

Agriculture Wildlife Best Management Practices for State Imperiled Species



2015 Edition

DACS-P-02031





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ACKNOWLEDGEMENTS

In 2013, the Florida Legislature created Section 570.94, F.S., which authorizes the Florida Department of Agriculture and Consumer Services (FDACS) to work collaboratively with the Florida Fish and Wildlife Conservation Commission (FWC) to enter into a Memorandum of Agreement to develop and adopt by rule voluntary Best Management Practices for State Imperiled Species of wildlife as a voluntary alternative to incidental take permitting. In response to this, the Florida Forest Service, working with FWC, convened their long-standing Technical Advisory Committee to help craft a Forestry Wildlife BMP manual. This manual was approved by the committee and subsequently adopted in rule in 2014. Following this, a similar effort was undertaken by FDACS and FWC to develop Wildlife BMPs for the remaining commodity groups in order to promote sound, responsible practices that foster agricultural land use, promote natural resource conservation, and reduce the potential for incidental take of State Imperiled Species. Toward that end, the Forestry Wildlife BMP manual was used as a starting point, and was revised slightly to accommodate the nuances associated with the other types of farming. This product reflects that effort.

For their commitment and numerous contributions toward the development of this document, the following agencies, organizations and companies are most gratefully acknowledged:

University of Florida

Florida Fish and Wildlife Conservation
Commission

U.S. Fish and Wildlife Service

Florida Wildlife Federation

Conservancy of Southwest Florida

Florida Audubon

The Nature Conservancy

Florida Department of Environmental Protection

Florida Nursery Growers and Landscape
Association

1000 Friends of Florida

Sierra Club

Florida Farm Bureau Federation

Florida Cattlemen's Association

Florida Fruit and Vegetable Association

Florida Regional Councils Association

Florida Citrus Mutual

Florida Land Council

FOREWORD

Agricultural lands provide a valuable benefit to the conservation of fish and wildlife, including many of the State's Imperiled Species which are integral to the overall ecosystem. This Wildlife Best Management Practices (WBMP) Manual has been developed to enhance agriculture's contribution to the conservation and management of freshwater aquatic life and wildlife in the state, and to provide guidance to landowners and others who choose to implement these important practices. As such, these WBMPs reflect a balance between natural resource conservation and resource utilization, and serve to benefit a multitude of species above and beyond the 16 mentioned in this document.

However, this manual addresses only State Imperiled Species in Florida and not those federally listed by the U.S. Fish and Wildlife Service. Fish and wildlife species currently on the State Imperiled Species list were evaluated for the potential for incidental take to occur during agricultural activities. Based on current knowledge, 16 of the State Imperiled Species were determined to occur in areas where agricultural activities have the potential to influence habitat that supports essential behaviors or directly impact individuals. Therefore, the presumption of compliance for enrollees only applies to the aforementioned 16 species. Nonetheless, this list will be re-visited from time to time to evaluate whether there are any other species that have a specific nexus to agriculture.

These practices have particular application for agricultural lands that are in active production. However, they are not intended for use during tree removal or land clearing operations associated with development activities or changes in land use (e.g., conversion from silviculture to row crop). The practices minimize incidental take of specified State Imperiled Species from agricultural activities – and are not intended as a means of species recovery, expansion or habitat restoration. As such, they represent a practical approach for avoiding and minimizing incidental take of the 16 State Imperiled Species.

Throughout this document, reference will be made to the Florida Department of Agriculture and Consumer Services (FDACS) *Best Management Practices Manuals*. This reference is to acknowledge that many of the existing BMPs that were developed primarily for water quality provide significant wildlife conservation benefits, especially for aquatic species. Therefore, where these existing BMPs are suitable, they will be referenced instead of developing new practices for the WBMP Manual.

Finally, the Wildlife BMPs are voluntary practices that are applied at the discretion of the landowner or other person or entity responsible for conducting activities on the property. Landowners and others are not specifically required to enroll in the FDACS Water Quality BMP programs to participate in the Wildlife BMP program; however, water quality BMPs applicable to specified State Imperiled Species must be implemented as indicated on the Wildlife BMP Notice of Intent (NOI). In addition, applicants who enroll by completing a Wildlife BMP NOI and implement the applicable practices are not required to obtain a permit to authorize the incidental take of the 16 State Imperiled Species associated with their operations (see **Appendix 1**). For NOI participants, random monitoring will be conducted periodically to determine whether or not the WBMPs have been implemented. Such monitoring will be conducted jointly by personnel from both the FWC and the Office of Agricultural Water Policy (OAWP), and will consist of site evaluations on properties that have been voluntarily enrolled in the Wildlife BMP NOI program. Where implementation is not physically observable in the field, personnel will inspect records documenting implementation and maintenance, which may include but is not limited to, documents such as: personal logs, digital photos, contracts, invoices, receipts, maps, or any other documents kept or received in the normal course of business.

AQUATIC STATE IMPERILED SPECIES

A total of 10 aquatic State Imperiled Species are addressed in this manual and are generally associated with flowing streams. Five of the 10 are fish, specifically: the crystal darter, harlequin darter, bluenose shiner, blackmouth shiner, and the tessellated darter. The other five species are the Santa Fe crayfish, Black Creek crayfish, Barbour's map turtle, Florida bog frog and the Georgia blind salamander.

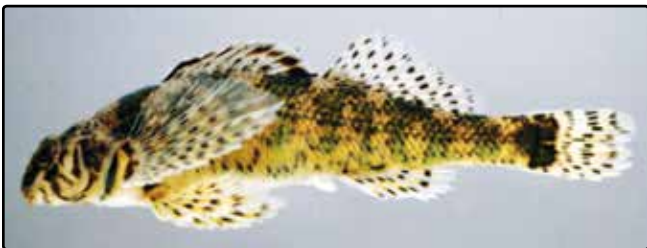
The species general habitat features are listed below (range maps are located in **Appendix 2**):

Crystal darter: this species occupies medium to large rivers in the panhandle that have sand and fine gravel bottoms, and specifically in the Escambia River and tributaries.



Crystal Darter Photograph courtesy of D.G. Bass

Harlequin darter: this species occupies rivers and large creeks in the panhandle that have an abundance of snags and large woody debris, and specifically the Escambia River and tributaries.



Harlequin Darter FWC Photograph

Bluenose shiner: this species occupies blackwater streams and rivers and spring runs that have backwater conditions, and ranges from Escambia to Jackson Counties. This species is also found in the upper tributaries of the St. Johns River.



Bluenose Shiner Photograph courtesy of Todd D. Crail

Blackmouth shiner: this species occupies blackwater streams that have backwater conditions associated with steep, vegetated banks, specifically in the Blackwater River and Yellow River drainages.



Blackmouth Shiner Photograph courtesy of D.G. Bass

Tessellated darter: this species occupies small to medium sized streams, specifically in the Oklawaha River drainage and tributaries.



Tessellated Darter Photograph courtesy of D.G. Bass

Santa Fe crayfish: this species occupies caves associated with rivers and streams in Suwannee and Columbia Counties.



Santa Fe Crayfish Photograph courtesy of Bonnie Stine

Black Creek crayfish: this species occupies tannic-stained rivers and streams with sand bottoms, specifically in Clay, Duval, Putnam and St. Johns Counties.



Black Creek Crayfish FWC Photograph, Eric Nelson and Daniel Gualtieri

Barbour's map turtle: this species occupies rivers, large streams and impoundments that include sand bars, berms and spoil mounds, and specifically in the Apalachicola, Chipola, Choctawhatchee and Ochlocknee River systems.



Barbour's Map Turtle Photograph courtesy of USGS.



Adult Female Barbour's Map Turtle Photograph © Dale R. Jackson

Georgia blind salamander: this species occupies caves associated with rivers and streams in Jackson County.



Juvenile Georgia Blind Salamander Photograph by Nathanael Herrera

Florida bog frog: this species occupies rivers and streams associated with acidic seeps, seepage streams and bogs proximate to sandy uplands, and specifically in Walton, Santa Rosa and Okaloosa Counties.



Florida Bog Frog Some rights reserved by MyFWCmedia

WBMPs for Aquatic State Imperiled Species

The aquatic State Imperiled Species listed above have important habitat needs within streams and stream corridors. These include temperature regulation (shade), large and small woody debris, substrate (sand, gravel vs. silt), channel stability and habitat connectivity. The Georgia blind salamander in particular may be vulnerable to agricultural chemicals and petroleum products. Therefore, the existing FDACS BMPs for water quality are adequate and must be implemented for these species. Water quality BMPs are incorporated by reference in Title 5M, F.A.C., and can be located online as designated in the rules or from the OAWP at the Mayo

Building, 407 South Calhoun Street, Tallahassee, Florida 32399.

While all the BMPs that prevent erosion, sedimentation, groundwater contamination, and protect stream geomorphology are important, the most practical and effective are those associated with maintaining adequate vegetated Conservation Buffers and Stream Crossings:

- Conservation Buffers are permanently vegetated, non-cultivated areas that function to retain water and soil onsite to help reduce pollutants in surface water runoff. Riparian buffers are areas of trees, shrubs and/or grasses located adjacent to natural streams, which help reduce excessive amounts of sediment, organic material, nutrients, and pesticides in surface water sheetflow. In addition to water quality benefits, riparian buffers contribute to temperature moderation,

in-stream woody debris, snags, and other important wildlife habitat features.

- Stream Crossing BMPs are designed to minimize the potential for impounding or impeding flow, generally providing for habitat connectivity, and to maintain normal stream flow rates and flow conditions. Key practices for stream crossings are proper sizing and placement of culverts, using the proper material, keeping a low profile on hard-surface crossings and periodic maintenance of all crossing types to ensure functionality.

