservation Centers Network 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.

Strategies:

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.
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.
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.

13.8 FWC Apiary Policy

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.

- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by visitors then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (numerous large trees, dense shrubs) or ground disturbance (including fill).

WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygon(s), including a name or number with coordinates for each apiary site, to the THCR Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue staff should notify the THCR Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firelines around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

Apiary Wait List and Apiary Application

An electronic waiting list for apiary sites will be maintained by the THCR's Contract Manager for each WMA/WEA. To be placed on the waiting list an interested beekeeper must submit an apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the THCR Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during this drawing will be awarded the contract.

Apiary agreements are non-transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the THCR Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be \$40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of \$40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is \$80.
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is \$160.

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pineland communities and no more than 100 hives per site in areas with bountiful resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the

Beekeeper shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see <http://www.leg.state.fl.us/Statutes/>), Rule Chapter 5B-54, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund – Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 23, 1986
S:\HSC\THCR\APIARY.BACKUP.POLICY\dlissupport@dos.state.fl.us_20100903_111446.pdf

Senate Resolution 580, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

APPROVED:

Division Director or Designee

DATE: _____

APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as "the COMMISSION," and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as "the USER."

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.
2. The COMMISSION Agrees:
 - a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.
 - b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.
 - c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).
3. The USER Agrees:
 - a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.

- b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.
- c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.
- d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.
- e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.
- f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.
- g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.
- h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.
- i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.
- j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than \$300,000 for bodily injury and \$100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.

- k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.
 - l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)
 - m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.
4. The parties mutually agree:
- a. This Agreement is not transferable.
 - b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.
 - c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.
 - d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.
 - e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist

presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.

- f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.
- g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.
- h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.
- i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities are found to be incompatible with the COMMISSION'S management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

USER SIGNATURE

Date: _____

Witness

Witness

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Mike Brooks, Section Leader
Terrestrial Habitat Conservation and
Restoration

Date: _____

Approved as to form and legality

Commission Attorney

Date: _____

AGREEMENT
ATTACHMENT 1

**Use of Electric Fencing to Exclude Bears
And Prevent Property Damage**

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the "shock". The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return "wire" (ground) in the circuit. However, if a

bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.

The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or "hot" wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately \$200 for a 40' x 40' area (160 linear feet of fence).

Materials:

- 1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
- 1 - 50 foot roll 12 gauge insulated wire
- 20 - 5 foot 5/8 inch dia fiberglass fence posts
- 5 - plastic gate handles
- 1 - 110 volt fence charger
- 1 - 10 foot ground pipe
- 4 - plastic electric fence signs

Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each

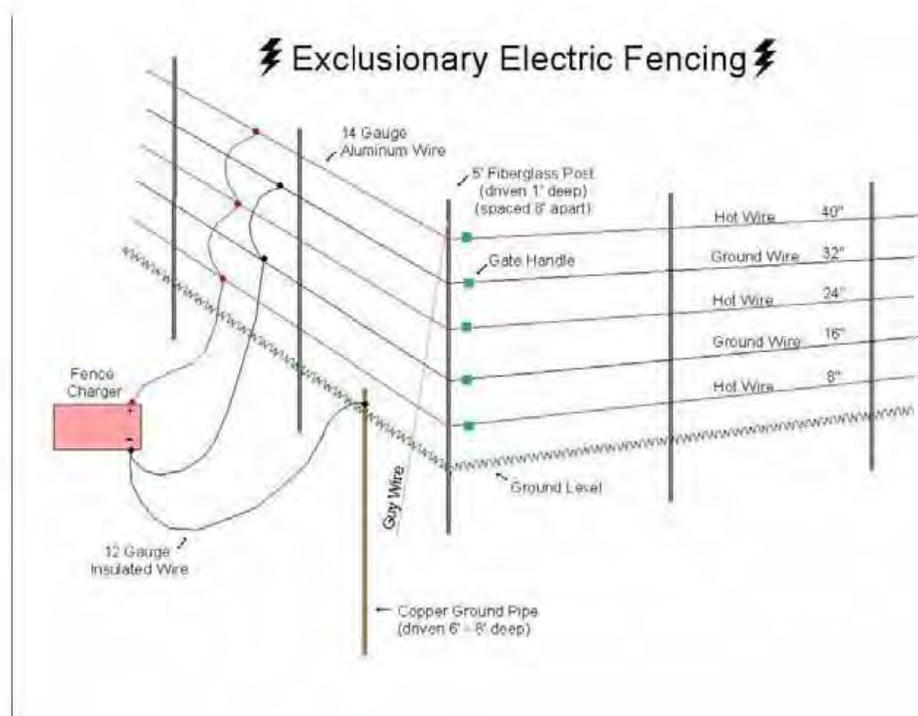
corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

Tips to improve the effectiveness of your electric fence to deter black bears:

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a specific structure (like a shed or rabbit hutch), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.
10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.
11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences*. Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

APIARY SITE APPLICATION FORM

Florida Fish and Wildlife Conservation Commission

RETURN TO: The Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please print or type all information. Attach additional sheets if necessary.

Name _____ Telephone Number _____

Mailing Address _____

City or Town _____ County _____ Zip Code _____

Physical Address (If Different from Mailing Address) _____

Company Name: _____

Email Address _____

Requested Wildlife Management or Wildlife and Environmental Area(s)(see attached list of WMA/WEAs with apiary sites):

WMA/WEA _____ County _____ # of Sites _____

WMA/WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

Planned Number of Hives Per Site: _____ Permanent: ___ Seasonal: ___

Member of Beekeepers Association: Yes ___ No ___

Number of Years a Member _____

Name of Beekeepers Association: _____

Are you registered with Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI): ___ Yes ___ No ___ N/A. If yes, please provide proof.

Are you current with any and all special inspection fees: ___ Yes ___ No ___ N/A. If yes, please provide proof.

Do you follow all recommended Best Management Practices from FDACS/DPI?: ___ Yes ___ No

If no, then please explain on a separate piece of paper.

Please provide below a chronological history of your beekeeping experience. If you need more space, please provide additional sheets:

References: If a new apiary contractor, please provide on a separate piece of paper at least 3 references who can verify your apiary experience. Provide each reference's name, address, phone number and email address (if applicable). Please attach reference sheet to this document and submit.

MISSION STATEMENT

**Management
Of
Florida Fish and Wildlife Conservation Commission's
Wildlife Management Areas
And
Wildlife and Environmental Areas**

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animal's characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR

MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.
2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random survey of colonies using the FABIS (Fast African Bee Identification System) and/or the computer-assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees (AHB) (USDA-ID) or other approved methods by FDACS on a yearly basis or as requested.
3. Honey bee colony divisions or splits should be queened with production queens or queen cells from EHB breeder queens following Florida's Best Management Practices.
4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from EHB queen producers.
5. Florida Beekeepers should practice good swarm-prevention techniques to prevent an abundance of virgin queens and their ready mating with available AHB drones that carry the defensive trait.
6. Maintain all EHB colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of AHB.
7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be attractive to AHB swarms.
8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.
9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.
10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with AHB drones.
11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.
12. Treat all honey bees with respect.

RANDOM
SELECTION PROCESS
FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for this selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist:

1. The THCR Contract Manager will maintain an "Apiary Wait List Folder" on the THCR SharePoint for each WMA/WEA with apiary sites.
2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.
3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an "Apiary Wait List".
4. If a list exists then the qualified applicant will be added to the list.
5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest.
6. The letter will request a response within 10 working days to make them eligible for the random drawing.
7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed from the waiting list*.
8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist.
9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds then the random drawing process will be used to determine who will be awarded the site.

10. Steps to be performed by the THCR Contract Manager to execute the random selection for an available apiary site are listed below:

- a. The names of each interested apiarist will be noted on a 1" X 2" piece of paper and folded in half.
- b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stirred up prior to the selection.
- c. A non-biased person will be selected to reach into the bowl (which will be held above the selection person's eyesight) and randomly select one of the canisters.
- d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.
- e. The apiarist whose name is selected will be awarded the available site.
- f. A new Agreement will be developed by the THCR Contract Manager.

*A new apiary application must be submitted once requestor's name is removed from a waiting list.

13.9 Management Procedures Guidelines - Management of Archaeological and Historical Resources

Management Procedures for Archaeological and Historical Sites and Properties on
State-Owned or Controlled Properties
(revised March 2013)

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

A. General Discussion

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

B. Agency Responsibilities

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

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

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

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

C. Statutory Authority

Statutory Authority and more in depth information can be found at:

<http://www.flheritage.com/preservation/compliance/guidelines.cfm>

D. Management Implementation

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

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

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

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

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:

http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf.

* * *

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

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

13.10 Operation Plan Fiscal Year 2013-2014

Land Management Uniform Accounting Council Categories and Subcategories

Resource Management

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.

Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.

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.

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.

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.

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.

Administration

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.

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.

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.

Support

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.

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.

Training/Staff Development. -- Staff training and development costs incurred in any facet of the agency's land management activities.

Vehicle Purchase. -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

Vehicle Operation and Maintenance. -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.

Other. -- Any other support activity or cost not captured by other categories or subcategories.

Capital Improvements

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.

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.

Visitor Services/Recreation

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.

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.

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

J.W. Corbett WMA

Planning Summary by Activity

Fiscal year 2013 Projects: 7295

Activity	Title	Man Days	Salary	FuelCost	Other	Total	Units
100	Administration	45.00	\$9,019.80	\$595.80	\$38,500.00	\$48,115.60	0
103	Meetings	30.00	\$6,013.20	\$397.20	\$2,500.00	\$8,910.40	0
104	Budget/purchasing/accounting	70.00	\$14,030.80	\$926.80	\$0.00	\$14,957.60	0
128	New Vehicle and Equipment Purchases	0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
150	Personnel management	50.00	\$10,022.00	\$662.00	\$0.00	\$10,684.00	15
200	Resource Management	80.00	\$16,035.20	\$1,059.20	\$50,000.00	\$67,094.40	0
203	Tree and shrub planting	0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
204	Resource planning	115.00	\$23,050.60	\$1,522.60	\$0.00	\$24,573.20	0
206	Prescribed burning - growing season	90.00	\$18,039.60	\$1,191.60	\$7,500.00	\$26,731.20	4000
207	Prescribed burning - dormant season	70.00	\$14,030.80	\$926.80	\$6,500.00	\$21,457.60	4000
208	Firebreaks	5.00	\$1,002.20	\$66.20	\$0.00	\$1,068.40	10
212	Exotic plant control (chemical)	70.00	\$14,030.80	\$926.80	\$545,054.00	\$560,011.60	25000
218	Water level management	35.00	\$7,015.40	\$463.40	\$16,000.00	\$23,478.80	2
221	Animal surveys	80.00	\$16,035.20	\$1,059.20	\$53,300.00	\$70,394.40	0

Activity	Title	Man Days	Salary	FuelCost	Other	Total	Units
235	Vegetation and plant surveys	0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
256	Habitat monitoring and analysis	40.00	\$8,017.60	\$529.60	\$50,000.00	\$58,547.20	0
263	Nest box monitoring	10.00	\$2,004.40	\$132.40	\$1,000.00	\$3,136.80	0
275	Permits and authorizations	3.00	\$601.32	\$39.72	\$0.00	\$641.04	0
282	Herbaceous seeding	20.00	\$4,008.80	\$264.80	\$0.00	\$4,273.60	150
289	Native vegetation management (mechanical)	15.00	\$3,006.60	\$198.60	\$50,000.00	\$53,205.20	275
294	Program coordination and implementation	65.00	\$13,028.60	\$860.60	\$0.00	\$13,889.20	0
295	Biological data collection, analysis, and reporting	40.00	\$8,017.60	\$529.60	\$27,000.00	\$35,547.20	0
312	Informational signs	5.00	\$1,002.20	\$66.20	\$500.00	\$1,568.40	0
320	Outreach and education	20.00	\$4,008.80	\$264.80	\$0.00	\$4,273.60	0
341	Public use administration (hunting)	25.00	\$5,011.00	\$331.00	\$11,500.00	\$16,842.00	21
342	Public use administration (non-hunting)	25.00	\$5,011.00	\$331.00	\$0.00	\$5,342.00	0
910	New facility construction -- buildings/structures	0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
920	FEM -- buildings/structures	10.00	\$2,004.40	\$132.40	\$3,000.00	\$5,136.80	0
921	FEM -- utilities	0.00	\$0.00	\$0.00	\$15,000.00	\$15,000.00	0
922	FEM -- custodial functions	20.00	\$4,008.80	\$264.80	\$5,000.00	\$9,273.60	21

Activity	Title	Man Days	Salary	FuelCost	Other	Total	Units
923	FEM -- vehicles/equipment	252.00	\$50,510.88	\$3,336.48	\$35,996.00	\$89,843.36	0
926	FEM -- roads/bridges	20.00	\$4,008.80	\$264.80	\$100,000.00	\$104,273.60	20
928	FEM -- fences	5.00	\$1,002.20	\$66.20	\$1,000.00	\$2,068.40	0
<hr/>							
All	totals	1,315.0	\$263,578.6	\$17,410.6	\$1,019,350.0	\$1,300,339.2	3351
		0	0	0	0	0	4

13.11 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:
J.W. Corbett Wildlife Management Area

Is Control Work Necessary: Yes No

Location:
Palm Beach County

Land Management Agency:
Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary? Yes No
If "Yes", please explain:

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

- Landing Rate Counts
- Light Traps
- Sentinel Chickens
- Citizen Complaints
- Larval Dips
- Other

If "Other", please explain:
None

Arthropod Species for Which Control is Proposed:
None

Proposed Larval Control:
None

Proposed larval monitoring procedure:
Are post treatment counts being obtained: Yes No

Biological Control of Larvae:

Might predacious fish be stocked: Yes No
Other biological controls that might be used:
None

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: None

Chemical or Common name:

Ground Aerial

Rate of application:

Method of application:

Proposed Adult Mosquito Control:

Aerial adulticiding Yes No

Ground adulticiding Yes No

Please specify the following for each adulticide:

Chemical or common name:

Rate of application:

Method of application:

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Proposed Notification Procedure for Control Activities:

The State Health Officer has the authority under F.S. Chapter 388 to declare a threat to the public health exists and must immediately notify the Commissioner of the Dept. of Agriculture to declare this threat. The State Health Officer must also notify the agency heads of the Dept. of Environmental Protection and the Fish and Wildlife Conservation Commission within 24 hrs of the declaration.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

Yes No

Records Location: Palm Beach County: 9011 W. Lantana Rd. Lake Worth, FL 33467

How long are records maintained:
10 years

Vegetation Modification: None

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

Proposed Land Modifications: None

Is any land modification, i.e., rotary ditching, proposed:

Include proposed operational schedules for water fluctuations:

List any periodic restrictions, as applicable, for example peak fish spawning times.

Proposed Modification of Aquatic Vegetation:
None

Land Manager Comments:

Arthropod Control Agency Comments:

Palm Beach County Mosquito Control does not conduct mosquito control activities either on or over any environmentally sensitive and biologically highly productive public lands owned by the state or federal government.

	7/1/13
Signature of Lands Manager or Representative	Date
	6/26/13
Signature of Mosquito Control Director/ Manager	Date

DACS-13668 07/08

13.12 Prescribed Burn Plan

J. W. CORBETT WILDLIFE MANAGEMENT AREA CONTROLLED BURNING PLAN

This document was developed using the format and philosophy required in the preparation of a **PRESCRIBED FIRE PLAN**, and therefore fulfills the requirements of such a document. However, it also contains information and procedures relevant to wildfire suppression, which is why it is called a “controlled burning plan.” Specific prescriptions will be written in a 1-page format for individual burns.

**FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION**

January 26, 2001

By James R. Schuette

Table of Contents

List of Figures and Appendices..... 2

Purpose and Objectives..... 3

Description of Site..... 3

Map of Burn Area..... 4

Weather Factors..... 4

Fuel Conditions..... 5

Season and Time of Day..... 6

Smoke Screening..... 6

Publicity and Communication..... 7

Legal Requirements..... 8

Safety..... 8

Firing Plan..... 9

Control..... 9

Mop-up..... 9

Declaring the Fire Out..... 9

Evaluation..... 10

Figures

- Figure 1. J. W. Corbett WMA Vegetation Classification and Fire Map.
- Figure 2. Locator Map for the J.W. Corbett Wildlife Management Area.

Appendices

- Appendix A. Example Individual Burn Prescription with Site-Specific Map..
- Appendix B. Sugarcane Burning Restrictions.
- Appendix C. National Forest Service Guidelines for the Use of Prescribed Fire on the National Forests in Florida.
- Appendix D. Example Morning Fire Weather Forecast from the Florida Department of Forestry Website.
- Appendix E. Tables for Calculating Fine Dead Fuel Moisture Levels.
- Appendix F. Soil Conservation Service Table of Burning Specifications for Various Purposes.
- Appendix G. Division of Forestry, Everglades Region, Fire Management Plan-J.W. Corbett Wildlife Management Area.
- Appendix H. Prescribed Burning in Florida-Statutes and Liabilities.
- Appendix I. A Guide for Prescribed Fire in Southern Forests.

Purpose and Objectives:

The goals of prescribed fire on the J.W. Corbett Wildlife Management Area (Corbett) can be categorized as either generic or site specific. The generic purposes include:

- ◆ Fuel reduction-Corbett is located in a lightning-intense portion of the U.S. The area is also subject to periodic dry periods. By maintaining a frequent burn rotation, fuel loads can be maintained at low levels, allowing better control over natural and arson fires and reducing any negative impacts these fires may have in areas not yet restored to historic vegetative composition.
- ◆ Promote regrowth-As old growth is removed through burning, open space is created to allow for fresh plant growth to occur. New plant growth is usually higher in nutrients and more digestible than old growth, thus benefiting the herbivores on the area.
- ◆ Maintain sub-climax communities-Most plant communities on Corbett have evolved with fire as a dominant factor and are dependent on it. Fire prevents sawgrass marshes from becoming overgrown with willow and pinelands from becoming dominated by woody species. Prescribed fire maintains the variety of habitat types many plants and animals require.
- ◆ Restore native vegetative communities-Cultural changes and disruption of natural fire return intervals have allowed saw palmetto and other woody species to dominate. The appropriate application of prescribed fire (and perhaps some mechanical restoration measures) will bring about a return of herbaceous dominance and more diverse plant and animal populations. It may also be used to assist in the control of exotic plant species.

Site-specific purposes for prescribed fire include:

- ◆ Red-cockaded Woodpeckers (RCW's)-These endangered birds nest in clusters that require areas with large, living pines and limited understory growth. Prescribed fire maintains this habitat and prevents the understory from growing too high (4 to 5 feet) or hardwoods from invading.
- ◆ Structures-Through annual burns the fuel loads around various buildings can be maintained at low levels, reducing the risk of loss when natural fires occur.
- ◆ Open fields-These important turkey habitats are kept open through rollerchopping and prescribed burning.

Description of Site:

Corbett consists of 60,288 acres located in Northwestern Palm Beach County. This includes:

Sections 31-36	Township 40 South, Range 39 East
Sections 1-12; 14-36	Township 41 South, Range 39 East
Sections 1-5, 9-12 and portions of 6, 8, 13-16	Township 42 South, Range 39 East
Portions of Sections 13 & 32	Township 40 South, Range 40 East
Sections 19-36 and portions of 5-7	Township 41 South, Range 40 East
Sections 1-12, 16 and portions of 13-15 & 17-18	Township 42 South, Range 40 East

It is bounded on the west by the John G. and Susan H. Dupuis Wildlife and Environmental Area; the south west by the L-8 canal and sugar cane fields, the south by Indian Trails Improvement District's water impoundment, Indian Trail's Corporation citrus groves and sparse residential areas; the east by Seminole-Pratt-Whitney Road, Mecca citrus groves and undeveloped, subdivided units; on the northeast by the beeline highway and the Pratt-Whitney engineering complex; and the north by undeveloped natural lands and sugar cane fields.

Map of Burn Area:

Corbett is divided into 6 large burn units separated by the main roads, large buggy trails, powerline right-of-ways and canals (Fig. 1). These burn units were numbered clockwise starting with "100" in North-central Corbett (12:00). Unit "300" is located in the southeast corner of Corbett and includes the Youth Camp area. These large units were subdivided into between 2 and 8 smaller units separated by smaller trails and use of slough systems. Again these smaller units are numbered sequentially, clockwise from the noon position, within the larger burn unit. The sub-unit that includes the Youth Camp area is numbered "310". Within these sub-units, smaller burns are identified whenever necessary to achieve management goals. Trails, roads, canals, slough systems, or disked lines delineate these units. They have been developed to allow for smaller burns to assist with: RCW management, structure protection, prescribed burning class training, directed management objectives, or to create anchor points for larger burns. Again, these smaller burn units are numbered sequentially from the 12:00 position within each sub-unit, so the unit immediately behind the youth camp would be "312".

Maps for individual burn units and sub-units are kept on file and attached to burn prescriptions for the individual burns (Appendix A). Safety zones, escape routes, problem areas, test burn locations, secondary lines, exclusion zones and other items unique to the unit being burned will be provided on these maps. In general, safety zones will be wet areas (sloughs, cypress, ponds, canals, sparse-vegetation wet prairies and marshes, buggy trails), previously-burned areas, and fire breaks (disked lines, trails, roads). Problem areas may include poor substrate for the buggy (deep water, stumps, muck, high number of cypress or pine stems per acre, heavy palmetto growth), Japanese climbing fern growth into the canopy (ladder fuel), tall palmetto growth (especially near burn unit boundaries or under low pine canopies), cabbage palms and snags near burn unit boundaries. The prevalence of buggy trails and sloughs in Corbett should be recognized before the burn and these features identified for contingency purposes in the event of a spotover. Melaleuca stands, structures, and early-stage hardwood hammocks may be excluded from fire.

Weather Factors:

Although some specific weather constraints exist for burning on Corbett (most dealing with wind direction) (Appendix B), there remains a wide range of conditions suitable for prescribed burning within the area. This table summarizes these conditions and is based on NFS guidelines for National Forests in Florida (Appendix C). Individual burn prescriptions will specify the preferred range for individual areas depending on site conditions and desired results. The DOF website (flame.fl-dof.com/Env/wea.html) (Appendix D) will be visited before 0730 the day of the burn. If forecast conditions meet requirements of any burn prescriptions already prepared, and if enough manpower is available, a burn authorization will be requested prior to 8:00. Determination of burn location will be made by comparing weather conditions to prepared prescriptions, with priority given to red-cockaded woodpecker nesting clusters, hazard reduction around the Everglades Youth Camp/office complex and urban interface zones, and large aerial burns.

Parameter	Years of Growth (pine)> 1-3		3-5		6+	
	Min	Max	Min	Max	Min	Max
Temperature	35	95 (100)	35	95	35	90
Relative humidity	(35) 40	60	45	65	50	65 (75)
Surface wind direction	any, except attached DOF constraints regarding westerly components					
Surface wind speed	(0) 5	18	(0) 5	15	(0) 5	10
Dispersion-day	(21) 41	75	41	70	40	65
Mixing height	(1650)	5000+	2500	5000+	3000	5000+
Transport wind speed	9	25	9	20	9	20
Transport wind direction	any, except attached DOF constraints regarding westerly components					
Dispersion-night	6	20	6	20	6	20
Fuel moisture (Appendix E)	8	15	10	18	12	20
Starting time	0900	1500	0900	1300	0900	1100
Days since last significant rain	2	14	1	10	0	7
Keetch-Byram drought index	--	550	--	500	--	450
Type of fire	back, flank, strip, head, spot, ring, center, aerial					

Fuel Conditions:

Fuel conditions and fire behavior are dependent on the various habitat types on Corbett. There will be further variation even within each habitat type, depending on specific site conditions (time since last burn, soils, plant growth forms, weather, etc). The following provides a generic overview of expected conditions in each habitat type.

Cypress-Generally is used as a firebreak. The limited understory and fine fuels, combined with elevated water levels reduces the burn frequency of these areas. Cypress may occur in wet prairies, but that is addressed later.

Sawgrass-As a heavy grass fuel, sawgrass burns powerfully if the stand is thick, even over standing water. Can be source of spotting, but not over long distances. Indicates soft substrate, can trap vehicles quickly, presenting potential for immediate danger from advancing flames. Unless in dry conditions, sparse sawgrass doesn't carry fire well. If too dry (no standing water) organic soils can be ignited, resulting in long-term, smoldering fires (days, weeks, months).

Pamletto-galberry-If a 2-year rotation is maintained, these areas will have light (3-4 tons/acre) fuel loads. If these areas have not been burned for 6+ years, as is the case with many areas in Corbett, they can have heavy (20+ tons/acre) fuel loadings. Burns can be hot and spread rapidly, with significant danger of spotting, especially if cabbage palms are present. A close pattern of spot fires using aerial ignition or ground flares can reduce the intensity of fires in this habitat type. If there is a canopy (usually southern slash pine) over heavy fuel loadings, care must be taken to avoid undue stress on the mature tress. A cool fuel-reduction burn may be called for, or possibly rollerchopping or other mechanical methods to avoid excessive pine mortality. Care must be also taken for grapevines in this habitat type, for they can burn explosively and become ladder fuels into the pine canopy.

Hardwood hammocks-Tend to exclude fires due to lack of fine fuels and humid microclimates. Potential for ignition increases during dry periods. Under moderate conditions, fire should be applied to the edges to better define ecotone and reduce potential of fire invading during drought conditions.

Wet prairies-Can be either light or heavy loadings of fine fuels. If heavy loads, can make for hot, fast fires to reduce woody invasions. If light loadings, can be used for firebreaks by submerging vegetation after several passes with swamp buggies.

Exotic plants-are a special concern. *Lygodium* spp. (climbing fern) can act as a ladder fuel if it reaches the temperature of combustion. It can light explosively, but tends not to burn like a fuse, and under lower burning temperatures can act to retard flame advancement. *Melaleuca* should be eliminated from the burn area and treated with velpar before a burn. Limited manpower, however, currently does not allow for this precaution in most cases on Corbett. If possible, keep fire from burning through infected areas due to the fire-induced seed-releasing properties of this species. Brazilian pepper, which do not burn well at all, tend to grow in dense concentrations in disturbed areas. These areas often are used as fire breaks because of their location. The pepper can shade out all ground vegetation, eliminating the fine fuels. This can make for difficult conditions both in being able to set fires and being able to identify exactly where the fire may stop before it reaches a firebreak. Torpedo grass can invade marshes, and, unless it is very dry, will not burn well at all.

Season and Time of Day:

Burns will be conducted year-round. Most burning will begin at approximately 10:00 A.M. Individual location objectives will dictate time of year for individual sites. Some areas will require initial burns under conditions usually considered sub-optimal because of heavy fuel loads in sensitive areas. Other burns will be set at the other extreme to enhance control of all woody vegetation. Spring-early summer burns may improve quail habitat (Appendix F). Large-scale burns (>100 acres) will be kept to a minimum during hunting seasons. If nighttime dispersion is predicted to be “6” or greater, a nighttime burning authorization may be requested, allowing ignition until midnight. Otherwise, ignition will be complete before, and the fire not advancing after, 5:00 P.M. Although the potential exists to obtain an authorization after 4:00 P.M. the day prior to a burn, this will not likely be pursued.

Smoke Screening:

Smoke sensitive areas (Fig. 2) include:

		Critical?
Pratt-Whitney complex within north Corbett	<5 miles	Possible-South & Southeast
Beeline Highway on the north boundary	<5 miles	Possible-South
Rural houses on the south boundary	<5 miles	Possible-North & Northeast
Urban areas to the northeast, east, southeast & south	5-25 miles	No (except logging debris)
North-County airport to the east	5-10 miles	No (except logging debris)
Pahokee airport to west	10-20 miles	No (except logging debris)
Internal grade	<5 miles	Possible-all directions
Youth camp	<5 miles	Possible-all directions
FPL lines	<5 miles	Possible-all directions

Signs will be placed on the grade near the burn warning of smoke ahead. Assistance will be sought from Law Enforcement to ensure traffic safety on burns that may threaten Seminole-Pratt-Whitney Road or the Beeline Highway. The weather recorder will monitor smoke production and dispersion. Efforts to minimize particulates around the powerline will be instituted.

Smoke critical areas will be identified on individual prescriptions and further appropriate precautions implemented (see Appendix [A Guide for Prescribed Fire in Southern Forests](#) (pages 29-32) for further details).

Publicity and Communication:

The morning of a burn, an authorization will be requested from DOF. This request will specify that the burn will be conducted under the certified burner program, and this must be indicated at the beginning of the call. As they DOF dispatcher requests the information from the burn prescription, it will be circled, to signify that the information was provided to DOF at that time. After authorization is issued, other contacts will be made as indicated on the burn prescription.

With increasing populations around Corbett, public information is becoming an increasingly important component of prescribed burning. Local residents will be notified of large fires near the borders of Corbett through the mail or door-to-door contacts. Also, road signs will be erected several days before these burns in prominent locations along the main roads. All opportunities to incorporate the media in a positive fashion will be taken. As indicated on the burn prescription, the following entities will be notified within 24 hours of a prescribed burn (usually the morning of the burn). Names of actual contacts should be recorded as contacts are made.

GFC:		
	Dispatch	625-5122
	Youth Camp	624-6929
	Regional Wildlife Biologist	625-5133
DOF:		
	Authorizations	(954) 475-4120
	Dispatch	832-8144
	Loxahatchee Work Camp	791-4725
Pratt-Whitney:		
	Terminal	796-5830
	Tower	775-5450
	Fire security	796-3716
	Brad Melcho	747-7455 or 747-7468; FAX 747-7576
Fire Stations:		
	Station 26 (Indian Trails)	790-6081 or 790-6080
	Station 14 (Indiantown)	746-1192
	Station 21 (Okeechobee)	790-6058
Sheriff:		
	Palm Beach (Delray)	274-1075
	Martin	
Media:		
	Sun-Sentinel	
	Steve Waters	(954) 356-4648
	Neil Santeniello	(954) 736-9700
	Palm Beach Post Bob King	820-4417
	Channel 12 Chuck Webber	844-1212
	Royal Palm Beach Observer	791-9687
	Wellington Town-Crier	793-7606
FPL-Tom Ramsey:	840-3077	371-7138 or 346-7597 pagers
SFWMD-Dupuis-Bert Trammell	686-8800x3332	
Indian Trails:	793-0874	
PBC-DERM-Chuck Sisco	233-2493	
Royal Palm Citrus:	793-3553	
Mecca Farms:	627-9600	
North County Airport		
	Airport Manager	626-9771
	FBO Manager	626-9799
	via PBLA	471-7420

Emergencies will be reported via radio to the FWC dispatch center. Internal communications will be conducted on the 800-megahertz system, channel Z3 3-NL-CH8.

Last saved by Shelton, Rebecca

04/30/15

Legal Requirements:

See attached documents regarding statutes and liabilities (Appendix G). Also FS 590, 51S and DOF procedures (Appendices).

Safety:

Safety should be the primary concern of any burn. The nearest hospital is St. Mary's, off of 45th street in West Palm Beach (Seminole-Pratt south to Northlake, east to the Beeline or 710, south-east to I95, south to 45th Street, east to Saint Mary's on the north side of the road), 20 miles from the south check station, or the Jupiter Hospital (east on the beeline 100 yards to Indiantown Road or 706, east past the Turnpike and I95 to old Dixie Highway or 811, south 1 mile to the hospital on the west side of the road), also nearly 20 miles from the north check station. The closest fire-rescue station is at the corner of 140th Ave North and 61st Street in the Acreage, 10 miles from the south check station, and in Indiantown, 10 miles up the Beeline from the north check station. These long distances make safety even more important on the burn, understanding the check stations are often more than 30 minutes from the burn.

The following is a list of certain precautions that should always be taken to ensure the information in the previous paragraph is never needed. Also included in this section is an equipment readiness checklist that will be utilized the day prior to a prescribed burn (Table 1). Many times safety issues arise from or are exacerbated by equipment failures. The time to check equipment is before the day of the burn.

- Preparation of burn units will utilize existing fuel discontinuities (roads, trails, sloughs, cypress strands, and canals) as much as possible. This will reduce the need to hold dangerous/difficult fire lines.
- Safety zones (previously burned areas, wet areas, outside the burn unit) will be identified during the on-site pre-burn orientation.
- Any dramatic change in weather/burn conditions will be identified over the radio. Although the weather person usually would initiate this, other crewmembers may notice a local condition (i.e., wind shift, or spotover) that others need to be aware of.
- Care should be taken at all times to stop vehicles only in these safety zones if possible. It should be the precautionary expectation that the equipment may break down or may not start again, so it should never be left in a location that, in the event of malfunction, it could become part of the fire.
- Flame-thrower wands should never be held/passed over the deck of a buggy or the gas tank of an ATV while they are lit.
- As many crewmembers as possible should know how to run pieces of equipment.
- Potential operators of each piece of equipment should be identified before the burn and assigned stations that will allow them to access the equipment if the primary operator can't.
- If keys are not left in the ignition; they should be left someplace else on the equipment and all crewmembers informed of this location.
- In case of medical emergency or if the fire becomes dangerously out of control, FWC Dispatch should be contacted on either channel 1 of the conventional radio (Bendix/King and some Motorola handhelds, any mounted in the buggies) or channel WPB-N of the 800 megahertz radio (the long, slim, black handhelds), and they will contact either fire rescue, the trauma hawk, or DOF.
- All crewmembers should be able to identify burn location in latitude/longitude coordinates in addition to the STR's noted on the burning authorization, in case tramahawk is needed.
- The nearest potential landing spot for trauma hawk should be specified during the pre-burn briefing.
- All crewmembers should be familiar with the basic use of the radios. Straight English will be used on the radios, no codes, to ensure all members of the crew understand the information.
- If a cell phone is available; all crewmembers should be familiar with its location and operation. In emergencies, the cell phone should be used after dispatch is contacted to ensure an accurate response.
- If preventable, equipment should not be sent into the burn unit after the burn is started.
- Only when necessitated by the situation (burning out around red-cockaded woodpecker cavity trees, structures or power lines) will ground ignition be allowed inside an actively advancing fire. In other cases, burning out incomplete burns will be performed only after the fire is no longer actively advancing.

- If a situation exists where people must enter the burn unit during ignition, whenever possible, they will go in pairs. Usually, there is not enough available manpower to allow this.
- Any person internal to the fire will have an active radio with them and communicate their position and activity on a regular basis to the burn boss or ignition buggy.

Firing Plan:

Issues specific to individual burns will be addressed in the individual burn prescriptions (ex. Appendix A). These 4-page documents will include a pre-burn checklist and crew briefing form, prescribed burning plan, weather and fire behavior data sheet, and site map with key points of the burn identified.

Limited human resources prevent the assignment of independent ignition/suppression/safety/etc. crews. Rather, responsibilities shift as the process of conducting a prescribed fire unfolds. The burn boss is responsible for identifying safety issues, both on matters on the ground and among the crew. One person is assigned to monitor the weather and fire behavior, reporting this data over the radio every half-hour or more frequently if conditions warrant. If there are enough people available, 1 or more persons may be assigned to watch the down-wind side of the fire, but usually the team lighting a line is responsible for monitoring that line and ensuring there are no spotovers. This requires a slower pace on ignition. In the case of a spotover, all ignition beyond that required to contain the fire is curtailed, with all resources reassigned to suppression until the fire is contained. After all lines have been lit, all personnel become responsible for containing the fire and mopping-up. As the fire dies down and burns out, some of the crew may be released from the site to begin equipment maintenance and replenish the vehicles with supplies. The burn boss will remain until the fire is declared contained.

Generally speaking, a test fire will be lit in a small, isolated plot on the down-wind side of the burn. If, from the fire behavior, it appears that the burn objectives will be met and conditions are within prescription, black lines will be secured on the down-wind side of the burn, unless natural breaks or previous burns allow otherwise. When a solid anchor-point is achieved, the black line will be extended until it is determined safe to proceed with the burn. At this point, firing techniques will vary greatly depending on the individual situation of the burn, and may include strip, flank, head, aerial spot/strip, or other techniques as identified in the burn prescription.

Control:

Control-Burn assignments will be made the morning of the burn. Prior to this, all firebreaks will be established and secondary lines identified.

Emergency response-The Loxahatchee Work Center of DOF is the initial response force when it has been determined the fire is no longer controllable with existing forces (Appendix H). When practicable, DOF will have a presence on all burns to ensure smooth operations in case of emergency. Otherwise, response may be 30-60 minutes (or more, depending on burn location) from emergency declaration. Site-specific contingencies will be developed for individual burns.

Mop-up:

A fire will be declared contained when there are no active flames within 50-feet of fire breaks, no burning snags capable of falling across fire breaks and no fire spreading within the burn unit. Site-specific modifications to these general requirements may be indicated due to unique conditions (location of cabbage palms and Japanese climbing fern, wind direction, nearby structures or roads). It is acknowledged that internal snags may burn for several days. Unless they present a smoke problem, burning snags/lighter wood stumps will be allowed to burn away so they do not pose a reoccurring problem in future burns.

Declaring Fire Out:

Fire will be declared out when no smoke is observed in the area. Until the fire is declared out, it will be monitored periodically to ensure it remains contained. This includes visiting the area the day after the burn, getting there while the humidity is low in case the fire has escaped over night, and staying until early afternoon to observe any remaining hot spots that may appear with lower humidities and high winds.

Evaluation:

Individual prescriptions are based on pre-burn evaluations (Appendix A). Also included in the plan is a form for evaluating conditions during the burn. A 3-month follow-up evaluation form is also included on the individual burn plan. As soon as possible after the burn, a group discussion will be conducted to review the burn and record what went well and what should be modified before the next burn. Comparisons between prior-stated objectives and actual results will also be made, along with comparisons between weather recordings during the burn and the morning fire-weather forecast.

TABLE 1. J.W. CORBETT WMA PRESCRIBED-FIRE EQUIPMENT PRE-BURN CHECKLIST.

		BLACK	BLUE	4650	CASE	401	HONDA	KAWA	BOMB	PERS
TANKS	GAS	full	full	full	full	full	full	full	full	fire suit
	BURN MIX	full	full	full	full	full	full	full	full	helmet w/shield
	WATER	full	full	full	full	full	full	full	full	boots
ENGINE FLUIDS	OIL	full	full	full	full	full	full	full	full	water
	RADIATOR	full	full	full	full	full	full	full	full	mask/bandana
	STEERING	full	full	full	full	full	full	full	full	lighter
PUMPS	FIRE MIX	works	works	NA	NA	NA	works	works	works	radio
	WATER	works	works	NA	NA	NA	works	works	works	gloves
TOOLS	DRIP TORCHES	2	4	1	1	1	NA	NA	1	compass
	FLAPS	2	2	NA	NA	NA	1	NA	1	goggles
	RAKES	2	2	1	1	1	NA	NA	1	sun glasses
	AXES	1	1	1	1	1	1	1	1	map
	INDIAN PACKS	2	2	1	1	1	1	1	2	food
	LIGHTERS	2	2	2	2	2	1	1	2	
	SHOVEL	1	1	1	1	1	1	1	1	
	SAW	1	1	NA	NA	NA	NA	NA	1	
	SAW GAS	1	1	NA	NA	NA	NA	NA	1	
FIRST AID	EYE WASH	1	1	NA	NA	NA	NA	NA	1	
	EYE WATER	1	1	NA	NA	NA	NA	NA	1	
	KIT	1	1	NA	NA	NA	NA	NA	1	
	WATER	1	1	NA	NA	NA	NA	NA	1	
MISCEL LANEOUS	RADIO	2	2	2	1	1	1	1	1	
	EXTRA FIRE MIX	1	1	NA	NA	NA	NA	NA	NA	
	SIGNS, CONES & BASES	1	1	NA	NA	NA	NA	NA	NA	
	DRAFT PUMPS	1	1	NA	NA	NA	NA	NA	1	

13.13 Timber Assessment

J.W. CORBETT WILDLIFE MANAGEMENT AREA
Timber Management Assessment

Prepared by:
Michael M. Penn
Senior Forester
Florida Division of Forestry

I. Purpose

This document is intended to fulfill the timber assessment requirement for the J.W. Corbett Wildlife Management Area (CWMA) as required by Section 253.036, Florida Statutes. The goal of this *Timber Assessment* is to evaluate the potential and feasibility of utilizing silvicultural techniques to assist managers in achieving objectives at CWMA.

II. General Information

The CWMA is managed by the Florida Fish and Wildlife Conservation Commission (FWC). The property consists of approximately 60,224 acres in North Central Palm Beach County. This property was purchased for wildlife management under the sponsorship of the Pittman-Robertson Act.

Prior to purchase by the State in 1947, the area was owned by Southern States Land and Timber Company and was managed for multiple uses including timber management, grazing and farming. No virgin stands of timber exist today although the flatwoods have regenerated naturally. Red-Cockaded Woodpeckers (RCW's) inhabit the property and their habitat management is a high priority.

CWMA is relatively low and is pockmarked with numerous ponds, swamps and marshes. The pine flatwoods on CWMA appear mostly as strands and pockets of timber inhabiting the higher ground between the wetlands. Roughly 25 percent of the entire management area exists as pine flatwoods. A more intensive survey would be beneficial to more accurately portray the timber resource for long range planning purposes.

This Timber Assessment will discuss only the flatwoods located on the property, as these are the only areas where silvicultural treatments may be feasible.

III. Flatwoods

Timber Resources

While CWMA has approximately 15,000 total acres of flatwoods, only three to four thousand acres of are readily accessible for silvicultural activities at the present time. They are located within the Main Grade Corridor. These areas are characterized by a south Florida slash pine overstory with either a heavy saw palmetto/gallberry or wax myrtle understory. The flatwoods are extremely variable with regard to stocking levels and age classes. Basal areas range from 10 to 100 sq. ft. per acre. Due to the lack of fire, much of the flatwoods exhibit high understory fuel loading and pose a significant risk for stand replacement wildfire. Prescribed burns are often difficult to conduct without causing an undesirable amount of tree mortality due to the high fuel loading.

Management Options

1) Do Nothing – Areas with higher densities of timber will continue to grow but at a much slower rate, becoming more susceptible to insect, disease and wildfire. Native shade intolerant ground cover species will continue to decrease from being shaded out and be replaced by more shade tolerant species such as palmetto and gallberry. Understory species such as wax myrtle, palmetto and gallberry will continue to increase, reducing suitable RCW habitat. Younger, less dense stands will continue to grow and increase in basal area, in time becoming overstocked.

2) Timber Management Emphasis – Managing this area strictly for timber production is a possibility but considering the distance from the major wood processing facilities, the relatively low site indices, and potential for RCW habitat, this is probably undesirable. This option is included only to explore the various alternatives available for managing the area. It is not expected or recommended that these natural pine communities be managed in this manner unless on a very small scale.

Pine stands should be thinned when live crowns in the majority of the dominant and co-dominant trees have been reduced to approximately 1/3 of their total height. This will help ensure a healthy stand of trees. These stands should be thinned to 60 – 80 sq. ft. BA per acre each time they reach 100 sq. ft. BA per acre or more. An added benefit of opening up the canopy is that more sunlight will reach the forest floor increasing forage production for wildlife. Once the stand has reached maturity, it may be harvested, then planted or naturally regenerated.

3) Ecosystem Management (Restoration) Emphasis – This option is similar to the Timber Management Emphasis above, however, this strategy gradually thins the stand even further to 40-60 sq. ft. BA per acre. This will allow even more sunlight to reach the forest floor, increasing the amount and variety of native ground cover. Areas of higher densities may be maintained to help

create diversity. Creation and maintenance of RCW habitat is critical on CWMA so all silvicultural activities should not compromise this objective. The FWC RCW Biologist should be intimately involved in any silvicultural project undertaken on this property.

A variety of thinning methods can be utilized. Thinning options to consider are: normal thinning with relatively even spacing, group selection, group seed tree, or a combination of all three. Natural regeneration should become established without much difficulty after harvest if the ground becomes sufficiently scarified.

One advantage of this type of harvest is that the understory vegetation will be knocked down enough to allow managers to reintroduce prescribed fire more safely. This should be especially beneficial to RCW habitat. However, immediately after any kind of ground disturbance the area may be susceptible to invasion by exotic/invasive plant species. This is something to be especially concerned with in this part of Florida and it is recommended that a plan be in place to address this problem prior to any harvest activities.

IV. Miscellaneous Forest Products

There are areas within the CWMA where numerous lightered stumps remain from previous timber harvests. These stumps have value for the turpentine industry and could be sold from areas where it is desirable to remove stumps to improve access.

There are also areas with an over-abundance of wax myrtle. This material, sometimes referred to as "crooked wood", can be sold to producers of stems for artificial trees and plants. Harvesters do not remove every piece but selectively choose which stems they can sell. Although the sale of this material will not effectively control this species, the revenue could be used to help offset other management costs.

V. Access

Main Grade Road is the major access road within CWMA and can handle heavy truck traffic most of the year. Other roads within the area could only be used intermittently during dry periods unless they are improved. With this being the case, it is logical to initially plan any needed harvest activities within the Main Grade Road corridor.

VI. Prescribed Fire

Prescribed fire is an important tool for ecosystem management in Florida. Before European settlement, natural fires occurred at regular intervals on an average of two to five years. These fires reduced the fuel load, produced a seedbed for pine regeneration and released nutrients back into the soil. Prescribed fire, coupled with a well-planned timber harvest, is often the most economical and responsible method for conducting ecosystem management and restoring areas back to natural conditions.

Much of the flatwoods on CWMA exhibit unnaturally heavy fuel buildups due to lack of fire. Currently fuels are such that it would be risky to attempt burning without first implementing some kind of mechanical treatment. One option would be to thin the area first and then conduct a series of cool backing fires at frequent intervals (every 1-2 years) until it becomes safe to conduct more aggressive growing season burns. Again, a series of cool backing fires should be implemented until eventually the fuel loads become more manageable.