Buffer and stream crossing BMPs can be found in FDACS BMP manuals incorporated by reference in Title 5M, F.A.C., and can be located online as designated in the rules or from the OAWP at the Mayo Building, 407 South Calhoun Street, Tallahassee, Florida 32399.

STATE IMPERILED SPECIES – BURROWING ANIMALS

Two State Imperiled Species addressed in this manual are burrowing animals which are generally associated with open areas in both forestland and grasslands. Specifically, they are the gopher tortoise and the burrowing owl. Generally, burrows for these animals in their preferred open habitat are visibly apparent and sites/habitat types are relatively easy to identify. Hence, for both species of burrowing animals, burrows do not have to be located prior to conducting normal and necessary agricultural operations, nor does the property in question need to be surveyed for the presence of the animals or their burrows.

The species general habitat features are listed below (range maps are located in **Appendix 2** except for the gopher tortoise which occurs statewide).

Gopher tortoise: this species occupies uplands with well-drained soils with a significant depth to the water table, and may be found in forested or open areas throughout most of the state. The general habitat feature is an underground burrow that has a large open area at the mouth known as the “apron.” The apron of the burrow is especially important because the females usually lay and bury their eggs in a shallow nest there, typically during mid-May through mid-June. Incubation lasts 80 to 100 days; therefore, disturbance of the apron should be avoided from early May through September when eggs or hatchlings may be present.



Gopher Tortoise FWC Photograph.



Gopher Tortoise Burrow with Apron Photograph from Wikimedia Commons <http://commons.wikimedia.org>

Burrowing owl: this species occurs primarily in peninsular Florida, although isolated pairs and small colonies have been found as far west as Eglin Air Force Base. The owl is a small bird, averaging 9 inches in height, with long legs and bright yellow eyes, but lacking the ear tufts of more familiar woodland owls. The owls spend most of their time on the ground, and during the day are usually seen standing erect at the mouth of their underground burrow or on a nearby post. When disturbed, the owl bobs in agitation and utters a chattering or clucking call. In flight, burrowing owls typically undulate as if they are flying an invisible obstacle course, but while hunting can hover in midair. The general habitat feature is an underground burrow, typically found in open habitats such as native dry prairie or modified landscapes such as pasture, agricultural fields, golf courses or other open grassy lands. Females usually lay their eggs in February but the nesting season can extend through July.



Burrowing Owl Some rights reserved by MyFWCmedia

WBMPs for State Imperiled Species – Burrowing Animals

- Locate heavy use or high-intensity areas such as supplemental feeding or water troughs away from known and visibly apparent active burrows.
- Locate concentrated heavy equipment operations (e.g. mix and load areas, agrichemical applicator(s) staging areas, etc.) away from known and visibly apparent active burrows, and especially known concentrations of active burrows. If concentrated heavy equipment operations must be located in such areas: a) identify and mark burrows, and b) avoid damage to the burrow opening and apron especially during the nesting season (May through September for gopher tortoises and February through July for burrowing owls).
- Avoid direct contact year-round with all gopher tortoises and burrowing owls, as well as known and visibly apparent active burrows, and burrow aprons for gopher tortoises when operating heavy equipment. This is especially important during the period between May through September for gopher tortoises; and between February through July for burrowing owls.
- When practical, minimize the use of heavy equipment during September and October in areas of known or visibly apparent gopher tortoises or burrows since hatchlings are more numerous and less visible due to their size during this time.

For both species of burrowing animals, burrows are not required to be located prior to agricultural operations, nor does the property in question need to be surveyed for the presence of the animals or their burrows.

Note: Land management practices that foster herbaceous ground cover on sites with well drained soils, and known and visibly apparent burrowing owl and/or gopher tortoise occupation will enhance habitat for these species and as such represent important conservation measures. The conservation measures listed below foster appropriate vegetation and herbaceous ground cover in such areas. These conservation measures, while encouraged, are not mandatory WBMPs:

- Maintain important habitat features by carrying out some level of active management on associated uplands. For example, prescribed grazing to maintain appropriate vegetative structure, or other pasture management activities such as roller chopping, mowing or discing.
- Thin pine or hardwood stands as appropriate to meet objectives, such as opening up the canopy to provide more sunlight to ground cover.
- Prescribe burn where it is appropriate, economically feasible and compatible with overall management objectives, and safety/smoke management considerations.
- Where prescribed burning is problematic, use herbicides that target woody or shrub vegetation as an alternative to prescribed burning as appropriate.
- When using herbicides to control herbaceous ground cover (herbaceous weed control), a banded application is preferable over broadcast applications.
- Leave herbaceous borders along roads, power lines and similar areas where practical and economically feasible.

STATE IMPERILED SPECIES – NESTING BIRDS

Four State Imperiled Species addressed in this manual are nesting birds and are associated with both wetlands and uplands. Specifically they are the little blue heron, the tricolored heron, the Florida sandhill crane and the southeastern American kestrel. Most instances of incidental take are the result of disturbances to wading bird rookeries (breeding colonies), and southeastern American kestrel or Florida sandhill crane nests during certain periods of the year. Such disturbances include damaging or removing nest trees, excessive noise from machinery in close proximity, and frequent human presence. Nests or rookeries do not have to be located prior to conducting normal and necessary agricultural operations, nor does the property in question need to be surveyed for the presence of nests or rookeries, or the animals themselves.

The species general habitat features are listed below (range maps are located in **Appendix 2**).



Little Blue Heron Some rights reserved by MyFWCmedia

Little blue heron and tricolored heron:

The general habitat feature for these species is the presence of rookeries (breeding colonies) in forested wetlands. The little blue heron and tricolored heron typically nest in rookeries of various sizes that may include other wading birds like snowy egret, red-dish egret and roseate

spoonbill. Nests may occur in a variety of woody vegetation including cypress, willow, red maple, buttonwood and mangroves.



Tricolored Heron Some rights reserved by MyFWCmedia

Florida sandhill crane: this species is a heavy bodied bird with a long neck and legs that is frequently found in open grass lands, pastures and marshes throughout most of the state. Sandhill cranes rely on shallow marshes for roosting and nesting, and open upland habitats for foraging. The general habitat feature for nesting is herbaceous wetlands.



Florida Sandhill Crane Photographs: by Peter Canavan; Some rights reserved by MyFWCmedia

Southeastern American kestrel (aka sparrow hawks): this species occupies open pines, woodland edges, prairies, and pastures throughout most of the state. The general habitat feature for nesting is standing snags. The majority of nest trees in north central Florida are in association with pastures, cultivated farmland, or within areas of longleaf pine-turkey oak woodlands.



Southeastern American Kestrel: some rights reserved by MyFWCmedia.

WBMPs for State Imperiled Species – Nesting Birds

- Avoid heavy equipment operation (except for prescribed burning and related activities) within 330 feet of active, known and visibly apparent little blue and tricolored heron rookeries (two or more nests), from February through May.
- Avoid heavy equipment operation (except for prescribed burning and related activities) within 400 feet of active, known and visibly apparent Florida sandhill crane nests from February through May.
- For southeast American kestrels, leave standing snags where they do not pose a safety issue, as per the Silviculture Best Management Practices Manual adopted in Rule 5I-6.002, F.A.C., and avoid damaging or felling known nest trees.
- Avoid prolonged heavy equipment operation (generally in excess of one day), except for pre-

scribed burning and related activities, within 490 feet of active, known and visibly apparent kestrel nests from March through June.

Nests or rookeries do not have to be located prior to agricultural operations, nor does the property in question need to be surveyed for the presence of nests or rookeries or the animals themselves.

Note: *FDACS water quality BMPs represent important conservation measures for wading bird and sandhill crane food sources and foraging habitat. While participation in the water quality BMP program is not required for participation in the WBMP program, several practices contained in the water quality BMP manuals are important conservation measures for wading birds and sandhill cranes. Implementation of those conservation measures are encouraged, but not required, where these species are known to forage.*

If you have questions about WBMPs for these birds, consult with a FWC landowner assistance biologist prior to short duration disturbances such as mowing, chopping, tree planting and related activities within this buffer zone.

Exceptions:

1. Documented cases where ongoing agricultural activities were in place prior to the birds nesting, or where nesting birds have acclimated to disturbances and are obviously unaffected by them (indicate intent to use this exception by checking box on the NOI form). Documentation is not required to be provided with NOI submission; however, exceptions should be easily demonstrated via documentation during future implementation surveys.
2. Where consultation with a FWC landowner assistance biologist provides the landowner with a functional alternative to the WBMPs (e.g., hand planting, nest boxes, etc.).

FDACS – Office of Agricultural Water Policy

Attn: Wildlife BMP Program
Mayo Building
407 South Calhoun Street
Tallahassee, FL 32399-1600

or

Florida Fish and Wildlife Conservation Commission

Attn: Wildlife BMP Program
620 South Meridian Street
Tallahassee, FL 32399-1600

APPENDIX 1: NOTICE OF INTENT



NOTICE OF INTENT TO IMPLEMENT WILDLIFE BEST MANAGEMENT PRACTICES FOR AGRICULTURE

ADAM H. PUTNAM
COMMISSIONER

Rule 5M-18.003, F.A.C.

- **Complete all sections of the Notice of Intent (NOI).** Each NOI may list only properties that are within the same county and are owned or leased by the same person or entity, and the acreage on which applicable WBMPs will be identified and implemented under this manual.
- Submit the **NOI**, along with the **WBMP Checklist**, to the Florida Department of Agriculture and Consumer Services (FDACS), and the Florida Fish and Wildlife Conservation Commission (FWC) at the addresses below.
- **Keep a copy of the NOI and the BMP checklist in your files** as part of your WBMP record keeping.