The major objective when prescribed burning in timber should be minimal mortality of the trees. Historic natural fires caused very little tree mortality except in small seedlings because they burnt mostly on the finer fuels of wiregrass and pine straw. South Florida slash pine is more intolerant to fire than longleaf pine, especially during the seedling stage when longleaf pine is in the grass stage. Both species are susceptible to fire caused mortality for several years after initiation of height growth. Therefore, burning intervals should be adjusted until the majority of the trees grow out of the susceptible stage. One study suggests that once slash pine seedlings surpass 1.5 inches diameter 6 inches above the ground, most will survive, providing the fire is cool. (Johansen, R.W. and Wade, D.D. 1987). When burning, even in mature timber, it must be kept in mind that not all fire is good. A hot fire may not initially kill trees, but will stress them enough to dramatically increase their susceptibility to insect and disease attack. This is especially true when combined with other stresses, such as drought or flood.

VII. Economics

It is difficult to predict with any certainty the amount of revenue that can be derived through timber harvests on CWMA. Market conditions, harvest prescriptions, product mix, logging conditions and distance to manufacturing facilities all play a factor in stumpage prices. It becomes even more difficult when trying to predict what future timber markets will be.

CWMA is located in Palm Beach County, which is approximately 6 hours from major wood processing facilities in Palatka, Florida. This makes it difficult to sell timber in this part of Florida, especially considering current market conditions. There has been, however, some sand pine timber sold from Jonathan

Dickinson State Park and Seabranck State Preserve Park in Martin County for a minimal price. The peeler log component of these sales went to Palatka and the pulpwood went to a mulch plant in Okeechobee.

Although timber sales occurring on CWMA cannot be expected to generate a great amount of revenue, they can be expected to sell, especially if timber markets return to normal levels. This is advantageous if habitat restoration and fire hazard reduction are goals. A well-planned timber harvest can greatly reduce the costs of these activities as well as reduce the risk of wildfire.

IX. Summary

The J. W. Corbett Wildlife Management Area has significant acreage of mesic flatwoods in which silvicultural treatments may prove beneficial. It is possible to manage this area in such a manner as to retain their natural appearance, meet objectives stated in the Conceptual Management Plan such as RCW habitat improvement, and produce revenue through timber harvests, although the revenue producing potential of the area is minimal due to the distance to major wood processing facilities. The most practical application of silviculture on this property is as a tool in achieving restoration objectives and for reducing wildfire hazards.

There are two major concerns managers should keep in mind prior to implementing any kind of silvicultural operations. The first are the effects to the RCW's and their habitat. All management activities should have the goal of improving conditions for RCW's. The second is the risk of invasion of exotic/invasive species. This risk can be reduced by planning and sale layout.

Literature Cited

Johansen, R.W. and Wade, D.D. 1987. An insight into thinning young slash pine stands with fire, pp 103-106. *In*: Douglas R. Phillips (comp.) Proceedings of the Forth Biennial Southern Silvicultural Research Conference; 1986 November 4-6; Atlanta, GA. USDA Forest Service Southeastern Forest Experiment Station General Technical Report, SE-42.

13.14 WCPR Strategy

J.W. Corbett WMA

Species Management Strategy

August 2011

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



EXECUTIVE SUMMARY

The Florida Fish and 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/Wildlife and Environmental Area (WMA/WEA) system. This approach uses information from statewide models in conjunction with input from species experts and people with knowledge of the area to create site-specific wildlife assessments of a number of focal species. Staff combines these assessments with management considerations to develop a wildlife management strategy for the area. FWC intends for this strategy to: 1) provide land managers with information on actions they should take 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 an approach to evaluating focal species needs within an ecosystem management approach for J.W. Corbett Wildlife Management Area (Corbett). Natural community management focused on a set of focal species provides benefits to a host of species reliant upon these 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 WMA 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 the historic and ongoing management actions on the property. [Section 3](#) provides a list of focal and listed species on the area, and an assessment of each species' level of opportunity/need. This includes species-specific goals and objectives when appropriate. Objectives are identified for 3 species on this area: Bachman's sparrow, northern bobwhite, and red-cockaded woodpecker. [Section 4](#) describes specific land management actions recommended for focal species. This includes Strategic Management Areas (SMA) and Objective-Based Vegetation Management (OBVM) considerations. An SMA is an area in which FWC will apply specific land or species management action(s) to facilitate conservation of a species or group of species. This section also discusses management necessary to ensure continued persistence of focal species. Staff designated 2 red-cockaded woodpecker SMAs. [Section 5](#) describes species-specific management (e.g., restocking, nest structures), species monitoring prescribed for the area, and research that would be necessary to guide future management efforts. Species-specific management actions are recommended for red-cockaded woodpeckers and mottled ducks. We describe monitoring efforts for Bachman's sparrow and northern bobwhite in the avian spring call-count survey, marsh birds including the limpkin, red-cockaded woodpeckers, Florida mottled ducks, and wading birds. Opportunistic monitoring is suggested for a number of other focal and imperiled species. The conservation of Corbett's wildlife requires interaction with other entities beyond local staff. Intra-agency coordination with 6 other units in FWC and inter-agency coordination with 7 other entities are identified in [Section 6](#). [Section 7](#) describes efforts prescribed "beyond the area's boundaries" to help affect conservation of the species on the area.

Continuation of current resource levels would be required to provide for most of the land management recommended in this document. The FWC will use a combination of private sector contract work and efforts of area staff to accomplish these activities. Some of the monitoring recommendations will require additional resources, while FWC can accomplish others with continuation of existing resources. Additional resources will be required to achieve desired removal of exotic invasive plant species on the property.

Table of Contents

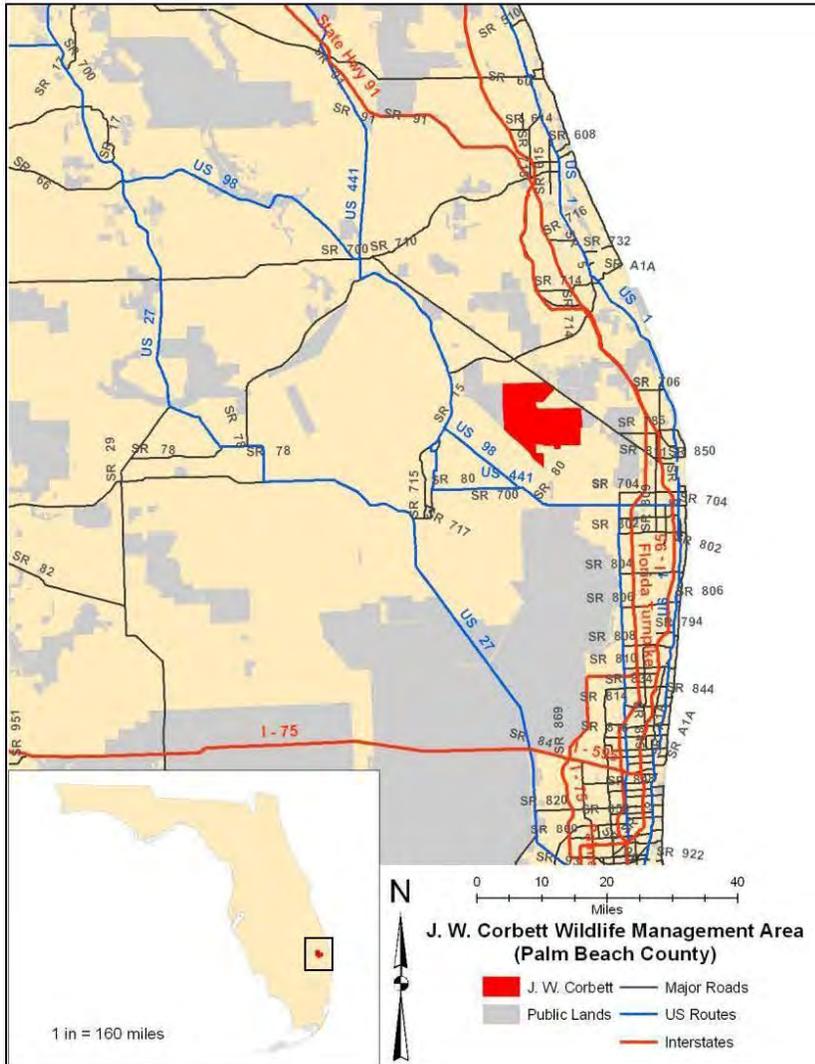
Executive Summary	ii
Acronym List.....	v
Locator Map.....	vi
Section 1: Introduction	1
Section 2: Current and Historic Management Actions	2
Section 3: Area Focal Species.....	8
3.1: J.W. Corbett WMA Focal Species.....	9
3.2: Focal Species Opportunity/Needs Assessment.....	10
3.2.1: <i>American Swallow-Tailed Kite</i>	10
3.2.2: <i>Bachman’s Sparrow</i>	11
3.2.3: <i>Cooper’s Hawk</i>	12
3.2.4: <i>Florida Mottled Duck</i>	13
3.2.5: <i>Florida Sandhill Crane</i>	14
3.2.6: <i>Limpkin</i>	15
3.2.7: <i>Northern Bobwhite</i>	16
3.2.8: <i>Red-Cockaded Woodpecker</i>	18
3.2.9: <i>Short-Tailed Hawk</i>	20
3.2.10: <i>Snail Kite</i>	21
3.2.11: <i>Southern Bald Eagle</i>	22
3.2.12: <i>Wading Birds</i>	23
3.2.13: <i>Sherman’s Fox Squirrel</i>	24
3.2.14: <i>Limited Opportunity Species</i>	25
3.2.15: <i>Other Focal and Imperiled Species</i>	27
Section 4: Land Management Actions and Considerations	29
4.1: Strategic Management Areas.....	30
4.1.1: <i>Red-Cockaded Woodpecker Southern Expansion SMA</i>	31
4.1.2: <i>Red-Cockaded Woodpecker Western Expansion SMA</i>	34
4.2: Objective-Based Vegetation Management (OBVM) Considerations.....	37
4.3: Further Land Management Considerations.....	38
4.3.1: <i>American Swallow-Tailed Kite</i>	38
4.3.2: <i>Cooper’s Hawk</i>	38
4.3.3: <i>Crested Caracara</i>	38
4.3.4: <i>Florida Sandhill Crane</i>	39
4.3.5: <i>Limpkin</i>	39
4.3.6: <i>Red-Cockaded Woodpecker</i>	39
4.3.7: <i>Short-Tailed Hawk</i>	40
4.3.8: <i>Snail Kite</i>	40
4.3.9: <i>Southern Bald Eagle</i>	41
4.3.10: <i>Wading Birds</i>	41
Section 5: Species Management Opportunities.....	42
5.1: Species Management	42
5.1.1: <i>Florida Mottled Duck Hen House Installation</i>	42
5.1.2: <i>Red-Cockaded Woodpecker Translocation/ Artificial Cavity Installation</i> ..	43
5.2: Species Monitoring.....	43
5.2.1: <i>Avian Spring Call Count Survey</i>	44

5.2.2: Mottled Duck Hen House Monitoring	44
5.2.3: Marsh Bird Monitoring	44
5.2.4: Red-Cockaded Woodpecker Monitoring	44
5.2.5: Aerial Wading Bird Roost/Colony Surveys	45
5.2.6: Opportunistic Monitoring.....	45
5.3: Species Research Needs	46
Section 6: Intra/Inter Agency Coordination.....	46
6.1: Florida Fish & Wildlife Conservation Commission (FWC)	46
6.1.1: Species Conservation Planning Section (SCP)	46
6.1.2: Hunting & Game Management (HGM).....	47
6.1.3: Fish and Wildlife Research Institute (FWRI)	47
6.1.4: Habitat Conservation Scientific Services Section (HCSS)	47
6.1.5: Florida's Wildlife Legacy Initiative (FWLI)	47
6.1.6: Invasive Plant Management Section (IPM).....	48
6.2: South Florida Water Management District (SFWMD)	48
6.3: Avian Research and Conservation Institute (ARCI)	48
6.4: United States Fish and Wildlife Service (USFWS).....	49
6.5: Florida Natural Areas Inventory (FNAI).....	49
6.6: Audubon Society of the Everglades	49
6.7: Big Cypress National Preserve	50
6.8: Palm Beach County Environmental Resources Management	50
Section 7: Beyond the Boundaries Considerations	50
Document Map.....	52

Acronym List

ARCI	Avian Research and Conservation Institute
BCNP	Big Cypress National Preserve
CARL	Conservation and Recreation Lands (program)
CERP	Comprehensive Everglades Restoration Plan
DBH	Diameter at Breast Height
DEP	Department of Environmental Protection
DFC	Desired Future Condition
DOF	Division of Forestry
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Florida Wildlife Research Institute
FPL	Florida Power and Light
GFC	Florida Game and Fresh Water Fish Commission
MU	Management Unit(s)
OBVM	Objective Based Vegetation Management
PBG	Potential Breeding Group
PLCP	Public Lands Conservation Planning (project)
PVA	Population Viability Assessment
PVC	Polyvinyl Chloride
SCP	Species Conservation Planning (section)
SFWMD	South Florida Water Management District
SGCN	Species of Greatest Conservation Need
SHCA	Strategic Habitat Conservation Area
SMA	Strategic Management Area
THCR	Terrestrial Habitat Conservation and Restoration (section)
UERP	Upland Ecosystem Restoration Project
WCA	Water Conservation Area
WCPR	Wildlife Conservation Prioritization and Recovery
WEA	Wildlife and Environmental Area
WHCnInFL	Wildlife Habitat Conservation Needs in Florida
WMA	Wildlife Management Area
USFWS	United States Fish and Wildlife Service

Locator Map



Section 1: Introduction

The FWC takes a proactive, science-informed approach to species management on lands in the WMA/WEA system. Staff integrates conservation planning, Population Viability Analysis (PVA) results, and geospatial analytical techniques to model potential habitat to help FWC determine where to affect focal species conservation. Staff combines the landscape level assessments with input from species experts and people with knowledge of the area to create site-specific wildlife assessments for a number of focal species. Staff combines these assessments with management considerations to develop a wildlife management strategy for the area or WMA complex.

The FWC intends for this Strategy to: 1) provide land managers with information on actions they should take 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 managers can use to evaluate the success of wildlife management on the area. On FWC lead areas, we reference goals and objectives included in the Management Plan when discussing the species and drafting the Strategy; therefore this Strategy will help guide and support the goals of the Management Plan. The species-specific objectives identified in this Strategy will be incorporated into the Management Plan and this Strategy will be appended to the Management Plan.

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

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

The primary focus of this approach is non-game species; however, two of the focal species are game birds. Specific game management actions are not included in this Strategy, although game management actions are considered when drafting the Strategy and are compatible with the actions prescribed by this Strategy. While this Strategy focuses on Corbett, it considers the role of the areas within the larger State and/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 Actions

J.W. Corbett Wildlife Management Area (Corbett) consists of 61,366 acres of State owned conservation lands. In 1947, the Florida Game and Fresh Water Fish Commission (GFC), predecessor to the FWC, purchased 56,440 acres from Southern States Land and Timber Company using Pittman-Robertson federal aid. FWC is the sole title owner for this portion. The remaining acreage where FWC is lead was acquired in the area of Big Mound, the Section 16 lands held in trust for the Department of Education, and lands purchased under the Conservation and Recreation Lands (CARL) Program are owned in fee-simple title by the Board of Trustees of the Internal Improvement Trust Fund (Trustees). Inholdings and Additions funds from the Preservation 2000 program provided for the purchase of the Leon Moss Tract (2,331 acres), which the Trustees lease to FWC. Adjacent property owners retained drainage rights on the Leon Moss Tract, reserving land use as a water retention area. The Leon Moss tract is surrounded by canals and cut off hydrologically from the rest of Corbett. Numerous ditches occur throughout the tract. Hydrology in this area is degraded, and burning is difficult given that only a small window of opportunity for applying prescribed fire exists as conditions are often too wet or too dry and pines are already stressed.

Proposals have been submitted under the Comprehensive Everglades Restoration Plan (CERP) to restore natural sheet flow. Several small inholdings (approximately 55 acres) in the Big Mound portion of Corbett are in private ownership. The Everglades Youth Camp, operated by Pine Jog at Florida Atlantic University, occupies 253 acres of Corbett. Recreational opportunities include public hunting, hiking, bird watching and horseback riding.

Corbett is part of a network of conservation lands. The FWC is the lead management agency on Hungryland WEA (Hungryland), which occurs to the northeast. The South Florida Water Management District (SFWMD) with cooperation from the FWC manages DuPuis WEA (DuPuis), which is adjacent to Corbett's western boundary. Several parcels managed by Palm Beach County occur to the east ([Figure 1](#)). The publicly owned land in this complex provides a large amount of wetland habitat, and DuPuis provides a good amount of upland habitat. As many of the species occurring on Corbett are wide-ranging, these adjacent and nearby properties provide important habitat for the regional populations of many focal species.

Prior to FWC's purchase of Corbett, timber and grazing activities were the property's primary use. Most of the area's harvestable timber stands were clearcut. Reforestation efforts were not attempted, and mature pines are still limited on some of the area. Although sawmills were erected on the area, few traces of their existence remain. Conversely, remnants of tram roads used to move timber off the area are still noticeable. Cattle grazing occurred over much of the area, but with few range improvement practices. A 25-year stumping lease was in place until 1986. In cooperation with volunteers and the National Wild Turkey Federation, approximately 2,000 acres of abandoned agricultural fields are used

areas. There are two primary reasons for water control: to alleviate excess water caused by diking on adjacent lands and to reduce periods of standing water for the improvement of upland habitat. A water control plan called for 42 miles of ditches - of which 23 miles were completed prior to 1982. The additional ditches were not completed because land management objectives changed. After completion of the ditches, deer (*Odocoileus virginianus*) and northern bobwhite (*Colinus virginianus*) populations appeared to increase. However, this is based on incidental observations and hunting data. No conclusive evidence linked the game increase to the water control program. In 1990, a hydroperiod restoration plan was completed. The restoration resulted in increased water retention and control capabilities.

In the late 1990s and early 2000s, a series of levee failures on the Corbett/DuPuis border, L-8 canal, and the southern boundary of Corbett occurred. Concern over drowning of century-old oak trees on archeological sites and discussions with Florida Power and Light (FPL) about water on their power poles led to the installation of a series of water control structures to allow better management of water levels on Corbett. In a series of projects, two swales were placed in the levee on Corbett's west side, along with a group of 7 culverts and a rock swale close to the L-8 canal. Along the south boundary, 4 culverts were installed; 2 in the southeast portion and 2 in the southwest portion. These improvements, combined with an emergency operation permit from the SFWMD, resolved the high water issues on Corbett. Current efforts include placing continuous-recording Steven's water level gauges in strategic locations and relating the data from these gauges to resulting hydroperiods in wet flatwoods. This habitat type has a fairly specific hydroperiod. Non-impacted hydric flatwoods typically have standing water 1-2 feet above ground level for 60 -120 days during the wet season and water levels of 1-3 feet below ground level during the height of the dry season, according to the United States Fish and Wildlife Service (USFWS) [Multi-Species Recovery Plan: Hydric Pine Flatwoods](#). If attained, these water levels should indicate the rest of the habitat types in the vicinity are experiencing appropriate hydroperiods. A threat to appropriate hydroperiod management is pressure from local government agencies to drain Corbett for improved flood management in residential areas. Area staff is in the process of developing a comprehensive hydrologic plan for the property.

Historically, the objective of controlled burns was to reduce fire hazard and stimulate growth of herbaceous vegetation. A prescribed burn program has continued to reduce heavy fuel loads, lessen chance of catastrophic wildfires, and enhance natural communities for the benefit of wildlife. Documentation of burns dates back to 1973. Aerial burns began in 1987 affording staff the ability to burn more acreage. In an attempt to achieve enhanced habitat conditions through shorter fire return intervals on Corbett, in 2001 the burn program shifted focus to maintaining red-cockaded woodpecker habitat in 3-year burn intervals. Now that all active red-cockaded woodpecker habitat is being maintained with a 3-year interval, the plan is to extend this enhanced fire regime to other habitats. Currently, staff maintains approximately 10,000 acres in a 3-year fire interval, 17,000 acres are in a 5-year interval, 28,000 acres are in a 10-year interval, and the remaining acreage has not been burned in over 10 years or is not managed with fire. Future burn goals involve reducing areas on 5-year intervals to 3-year. A combination of growing and dormant season burns is preferred; however, since 2003, growing season burns have accounted for 75-80% of prescribed fire. Corbett's recent increase in growing season burns is a result of fuel reduction in units with frequent fire intervals coupled with environmental conditions more suitable for burning

during the growing season. Objectives in these units have changed from fuel reduction to promoting growth and diversity of herbaceous plants to accommodate the area's wildlife.

In addition to prescribed fire, managers contracted for the mechanical mowing of saw palmetto (*Serenoa repens*) and hardwoods in 1,722 acres of red-cockaded woodpecker habitat during 2004-2009. The Florida Natural Areas Inventory (FNAI) completed plant community mapping in 2004 and the property has been part of FWC's OBVM program since 2005. Historic natural community data is not available for this WMA. Through the OBVM workshop process, staff delineated management units (MUs) and defined desired future conditions (DFCs) for the actively managed natural communities. On Corbett, staff identified 28,466 acres as OBVM actively managed communities. Actively managed natural communities include mesic flatwoods, wet flatwoods, and wet prairie (Table 1). Old agricultural fields, classified as ruderal, are actively managed by mowing and planting of wildlife forage, but not monitored via the OBVM program.

Table 1. Mapped acreage of current natural communities on JW Corbett WMA, including management status and number of focal species that use the community.

Community Type	Estimated Current Acreage	Actively Managed ¹	# of focal species that use the NC
Basin marsh	10,304	No	7
Basin swamp	912	No	5
Depression marsh	4,250	No	8
Dome swamp	2,030	No	4
Hydric hammock	36	No	4
Mesic flatwoods	16,267	Yes	13
Mesic hammock	326	No	7
Ruderal	4,042	No	11
Strand swamp	11,000	No	5
Wet flatwoods	11,307	Yes	10
Wet prairie	892	Yes	8
TOTAL ACRES	61,366		

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

Exotic plants have been prevalent throughout Corbett. There is no need for an extensive exotic plant survey as FWC has expended resources to identify and control them. There is, however, a continuing need to document and control new infestations. Ongoing exotic treatments should continue to be a priority. Because these species are so invasive, even one year without treatment can result in infestations as bad as in untreated areas. The cost of controlling these re-infestations is more expensive than continued retreatment. *Melaleuca* (*Melaleuca quinquenervia*) and old world climbing fern (*Lygodium microphyllum*) are the most pervasive exotic plants on Corbett. Staff treats *Lygodium* and *Melaleuca* in the initial treatment. Initial treatment refers to anything treated for the first time, or when a substantial amount of time has occurred between treatments resulting in pre-treatment exotic infestation levels. In subsequent treatments, additional species [such as

Brazilian pepper (*Schinus terebinthifolius*), Java plum (*Syzygium cumini*), Australian pine (*Casuarina equisetifolia* L.), cogongrass (*Imperata cylindrica*), earleaf acacia (*Acacia auriculiformis*), West Indian marsh grass (*Hymenachne amplexicaulis*), downy rose myrtle (*Rhodomyrtus tomentosa*), and bischofia (*Bischofia javanica*) are treated, if encountered. FWC funding for invasive exotic plant control began in 1995 with \$500 and volunteers to treat *Lygodium* and *Melaleuca*. To date, FWC has arranged for the initial treatment of 53,500 acres for *Lygodium* and *Melaleuca*, and these acreages are now in varying stages of maintenance and retreatment.