Applicant: _____

County: _____ Acres: _____ Parcel list is attached

Parcel ID No.: _____

Property Owner (if different from Applicant): _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____ Alt. Phone: _____

Email: _____

In accordance with Sections 570.07(23), 570.94, F.S. and Rule 68A-27.007 (2) (d) F.A.C., I hereby submit this Notice of Intent and WBMP checklist as verification of my intent to implement Wildlife Best Management Practices. Participation in this program and implementation of WBMPs as denoted on the NOI Checklist provides a presumption of compliance with regard to incidental take of State Imperiled Species. In addition, I agree to allow FDACS and FWC personnel to periodically verify WBMP implementation through records inspection and/or on-site evaluations of the property described above. I can opt out of this program at any time after notifying in writing FDACS and FWC.

Print Name: _____
(check one) Property Owner Authorized Agent

Signature: _____ Date: _____

Submit completed NOI and WBMP Checklist to:

FDACS – Office of Agricultural Water Policy

Attn: Wildlife BMP Program
407 South Calhoun Street
Tallahassee, FL 32399-1600
850-617-1727

and

FL Fish and Wildlife Conservation Commission

Attn: Wildlife BMP Program
620 South Meridian Street
Tallahassee, FL 32399-1600
850-488-3831

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Implementation¹ Checklist

AGRICULTURE WILDLIFE BEST MANAGEMENT PRACTICES FOR STATE IMPERILED SPECIES

Check All Applicable Boxes Below.

Aquatic State Imperiled Species			
Species Name	My property is located within the aquatic species' known range (see imperiled species range maps ¹).	I am currently implementing all applicable WBMPs (water quality BMPs ²).	Species is not applicable to the property.
Crystal Darter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harlequin Darter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bluenose Shiner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blackmouth Shiner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tessellated Darter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Santa Fe Crayfish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Black Creek Crayfish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barbour's Map Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Georgia Blind Salamander	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Florida Bog Frog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

State Imperiled Species - Burrowing Animals and Nesting Birds				
Species Name	Species is known to be present on the property.	I am currently implementing all applicable WBMPs for this species ¹ .	I do not know if this species is currently present on my property but I would implement WBMPs if the species was located in the future.	Species is not applicable to the property
Gopher Tortoise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Burrowing Owl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Little Blue Heron	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tricolored Heron	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Florida Sandhill Crane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Southeastern American Kestrel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am implementing the following WBMP exception(s) for State Imperiled Species of nesting birds:

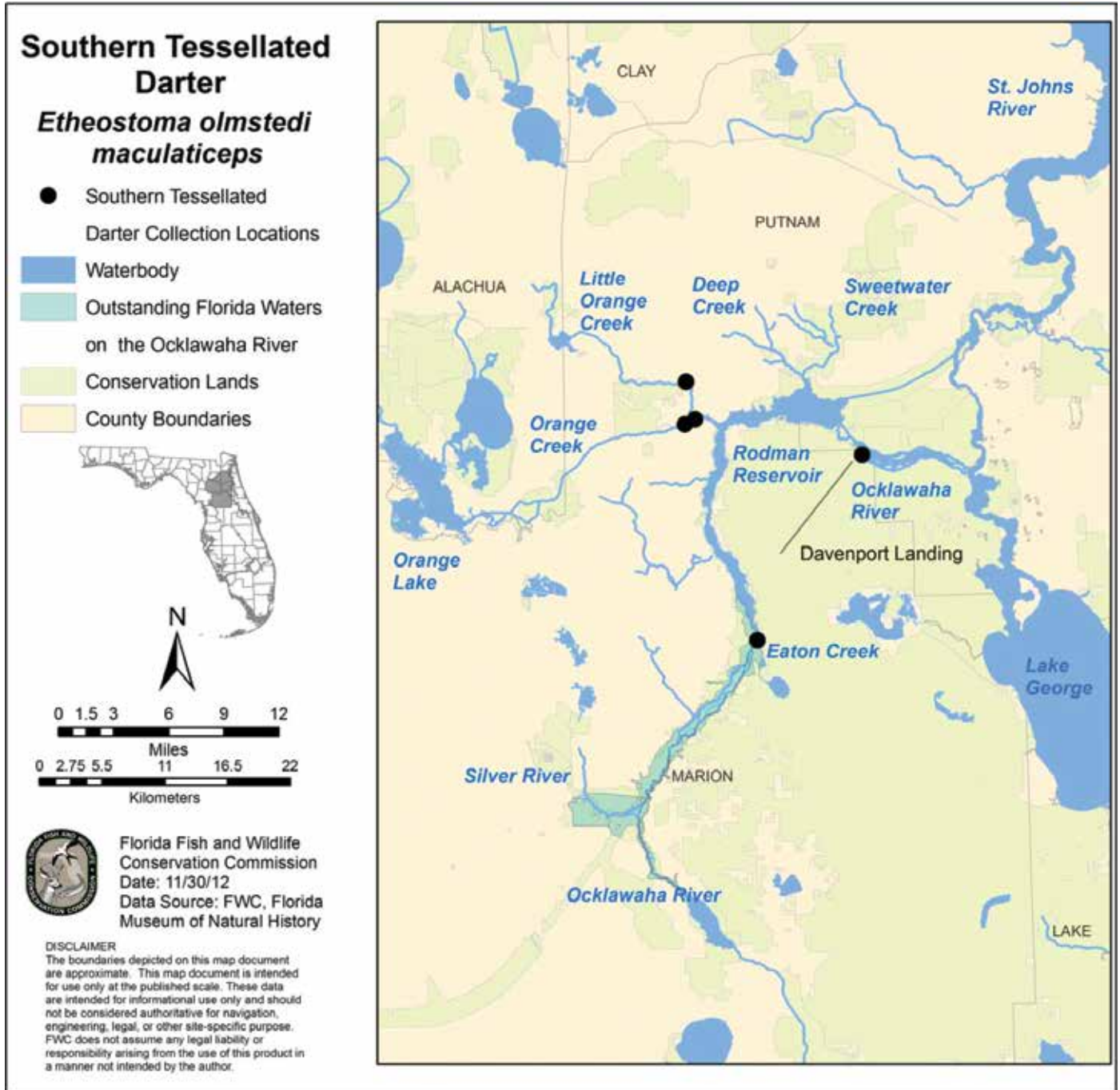
- Documented cases where birds have acclimated to disturbances.
- Where consultation with a FWC biologist provided a functional alternative.

1 Consult the Florida Agriculture Best Management Practices for State Imperiled Species, incorporated in Rule 5M-18.001, F.A.C., and appendices for descriptions, range maps, and WBMP practices applicable to the State Imperiled Species listed above. WBMPs pertain only to those ongoing activities that are associated with bona fide agricultural land uses. WBMPs do not apply to tree removal activities preceding a change in agricultural land use. For example, harvesting activities that would convert agricultural lands to mining or development, or silviculture to row crop would not be eligible for the program.

2 Refer to the applicable Florida Department of Agriculture and Consumer Services water quality BMP manual(s), incorporated by reference in Title 5M, F.A.C., and can be located online as designated in the rules or from the OAWP at the Mayo Building, 407 South Calhoun Street, Tallahassee, Florida 32399.

APPENDIX 2: STATE IMPERILED SPECIES RANGE MAPS

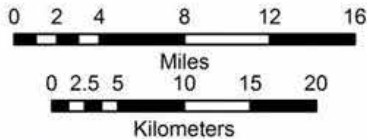
(Location indicators represent broad general areas and are not necessarily specific observations)



Harlequin Darter

Etheostoma histrio

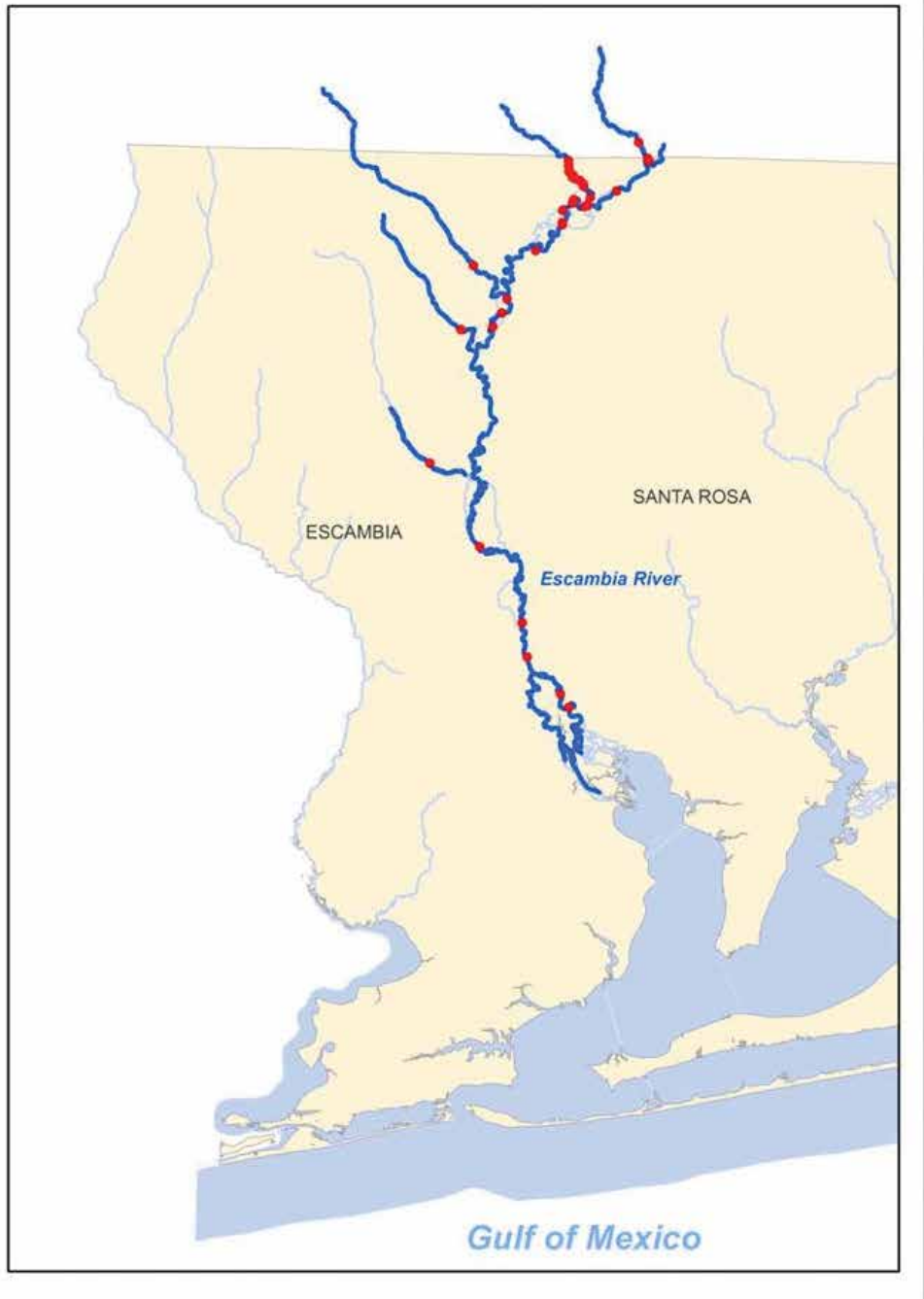
- Harlequin Darter Collection Locations
- Harlequin Darter Distribution
- Rivers and Creeks
- Open Water



Florida Fish and Wildlife Conservation Commission
Date: 1/9/13
Data Source: FWC, University of Florida

DISCLAIMER

The boundaries depicted on this map document are approximate. This map document is intended for use only at the published scale. These data are intended for informational use only and should not be considered authoritative for navigation, engineering, legal, or other site-specific purpose. FWC does not assume any legal liability or responsibility arising from the use of this product in a manner not intended by the author.



Crystal Darter

Crystallaria asprella

- Crystal Darter Collection Locations
- ▭ Crystal Darter Priority Sub-Watersheds
- Darter Distribution
- Rivers and Creeks
- Conservation Lands
- Open Water



0 1.5 3 6 9 12

Miles

0 2.5 5 10 15 20

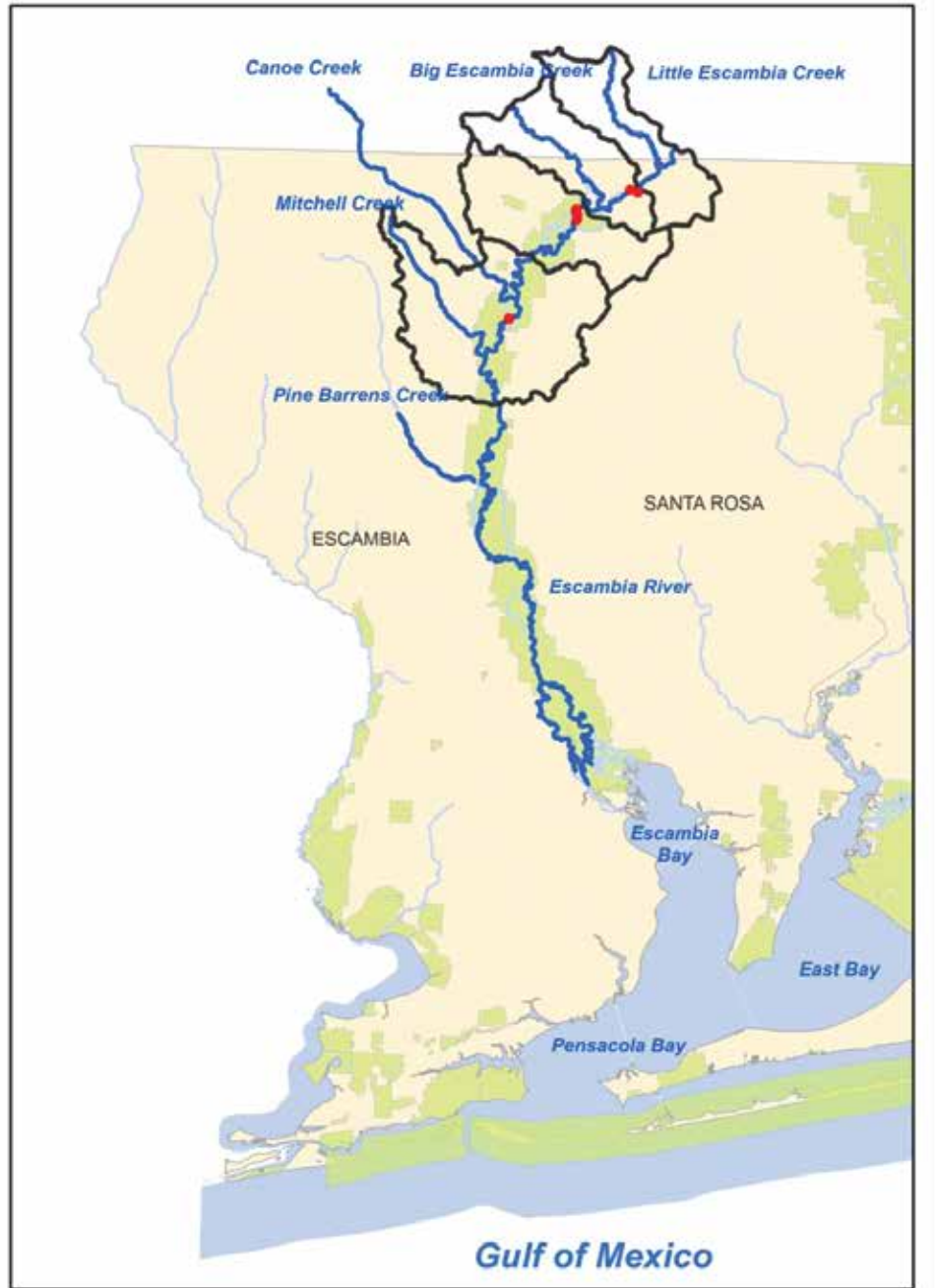
Kilometers

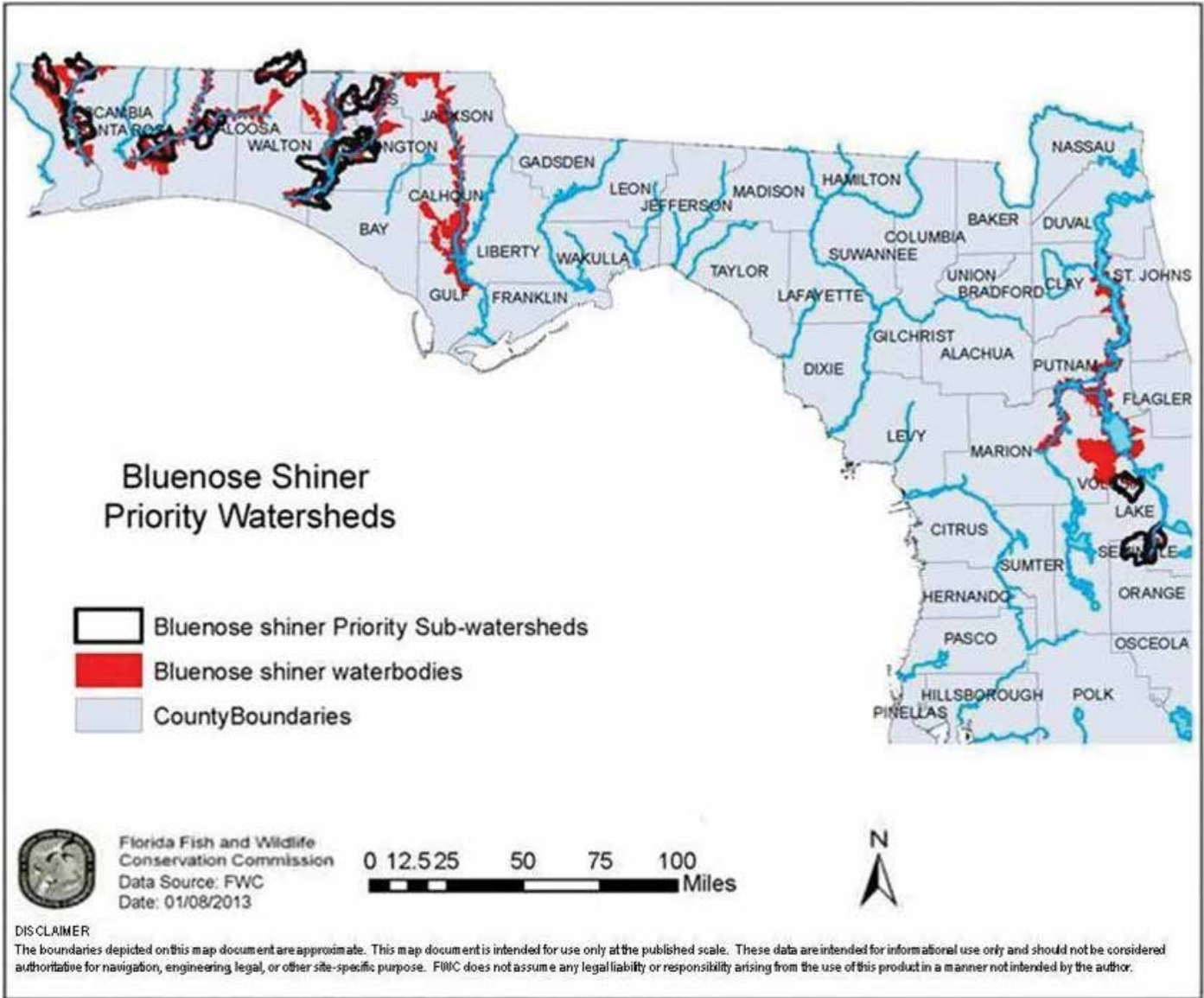


Florida Fish and Wildlife
Conservation Commission
Date: 11/4/13
Data Source: FWC, University
of Florida