Initial exotic plant treatment goals targeted the majority of the WMA. Exotic plant control starts with treatment on area boundaries and moves interiorly. The goal is to achieve a defendable exotic free line, although there are sometimes deviations to this strategy. For example, exotic encroachment that threatens threatened and endangered species. Areas converted to an exotic monoculture may be treated before the surrounding area is contracted. An area can also become a top priority if a new invasive species is found. Corbett currently uses contractors to control invasive exotic plants, and significant resources go into managing these contracts. The need for retreatment is dependent on the density of infestation, seed bank, presence of exotics across treatment area boundaries, weather conditions, site location, and contractor success rates; nearly all initially treated areas require 4-5 follow-up treatments. Few areas on Corbett have received more than 4 treatments, and those that have often require more due to adjacent seed and spore sources. Recent funding limitations prevented areas that had undergone several treatments from being treated in FY 2009-10. In these areas, spore and seed sources are still present, and missing a year of treatment allowed many exotic species to return. Future exotic treatment plans will be revised to focus on a smaller portion of the WMA, to ensure priority areas can be treated annually and completely during times of limited funding.

Corbett staff discovered small patches of air potato (*Dioscorea bulbifera* L.), West Indian marsh grass, cogongrass, and downy rose myrtle; since these species aggressively proliferate, staff initiated control efforts before they spread further.

Three significant archeological sites exist on Corbett: Big Mound City, Big Gopher, and the Hungryland Site. Big Mound City covers 143 acres and consists of at least 23 mounds, some radiating causeways and crescent-shaped, human-made ponds. The Big Mound City Group was excavated, surveyed and mapped during the winter of 1933-1934. Evidence suggests Native American use of the area from as early as 500 B.C. up through the 1500s. Big Gopher consists of linear ridges, crescents, mounds, and middens. Multiple smaller archeological sites have been located, and Palm Beach County archeologists are in the process of documenting these sites.

Staff developed a plant and animal list for Corbett that includes over 900 species. Staff enters records of incidental observations of species of concern in the WildObs database. Wildlife surveys and monitoring have been conducted on Corbett for both game and non-game species. Surveys for Florida panthers (*Puma concolor coryi*) have not been conducted in recent history; in the late 1980's a hunter killed the last Florida panther documented on Corbett.

From 1960-1990 both track count and spotlight surveys for white-tailed deer were completed. Pre-hunt season results from these deer surveys ranged from 397-727 individuals and post-hunt estimates ranged from 333-843. Staff discontinued spotlight surveys because visibility was limited by thick vegetation and the results were not as useful as expected. Staff

discontinued track counts when the main road was covered with shellrock. Staff collected deer reproductive data during October and November from 1983 to 1986. The results of this study indicated that the mean conception date during these years occurred during early September.

Biologists conducted northern bobwhite call surveys and collected wing samples from 1975-1981. Northern bobwhite wing data indicate the peak hatching period to be near the end of June. From 2007 to 2010, northern bobwhite call surveys were conducted on 5 transects following a standard protocol. In 2009, survey points averaged 0.19 northern bobwhite/point/day, down from an average of 0.32 in 2008. In 2010, 3 transects were completed with an average of 0.18 northern bobwhite/point/day. For more information on northern bobwhite, see [Section 3.2.7](#).

Aerial wading bird colony searches were conducted from 2006 – 2010 and revealed 1 active colony in 2005, 4 in 2006, and 2 each year from 2008 – 2010. Species observed include great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), tricolored heron (*E. tricolor*), great egret (*Ardea alba*), and snowy egret (*E. thula*). One location near the South Grade was utilized 3 times, and another location south of Stumper's Grade was used twice.

Staff conducted presence/absence surveys of marsh birds in 2009 according to the National Marshbird Monitoring Program Protocol utilizing a call/playback method. Species detected during surveys and ranked according to abundance estimates (detections/survey point) are as follows: common moorhen (*Gallinula chloropus*), pied-billed grebe (*Podilymbus podiceps*), limpkin (*Aramus guarauna*), sandhill crane (*Grus canadensis*), least bittern (*Ixobrychus exilis*), and purple gallinule (*Porphyrio martinica*). The limpkin accounted for 18% of all detections. Species absent from surveys included king rail (*Rallus elegans*) and black rail (*Laterallus jamaicensis*). In 2010, surveys were conducted using the same protocol but fewer (5) randomly selected survey points as part of a 2-year USFWS effort to establish standardized marsh bird protocols. Limpkins were the only target species observed (abundance detection rate 0.2/point); staff believes this is due to the reduction of survey points in suitable marsh bird habitat rather than an actual change in species presence.

From 1977–1980, waterfowl surveys were conducted on the L-8 marsh in late fall and winter. Mottled ducks (*Anas fulvigula*) and blue-winged teal (*A. discors*) were the most numerous species encountered, though most waterfowl species common to inland south Florida were recorded. Peak numbers were observed during January in all 3 years.

Several wood duck (*Aix sponsa*) nest boxes were installed at Corbett in 1977 and more added in 1988 through a 5-year joint study with Ducks Unlimited. After the study, boxes became the property of the FWC. Staff maintains and monitors boxes for activity annually. In 2010, 27 out of 62 nest boxes had wood duck nests.

Mourning doves (*Zenaidura macroura*) were trapped and banded in 2009 (6 doves trapped) and 2010 (14 doves trapped) as part of an ongoing FWC study. Data from across the state showed that 85% of Florida hunter harvested doves from 2003-2010 originated in Florida.

Both spring and fall North American Migratory Bird Surveys were conducted in 2009 and 2010. Notable observations include a rare documentation of a mourning warbler (*Oporornis philadelphia*), a western spindalis (*Spindalis zena*), a breeding pair of red-headed woodpeckers (*Melanerpes erythrocephalus*; very rarely observed in Palm Beach County), and a late spring observation of a marsh wren (*Cistothorus palustris*). Eagle nests have been

aerially surveyed annually since 1992. There are currently 4 active nests on site. Additional information on eagles can be found in [Section 3.2.11](#).

Corbett supports the last known population of red-cockaded woodpeckers in southeastern Florida, and is 1 of 4 populations on public lands entirely within the hydric slash pine eco-region. Data on the number of occupied clusters on Corbett prior to 2000 are limited, but data from the early 1980s through the early 1990s suggest that approximately 20 family groups, or occupied clusters, occurred on the property. Since 2000, biologists have closely monitored the population by identifying active clusters, monitoring cavity trees, locating nests, banding nestlings and adults, and creating new clusters using artificial cavities. Staff started translocating woodpeckers into the population in 2003, and has since translocated 40 birds from different donor populations located in Florida and Georgia. Seventeen of the 40 birds have been recruited into the Corbett population and are integral in maintaining the population. The combination of focused land management in conjunction with focused species management has been successful, as indicated by the recent population growth. Additional information on Corbett's red-cockaded woodpeckers is found in [Section 3.2.8](#).

In 2009, Corbett participated in a round-tail muskrat survey along with 9 other WMAs. The Schooley and Branch (2005) method for determining the presence of muskrat lodges within isolated wetlands revealed muskrats were present in 6 of 7 wetlands surveyed in January 2009 and 4 of 5 surveyed in November 2009.

From 2006-2008 a herpetofauna survey was conducted to inventory species present on the area. Sixteen arrays with pitfall, funnel and polyvinyl chloride (PVC) pipe sampling were setup in various habitats. Additionally, frog call counts and road surveys were conducted concurrently. The survey documented 38 reptile and amphibian species and confirmed the presence of several previously unrecorded species. During 2008 and 2009, 28 individual snakes of 9 species were documented as part of a Palm Beach Atlantic University Florida snake project. University of Georgia collected ectoparasites from deer, hog, small mammals and birds at Corbett from 2004 through 2009.

Section 3: Area Focal Species

The FWC's land management focuses on restoring the natural form and function of natural communities. However, in some instances, it is important to consider the needs of specific species, and it is necessary to monitor the impacts of natural community management on select wildlife to ensure management is having the desired effect. To ensure a focused, science-based approach to species management the FWC uses the focal species concept embraced by the Wildlife Habitat Conservation Needs in Florida (WHCinFL) project ([Wildlife Habitat Conservation Needs in Florida Web Information](#)). 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 species selected as focal species include umbrella species, keystone species, habitat specialists, and indicator species. The Public Lands Conservation Planning (PLCP) project selected 60 focal species for the statewide assessment. The PLCP project used potential habitat models to create statewide potential habitat maps for each species. Models were created using relevant available data. The base layer for all models was the FWC 2003 landcover data. Staff selected additional data layers such as the species

range, soils, land use, etc. based on the natural history of the species. As such, each model is species specific. Once statewide potential habitat maps were available, a PVA was conducted for each focal species.

When using the statewide landcover based habitat maps, models identified 15 of the 60 focal species as having potential habitat on Corbett ([Section 3.1](#)). In addition to the species modeled to occur on the area, 2 additional species were identified by area managers as having been documented on the property: the northern bobwhite and the crested caracara. To create more accurate area-specific potential habitat maps, we used the same statewide model for each focal species on the area but replaced the landcover data with area-specific natural community data. The resulting potential habitat map was then refined using input from local managers and species experts. All potential habitat acres provided in [Section 3.2](#) are the results of this area-specific model and resulting map. Acreages provided are estimates.

The Corbett WMA Wildlife Conservation Prioritization and Recovery (WCPR) Workshop held December 8-9, 2010 brought decision makers together to discuss an assessment of the opportunity and needs; identify measurable objectives; determine necessary actions including monitoring; and identify necessary coordination efforts. WCPR staff compiled information on the focal species in a workbook to facilitate informed discussion. Participants at the workshop discussed the “level of opportunity and need” for each species. This included analyzing the long-term security of the species (i.e., examine PVA results), considering if the species occurs in actively managed communities ([Table 1](#)), if the species is management responsive, and any other local overriding considerations (e.g., status of species in the region, local declines/extirpations). A summary of this assessment of each species is available in [Section 3.2](#).

3.1: J.W. Corbett WMA Focal Species

Species that have a measurable objective are indicated with a ¹, and species for which monitoring is recommended are indicated with a ². Occasionally, models indicate species have potential habitat on the area when using statewide data; however, the local assessment indicates there is little opportunity to manage for these species on the area and they are not a focus of management on the area. These species are identified with an *.

Gopher tortoise (*Gopherus polyphemus*)*

American swallow-tailed kite (*Elanoides forficatus*)

Bachman’s sparrow (*Aimophila aestivalis*)^{1,2}

Cooper’s hawk (*Accipiter cooperii*)

Crested caracara (*Caracara cheriway*)*

Florida mottled duck (*Anas fulvigula*)²

Florida sandhill crane (*Grus canadensis pratensis*)²

Limpkin (*Aramus guarauna*)²

Northern bobwhite (*Colinus virginianus*)^{1,2}

Red-cockaded woodpecker (*Picoides borealis*)^{1,2}

Short-tailed hawk (*Buteo brachyurus*)

Snail kite (*Rostrhamus sociabilis plumbeus*)

Southeastern American kestrel (*Falco sparverius paulus*)*
Southern bald eagle (*Haliaeetus leucocephalus*)
Wading birds (*Multiple spp.*)²

Sherman's fox squirrel (*Sciurus niger shermani*)
Florida black bear (*Ursus americanus floridanus*)*

3.2: Focal Species Opportunity/Needs Assessment

This section provides an assessment of the opportunity and needs of each of the focal species. Because all federally listed species are State-listed, for species listed at the federal level, we will provide the federal listing. When a species is not federally listed but is listed by the FWC, we will provide the FWC listing category. Unless otherwise noted, all acres of potential habitat are the result of using the area-specific natural community data in the species potential habitat model. We presume that by doing the actions called for in this strategy, we will ensure the area fulfills its role in the conservation of wildlife.

FWC is currently in the process of developing management plans for State listed species. Staff will monitor these plans to determine if the content of the plans would warrant a revision to any of these assessments. Revisions will be amended to the strategy.

3.2.1: American Swallow-Tailed Kite

The American swallow-tailed kite is commonly observed on Corbett. Nesting has not been documented, although nesting behavior and juveniles have been observed on the property; these observations indicate nesting is probably occurring on the property. Kites are often seen flying over flatwoods and wet prairie natural community types. They also are frequently observed near the food plots off Trail 6 and Tomato Field Grade and near old citrus fields on private land to the east.

A habitat generalist, swallow-tailed kites utilize a variety of natural communities throughout the WMA. 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 46,243 acres of potential habitat for swallow-tailed kites occur on Corbett. 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, Species of Greatest Conservation Need (SGCN) population status and population trend).

There is a large amount of suitable kite habitat on Corbett and nearby areas. The individuals occurring on Corbett are part of a larger, regional population, and kites occur on the nearby Hungryland and DuPuis. A group of 5-6 kites were observed in April and May of 2010 on DuPuis, which is consistent with the potential of nesting. Although nesting has not been documented on these properties either, breeding behavior has been observed, and area managers believe nesting is occurring.

American swallow-tailed kites are not typically considered management-dependent. However, ongoing efforts to maintain Corbett's natural community structure and function will benefit kites.

Because this species naturally occurs in relatively low densities during most times of the year, local monitoring would be unlikely to detect a change in the local population. 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, an attempt will be made to locate the nest, and the area will be protected from disturbance ([Section 4.3.1](#)). If nests are located on the area, management considerations around these sites will be used and the nest will be reported to the Avian Research and Conservation Institute (ARCI) ([Section 6.3](#)). If kite activity is observed during the nesting season, this information will be documented ([Section 5.2.6](#)).

Because this species is not a good indicator of management and is difficult to monitor, area-specific objectives for this species are not needed and there is no directed management recommended specifically for the species. There is no need to establish a SMA as there is no management that could be applied specifically for the benefit of this species. The area goal is to promote suitable habitat for the American swallow-tailed kite to ensure individuals using Corbett continue to function as part of the regional kite population. However, the continued presence of this species on the WMA is dependent on conditions that influence the regional population of American swallow-tailed kites.

3.2.2: *Bachman's Sparrow*

Bachman's sparrows are common in mesic and wet flatwoods on Corbett and are frequently observed in red-cockaded woodpecker clusters, although sparrows have been documented in the southern and western parts of the property. Area staff record incidental observations of Bachman's sparrow, and the species is often recorded during surveys for other species. Breeding has been documented on the property; in 2009 a nest with 2 nestlings was documented in a red-cockaded woodpecker cluster in mesic flatwoods off of Trail 15. Bachman's sparrows also have been documented in flatwoods and wet prairie habitats on Hungryland.

This species prefers pine forests with a healthy herbaceous groundcover maintained with frequent fire or early-succession old-field habitat. Use of an area by Bachman's sparrows declines rapidly around 18 months post-fire, although southern populations have successfully persisted with slightly longer fire intervals. Pockets of open ground are an important component of this species' nesting habitat, and singing males need small clumps of shrubs for perching sites. The Bachman's sparrow is not listed at either the state or federal level. The species triggers 2 of the 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands and SGCN population trend) and is currently experiencing range-wide population declines. Models indicate 27,515 acres of potential habitat within current natural communities on Corbett. According to the literature, this is enough habitat to support a viable population. While Corbett has enough habitat to sustain a viable population, the sparrows utilizing Corbett are part of a regional population. This further enhances

the probability of persistence of the species on the area, as long as resources are available for appropriate management.

Ongoing land management for red-cockaded woodpeckers will meet the needs of Bachman's sparrows on Corbett. Currently, all flatwoods containing red-cockaded woodpecker clusters are on a 3-year fire return interval, and Corbett's red-cockaded woodpecker management plan and the SMAs in [Section 4](#) describe plans to expand suitable red-cockaded woodpecker habitat. The long-term plan is to create a corridor of high-quality flatwoods on Corbett to flatwoods on DuPuis. Ongoing and planned actions taken for red-cockaded woodpeckers will maintain and improve habitat for Bachman's sparrows, and no SMA or additional species-specific management will be necessary.

Currently, there is ongoing annual upland avian species monitoring on Corbett, Hungryland, and DuPuis. The surveys that are conducted focus on the northern bobwhite; however, staff incidentally record observations of Bachman's sparrows while surveying. A protocol is being developed to systematically include targeted songbird observations as part of the traditional northern bobwhite surveys, and avian monitoring that includes Bachman's sparrows is recommended ([Section 5.2.1](#)).

The area goal is to maintain a viable population of Bachman's sparrow on Corbett. The measurable objective is to:

- 1) Conduct annual spring call-count surveys for Bachman's sparrow in association with ongoing quail surveys.

The ability to complete these annual surveys will be dependent on maintaining at least current funding levels. As funding levels have been decreasing since 2008, future levels may not be sufficient to achieve land management goals.

3.2.3: Cooper's Hawk

The Cooper's hawk is commonly observed on Corbett and the surrounding WMAs during the winter, but the species is only rarely seen during other seasons. Nesting has not been documented on or near Corbett, although area managers indicate it is possible. Cooper's hawks are commonly associated with woodlands and nest in a variety of habitats including swamps, floodplain and bottomland forests, sand pine scrub and baygalls. Nests are usually placed near the crown of a tree close to an edge in dense stands of oaks. Cooper's hawks primarily feed on other birds, so nests are typically located in proximity to suitable hunting areas. This species takes a variety of birds and some small mammals, and hunt in open, edge, and forested habitats.

The Cooper's hawk triggers 1 of 6 prioritization parameters (PLCP PVA probability of a 50% decline on public lands). Models indicate 24,010 acres of potential habitat for Cooper's hawk within current natural communities on Corbett. Area staff indicates models may overestimate the actual amount of suitable habitat, given that much of the mapped strand swamp communities consist of dwarf cypress. Although hawks may forage over these areas, they are not likely to support Cooper's hawk nesting.

Cooper's hawks are not typically considered management-dependent and there is no specific land management recommended for the species. However, ongoing efforts to maintain the areas' plant community structure and function will benefit the Cooper's hawk by increasing their prey. Management actions that maintain or enhance habitat suitability for this species include prescribed fire and exotic vegetation removal. Because this species is not a good indicator of management and is difficult to monitor, no monitoring, measurable objective or SMA is recommended.

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 and the area will be protected from disturbance ([Section 4.3.2](#)). Therefore, monitoring for Cooper's hawk will be opportunistic ([Section 5.2.6](#)).

The area goal is to promote suitable habitat that will allow Cooper's hawks using Corbett to function as part of a regional population. The continued presence of Cooper's hawks on Corbett is dependent on conditions that influence the regional population.

3.2.4: Florida Mottled Duck

Mottled ducks are occasionally seen on Corbett; nesting has been documented, but it is rare. The southwestern portion of Corbett provides the most optimal habitat for mottled ducks, and is the only suitable year-round habitat. Three waterfowl surveys were conducted in the L-8 marsh at 2-week intervals from December 1977 to January 1978. Mottled ducks and blue-winged teal were the most numerous species encountered. The surveys averaged 160 mottled ducks and 190 total ducks per square mile. There have been no recent WMA-level efforts to document breeding or track abundance, although there is an ongoing region-wide study conducted by FWC's Fish and Wildlife Research Institute (FWRI). FWRI has also implemented a statewide monitoring program for the mottled duck.

The mottled duck is not listed at either the state or federal level and is a harvested game species. This species triggers 2 of the 6 statewide prioritization parameters (Millsap supplemental score and SGCN population trend), making it a moderate priority statewide. Models indicate 14,458 acres of potential habitat for mottled ducks within current natural communities on Corbett. Most of the potential habitat modeled on the area for mottled ducks is basin marsh. Area staff and subject matter experts indicate models may overestimate the available potential habitat, and the majority of the property is only seasonally suitable. The most suitable habitat exists along the western boundary of the property near the L-8 canal. Basin marsh is not an actively managed natural community; however where possible, prescribed fire is allowed to burn into and across wetlands, reducing hardwood encroachment. This will benefit mottled ducks using these marshes for foraging, which is the primary role of this WMA in the conservation of this species. Regionally, Corbett has a minimal role in the conservation of the mottled duck, as there is a limited amount of suitable breeding habitat. The level of opportunity to affect the local mottled duck population

on Corbett is low and ongoing efforts to maintain natural community structure and function should meet the needs of this species, therefore no SMA is recommended.

The FWC's FWRI is conducting a 3-year study (initiated in 2008) on mottled ducks in south Florida. The goal of the study is to gather population and habitat use information. Until this study is complete and management recommendations are available, area managers at Corbett will continue to use prescribed fire in marsh communities and adjacent uplands, which should promote foraging and nesting habitat.

A local school group donated 7 hen nest boxes to Corbett ([Section 5.1.1](#)), which were placed along the basin marsh on Corbett's west side. There has been very little research on mottled duck use of nest boxes; however, species experts support the project as an exploratory venture and indicate data on use and nest success would be useful. The boxes were placed along the L-8 canal in areas where water levels are typically around 7.9 inches (20 cm) deep during peak hatching season (May - June). Boxes will be monitored on an annual basis to determine whether the nesting structures are used and monitor success ([Section 5.2.5](#)).

The goal for this WMA is to maintain high quality wetland habitats that allow the individuals occurring on the WMA to function as part of a regional Florida mottled duck population. In south Florida, patterns of habitat use, movement, and population size are poorly known. Therefore, it would be inappropriate to designate specific area-level management objectives; however, measurable objectives may be adopted following the completion of the FWRI study. Communication with FWRI will be a priority, and [Section 6.1.3](#) describes coordination efforts. Opportunistic observations of nesting activity and juveniles will be recorded ([Section 5.2.6](#)) and hen houses will be monitored annually ([Section 5.2.5](#)).

3.2.5: Florida Sandhill Crane

The Florida sandhill crane is widespread on Corbett, but is most commonly observed on the east side of the property. During the late 1960s and early 1970s, FWC assisted USFWS in egg collections for early studies and models for the whooping crane reintroduction project. If a nest contained 2 eggs, one was collected from each nest; approximately 24 eggs were collected from Corbett each season for two or three years. After eggs hatched, birds were reared and the experiments completed, the cranes were banded and released on site. The presence of nests, juveniles and family groups have been opportunistically documented in several locations and nesting is believed to occur across the WMA, although no attempts to document abundance or distribution have been made. Cranes are common on nearby WMAs and in the surrounding urban areas, where they are frequently hit and killed on roads.