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Blackmouth Shiner Priority Sub-Watersheds

- Blackmouth shiner post 2000
- Blackmouth shiner pre2000

Blackmouth Priority
Sub-watersheds



0 2 4 8 12 16



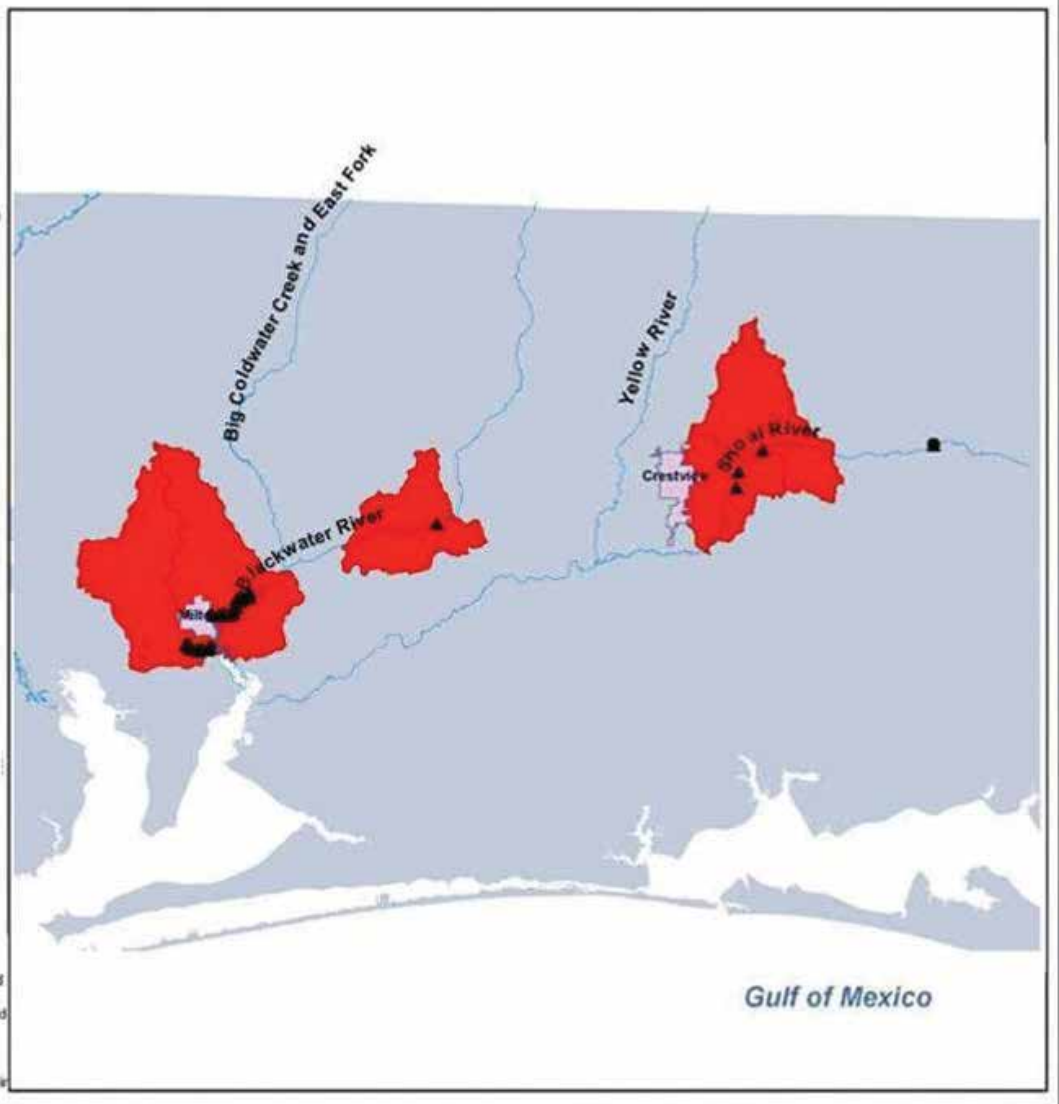
Miles



Florida Fish and Wildlife
Conservation Commission
Data Source: FWC
Date: 01/16/2013

DISCLAIMER

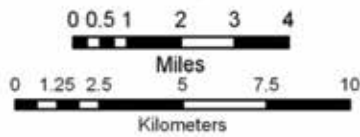
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Santa Fe Cave Crayfish

Procambarus erythrops

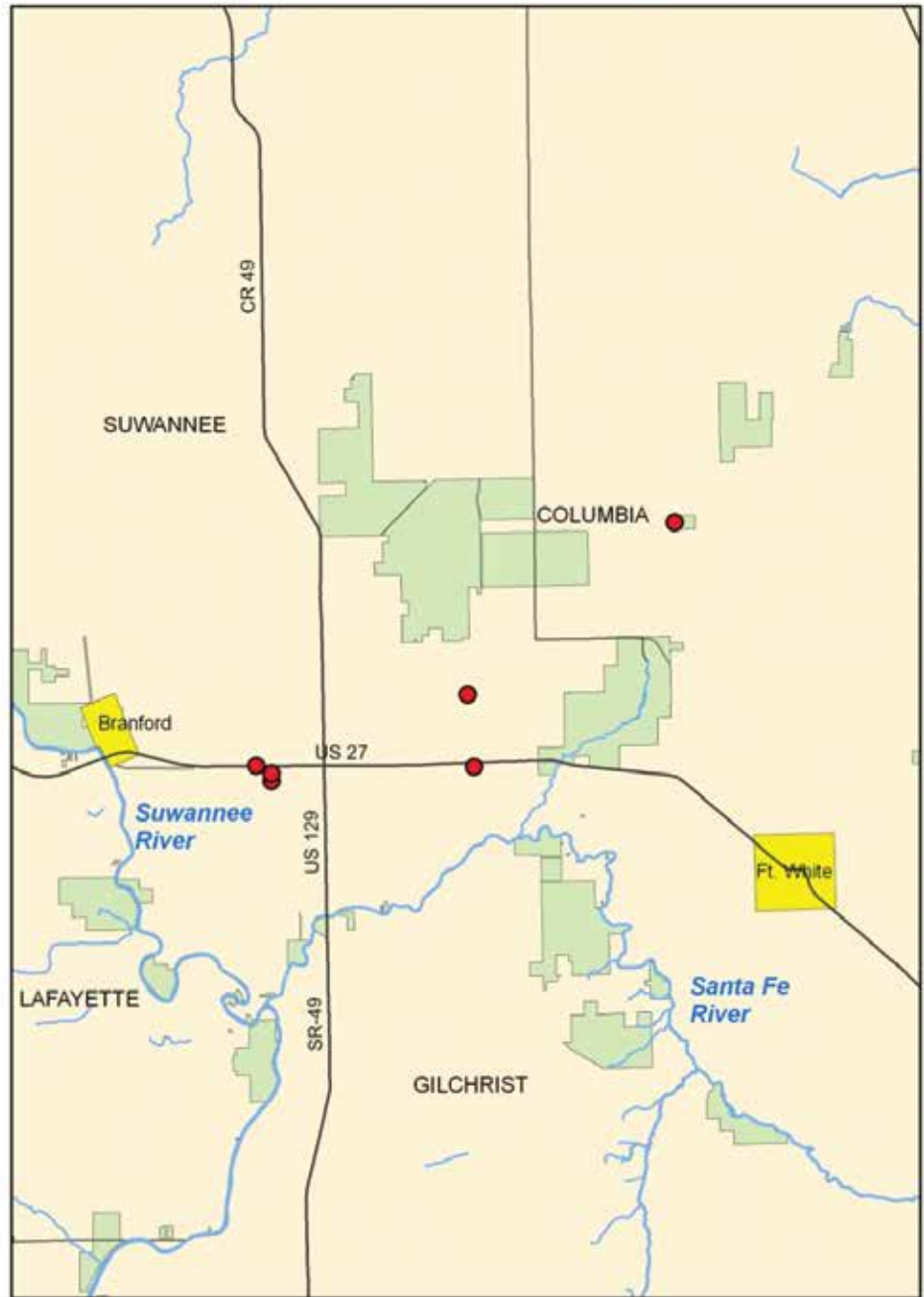
- Documented Occurrence
- Major Roads
- Streams
- Waterbody
- Conservation Lands
- City Limits
- County Boundaries



Florida Fish and Wildlife
Conservation Commission
Date: 3/11/13
Data Source: FWC



DISCLAIMER

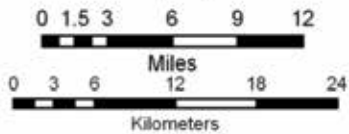
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Black Creek Crayfish

Procambarus pictus

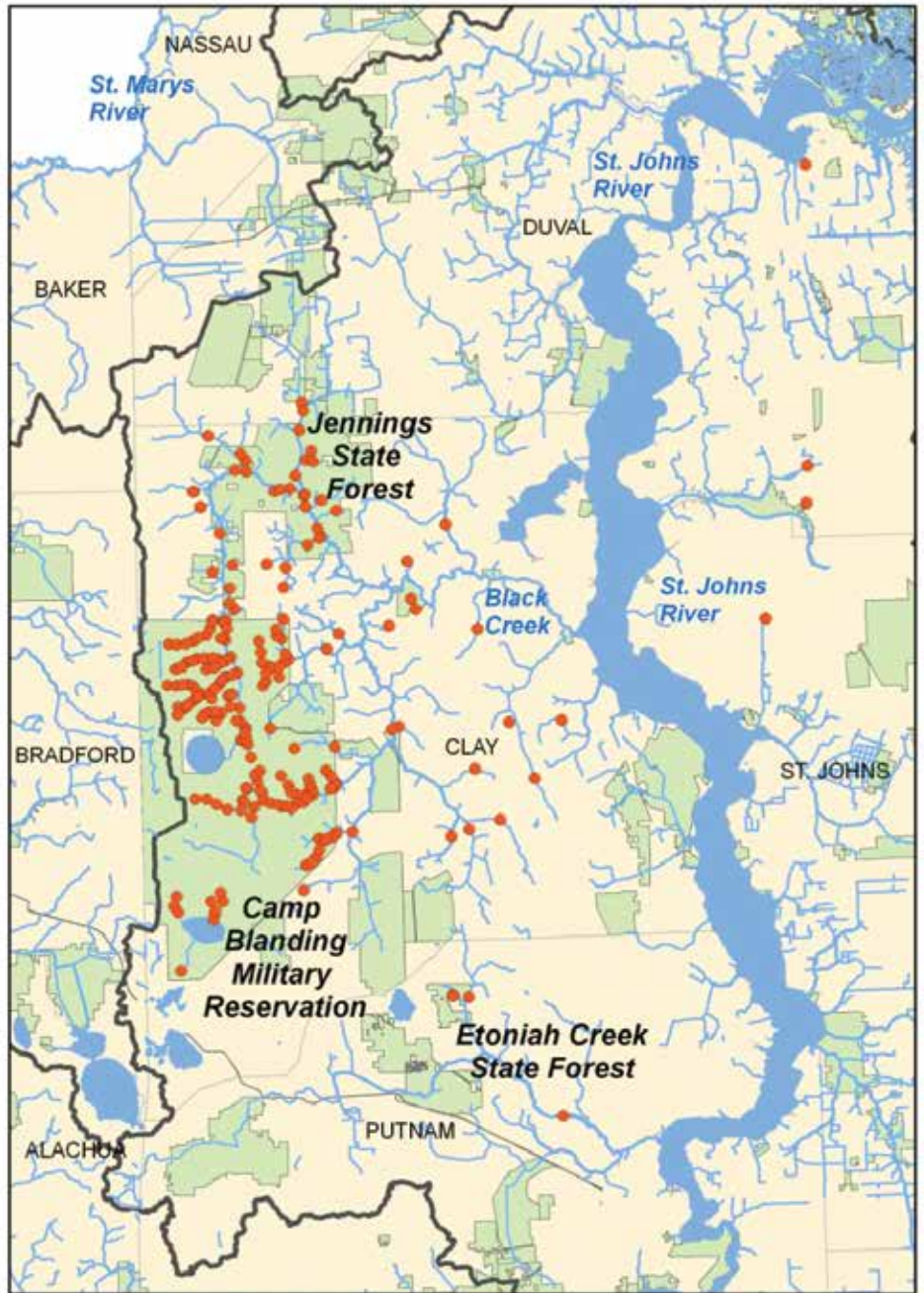
- Documented Occurrence
-  Streams
-  Watershed Basins
-  Waterbody
-  Conservation Lands
-  County Boundaries



Florida Fish and Wildlife
Conservation Commission
Date: 2/18/13
Data Source: FWC

DISCLAIMER

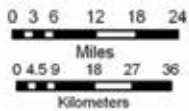
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Barbour's Map Turtle

Graptemys barbouri

- Specific Records
- Inhabited Major Rivers
- Other Major Rivers
- County Boundaries
- Open Water



Florida Fish and Wildlife
Conservation Commission
Date: 3/18/13
Data Sources: FWC, FNAI,
FL Herp Atlas

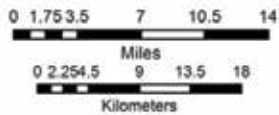
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Documented Sites of the Georgia Blind Salamander

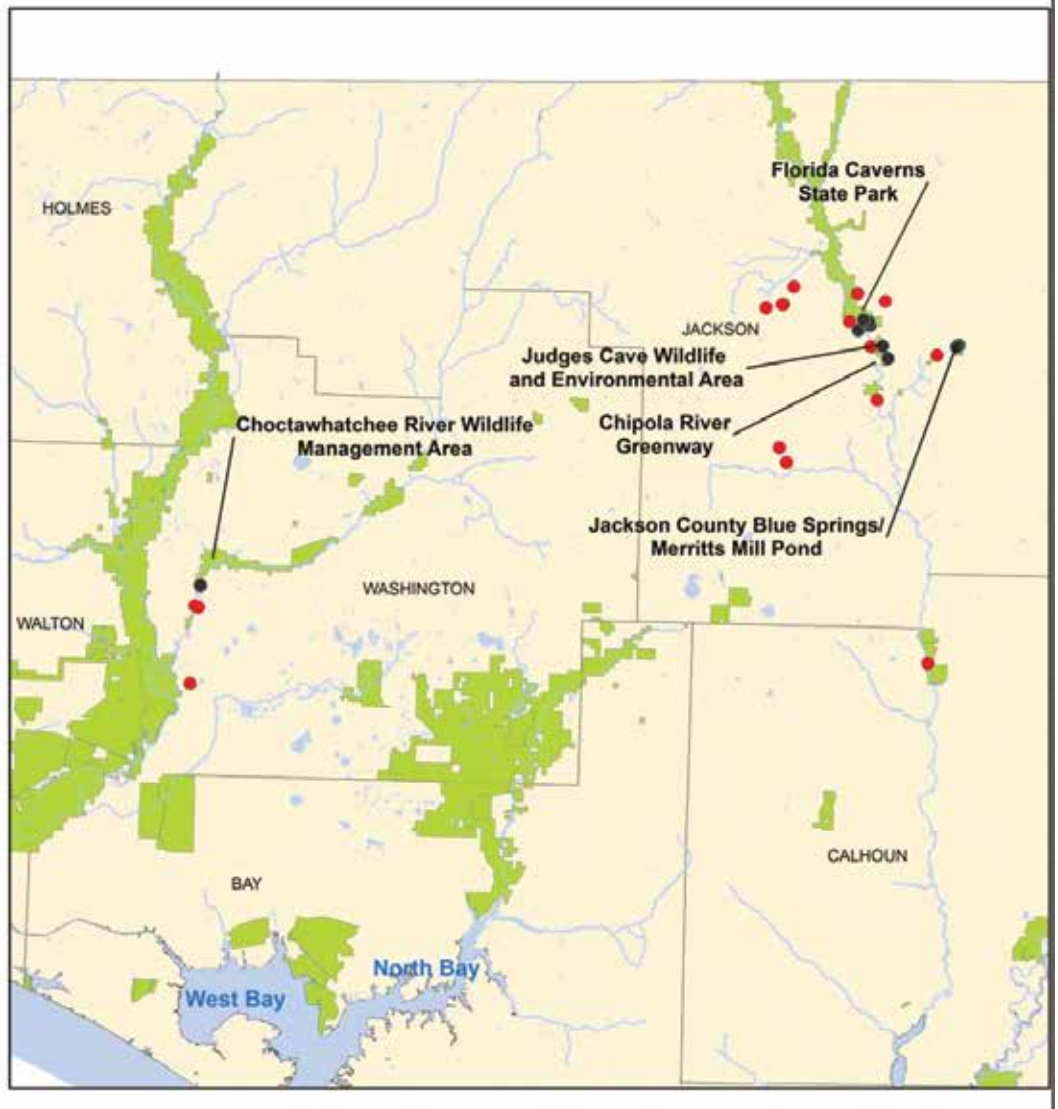
- Sites on Public Lands
- Sites on Private Lands
- Open Water
- Major Rivers and Streams
- Conservation Lands
- Counties