This species uses a combination of shallow wetlands and open upland habitats with a majority of the vegetative cover ≤ 20 inches in height. Standing water is an important component of nesting habitat for Florida sandhill cranes. Nests consist of herbaceous plant material mounded in shallow water or marshy areas. Home range size varies seasonally and regionally. Home range varies for adult pairs from approximately 300 - 600 acres per pair.

The sandhill crane triggers 4 of 6 prioritization parameters (PLCP PVA proportion of pops modeled to persist on public lands, Millsap updated biological and supplemental scores and SGCN population trend), and is a state threatened species making it a moderate to high statewide priority. Models indicate 26,804 acres of potential habitat for the sandhill crane within current natural communities on Corbett.

The large amount of habitat combined with the large number of nesting cranes on Corbett make the area an important part of the regional population. Planned and ongoing efforts to maintain appropriate hydrology and manage the plant community structure and function will improve the suitability of foraging and nesting habitat across the WMA. Therefore, an SMA is not recommended. Management actions that will benefit sandhill cranes include prescribed fire and exotic vegetation removal to maintain upland habitat. USFWS guidelines for maintaining appropriate levels in wet flatwoods are adhered to on Corbett and should ensure suitable water levels in wetland communities are likewise maintained (Section 4.3.4). Hydrologic recommendations for snail kites and wading birds will benefit Florida sandhill cranes. Maintaining quality wetland communities will benefit the sandhill crane. However, if regional water management decisions result in an alteration of the hydrology on Corbett, this could have a negative influence on this species.

Species experts indicate systematic monitoring is recommended on most public lands with a significant amount of crane habitat, as there is a statewide information gap regarding the status of cranes on public lands. FWC staff is working to develop a protocol; however, additional staff and resources would be needed for any systematic surveys to be conducted on Corbett. In the meantime, since cranes tend to continue to use an area unless habitat conditions deteriorate, staff will opportunistically survey known locations of sandhill crane nests (Section 5.2.6). If a statewide protocol is developed with recommendations for Corbett, additional monitoring and objectives may be considered. Nesting birds should be documented and reported and effort made to protect known nests (Section 4.3.4). Coordination recommendations for sandhill cranes are discussed in Sections 6.1.3, 6.2, and 6.5.

The area goal is to maintain appropriate natural communities in a condition suitable to the needs of the species to ensure the Florida sandhill cranes occurring on the WMA function as part of the regional population. However, the long-term persistence of sandhill cranes on the WMA will be influenced by factors affecting the regional population, including water management decisions beyond the control of area managers.

3.2.6: Limpkin

Limpkins are commonly seen on Corbett, and reproduction has been documented on the area. Limpkins are most frequently documented nesting on the west side of the property; however, juveniles have been documented across the property and managers believe nesting occurs throughout the property. Native apple snails (*Pomacea paludosa*), a preferred prey item, occur across the property. Exotic channeled apple snails (*Pomacea canaliculata*) have not been documented on Corbett. Limpkins were a target species in marsh bird surveys conducted in 2009 and 2010, and were the most frequently detected species during these surveys. Staff

opportunistically documents observations of limpkin nests and juveniles. Limpkins are known to be common and nest on other nearby conservation lands.

Limpkins typically inhabit freshwater marshes, swamps, springs and spring runs. Limpkins are a state species of special concern and trigger 1 of 6 prioritization parameters (SGCN population trend). Models indicate 40,031 acres of potential habitat for limpkins within current natural communities on Corbett. Although Corbett contains a significant amount of limpkin habitat, the individuals using Corbett are part of a larger regional population.

Planned and ongoing management actions will maintain and enhance habitat suitability for the regional limpkin population. Prescribed fire in wet prairie and wet flatwoods enhances foraging opportunities and can prevent shrub encroachment in wetland systems. Allowing prescribed fire to burn into marsh systems will maintain or improve habitat conditions and continue to promote use of these wetlands by limpkins. Maintaining appropriate year-round water levels in hydric flatwoods according to USFWS guidelines should ensure suitable water levels in wetland communities also are maintained. Limpkins are dependent on native apple snails for food. Maintaining appropriate hydrology in wet prairie communities with healthy snail populations will benefit limpkins ([Section 4.3.5](#)). However, it should be noted that area staff have limited control over the area's hydrology, and meeting all hydrologic recommendations may not be feasible. Ongoing natural community management and exotic plant control meet the management needs of this widespread species. No SMA is necessary.

In 2009, staff initiated a marsh bird survey that included limpkins as a target species on Corbett. The protocol was based on the National Marsh Bird Monitoring Program. These surveys also occur biannually on the nearby Hungryland. On Corbett, the surveys have been temporarily modified during 2010 and 2011 to participate in a USFWS pilot marsh bird study, coordinated in Florida by FWRI. For Corbett, the decreased number of points and random locations resulted in less detections, and while results will be useful on a statewide basis, use of the results at the WMA-level are limited. The original marsh bird surveys that include limpkins as a target species will be continued in 2012, and repeated at least biannually using the 2009 points which are more compatible with WMA-level needs ([Section 5.2.3](#)). Opportunistic observations of juveniles or nesting will be recorded ([Section 5.2.6](#)).

The area goal for Corbett is to provide quality wetland systems to support the regional limpkin population. However, factors affecting the regional population will influence the long-term persistence of limpkins on the WMA. [Sections 6.1.1, 6.1.3, 6.5, and 6.6](#) describe coordination recommendations.

3.2.7: Northern Bobwhite

Northern bobwhites are occasionally seen and heard in flatwoods on Corbett, breeding has been documented, and area-specific studies have occurred including research that indicates the peak hatching period on Corbett to be near the end of June. Northern bobwhites also occur in low to moderate numbers on other WMAs in the district, and systematic monitoring is ongoing. On Corbett, northern bobwhite are most commonly heard in active red-cockaded woodpecker clusters, although they are

also heard in the Leon Moss area of Corbett, which is in close proximity to private agricultural lands. Northern bobwhite are common on adjacent and nearby Palm Beach County properties.

Northern bobwhites 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 bobwhites are typically associated with open canopy forests and grassland communities dominated by warm-season grasses, legumes, and patchy bare ground. Bobwhites use areas with dense herbaceous cover for brooding and foraging; shrubs or other thickets are useful as roosting habitat or escape cover.

Northern bobwhites trigger 2 of 6 prioritization parameters (SGCN population trend and population status). Models indicate 30,794 acres of potential habitat for the bobwhite within current natural communities on Corbett. Although Corbett contains enough habitat to support a population of northern bobwhites, the occurrence of the species throughout the region indicates individuals utilizing Corbett are part of a larger regional population.

On Corbett, most suitable habitat currently exists off Trail 15 and the northern portion of Trail 8, where red-cockaded woodpecker clusters are actively managed. The flatwoods in these areas contain a relatively low basal area and shrub height, and are currently on a 3-year burn rotation. Due to the large amount of available habitat, there is good opportunity to influence this species on a WMA level through habitat management. Ongoing land management actions in actively managed natural communities on the area will maintain or enhance the suitability of habitat to meet the cover and foraging needs of this species. Prescribed fire (2-3 year return interval) is recommended to maintain groundcover at a level suitable for northern bobwhites. Prescribed fire will be applied in a mosaic fashion using varying ignition techniques and weather conditions to provide a variety of habitats for nesting, foraging, and escape cover. Targeted red-cockaded woodpecker management is compatible with these best management practices and will maintain and enhance habitat suitability for the species. While the highest priority habitat for northern bobwhites coincides with priority areas for red-cockaded woodpecker management, there are other areas near Leon Moss and Trail 6, in MUs 415 and 428, where mowing would increase habitat suitability for northern bobwhites if time and additional funding become available. Additionally, mowing and planting in 300 acres for food plots on the property will benefit northern bobwhite. There is no need for additional land management actions or an SMA for the species.

From 2007 to 2010 northern bobwhite spring call surveys were conducted on 5 transects according to standard protocol. In 2009, survey points averaged 0.19 northern bobwhite/point/day, down 41% from the 2008 average of 0.32. In 2010 only 3 transects were completed with an average of 0.18 northern bobwhites/point/day. The baseline surveys showed Leon Moss and Trail 15 having the highest numbers of calling northern bobwhites. Northern bobwhites were recorded on 11 of 12 points on the Trail 15 transect during the pilot study, with 2 points averaging > 1 bird per point. Northern bobwhites were recorded on 10 of 12 points on the Leon Moss transect during the pilot study, with 4 points averaging > 1 bird per point. However, many northern bobwhites recorded on this transect occurred on the private land to the west.

Northern bobwhites were recorded on 10 of 12 points on the South Grade transect during the pilot study, with all points averaging < 0.5 birds per point, and most were < 0.2 birds per point. Northern bobwhites were recorded at only 1 point each on the North Grade and Tomato Field Grade/ Trail 8 transects.

In 2010, the survey protocol was modified to survey 2 transects on a yearly basis (Trail 15, Tomato Field Grade/ Trail 8). Trail 15 contains suitable habitat for northern bobwhites, and the objective for this area is to maintain habitat in good condition for northern bobwhites. The Tomato Field Grade/ Trail 8 transect passes through habitat currently undergoing restoration and enhancement. The objective for this area is to evaluate species response to management by tracking changes in distribution, as the condition of the area should increase in suitability with ongoing and planned management. Three transects will continue to be monitored annually: Trail 8/ Tomato Field Grade, Trail 15, and Stumper's Grade ([Section 5.2.1](#)). These transects will continue to provide long-term information on distribution across most potential habitat on the WMA and include areas that are both in good condition and areas that should increase in suitability with continued management. The time and resources required to continue surveying all 5 transects annually makes it unfeasible.

The area goal is to maintain a viable population of northern bobwhites on the WMA that functions as a part of the larger regional population. Measurable objectives are to:

- 1) Conduct annual spring call-count surveys for northern bobwhites

The ability to complete these annual surveys will be dependent on maintaining at least current funding levels. As funding levels have decreased since 2008, future levels may not be sufficient to achieve land management goals. Coordination recommendations for northern bobwhites are found in [Section 6.1.2](#).

3.2.8: Red-Cockaded Woodpecker

Red-cockaded woodpeckers are somewhat common in suitable flatwoods on Corbett. The metapopulation formed by the Corbett and DuPuis populations is the last known population of red-cockaded woodpeckers in southeastern Florida, and these are 2 of only 4 populations on public lands supported entirely within the hydric slash pine (*Pinus elliottii*) eco-region. The red-cockaded woodpecker requires open, mature pine woodlands that have a diversity of grass, forbs, and shrub species. This species is management responsive and can be an indicator of properly managed pine stands. It is often considered an umbrella species as many other species benefit from management designed for this species. Red-cockaded woodpeckers nest in cavities in large, live pines. Optimal foraging and nesting habitat for the species includes a reduced hardwood component and limited mid-story height.

Red-cockaded woodpeckers are federally endangered and this species triggers 4 of 6 prioritization parameters (high Millsap biological score, low SGCN population status, declining SGCN population trend, and a low proportion of populations on state lands modeled to persist). The only prioritization parameters not triggered are the PVA parameters. However, the results of this PVA should be used with caution as several of the model's assumptions are not suited to this species, and the model had a starting population higher than the known population. This species is a moderate to

high priority statewide. Models indicate 27,515 acres of potential habitat within current natural communities on Corbett.

The red-cockaded woodpecker population at Corbett has remained stable since 2002 and has been actively monitored since 2000. Corbett and DuPuis participate in the Southern Range Translocation Cooperative and are both recipient sites for red-cockaded woodpecker translocations. Corbett has been receiving translocated birds since 2003. The area was scheduled to receive birds every other year; however from 2008-2010, additional donor birds were available allowing the area to receive birds each year.

In 2010, Corbett supported 15 active clusters and 12 potential breeding groups (PBGs) - the first major increase in PBGs since the Corbett red-cockaded woodpecker program began (8 PBGs from 2003-2008 and 9 PBGs in 2009). The area also documented 12 successful fledges in 2010; up from 4 fledges in 2009 and 8 fledges/year from 2006-2008. Area staff attributes the recent increase to several consecutive years of receiving translocated birds and consistent intensive habitat and species management. Corbett has received 40 translocated birds from donor populations in Florida and Georgia, and 17 of the 40 birds have been recruited into the Corbett red-cockaded woodpecker population. The area received 12 translocated birds in the fall of 2010 from the Citrus Tract of the Withlacoochee State Forest. The delay in population growth may have been due to damage from hurricanes and lower than expected success translocating and retaining birds from longleaf (*Pinus palustris*) to slash pine.

DuPuis is also a recipient of translocated birds. In 2010, Corbett and DuPuis observed their first dispersal between the 2 populations with a female helper moving from Corbett to DuPuis and pairing with a male, and a DuPuis released translocated male forming a PBG on Corbett. The dispersal distance was approximately 15 miles for both birds. A second dispersal was documented in 2011. These dispersal events show the long-term potential for the 2 subpopulations to help support one another and increase the long-term persistence of the species. Red-cockaded woodpeckers are not known to occur on nearby Palm Beach County parcels; however, initial habitat assessments on county property are planned. If ongoing land and species management and monitoring efforts continue, staff is optimistic about the short- and long-term persistence of this species in the area.

The minimum population size required by the USFWS for delisting the Corbett/DuPuis metapopulation is 40 PBGs. The FWC red-cockaded woodpecker management calls for the Corbett/DuPuis metapopulation to have 25 PBGs by the year 2020. Corbett's current red-cockaded woodpecker management plan lists an objective of reaching 16 PBGs by 2012.

As of 2010, intensive habitat management ([Section 4.3.6](#)) implemented included prescribed fire, exotic plant control, and mechanical vegetation removal in areas of significant mid-story. Species management ([Section 5.1.2](#)) included addition of new clusters (recruitment clusters), restoration of historical clusters, artificial cavity inserts, drilled cavity starts, complete drilled cavities, and translocated birds. Monitoring activities included determining cluster status, tree activity and cavity use, group size, reproduction, and survival data ([Section 5.2.4](#)). In the absence of past management activities, especially translocation, it is probable Corbett's population

would have declined dramatically. As such, Corbett is an example of how directed species and habitat management can result in stable to increasing populations of listed species.

Prescribed fire combined with an intensive mechanical vegetation removal (palmetto mowing) program significantly reduced mid-story height within red-cockaded woodpecker nesting and foraging habitat. Red-cockaded woodpecker clusters are maintained on as close to a 3-year burn interval as conditions allow. Flatwoods associated with all active (and most inactive) clusters on Corbett are currently up to date on burning. Staff also conducted mowing in 1,725 acres of red-cockaded woodpecker habitat between 2005 and 2009, with the most acreage being treated in 2007 (779 acres). These actions have all played a role in increasing the red-cockaded woodpecker population.

Corbett's current (2007 – 2012) red-cockaded woodpecker management plan lists 3 goals: maintain occupied clusters, improve connectivity between and within clusters, and expand the spatial extent of the population. The first 2 goals have been accomplished, although maintenance of occupied clusters is an ongoing goal. In addition to maintaining occupied clusters, future management will focus on expanding the spatial extent of the population. Efforts will focus on increasing connectivity between currently occupied clusters and now inactive clusters in Corbett's southern half and expanding suitable habitat westward to increase connectivity to the DuPuis population. The area goal is to provide suitable foraging and nesting habitat to support a viable population of red-cockaded woodpeckers that interacts with the larger regional metapopulation. Measurable objectives are to:

- 1) By 2020, increase the number of recruitment clusters by at least 8; and
- 2) Bring at least an additional 2,000 acres of red-cockaded woodpecker habitat into the DFC by 2020.

No changes to the current red-cockaded woodpecker population objective are recommended, as 16 PBGs by 2012 is an appropriate objective. As a population objective is already set in the local red-cockaded woodpecker management plan, and that plan is re-evaluated every 5 years, there is no need to designate a population objective here.

Two SMAs have been identified for red-cockaded woodpeckers on Corbett. An SMA for southern expansion is recommended in mesic and wet flatwoods in MUs 127 – 131, 219 – 222, 308, 420, and 423 ([Section 4.1.1](#)). An SMA for western expansion is recommended in mesic and wet flatwoods community types in MUs 406, 410 and 223 ([Section 4.1.2](#)). Coordination recommendations for red-cockaded woodpeckers are described in [Sections 6.1.1, 6.1.5, 6.4, and 6.7](#).

3.2.9: Short-Tailed Hawk

A short-tailed hawk was first documented on Corbett on January 25, 2011. Additionally, there is a single observation from June 2008 of a short-tailed hawk foraging on the Nine-Gems tract of Hungryland. ARCI has not conducted any research on or near Corbett, but they indicate nesting is possible given the amount of potential habitat.

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 sites. Transitional zones and ecotones may be important components of foraging habitat for this species. The short-tailed hawk triggers 6 of 6 prioritization parameters, making it a high priority.

Models indicate 24,731 acres of potential habitat for short-tailed hawks within current natural communities on Corbett. The west side of the property contains habitat with a mosaic of dense islands intermixed with open areas most suitable for this species. Short-tailed hawks are not typically considered management-dependent and the opportunity to influence this species at the management-unit level on Corbett is low. However, ongoing efforts to maintain Corbett'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, removal of exotic vegetation, and mechanical actions that aid in restoring natural community structure. Maintaining appropriate year-round water levels in wet flatwoods according to USFWS guidelines should ensure water levels in wetland communities and their ecotones are maintained in conditions suitable for this species.

Because this species is not a good indicator of management and is difficult to monitor, no measurable objective or SMA is recommended. Monitoring for this species will be opportunistic ([Section 5.2.6](#)), and should include season and color phase. Observations of this species will be shared with ARCI. This and other coordination recommendations can be found in [Sections 6.3](#) and [6.6](#). If a nest is identified, nest protection guidelines surrounding the nest site will be adhered to ([Section 4.3.7](#)).

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

3.2.10: Snail Kite

Snail kites are considered rare to occasional on Corbett. A pair of kites was documented on the WMA in 2008. While nesting has not been documented, area managers believe it is possible as nesting behavior has been documented on the area. Snail kites are known to nest on the nearby Hungryland in very small numbers since 1996. Hungryland is included in a statewide monitoring effort by the University of Florida; however, the effort does not currently include Corbett. Comprehensive nest searches have not been attempted on Corbett; however, when breeding behavior is identified staff attempt to locate nests.

The snail kite is federally endangered and triggers 4 of 6 prioritization parameters (Millsap updated biological and supplemental scores, SGCN population

trend and status). The only prioritization parameters not triggered are the WHCNinFL PVA results. As species-specific PVAs did model this species to have a high risk of extinction, the WHCNinFL PVA should be ignored. The combination of listing status and number of prioritization parameters triggered make this species a high statewide priority. Models indicate 15,174 acres of potential habitat for the snail kite within current natural communities on Corbett. Snail kites prefer large, contiguous patches of wetland habitat. These wetlands should be interspersed with vegetation and open water. Snail kites also utilize shallow lake habitat and are dependent on native apple snails for food. Kites are believed to utilize depression wetlands throughout the WMA, and native apple snails are known to occur on the property.

Although the species is considered a high statewide priority, the opportunity for local managers to affect the species is low. Regional conditions play a major role in snail kite population levels. Ongoing natural community management including exotic plant control and prescribed fire in wet prairie and marshes should promote suitable habitat for this species by preventing shrub encroachment and supporting growth of appropriate native vegetation. Maintaining appropriate year-round water levels in wet flatwoods according to USFWS guidelines should ensure water levels in wetland communities are maintained in conditions suitable for snail kites and apple snails ([Section 4.3.8](#)). However, it should be noted that area staff have limited control over the area's hydrology, and meeting all hydrologic recommendations may not be feasible.

Regionally, snail kites have abandoned their historic major nesting site, Water Conservation Area (WCA) 3A, most likely due to changes in water management. The regional goal is to restore major snail kite nesting activity to their historic nesting areas. Historically, Corbett was probably a dispersal and foraging site, due to its proximity to WCA 3A. Snail kites will only continue to occur in the area if the regional population is stabilized, and increased. Since kites occur in very low numbers on the WMA, systematic monitoring would be impractical. However, staff will continue to attempt to document nest locations if breeding or nesting behavior is observed ([Section 5.2.6](#)).

The area goal is to provide quality wetland ecosystems suitable for use by the regional snail kite population. Since snail kites only occasionally occur on the WMA and ongoing management actions should be sufficient to meet the needs of the species, no SMA is recommended and there are no measurable objectives recommended. The University of Florida monitors snail kites on a statewide level, and performing systematic surveys for this species on the WMA is unnecessary. Monitoring for this species will be considered opportunistic ([Section 5.2.6](#)), and coordination recommendations are found in [Sections 6.1.3](#), [6.4](#), [6.5](#), and [6.6](#).

3.2.11: Southern Bald Eagle

Bald eagles are seen occasionally on Corbett. Four nests have been identified in slash pine on the area, and 19 nests fall within 3 miles of the Corbett, DuPuis, and Hungryland complex of lands. Corbett's 4 nests were last active in 2010, and 3 nests each fledged 1 chick. A 5th nest existed just outside the WMA's southern boundary,

but was destroyed in 2004. Ten of the nearby nests within the 3-mile radius were last surveyed and recorded active in 2009. Seven active nests at DuPuis produced 7 fledglings. Mojica and Myers (2006) identified the western portion of Corbett and southern part of DuPuis as important day foraging areas in the report "[Migration, Home Range, and Important Use Areas of Florida Sub-adult Bald Eagles](#)".

Southern bald eagles are generalists and use a number of natural communities. They are not management dependent, though they do benefit from active management that restores natural communities provided nest protection guidelines are followed. Statewide, this species triggers 0 of the 6 prioritization parameters. However federal and state protections remain, and there is a state management plan to guide the continued recovery of the species.

Models indicate 43,089 acres of potential habitat for bald eagles within current natural communities on Corbett. In this area, eagles typically forage over Lake Okeechobee, although Corbett and the surrounding lands do provide some additional foraging habitat. Corbett could not independently sustain a population of bald eagles, and individuals occurring on Corbett are part of a regional population. Therefore, the occurrence of eagles on the WMA is dependent on the regional population. Because there is limited potential to influence the species through actions beyond nest protection measures and ongoing natural community management, no SMA is recommended. Ongoing and planned prescribed fire and exotic vegetation control should continue to maintain or enhance habitat for this species by maintaining potential foraging habitat in wetland systems and potential nesting sites as pines mature. Maintaining appropriate year-round water levels in wet flatwoods according to USFWS guidelines should ensure water levels in wetland communities are maintained in conditions suitable for eagles. Managers will follow management guidelines around existing and future nesting sites ([Section 4.3.9](#)).