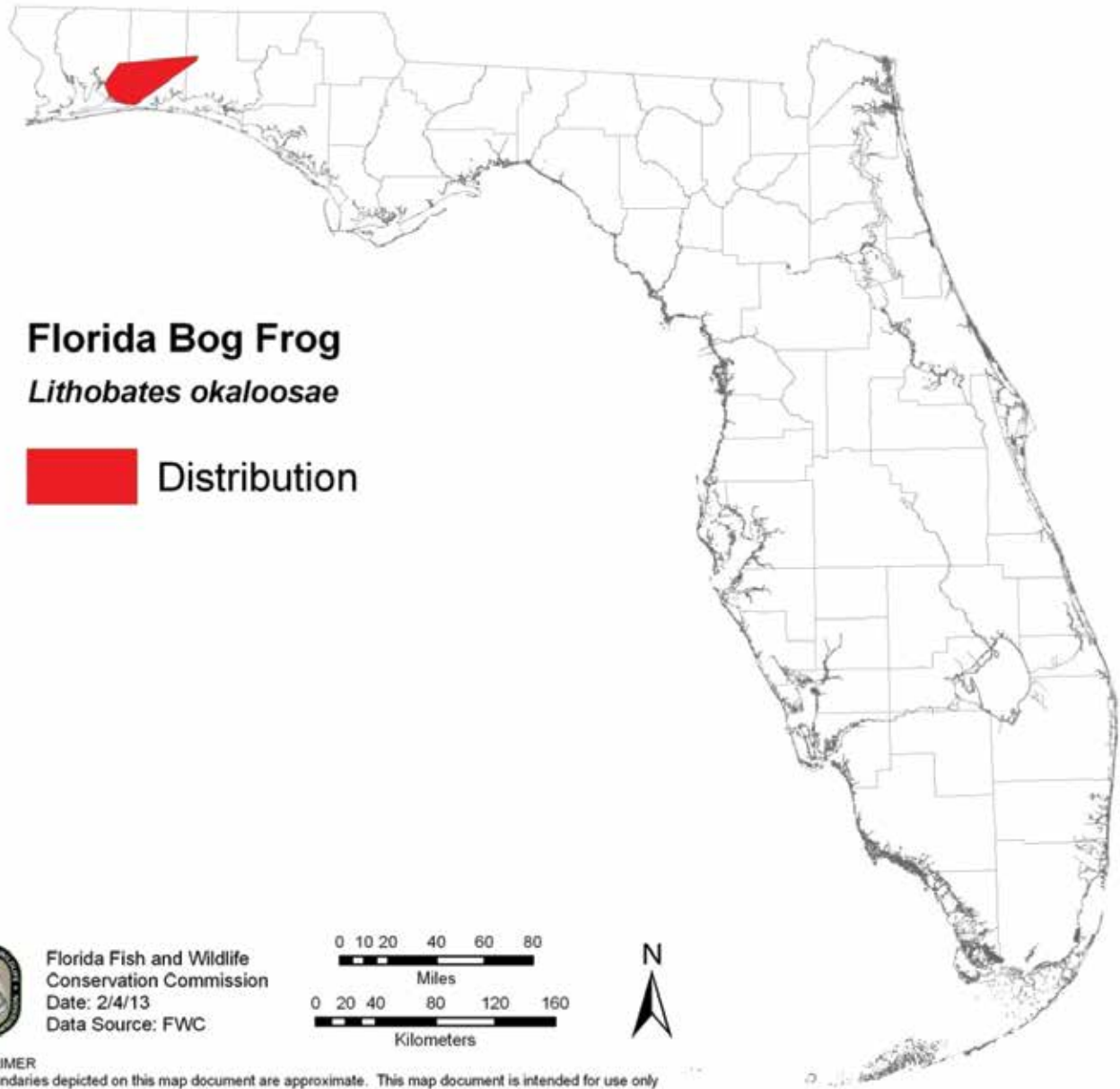


Florida Fish and Wildlife
Conservation Commission
Date: 11/4/13
Data Source: FWC

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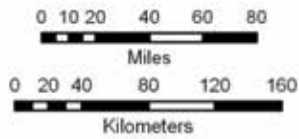


Florida Bog Frog
Lithobates okaloosae

 Distribution

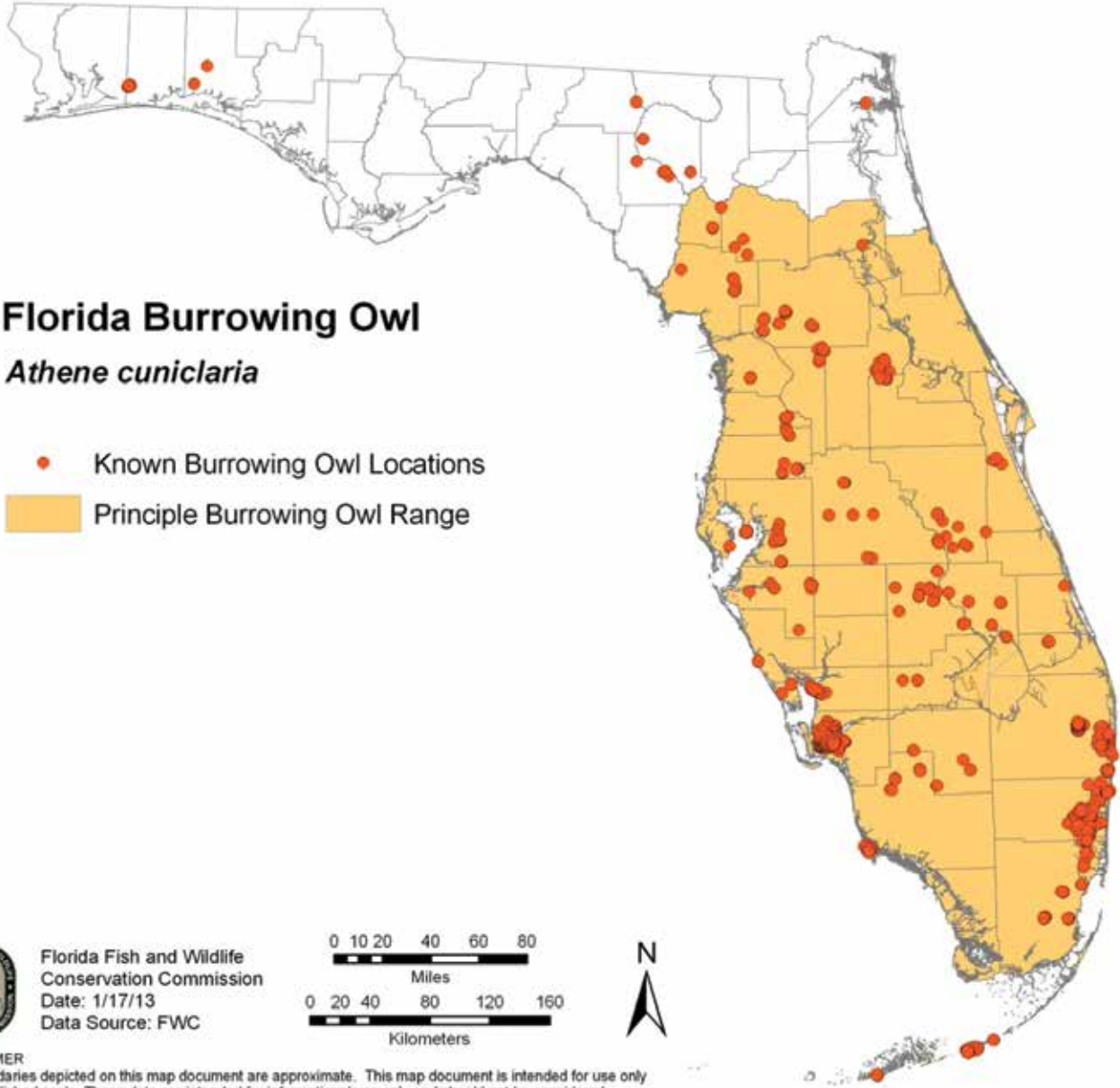


Florida Fish and Wildlife
 Conservation Commission
 Date: 2/4/13
 Data Source: FWC



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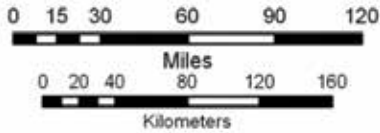
Florida Fish and Wildlife
Conservation Commission
Date: 1/17/13
Data Source: FWC

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Florida Sandhill Crane

Grus canadensis pratensis

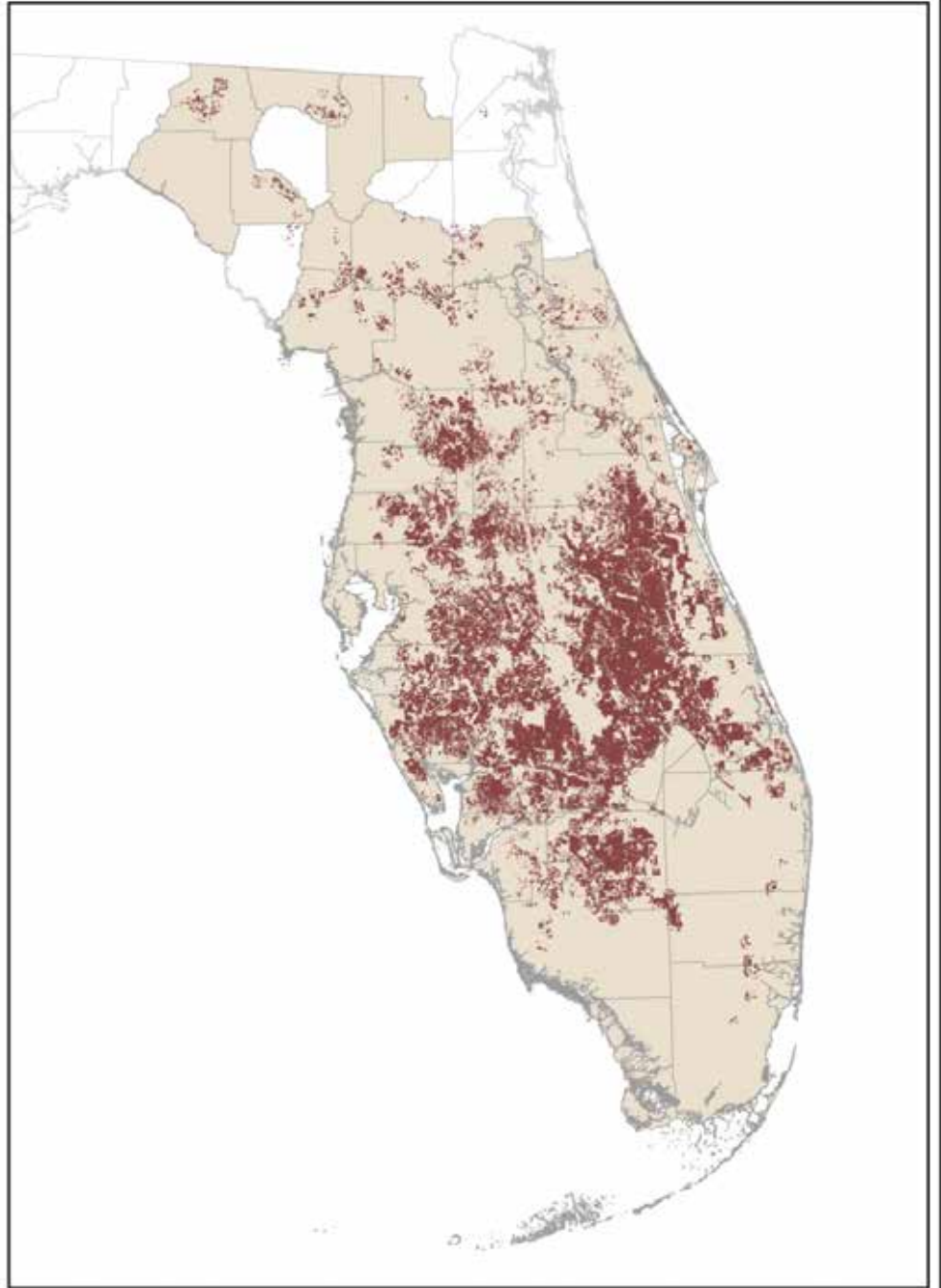
-  Potential Suitable Habitat
-  Breeding Bird Atlas Range
-  County Boundaries