If eagle behavior indicative of nesting (e.g., courtship flights, carrying sticks) is observed, an effort will be made to determine the location of any potential nest on the area ([Section 5.2.6](#)). In lieu of the 3-year monitoring rotation conducted by the statewide eagle-monitoring program, FWC district staff conducts annual aerial nest surveys. Any new nests located on the area by staff will be recorded and reported. Because the district monitoring effort meets Corbett's eagle monitoring needs, there is no need for area-specific monitoring, but the results of the district monitoring will be reviewed on an annual basis.

If bald eagle nesting is documented on site, the nest will be reported and the taxa coordinator for this species notified ([Section 6.1.1](#)). [Sections 6.1.3](#), [6.5](#) and [6.6](#) describe other coordination recommendations. The area goal is to promote suitable habitat for bald eagle foraging and nesting as area pines mature to allow the eagles using Corbett to function as part of the regional population. However, the continued use of the WMA by the bald eagle is dependent on conditions that influence the regional population.

3.2.12: *Wading Birds*

Five of the 8 focal species are commonly seen and have been documented nesting on Corbett: the white ibis (*Eudocimus albus*), great egret, snowy egret, little

blue heron, and the tricolored heron. Wood storks (*Mycteria americana*) are seasonally common and roseate spoonbills (*Platalea ajaja*) are seasonally rare; neither species has been documented nesting on the WMA. The reddish egret (*Egretta rufescens*) is not typically seen in this area. Most of the area's wading bird breeding colonies are ephemeral, being active in some years, and inactive in others. Staff conducts yearly flyovers to document active colony locations and determine species composition. Two active colonies were identified in both 2009 and 2010.

Statewide, this group of species is a moderate priority. Several species are state-listed species of special concern and the wood stork is federally listed as endangered. The Millsap biological scores for the reddish egret, little blue heron and wood stork are high. The snowy egret, little blue heron, and roseate spoonbill, tricolored heron are believed to have declining population trends while the white ibis is believed to be slightly increasing.

Models indicate 32,988 acres of potential habitat for wading birds within current natural communities on Corbett. The eastern portion of Corbett falls into the foraging consultation area for a wood stork colony located approximately 10 miles to the southeast on Palm Beach County property. Given this and the large amount of habitat available for the suite of species on Corbett, wading birds are a moderate local priority.

Wading birds are wide-ranging, heavily dependent on regional conditions, and occur primarily in non-actively managed communities. Therefore, the opportunity to influence them through WMA-level management actions is low. However, current land management actions will provide some benefit to this group of species. Maintenance of depressional wetlands through use of prescribed fire and control of invasive exotic vegetation will benefit wading birds. Area staff will strive to meet hydrologic guidelines for rating wading bird nesting success and foraging habitat ([Section 4.3.10](#)). Maintaining appropriate year-round water levels in hydric flatwoods according to USFWS guidelines should ensure suitable water levels in wetland communities are maintained in conditions suitable for wading birds. However, it should be noted that area staff have limited control over the area's hydrology, and meeting all hydrologic recommendations may not be feasible.

No measurable objectives were identified at this time. Yearly aerial inventory surveys are recommended to continue pending available resources ([Section 5.2.5](#)). If a colony is located, nest sites will be protected from disturbance ([Section 4.3.10](#)).

The area's goal is to provide suitable foraging, nesting, and roosting habitat that allow wading birds on the WMA to function as part of the larger regional population. However, the continued presence of these species on Corbett is dependent on conditions that influence the regional population. Coordination recommendations are described in [Sections 6.1.3](#), [6.2](#), [6.4](#), and [6.5](#).

3.2.13: Sherman's Fox Squirrel

Sherman's fox squirrels have not been documented on Corbett, although they do occur on nearby DuPuis. Fox squirrels are most often observed on the northern and western portions of DuPuis where more flatwoods are present. Suitable habitat for Sherman's fox squirrel includes longleaf pine sandhills or flatwoods with a

mixture of pines and oaks. Fox squirrels have a large home range size, and large oaks and pines are often used for nest sites. Biologists believe fox squirrels need a mosaic of habitat conditions to ensure a year-round supply of food that consists of a variety of seasonally abundant items.

This state-listed species of special concern triggers 4 of 6 prioritization parameters (PLCP PVA proportion of populations modeled to persist on public lands, Millsap supplemental score, SGCN population trend and population status). Models indicate 16,680 acres of potential habitat for Sherman's fox squirrels within current natural communities on Corbett. While the literature suggests it may take 2,000-9,000 acres of suitable habitat to sustain a fox squirrel population, it is not known if the potential habitat on Corbett could support an independent population of this species due to fragmentation and questionable suitability. Due to Corbett's proximity to suitable flatwoods and hammocks on DuPuis, it is possible fox squirrels occur on Corbett – though it should be noted that the eastern portion of DuPuis and the western portion of Corbett is not optimal habitat for fox squirrels. In fact, that habitat models indicate the majority of potential habitat occurs on Corbett's eastern side, not adjacent to DuPuis.

Planned and ongoing efforts to maintain Corbett's natural community structure and function will benefit this species, if it uses the area. Management actions that maintain or enhance habitat for fox squirrels include timber management striving for mature open pine stands, prescribed fire, exotic vegetation removal, and mechanical actions that aid in restoring natural community structure. During land management activities, staff will attempt to leave some mast-producing hardwoods and a few large hardwood trees will be retained on the area as refuge sites for squirrels in MUs undergoing mechanical treatment. Given the wide-ranging nature of this species, it may be necessary to coordinate with the adjacent WMAs to best fulfill the regional role of Corbett for fox squirrels. Flatwoods maintenance and restoration in progress and planned for red-cockaded woodpeckers will increase suitability for the fox squirrel and provide habitat corridors within dispersal distance of the DuPuis population. Therefore, an SMA is not necessary. If a fox squirrel is observed, it should be documented. Systematic monitoring is unnecessary, and monitoring for fox squirrels on Corbett will be opportunistic ([Section 5.2.6](#)).

The area goal is to maintain and enhance suitable habitat for the regional Sherman's fox squirrel population. If the fox squirrel is detected with increasing regularity on Corbett, additional monitoring or objectives may be considered in future strategies.

3.2.14: Limited Opportunity Species

Gopher Tortoise - Gopher tortoises are not known to naturally occur on Corbett or the surrounding areas. The individuals that occur on the area occur on human-made landscape features (levees and berms) and may have been introduced. Known locations include a levee near the intersection of Trails 14 and 15, the roads and levees near the south entrance check station, and on a levee near the south end of the property. There are mowed foods plot along Trails 14, 15, 6, Leon Moss, and Tomato Field Grade. Levees bordering the property also are mowed regularly.

Regularly burned flatwoods near these areas provide potential forage for tortoise when water levels are low; however, most of the WMA's natural communities have standing water for at least 6 months of the year, making them less suitable to the gopher tortoise. Without the human-made features that provide higher dryer areas for burrowing, this species could not exist on Corbett.

Although the tortoise was included in the areas' focal species list and 16,717 acres of potential habitat were modeled using natural community data, when local soils data are incorporated into habitat models, 0 acres of potential habitat are modeled to occur on the area. As there is currently little suitable habitat and no habitat could be added with restoration efforts, this species should not be a focus of management. However, opportunistic observations of the species will be documented ([Section 5.2.6](#)).

Crested Caracara - Crested caracaras occur on Corbett in a single location along the western boundary of the Leon Moss tract. The caracaras use Corbett forage on the private land west of the L-8 canal. Nesting and juveniles have been documented in this area since 2006. The exact nest location was documented in 2009, though efforts to track nesting success have not been attempted. Nearby, crested caracaras are occasionally seen on Hungryland foraging in ruderal habitats or open areas and are seen on private land to the north and northwest of Hungryland. There are no documented nests on Hungryland.

The crested caracara is federally listed as threatened and triggers 4 of 6 prioritization parameters (Millsap updated biological score, Millsap updated supplemental score, SGCN population trend and status), making it a high statewide priority. Models indicate 19,988 acres of potential habitat for crested caracaras within current natural communities on Corbett. However, these models overestimate the amount of usable habitat on the property, as flatwoods and hammocks make up most of the modeled habitat, but have little or no adjacent foraging habitat. Ruderal areas at the western end of Leon Moss provide the most suitable habitat on the property, though this area is not large enough to independently support a pair of crested caracaras. Caracaras are unlikely to occur elsewhere on the WMA. Other than areas where caracaras have been documented, foraging habitat is limited on the property.

Caracaras have relatively large home range sizes (average of 3,000 acres). Corbett has a limited amount of potential habitat and the pair known to nest on the area forages on adjacent private lands. Given the low amount of habitat and the limited opportunity to affect the species on the property, the crested caracara should not be a focus of management on Corbett. However, protection of the existing nesting pair is important. Observations of nesting and juveniles will be opportunistically documented ([Section 5.2.6](#)), and the nest site area will be managed in a manner compatible with habitat management guidelines created for the species ([Section 4.3.3](#)).

Florida Black Bear - While models indicate 44,969 acres of potential habitat for black bears within current natural communities on Corbett, the area is not within the primary or secondary range of any of the statewide bear populations. There have

been no documented occurrences of black bears on the WMA and nearby sightings are extremely rare. Bears are unlikely to colonize any of the WMAs in the area, and any occurrence would be a lone dispersing individual.

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. Despite the fact that males are good dispersers, females typically do not disperse great distances. This fact makes the black bear slow to colonize new areas. Home range size varies according to sex as well as resource availability and the level of habitat fragmentation on the landscape. Suitable habitat contains a mosaic of natural communities that provide a diversity of foraging opportunities, cover when traveling between these habitat types, and adequate den sites.

While sufficient habitat exists to support a few individuals, unless their range is expanded in other parts of the state, black bears are unlikely to occur on Corbett. While planned and ongoing habitat management actions will maintain and improve habitat for the species should it occur, the lack of a nearby population, limited external habitat, and a very large adjacent urban population limit the opportunity of WMA staff to manage for the species. Therefore, the black bear should not be a focus of management on Corbett. If a bear is observed on the property, the observation will be recorded ([Section 5.2.6](#)) and the FWC Bear Team will be notified ([Section 6.1.1](#)).

3.2.15: Other Focal and Imperiled Species

In addition to the listed species discussed above, 2 listed animal species have been documented on Corbett: the American alligator (*Alligator mississippiensis*) and the eastern indigo snake (*Drymarchon couperi*).

The American alligator is common on Corbett and occurs in wetlands and canals throughout the WMA. It is only listed due to its similarity in appearance to other listed crocodylians, not due to actual imperilment. Planned and ongoing management activities that include allowing prescribed fire to run into wetland communities and attempt to manage appropriate hydrologic regimes according to USFWS guidelines will continue to provide habitat for the American alligator.

There have been 2 observations of Eastern indigo snakes on Corbett. The first was in 2001, ¼-mile west of the eastern boundary of the school board property along the south side of a canal. The second was in 2002 along the L-8 canal near the DuPuis boundary. Both observations occurred after hurricanes. Ongoing management actions that include prescribed fire will continue to provide suitable habitat for the species. Ground-disturbing activities will be undertaken with caution in areas where indigo snakes are known to occur. When ground-disturbing activities are necessary, area staff will warn equipment operators to stop their activity if large black snakes are observed and wait until the snake leaves the area to resume work. Staff also may consider providing operators with photographs to help with identification. Opportunistic observations of indigo snakes will be reported ([Section 5.2.6](#)).

As a group, bats in south Florida have been poorly studied. Statewide, this group of species is generating concern as there is a lack of information regarding distribution and abundance. Surveys to document species or abundance for bats have never been conducted on Corbett or the surrounding WMAs. Area staff and species experts believe an inventory of bat species occurring both on the property and in the region would be beneficial, as there is currently no local information on the species group. Corbett is within the known range and has potentially suitable habitat for the endangered Florida bonneted bat (*Eumops floridanus*). Searches for this species have not been attempted on the property. Additional resources would be required to conduct these surveys, and any survey effort should be part of a larger district or regional survey.

In addition to the limpkin, a number of marsh birds, including common moorhen, pied-billed grebe, least bittern, and purple gallinule have been documented on Corbett. This group of species is garnering an increasing amount of statewide and national concern that they may be more imperiled than currently believed. Corbett contains approximately 15,446 acres of wetland – a significant amount of habitat for this suite of species. Given the amount of habitat on and surrounding the WMA, the WMA may play an important role in the regional marsh bird population. Changes in populations of marsh birds may provide information regarding significant changes in wetland quality. Though area staff is participating in the statewide pilot study of these species, there is a lack of information regarding marsh bird distribution and abundance. Therefore, it would be appropriate to conduct monitoring for this suite of species when resources are available. Marsh birds are a group of species that are under-detected in the absence of formal surveys. Monitoring for limpkins ([Section 5.2.2](#)) will provide information on presence and distribution for this suite of species.

Eleven listed plant species have been documented on Corbett. The giant orchid (*Pteroglossaspis [Eulophia] ecrinata*; aka non-crested eulophia), leafless beaked ladies'-tresses (*Sacola [Stenorrhynchos] lanceolata var. lanceolata*; aka leafless beaked orchid), pine lily (*Lilium catesbaei*; aka Catesby lily), west Indian mahogany (*Swietenia mahagoni*), lace-lip ladies'-tresses (*Spiranthes laciniata*), rose pogonia (*Pogonia ophioglossoides*), and reflexed wild-pine (*Tillandsia balbisiana*) are listed as threatened by the State of Florida. The celestial lily (*Nemastylis floridana*), cardinal airplant (*Tillandsia fasciculata*), hand fern (*Ophioglossum palmatum*), and many-flowered grasspink (*Calopogon multiflorus*) are listed as endangered.

The giant orchid is typically found in sandhill, scrub, pine flatwoods, and pine rockland natural communities that are actively managed. On Corbett, it occurs in wet and mesic flatwoods. Management for this species includes the use of prescribed fire to create sunny openings and reduce competition from woody species. Soil-disturbing activities such as bedding and plowing fire lanes can be destructive to the giant orchid. Planned and ongoing prescribed fire and exotic vegetation control will continue to provide suitable habitat for this species. Locations where this species occurs will be documented and these locations avoided when conducting soil-disturbing activities.

Leafless beaked ladies-tresses, lace-lip ladies-tresses, cardinal airplants, and reflexed wild-pine typically occur in flatwoods, hammocks, and disturbed areas.

Management for these species includes enforcement of plant protection laws, monitoring of off-road vehicles in natural areas, and protection from hydrologic alterations, logging, draining, and filling. Planned and ongoing prescribed fire, hydrologic management, and removal of exotic vegetation will benefit these species.

Rose pogonia is typically found in open wet flatwoods, on wetland edges, in cypress swamps, and along wet roadsides. Though the species has a wide distribution, it does not tolerate dry soil. Management of natural communities that focuses on maintaining appropriate water levels in hydric communities will ensure habitat continues to be available for this species on Corbett. Management of flatwoods that includes prescribed fire and removal of exotic vegetation across the property also will benefit the species.

Pine lily and the many-flowered grasspink occur in wet and mesic flatwoods on Corbett. Management for these species includes the use of growing season prescribed fire every 2-3 years. Soil-disturbing activities such as bedding, chopping, and plowing fire lanes can be destructive to the many-flowered grasspink. Planned and ongoing prescribed fire and exotic vegetation control will continue to provide suitable habitat for these species. Locations where these species occurs will be documented and these locations avoided when conducting soil-disturbing activities.

Hand fern and west Indian mahogany are typically found in swamps and wet hammocks. Hand fern is often found growing on cabbage palms. Conservation for these species includes protecting swamps and hammocks from fire and drainage. Swamps and hammocks are not maintained with fire on Corbett. Therefore, ongoing community management that includes an appropriate hydrologic regime and removal of exotic vegetation will provide habitat for these species.

The celestial lily typically occurs in wet flatwoods, prairies, marshes, and cabbage palm hammock edges – all of which occur on the property. Management for this species includes the use of prescribed fire and protection of flatwoods habitat. Planned and ongoing prescribed fire and exotic vegetation control will continue to provide suitable habitat for this species. Locations where this species occurs will be documented.

It is possible that additional imperiled species occur on the WMA. Imperiled species on this WMA should continue to benefit from FWC's ongoing management actions that aim to restore natural community 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. Location data for rare species should be documented and reported ([Section 5.2.6](#)).

Section 4: Land Management Actions and Considerations

Models identified potential habitat for 15 focal species on the WMA, and the area staff identified 2 other focal species that occur on the property ([Section 3.1](#)); however, not all of these species have the same level of management opportunity or need ([Section 3.2](#)). The FWC's natural community-based management, which emphasizes prescribed fire methods that promote a mosaic of burned and unburned areas, will promote the habitat conditions

necessary for most of these species, without the need for further strategic management actions.

We may designate Strategic Management Areas (SMAs) when actions over and above ongoing natural community management are required ([Section 4.1](#)). The designation of SMAs allows for identification of an area in which managers can apply specific land or species management action(s) to facilitate conservation of a species or group of species. An SMA is an area in which specific actions will occur that typically will not occur area-wide and can be used to do the following:

- Identify the area in which to apply specific land or species management that creates the highest probability for persistence/conservation of a species/suite of species. These specific actions may aid in restoring, enhancing or maintaining the habitat or population.
- Identify an area in which to focus specific management actions (land management or species management) for the best chance of success on large areas with more restoration/enhancement than can be accomplished in short order. This might be the first or next step in a sequential series of management actions that will increase the likelihood of occupation and/or persistence of a specific species.
- Identify an area that is so critical to the persistence of a species on the area that it warrants identification to ensure protection against negative alteration.
- Focus efforts on restoration/enhancement of a natural community that will benefit a priority species or a group of focal species. The SMA should identify the area in which these actions have the greatest positive impact for the species of interest.
- Identify areas that are critical for research or monitoring.
- Recommend specific OBVM DFCs in a specific area to benefit a specific species when we would not want to change the DFCs in the natural community area-wide.

On Corbett, we designated 2 SMAs to guide efforts aimed at expanding the red-cockaded woodpecker population ([Section 4.1](#)).

We evaluated OBVM DFCs to ensure natural community management addresses the needs of these focal species ([Section 4.2](#)). Workshop participants did not identify the need to modify the existing DFC's for Corbett.

Some species have specific protective measures or land management considerations that are necessary to ensure their continued use of the property. [Section 4.3](#) provides these recommendations.

4.1: Strategic Management Areas

The intent on Corbett is to restore most restorable natural communities to a more natural condition that will better suit these species. However, 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 identified 2 areas for which a SMA was established on Corbett ([Figures 2 and 3](#)). For each SMA, staff developed an area-specific goal, measurable objectives, and strategy to guide management. We define goals, objectives and strategies in [Section 1](#).

4.1.1: Red-Cockaded Woodpecker Southern Expansion SMA

Staff designated an SMA for southern expansion of red-cockaded woodpeckers ([Figure 2](#)) on Corbett to concentrate restoration and management efforts in an area that will provide connectivity between current active red-cockaded woodpecker clusters and historic clusters. Past management and monitoring has shown that when concentrated effort is applied, red-cockaded woodpeckers respond. This area is the first priority area for expansion of intensive red-cockaded woodpecker habitat management. The intent is to first restore habitat that contained active red-cockaded woodpecker clusters in recent history before expanding westward toward DuPuis.

Desired habitat conditions for red-cockaded woodpeckers on Corbett include open, mature pine woodlands that have a diversity of grasses and forbs. Invasive exotic plants must be controlled to enhance native plant diversity and to allow for safe prescribed fire. Fire is an important aspect in red-cockaded woodpecker ecology. Increased hardwoods favor red-cockaded woodpecker predators and competitors; therefore, growing season burns are conducted to decrease the hardwood component. Further, fire increases the abundance of red-cockaded woodpecker prey, and may increase the nutritional value of prey. On Corbett, optimal conditions in slash pine flatwoods are achieved through use of prescribed fire. Where previous lack of fire resulted in excessive midstory and palmetto, staff combines prescribed fire with mechanical vegetation removal (palmetto mowing) to reduce mid-story height within red-cockaded woodpecker nesting and foraging habitat. To meet the vegetative DFC, staff strives to maintain red-cockaded woodpecker clusters on a 3-year average burn rotation.

Availability of suitable cavities in appropriate habitat is frequently a limiting factor for red-cockaded woodpecker population growth. Installation of artificial cavities can quickly provide available nesting and roosting habitat for red-cockaded woodpeckers, and has been shown to facilitate population expansion. Translocating birds can help supplement small populations with limited genetic diversity. These management actions can significantly increase chances of persistence in a local red-cockaded woodpecker population.

Past logging, lack of fire, invasive exotics, and damage from hurricanes have reduced the amount of suitable habitat on Corbett. The MU's in the SMA contain habitat most likely to become suitable in the near future with directed management. The SMA is in close proximity (~1 mile) to currently occupied clusters, and will provide dispersal habitat for individuals currently using Corbett or DuPuis, as well as birds that may be translocated. This SMA was developed to guide the first step in what FWC anticipates will be a long-term restoration project.

SMA Goal: Enhance habitat conditions for red-cockaded woodpeckers to facilitate occupation of the area by the species and allow connectivity between this area and currently occupied clusters.

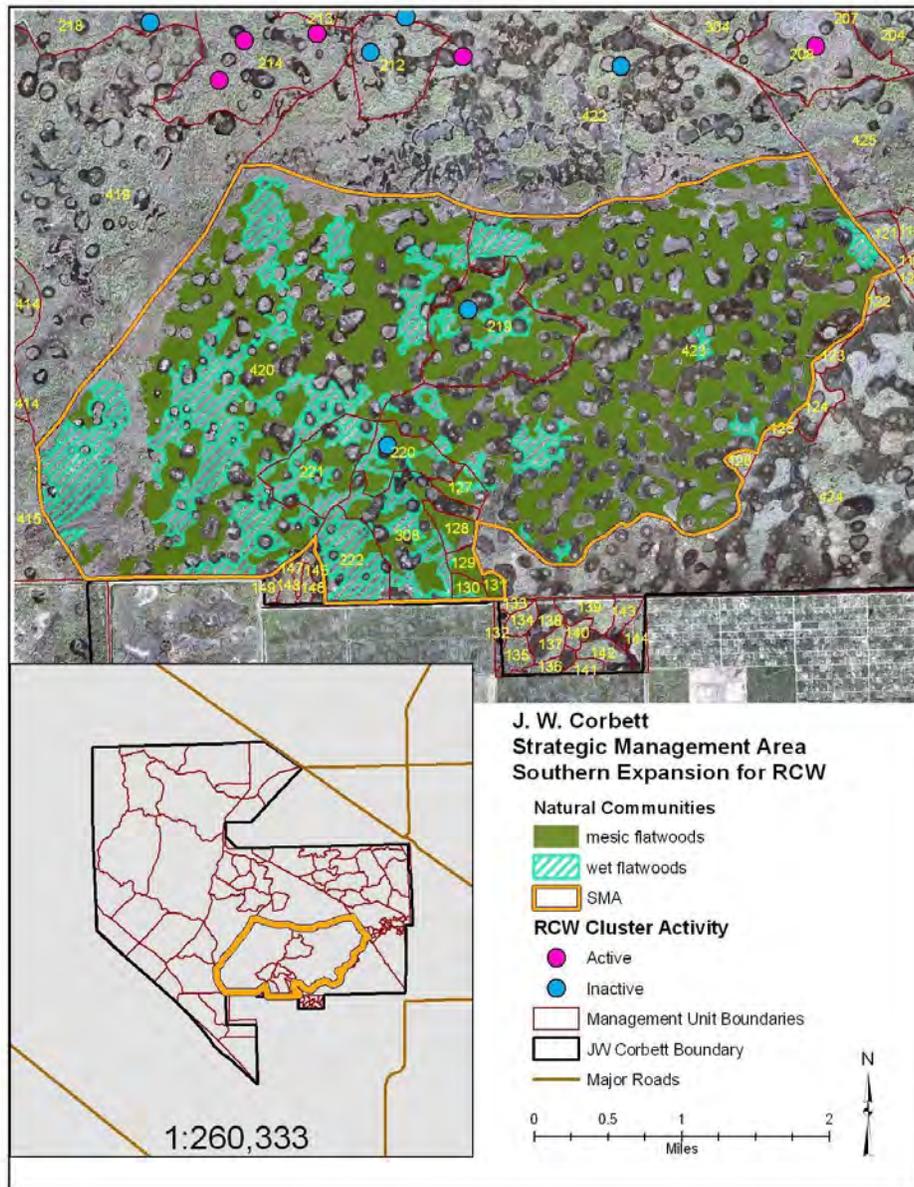


Figure 2: Management units targeted for management and restoration associated with the red-cockaded woodpecker Southern Expansion Strategic Management Area on J.W. Corbett WMA.

SMA Objective 1: Install 2-4 recruitment clusters in the SMA by 2020.

SMA Objective 2: Reduce cover of exotic vegetation in the SMA to less than 10% cover by 2020.

SMA Objective 3: Achieve a 3-year average prescribed fire interval in the SMA by 2020.

Description of the SMA: The SMA for southern expansion includes MUs 126-130, 219-22, 308, 420, and 423. This area contains approximately 4,267 acres of wet and mesic flatwoods. Not all 4,267 acres of wet/mesic flatwoods can be considered potential red-cockaded woodpecker habitat, as some acres are small islands that are not contiguous with tracts of flatwoods. Therefore, this SMA focuses on the approximate 3,500 acres of flatwoods that staff considers as potential red-cockaded woodpecker habitat. An abundance of large trees [14"+ diameter at breast height (dbh)] for artificial cavity inserts is lacking, but drilled cavities can be used for cavity creation.

Currently, there are 2 inactive clusters that have been restored to recruitment cluster standards with artificial cavity inserts, and opportunity exists for an additional 2-4 recruitment clusters. Area managers believe there were historically 4 or 5 active clusters in the area of the SMA. This area can potentially hold 4-6 potential breeding groups. A brief overview of the burn history and mechanical vegetation removal is found in [Table 2](#).

Table 2. Approximate number of acres treated with prescribed fire and mechanical vegetation removal in the area designated as an SMA for southern red-cockaded woodpecker expansion.

Year	Acres
Prescribed Fire	
2008	5,000
2007	1,000
2005	300
2002	500
1995	1,500
1994	5,000
1990	2,500
1983/84	1,000
Mechanical Vegetation Removal	
2008/09	43

Strategy: Area staff is currently working to achieve a 3-year burn rotation in the SMA, and continued prescribed fire is necessary to restore the understory to suitable conditions. Exotic control is a major part of land management on Corbett and could be a limiting factor in the restoration of this area. The density of *Lygodium* and *Melaleuca* can be extremely high in certain areas. Re-infestation is an ongoing issue, and therefore, treatment of exotics must continue. In this SMA, exotic cover is estimated at 25%. Meeting the objectives of this SMA is dependent on the availability of resources necessary for follow up treatments of exotics. There also is a need for mechanical removal of vegetation in the western and northern sections of the SMA. Funding will be necessary to provide for approximately 200-400 acres of palmetto mowing where undesirable understory surrounds potential cavity trees. In order to obtain at least 2 burns on the 3-year interval in these acres by 2020, the mechanical treatment can occur no later than 2015.

To achieve the objective of installing 2-4 additional recruitment clusters, area staff will install 12-30 artificial cavities. In all cases, a minimum of 4 suitable cavities will be supplied in each recruitment cluster. However, the actual number of cavities will depend on habitat conditions and population needs at the time of installation.

If the above mentioned restoration efforts occur in this area, an estimated time frame of 5-10 years is reasonable to achieve suitable habitat conditions for red-cockaded woodpeckers in the southern expansion SMA.

4.1.2: Red-Cockaded Woodpecker Western Expansion SMA

Staff identified the need to designate an SMA ([Figure 3](#)) in the western portion of the property to begin habitat enhancements for connectivity between occupied red-cockaded woodpecker clusters on Corbett and DuPuis. The intent is to reduce the distance between active clusters on the WMAs to encourage dispersal within the Corbett/ DuPuis metapopulation.

In addition to prescribed fire, funding is necessary to control invasive exotics and to apply mechanical vegetation treatments. These efforts are ongoing and need to continue in order to help reach the minimum population size of 40 PBGs for delisting the Corbett/DuPuis metapopulation by the USFWS.

SMA Goal: Enhance habitat conditions to facilitate occupation of the area by red-cockaded woodpeckers to improve connectivity between currently occupied clusters on Corbett and DuPuis.

SMA Objective 1: Install 4-6 recruitment clusters in the SMA by 2020.

SMA Objective 2: Reduce cover of exotic vegetation in the SMA to less than 10% by 2020.

SMA Objective 3: Achieve a 3-year average prescribed fire interval in the SMA by 2020.

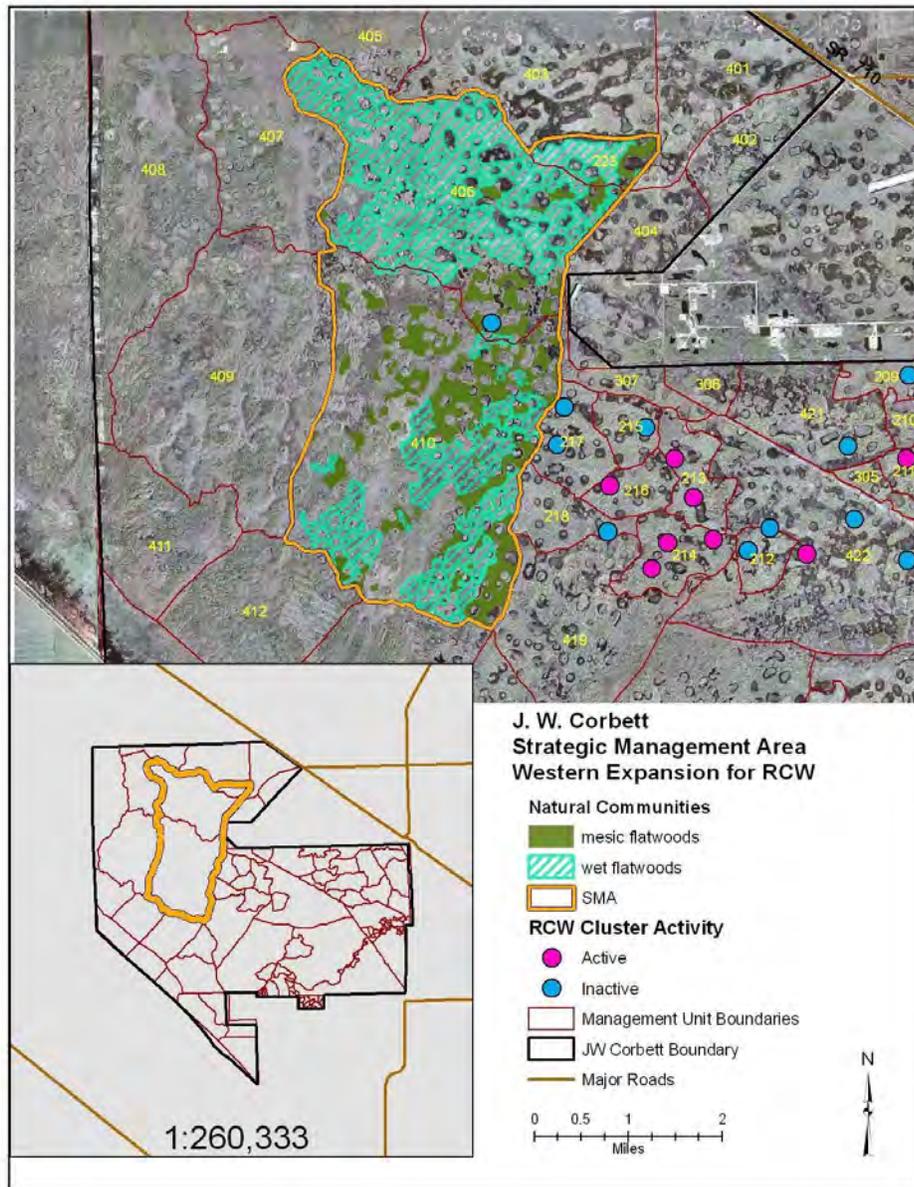


Figure 3: Management units targeted for management and restoration associated with the red-cockaded woodpecker Western Expansion Strategic Management Area on J.W. Corbett WMA.

Description of the SMA: The SMA for western expansion includes MUs 406, 410 and 223. This area contains approximately 4,308 acres of wet and mesic flatwoods. Not all 4,308 acres of wet/mesic flatwoods can be considered potential red-cockaded woodpecker habitat as some acres are small islands that are not contiguous with tracts of flatwoods. Therefore, this SMA focuses on the approximate 3,000 acres of flatwoods that staff considers as potential red-cockaded woodpecker habitat. There is currently 1 recruitment cluster that was installed in 2010 and 1 historic cluster that was deleted from Corbett’s databases in 2006. Activity in the cluster was absent for more than 5 years and the cavities present were unsuitable. The cluster was deleted to allow discontinuation of monitoring efforts. The cluster can be restored by installing new artificial cavities if appropriate given conditions as habitat is improved.

The area can potentially hold 4-6 clusters. Restoration of this area to suitable Red-cockaded woodpecker habitat is essential to connecting the Corbett/DuPuis metapopulation and increasing demographic conditions for the species. A brief overview of the burn history and mechanical vegetation removal can be found in [Table 3](#).

Table 3. Approximate number of acres treated with prescribed fire and mechanical vegetation removal in the area designated as an SMA for western red-cockaded woodpecker expansion.

Year	Acres
Prescribed Fire	
2010	700
2006	3,000
2005	500
2000	500
1997	3,200
1994	3,000
1990	2,200
Mechanical Vegetation Removal	
2006/07	83
2008/09	52

Strategy: Efforts are underway to achieve a 3-year burn rotation, and continued prescribed fire is necessary to restore the understory to suitable conditions. The density of *Lygodium* and *Melaleuca* is lower than in the southern SMA as the west SMA has been treated more frequently. However, re-infestation is a threat to restoration, and therefore, resources are necessary to continue with follow up treatments. There is a need for mechanical removal of vegetation in the northern section of the SMA. Funding will be necessary to provide for approximately 100-200

acres of palmetto mowing where undesirable understory surrounds suitable cavity trees. In order to obtain at least 2 burns on the 3-year interval in these acres by 2020, the mechanical treatment can occur no later than 2015.

The abundance of large trees ($\geq 14"$ in dbh) is greater in this SMA than the south, which will provide more flexibility to install artificial cavities in this area. To achieve the objective of installing 4-6 recruitment clusters, area staff will install 16-30 artificial cavities. However, the actual number of will depend on habitat conditions and population needs at the time of installation.

If the above mentioned restoration efforts occur, an estimated time frame of 5-10 years should achieve suitable conditions for red-cockaded woodpeckers.

4.2: Objective-Based Vegetation Management (OBVM) Considerations

Staff will use OBVM to monitor progress towards DFCs of various natural community parameters (Table 4). As such, OBVM will be effective in monitoring progress towards land management strategies.

The OBVM DFCs target a range in values for various habitat parameters within actively managed communities. However, some focal species may require a more restricted range in habitat parameters than is reflected in the DFCs. The workshop gives participants the opportunity to suggest modifications to the existing DFC, or add specific vegetative parameters necessary for certain species. Workshop participants did not identify the need to modify the existing DFCs for Corbett.

Table 4. Desired Future Conditions for specific vegetative parameters in actively managed natural communities at J.W. Corbett as identified via the OBVM process.

Mesic Flatwoods		Wet Flatwoods	
Pine Basal Area	20-70	Pine Basal Area	20-70
Palmetto Height	≤ 5 ft	Palmetto Height	≤ 5 ft
Palmetto and ilex cover (%)	≤ 50	Palmetto and ilex cover (%)	≤ 50
Av. Max Serenoa Height*	≤ 4	Av. Max Serenoa Height*	≤ 4
Shrub cover (excluding palmetto & ilex) (%)	≤ 15	Shrub cover (excluding palmetto & ilex) (%)	≤ 15
Shrub height	≤ 5 ft	Shrub height	≤ 5 ft
Herbaceous Cover (%)	> 40	Herbaceous Cover (%)	> 40
Exotics (%)	0	Exotics (%)	0

Wet Prairie	
Pine Stem Count	≤ 5 stem/ac
Dwarf Shrub Cover (%)	> 25
Total Shrub Cover Excluding Dwarf (%)	≤ 10
Herbaceous Cover	$> 85\%$
Wiry Graminoid Cover	$> 50\%$
Exotics (%)	0

4.3: Further Land Management Considerations

Most generalist or wide-ranging species benefit from management that restores the natural structure and function of natural communities they use. However, for some species, specific management recommendations and precautions are necessary to ensure continued suitability of the area for the species. The following recommendations should help ensure the WMA continues to fulfill its role in the conservation of these species.

4.3.1: *American Swallow-Tailed Kite*

Because swallow-tailed kites exhibit high nest site fidelity, protect known nest sites from disturbance and alteration, and retain the tallest pines in the area of nest sites. Maintaining a 330-foot limited activity buffer around active nests during nest season (March–June) should minimize the chance of disturbance. If documented on the area, allow nesting areas to have a higher shrub height and density than surrounding areas when feasible. If kite activity is observed during nesting season, particularly if kites are observed carrying nesting material, mobbing, or in groups of 3 or more, this information will be documented and an effort to locate the nest should be made. Information on how to locate nests can be found in [Meyer and Collopy, 1995](#).

It is important to preserve future potential nest trees. This can be done by retaining the tallest, oldest trees on the landscape during land management activities.

4.3.2: *Cooper's Hawk*

During the nesting season (April–July), Cooper's hawks are secretive and intolerant of human disturbance near the nest site. Males show a strong fidelity to traditional territories. For this reason, whenever possible, protect known nesting sites from disturbance during land management activities by maintaining a 50-foot limited activity 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.

4.3.3: *Crested Caracara*

Crested caracaras have high fidelity to their home ranges and nest sites. Staff will protect known nesting sites and maintain home ranges in suitable condition if individuals are known to occupy a particular MU. Management actions like cattle grazing, mowing, shredding, and prescribed burning will improve habitat conditions by creating areas with low ground and shrub cover. Following the guidance in Morrison 2001 (cited below), staff will limit management actions during the breeding season (which peaks from December–February) if a nest is located. Crested caracaras are most likely to flush from the nest, which can be detrimental to eggs or young, if disturbance occurs within 1,000 feet of the nest during the first 2–3 weeks of nesting. Maintain this distance (1,000 feet) as a buffer around known nests. Morrison (2001)

suggests historic management can continue (if the birds are used to it) during nesting season, as long as the first 2-3 weeks of nesting are avoided. A significant increase in human activity within the home range or territory can cause caracaras to abandon the area, even outside of the nesting season. Complete management guidelines are available in [Recommended Management Practices and Survey Protocols for Audubon's Crested Caracara \(*Caracara cheriway audubonti*\) in Florida](#).

4.3.4: Florida Sandhill Crane

Prescribed fire improves quality of upland habitat for this species and maintains wetlands in suitable condition by reducing invasion by shrubby and woody species. Mechanical treatments can be useful in reducing growth of brush on wetland edges when fire cannot successfully reduce the shrubs. Increased shrub cover around wetlands impedes crane movement while increasing the potential of predation by bobcats (*Lynx rufus*). The marsh/upland ecotone is an important foraging habitat for sandhill cranes, which use this habitat in a greater proportion when not overgrown with shrubs. In known nesting areas, management actions should occur outside of the nesting season (December - June) and after the young are able to fly. A 400-foot buffer will minimize the likelihood of disturbance. Management should be considerate of the seasonality of wetland management activities to avoid flooding of nests or reducing foraging habitat. Management recommendations can be found in [Tech Report 15: Stys, 1997](#).

4.3.5: Limpkin

It is possible that ongoing actions (e.g., prescribed fire, mechanical treatment, and herbicide) could have negative impacts on limpkins if the needs of the species are not considered during planning of these activities. The literature does not provide a nest buffer recommendation, therefore we will use the recommendation provided for wading birds. Maintaining a 330-foot limited activity buffer around active nests during nest season (January–May) should minimize the chance of disturbance.

Maintaining appropriate year-round water levels in Corbett's wetlands is critical to ensuring habitat continues to be available. Managing water levels in hydric flatwoods according to USFWS guidelines should ensure suitable water levels other wetlands and other natural communities are maintained in conditions suitable for limpkins. For wet prairie communities, staff should strive to attain water levels to achieve the hydroperiods that would sustain the *Eleocharis-Panicum* vegetative community upon which apple snails and limpkins depend (Bennetts and Kitchens 1997; Karunaratne et al. 2006). Wet prairies have a hydroperiod of 290-365 days (Goodrick 1984). Wet prairie management should strive to attain a 90% hydroperiod with dry-downs an average of 36 days/year.

4.3.6: Red-Cockaded Woodpecker

Current land management actions that include mowing or mechanical removal of vegetation, removal of exotic vegetation, and prescribed fire on a 2-3 year return

interval in actively managed natural communities will maintain and enhance habitat conditions for this species. Protect active and inactive cavity trees as well as large, old pines that are potential cavity trees during land management activities. Suitable trees have ≥ 10 inches (25.4 cm) DBH and flat tops.

As Corbett has active red-cockaded woodpecker clusters on the property and participates in federally regulated translocation, managers will follow management guidelines found at [FWC Red-Cockaded Woodpecker Management Plan](#) and [USFWS Red-Cockaded Woodpecker Recovery Plan](#).

4.3.7: Short-Tailed Hawk

Short-tailed hawks exhibit high nest site fidelity, and historic nest areas are often used for multiple years, even if not active every year. Nests of this species are difficult to locate and monitor. If nest sites are located, protective action should be taken when nests are known to be active. Protect known nesting sites from disturbance during land management activities by maintaining a 330-foot limited activity buffer around the nest during the nesting season (February-May), and avoiding heavy alteration of the nesting location. Protect trees near the nest to preserve the integrity of the nest area. Protect potential future nest trees by retaining the tallest, oldest trees on the area.

4.3.8: Snail Kite

Allowing prescribed fire to burn into marsh and wet prairie habitats can help maintain these communities in an open condition beneficial to snail kites. Fire during low water regimes allows the control and reduction of dense emergent plant growth that can reduce use of the marshes and access to the snails by the snail kites. Maintaining appropriate year-round water levels in Corbett's wetlands is critical to ensuring habitat continues to be available. Appropriate water levels during nesting season can be highly tied to snail kite nest success and susceptibility to predation. Managing water levels in hydric flatwoods according to USFWS guidelines should ensure suitable water levels in other wetlands and natural communities are maintained in conditions suitable for snail kites. For wet prairie communities, staff should strive to attain water levels to achieve the hydroperiods that would sustain the *Eleocharis-Panicum* vegetative community upon which apple snails depend (Bennetts and Kitchens 1997; Karunaratne et al. 2006). Wet prairies have a hydroperiod of 290-365 days (Goodrick 1984). Wet prairie management should strive to attain a 90% hydroperiod with dry-downs lasting an average of 36 days/year. For successful kite nesting, recommended ranges of water recession rates are from 0.04 to 0.10 ft/week. On nearby conservation areas, a recommended recession rate targets an average of 0.06 to 0.08 ft/wk during the dry season (February-May).

If an active nest is identified, managers will alert the FWC Snail Kite Coordinator and follow the management guidelines found at [Snail Kite Management Guidelines](#) (or any subsequent version). An FWC Snail Kite management plan will be available in the near future, and guidelines from the updated plan will be followed.

In particular, increased activity will be prohibited within a 1,640-foot limited activity buffer zone of the active nest.

4.3.9: Southern Bald Eagle

Protection of bald eagle nests, including avoiding disturbance of nesting eagles, is necessary to continue the recovery of this species. Managers will consider the management guidelines available at [FWC Bald Eagle Management Plan](#) (or any subsequent version) when planning activities within 660 feet of known eagle nests. Staff will document and report any new nests that are located. Staff will check the bald eagle nest locator ([FWC Bald Eagle Nest Locator](#)) annually to determine if any new nests are detected within 660 feet of the WMA via the statewide monitoring efforts. It is undesirable to have unnaturally dense stands around eagle nests. Continue to manage stands in which eagle nest buffers occur, but with proper planning to avoid negative impacts to the eagles, per the guidance of the management plan. During management activities, retain large mature pines as potential nesting sites.

4.3.10: Wading Birds

It is possible that ongoing actions (e.g., prescribed fire, timber harvest) could have negative impacts on wading birds if the needs of the species are not considered during the planning of these activities. Providing a 330-foot buffer around nesting colonies during nesting season will ensure adequate protection of these resources. Additionally, plan any mechanical and/or chemical control of aquatic vegetation at a time that avoids disturbance to the colony, and using methods that do not damage the plants in which wading birds construct their nests.

Managing water levels in hydric flatwoods according to USFWS guidelines should ensure suitable water levels in other wetlands and natural communities are maintained in conditions suitable for wading birds. Hydrologic recommendations for wading bird habitat includes maintaining areas of appropriate foraging depths 2-6 inches (5-15 cm) within the Core Foraging Area (7-9 mile radius) of any active snowy egret or white ibis colony. The SFWMD has developed specific criteria for rating wading bird habitat during the wet and dry seasons ([Table 5](#)). Area staff will use these criteria as guidelines for hydrologic goals.

Table 5. South Florida Water Management District criteria for rating hydrologic change as it influences wading bird habitat.

	Rehydration rates during wet season (ft/week)	One week average water depth (ft) during the dry season	One week change in stage during the dry season
Bad	0.01 to 0.05 for > 2 wks or < 0.01 for 1 wk	< 1.0	-0.17 to -0.59 for 2 wks or < -0.00 for 1 wk
Fair	0.01 to 0.08 for 1 wk	0.80 to 1.0	-0.17 to -0.59
Good	0.09 to 0.20	0.1 to 0.79	-0.05 to -0.16
Fair	0.21 to 0.35 for 1 wk	0.02 to 0.09	-0.04 to +0.04
Bad	0.25 for > 2 wks or < 0.35 for 1 wk	< 0.02	-0.04 to +0.04 for > 2 wks or > +0.05 for 1 wk

Section 5: Species Management Opportunities

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

5.1: Species Management

Species management as used here refers to non-monitoring actions taken for a specific species. It can include actions such as translocation, restocking, installing artificial cavities, etc. [Section 5.2](#) covers monitoring related actions, including banding or tagging. [Section 2](#) and [Section 4](#) provide information on land management actions, such as prescribed fire or mechanical treatments.

5.1.1: Florida Mottled Duck Hen House Installation

In 2010, 7 artificial hen houses were placed along the L-8 canal in an experimental effort to encourage nesting and determine whether ducks would use the houses. The houses were constructed of hay and chicken wire, and were placed in areas likely to have suitable water levels (>8 inches or 20cm) during nesting season. The houses will be monitored annually ([Section 5.2.2](#)) to determine whether

continued use and maintenance of these artificial structures is beneficial to the local mottled duck population.

5.1.2: Red-Cockaded Woodpecker Translocation/ Artificial Cavity Installation

Federal guidelines call for a minimum population size of 40 PBG's at delisting for the Corbett/DuPuis meta-population (more information and guidelines can be found at [USFWS red-cockaded woodpecker Recovery Plan](#)).

Reintroduction and translocation efforts, coupled with continuing habitat improvement on both Corbett and DuPuis, are vital to achieving this goal. Corbett participates in the Southern Range Translocation Cooperative and is currently a recipient site for translocations. Corbett has been receiving translocated birds since 2003. The area is currently scheduled to receive 3 pair of birds every other year. Continuation of translocation efforts is critical to the long-term persistence of the Corbett/ DuPuis red-cockaded woodpecker metapopulation.

To that end, it is necessary to supplement existing habitat with artificial cavities. Artificial cavities, both inserts and drilled, can be used to increase the number of suitable cavities within a cluster, or to create recruitment clusters in areas managers would like population growth. Recruitment clusters are critical to support natural population growth, and guidelines require 2 recruitment clusters be available for each pair of translocated red-cockaded woodpeckers. Efforts have been underway since 2002 to install artificial cavities. These actions are required to be eligible for translocation and increase available habitat for resident birds. Installation of artificial cavities must continue if red-cockaded woodpeckers are to continue to persist on Corbett. Managers will follow the USFWS species management guidelines (above) and FWC guidelines found at [FWC red-cockaded woodpecker Management Plan](#).

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 Corbett, the recommended monitoring will assess species in all actively managed communities, select wetland dependant species, and includes opportunistic monitoring for uncommon or hard to monitor species. Data collected will be reported to the regional conservation biologist for inclusion in the appropriate database developed for the WCPR program. We will make monitoring data available to cooperating agencies and organizations such as FNAI ([Section 6](#)).

This section provides the list of monitoring actions recommended for the area, and provides the purpose for the monitoring. The FWC is in the process of standardizing monitoring protocols for a number of these species. Approved protocols are available at [Monitoring Protocol Section of the WCPR SharePoint Site](#). When protocols are finalized, they will be implemented in accordance with the timeframe described in this Strategy.

5.2.1: Avian Spring Call Count Survey

The purpose of monitoring northern bobwhites is to track distribution in representative areas over time. The number of northern bobwhites on Corbett is extremely low, and it would therefore be impractical to attempt to determine abundance or density. Tracking changes in distribution along transects will provide information on response to management and verify continued presence on the property. The purpose of monitoring Bachman's sparrows is to verify continued presence on the property.

Surveys will be spring point counts using a standard 8-minute observation period for 12 points per morning. Three transects of 12 points each will be surveyed annually. Surveyed area will include habitat that is currently suitable and habitat that is likely to become suitable with future management. If necessary, staff may incorporate the use of callback tapes into the call station protocol. On Corbett, these avian surveys should occur annually, though this will depend on maintaining current funding and staffing levels.

5.2.2: Mottled Duck Hen House Monitoring

The monitoring mottled duck hen houses has two purposes. First, as there is little research on mottled duck use of hen houses, staff will determine whether mottled ducks use the houses. Second, for houses with mottled duck use, information will be gathered on nesting and hatching success. The houses will be monitored annually at the appropriate time to ensure membranes from hatched eggs are detectable.

5.2.3: Marsh Bird Monitoring

The purpose of monitoring marsh birds, including limpkins, is to establish a baseline and track relative abundance over time. Following the completion of the 2-year pilot study, monitoring protocol will be based on protocol developed by the National Marsh Bird Monitoring Program and allows for the gathering of information on a number of marsh birds including the limpkin. Detailed protocol and program information can be found at: [National Marshbird Monitoring Program](#). Surveys begin in April or May, depending on environmental conditions, and are conducted once each month for a minimum of 3 months. A minimum of 30 survey points is recommended. These surveys will be continued on at least a biennial basis if resources are available.

5.2.4: Red-Cockaded Woodpecker Monitoring

Ongoing monitoring efforts include pre-nest season cluster/cavities status checks; nest checks and chick banding; fledge checks; and monitoring of banded birds. These monitoring efforts document translocation success, number of potential breeding groups, active clusters, group size, active trees and cavities, new cavity trees and clusters, nest success, and fledgling success. Staff uses these metrics to

determine population size and trend and fulfill requirements to remain eligible for translocation and to fulfill federal reporting requirements. Staff will continue monitoring in accordance with USFWS guidelines ([USFWS red-cockaded woodpecker Recovery Plan](#)) annually.

5.2.5: Aerial Wading Bird Roost/Colony Surveys

The purpose of monitoring wading birds is to identify nesting colonies on and near the WMA to guide timing of management actions to avoid disturbing nesting. These surveys will not provide accurate counts of nests or even complete identification of all species in the colony, but will provide useful information on the location of colonies. Surveys will be conducted using standardized aerial transects, and should be repeated annually to account for seasonal population fluctuations due to yearly changes in water levels. Funding for helicopter time will be necessary to complete these surveys.

5.2.6: Opportunistic Monitoring

The purpose of opportunistic monitoring is to document the presence of specific species. Opportunistic monitoring is the process of recording important information as it is encountered. Staff will document opportunistic sightings by recording information including the species, approximate lat/long or appropriate MU, number of individuals, behavior, and habitat type. Record encounters with or sign of the following focal species:

- Gopher tortoise
- American swallow-tailed kite (aggregations of 3 or more birds on a regular basis in one area during spring and any nesting activity)
- Bachman's sparrow (presence)
- Cooper's hawk (nesting activity)
- Crested caracara (nesting activity or occurrence of dependant young)
- Florida sandhill crane (nesting activity or juveniles; revisit known nest locations)
- Limpkin (nesting or occurrence of dependant young)
- Mottled duck (nesting or occurrence of dependant young)
- Short-tailed hawk (all sightings, include color phase)
- Snail kite
- Southeastern American kestrel (presence March – June)
- Southern bald eagle (nesting activity)
- Wading bird (colony locations and composition)
- Florida black bear
- Sherman's fox squirrel
- Road kills of rare, listed, and focal species
- Any listed species not mentioned 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. Workshop participants did not identify any species research needs on Corbett

Section 6: Intra/Inter Agency Coordination

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

We attempt to provide the name, position and contact information for the people holding the position when this Strategy is drafted. As positions experience turnover, when in doubt, contact the current Section Leader/supervisor to determine the appropriate individual.

6.1: Florida Fish & Wildlife Conservation Commission (FWC)

6.1.1: Species Conservation Planning Section (SCP)

Monitoring animal populations on a WMA/WEA gives managers a way to gauge animal response to management. If this information is not shared with others, valuable data that can be used to assess statewide conservation efforts often is lost. Therefore, share monitoring data with the appropriate taxa coordinator and program coordinator for species in which conservation initiatives or other management programs have been developed. The regional SCP biologist is a good source of information on the regional status of non-game species. Additionally, FWC staff is authorized to handle federally listed species if it is done consistent with the requirements of the agency's Endangered Species Act Section 6 Cooperative Agreement. To meet these requirements, staff will provide reporting as outlined in the Agreement to the agency's Endangered Species Coordinator. Please note some contacts will also be covered under [Section 6.1.3: FWRI](#), and [Section 6.1.5: Florida's Wildlife Legacy Initiative](#).

Contacts:

Elsa Haubold, Species Conservation Planning Section Leader: (850) 488-3831

Robin Boughton, Avian Taxa Coordinator: (352) 732-1225

Zach Welch, Snail Kite Coordinator: (352) 266-6139

Ricardo Zambrano, Regional Biologist: (561) 625-5122

Brad Gruver, Endangered Species Coordinator: (850) 488-3831

6.1.2: Hunting & Game Management (HGM)

As the FWC has a statewide northern bobwhite strategy, staff will share information collected on northern bobwhites with the small game coordinator.

Contacts:

Paul Schulz, Section Leader: (850) 488-3831

Chuck McKelvy, Small Game Program Coordinator: (850) 342-0256

6.1.3: Fish and Wildlife Research Institute (FWRI)

Area staff will communicate with FWRI's mottled duck team to obtain the most recent survey results for Corbett. Additionally, staff will share significant observations of southern bald eagles, snail kites, and wading birds with FWRI. Area staff will cooperate with FWRI to develop a standard monitoring protocol for Florida sandhill cranes. Jim Rodgers administers the FWC's migratory bird scientific collection permit. Report handling of migratory birds covered by the permit to Mr. Rodgers in January of each year.

Contacts:

Tim O'Meara, Section Leader: (850) 488-3831

Ron Bielefeld, FWRI Wildlife Biologist (Florida mottled duck): (772) 228-9125

Janell Brush, FWRI Wildlife Biologist (bald eagle, snail kite): (352) 955-2081

Jim Rodgers, Research Administrator (wading birds): (352) 955-2081

Marty Folk, FWRI Wildlife Biologist (Florida sandhill crane): (407) 348-3009

Karl Miller, FWRI Wildlife Biologist (upland birds): (352) 955-2081 X104

6.1.4: Habitat Conservation Scientific Services Section (HCSS)

Since conservation of wide-ranging species, such as the crested caracara and Southern bald eagle, is dependent on cooperation with surrounding private landowners, developing working relationships with landowners will be critical to the conservation of the species. HCSS works with many private landowners and may be able to assist in making contacts or providing incentives for management activities on neighboring private lands. Maintaining communication regarding current and future projects will be critical.

Contacts:

Scott Sanders, HCSS Section Leader: (850) 488-3831

Mark Asleson, South/Northeast Regional Coordinator: (352) 732-1225 x106

6.1.5: Florida's Wildlife Legacy Initiative (FWLI)

Monitoring animal populations on a WMA gives managers a way to gauge animal response to management. If staff does not share this information with others, valuable data that can be used to assess statewide conservation efforts often is lost.

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

Contacts:

Katherine Haley, Florida's Wildlife Legacy Initiative: (850) 410-0656 x17297
Mary Truglio, South Region Legacy Biologist: (561) 625-5122

6.1.6: Invasive Plant Management Section (IPM)

The Invasive Plant Management Section provides technical and financial assistance to assist in the control of upland invasive exotic plants. The Invasive Plant Management Section may serve as a critical resource in determining appropriate solutions to and identifying funding for exotic plant issues.

Contact:

Greg Jubinsky, Uplands sub-section administrator: (850) 245-2821

6.2: South Florida Water Management District (SFWMD)

The SFWMD has a grant program that may assist with management and restoration activities. Additionally, Mark Cook, in the Everglades Division, maintains a regional database for wading bird monitoring. Staff will share wading bird data from the WMA with the SFWMD. Corbett is contiguous with DuPuis, which is owned by the SFWMD. Several species, such as the Florida sandhill crane, utilize both properties. Corbett and DuPuis make up a red-cockaded woodpecker metapopulation with a combined population goal; therefore, coordination with DuPuis land managers will be necessary for red-cockaded woodpecker management.

Contacts:

Mark Cook, Sr. Environmental Scientist, Everglades Division: (561) 681-2500
x4539

6.3: Avian Research and Conservation Institute (ARCI)

The Avian Research and Conservation Institute surveys and keeps information on American swallow-tailed kite and short-tailed hawk populations. Location information on the swallow-tailed kite and short-tailed hawk, particularly nests or nesting behavior, should be shared with ARCI.

Contacts:

Dr. Ken Meyer, Avian Researcher: (352) 335-4151; meyer@arcinst.org

6.4: United States Fish and Wildlife Service (USFWS)

The USFWS maintains records on the federally listed snail kite, crested caracara, wood stork, and red-cockaded woodpecker. Nest and colony locations should be shared with USFWS. Additionally, USFWS may serve as a source of information on and possible assistance with federally listed species. Therefore, communication with USFWS regarding listed species should occur whenever appropriate. The USFWS directs the Southern Range Translocation Cooperative Program, which coordinates red-cockaded woodpecker translocation efforts. Ensuring Corbett continues to participate in the translocation program will require ongoing coordination with the Southern Range Translocation Cooperative.

Contacts:

Heather Tipton, Fish and Wildlife Biologist: (772) 562-3909, ext. 296

Sandra Sneckenberger, Fish and Wildlife Biologist: (772) 562-3909, ext. 321

Will McDearman, Red-cockaded Woodpecker Recovery Coordinator: (601) 321-1124

6.5: Florida Natural Areas Inventory (FNAI)

The FNAI collects, interprets, and disseminates ecological information critical to the conservation of Florida's biological diversity. The FNAI's database and expertise facilitate environmentally sound planning and natural resource management to protect the plants, animals, and communities that represent Florida's natural heritage. The FNAI maintains a database of rare and listed species that often is used for planning purposes. As such, staff should share information about element occurrences on the WMA with FNAI to ensure this information is included in their database. FWC also has a contract with FNAI for plant and animal surveys if the need exists and resources are available.

Contacts:

Dan Hipes, Chief Scientist: (850) 224-8207

6.6: Audubon Society of the Everglades

The Audubon Society's grassroots efforts engage members of the local community in avian and resource conservation and education. Members can provide expertise, assist with surveys, coordinate recreational activities, and assist in securing funding for targeted avian projects. Information regarding avian species of concern should be shared with Audubon, and managers may consider coordinate with Audubon to accomplish surveys and conservation tasks. Volunteers regularly assist with bald eagle nest monitoring on Corbett and DuPuis.

Contacts:

Linda Humphreys (Local Chapter President): (561) 588-6908

6.7: Big Cypress National Preserve

Big Cypress National Preserve (BCNP) contains the largest population of red-cockaded woodpeckers in south Florida slash pine and the only population in slash pine that is considered to be recovered. In an effort to create the potential for a south Florida slash pine based donor population FWC is working with BCNP to survey for new cluster locations as well as augment cavity-limited clusters. One female red-cockaded woodpecker was translocated to DuPuis in 2010. FWC staff will continue to work with BCNP to refine habitat management efforts and explore the possibility of additional translocation between the populations.

Contacts:

Deb Jansen (Resource Management): (239) 695-1179

6.8: Palm Beach County Environmental Resources Management

Many of the focal species occurring on Corbett, such as the Florida sandhill crane, wading birds, northern bobwhites, and American swallow-tailed kite utilize property surrounding the WMA. Palm Beach County owns a number of neighboring properties and the County's Environmental Resources Management staff manage these lands. Information on species occurrence should be shared with Palm Beach County, in addition to coordination of management efforts, when possible.

Contacts:

Rich Walesky, Director: (561)233-2400; rwalesky@pbc.gov

Matthew King, Environmental Program Supervisor: (561) 233-2421

Section 7: Beyond the Boundaries Considerations

There is enough potential habitat to support many of the WMA's focal species under an appropriate management regime. The WMA can currently support a viable population of several species, including northern bobwhites, Bachman's sparrow, and red-cockaded woodpeckers. Further, this WMA is part of a network of conservation lands that will help ensure the continued existence of many of the wide-ranging focal species. Continued communication with managers at DuPuis will be critical to ensure management goals are compatible. Wide-ranging species such as the American swallow-tailed kite, Cooper's hawk, mottled duck, limpkin, bald eagle and wading birds will continue to exist on this complex as long as regional conditions are conducive to their persistence. The complex plays a significant role in the regional persistence of some listed species such as wading birds, the Florida sandhill crane, limpkin, and red-cockaded woodpeckers. While Corbett can play a role in supporting the regional population of many focal species, ultimately, the continued existence of these species on Corbett is dependent on what happens to the regional populations, and continuation of funding for management.

However, the current management boundaries identified for the area does not include all important habitat for focal species, such as the lands identified as Strategic Habitat Conservation Areas (SHCAs) for American swallow-tailed kite, short-tailed hawk, and snail

kite. The FWC originally identified SHCAs in the Closing the Gaps in Florida's Wildlife Habitat Conservation System report (Cox et al. 1994; available at [Closing the Gaps Report, 1994](#)). The goal of SHCAs is to identify the minimum amount of land needed in Florida to ensure long-term survival of key components to Florida's biological diversity. The SHCAs identify important remaining habitat conservation needs on private lands. New SHCAs have been identified in recent FWC efforts to update the Closing the Gaps entitled "Wildlife Habitat Conservation Needs in Florida: Updated Recommendations for Strategic Habitat Conservation Areas" (available at [Wildlife Habitat Conservation Needs in Florida Web Information](#)). Although it is unlikely Florida will acquire all property identified in SHCAs, property acquisition and encouraging land use and management that is compatible with the needs of Corbett's focal species should be a priority in the area.

A mixture of densely populated urban areas and heavily modified agricultural lands border the area on the east and south. These can heavily influence the area's hydrology and water quality, and can limit the dispersal of some species. If development continues or water management alters the hydrology on Corbett, the area may not be able to fulfill its conservation role for many wetland-dependent species, such as wading birds.

While the current conditions and management of Corbett and neighboring lands provides an opportunity to further the conservation of many focal and imperiled species, significant changes in management or land use beyond the boundaries may have a significant impact on some species. Much of the surrounding land to the southwest is used for agriculture. Urban development of these areas may significantly reduce habitat for many species, such as the crested caracara and Florida sandhill crane; species that can persist in highly altered but open and undeveloped habitat. As many of the area's species are dependent upon fire-maintained habitat, any change that impedes the ability to conduct prescribed fire would be detrimental to the persistence of species such as red-cockaded woodpeckers and northern bobwhites. Species that require large home ranges or are dependent on dispersal for maintaining a population are particularly affected by adjacent land management or development. Additionally, a wind facility is proposed for this area. Impacts to birds and bats could be expected from this, but the extent is not known.

Many of Corbett's species are dependent on the availability of suitable habitat on adjacent private lands. Staff knows that crested caracaras, wading birds, limpkins, and Florida sandhill cranes occur on nearby private lands. As such, the actions of both public and private adjacent landowners will determine if some of these focal species will persist on the area. Area staff should make every effort to cooperate on the conservation of focal species with adjacent landowners. Staff should coordinate with HCSS to ensure private landowners are informed about incentive programs to encourage conservation-based management and receive the proper technical assistance. Staff should stay informed about state and county road expansions, such as State Road 710. If plans to widen State Road 710 are introduced, additional coordination recommendations (such as Florida's Department of Transportation) may be appropriate.

As many of Corbett's focal species also occur on neighboring public lands, staff should maintain cooperative interaction with DuPuis, Hungryland and the other municipal conservation lands in the area. Fostering a positive relationship with neighboring landowners may increase the willingness of the landowner to become a partner in conservation-based land management. Such partnerships are critical to the long-term persistence of species, such as Florida sandhill cranes and wading birds.

Document Map

Species	Species Assessment	Land management actions	Species management actions	Species monitoring	Research needs	Intra/inter agency coordination
Gopher tortoise	3.2.14			5.2.6		
American swallow-tailed kite	3.2.1	4.3.1		5.2.6		6.3
Bachman's sparrow	3.2.2			5.2.1		
Cooper's hawk	3.2.3	4.3.2		5.2.6		
Crested caracara	3.2.14	4.3.3		5.2.6		
Florida mottled duck	3.2.4		5.1.1	5.2.2		6.1.3
Florida sandhill crane	3.2.5	4.3.4		5.2.6		6.1.3, 6.2, 6.5
Limpkin	3.2.6	4.3.5		5.2.3		6.1.1, 6.1.3, 6.5, 6.6
Northern bobwhite	3.2.7			5.2.1		6.1.2
Red-cockaded woodpecker	3.2.8	4.3.6	5.1.2	5.2.4		6.1.1, 6.1.5, 6.4, 6.7
Short-tailed hawk	3.2.9	4.3.7		5.2.6		6.3, 6.6
Snail kite	3.2.10	4.3.8		5.2.6		6.1.1, 6.4, 6.5, 6.6
Southeastern American kestrel	3.2.14			5.2.6		
Southern bald eagle	3.2.11	4.3.9		5.2.6		6.1.1, 6.1.3, 6.5, 6.6
Wading birds	3.2.12	4.3.10		5.2.5		6.1.1, 6.2, 6.4
Florida black bear	3.2.14			5.2.6		6.1.1
Sherman's fox squirrel	3.2.13			5.2.6		
Limited opportunity species	3.2.14			5.2.6		
Other imperiled species	3.2.15			5.2.6		

13.15 Palm Beach County Letter of Compliance with Local Government Comprehensive Plan



**Department of Planning,
Zoning & Building**

2300 North Jog Road
West Palm Beach, FL 33411-2741
(561) 233-5000

Planning Division 233-5300
Zoning Division 233-5200
Building Division 233-5100
Code Enforcement 233-5500
Contractors Certification 233-5525
Administration Office 233-5005
Executive Office 233-5228
www.pbcgov.com/pzb



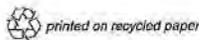
**Palm Beach County
Board of County
Commissioners**

Shelley Vana, Mayor
Mary Lou Berger, Vice Mayor
Hal R. Valeche
Paulette Burdick
Steven L. Abrams
Melissa McKinlay
Priscilla A. Taylor

County Administrator

Robert Weisman

"An Equal Opportunity
Affirmative Action Employer"



May 28, 2015

Dylan Imlah
Florida Fish & Wildlife Conservation Commission
Division of Habitat & Species Conservation, Land Conservation & Planning
620 S. Meridian Street
Tallahassee, Florida

RE: Review of the J.W. Corbett Wildlife Management Area
(JWCWMA) 2015-2025 Management Plan

Dear Mr. Imlah:

Palm Beach County Planning Division staff have completed a review of the update to the J.W. Corbett Wildlife Management Area (JWCWMA) 2015-2025 Management Plan.

The review of the update to the JWCWMA management plan found that the Plan conforms with the Comprehensive Plan as approved and adopted for Palm Beach County, Florida.

If you have any questions or need further information, please call me at 561-233-5327.

Lorenzo Aghemo
Planning Director

c: Patrick Rutter, Deputy Director, Planning
Michael Howe, Senior Planner, Planning

T:\Planning\Comprehensive\Conservation Element\Corbett WMA Plan\dimlah_fw_052815.doc