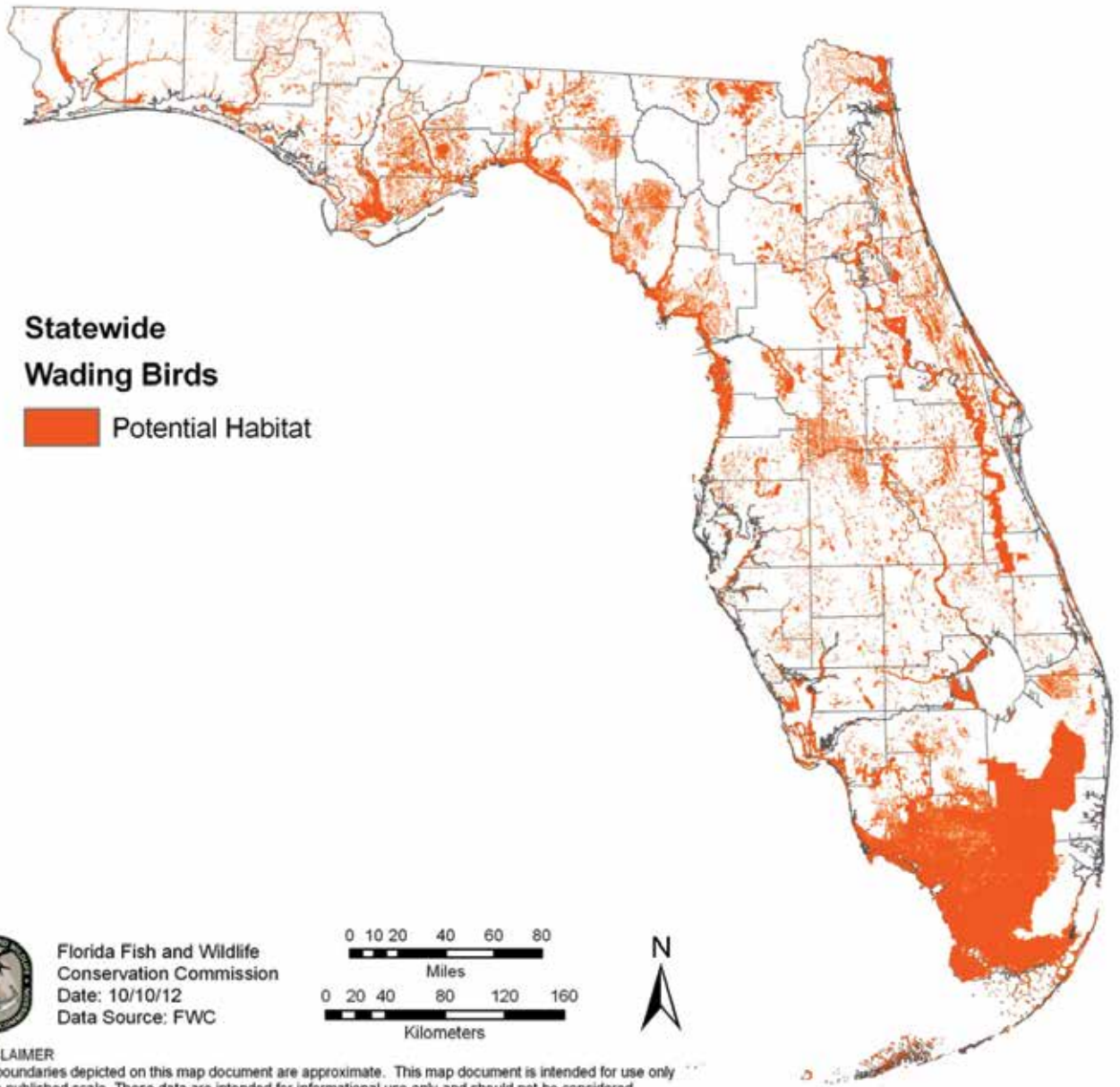


Florida Fish and Wildlife
Conservation Commission
Date: 12/10/12
Data Source: FWC

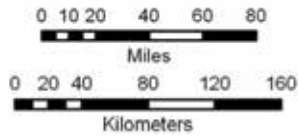
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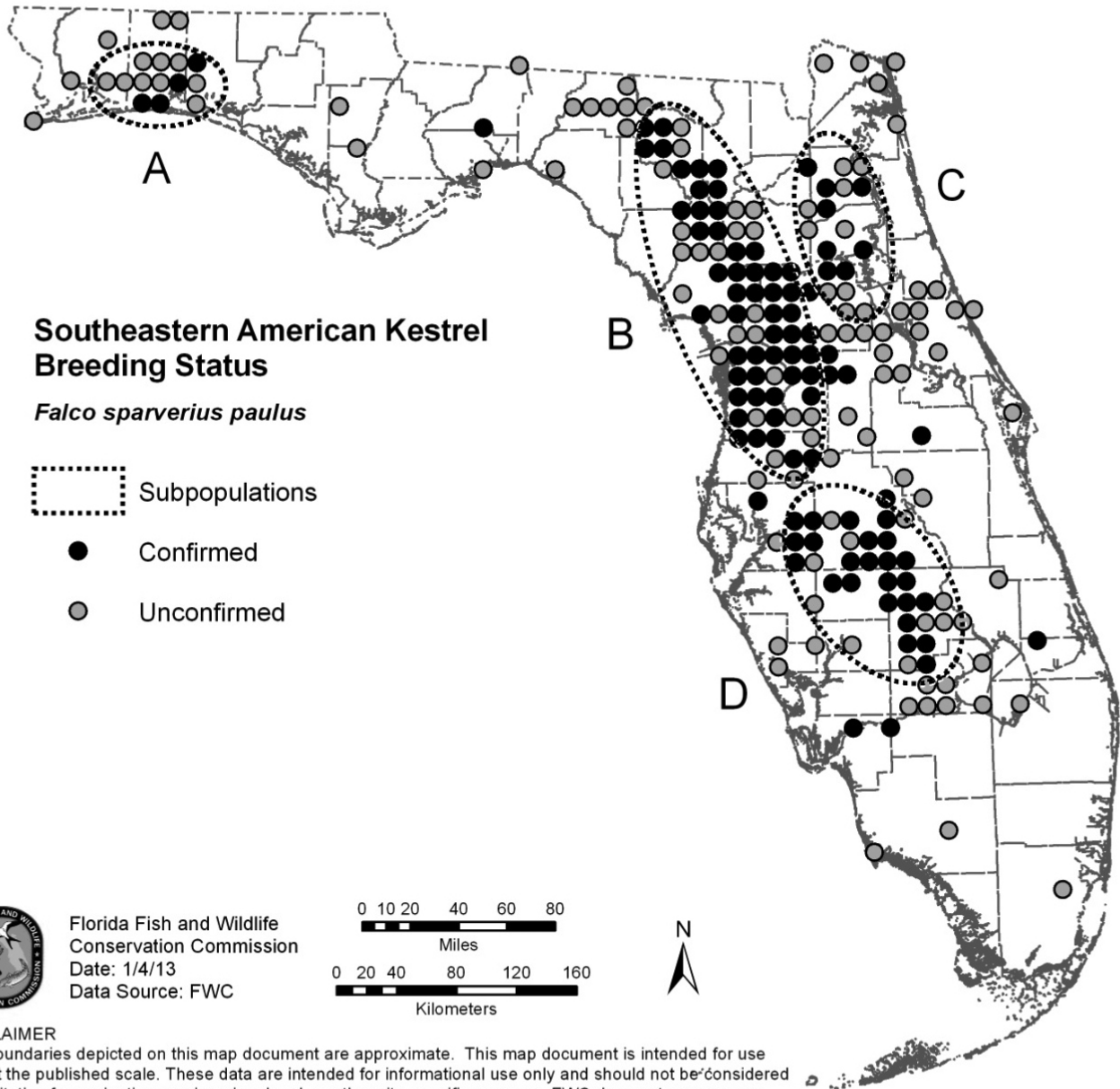


Florida Fish and Wildlife
Conservation Commission
Date: 10/10/12
Data Source: FWC



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GLOSSARY OF TERMS

Active burrow (burrowing owl): active burrows are most easily identified by the presence of an owl standing erect at the entrance. An adult owl may be underground in the burrow even though the bird on the surface has flushed or is on a nearby post.

Active burrow (gopher tortoise): burrow is in good repair, has the classic half-moon shaped entrance and appears to be in use by a tortoise. These burrows generally have tortoise tracks or scrapes from the tortoise shell clearly visible on the burrow floor or on the mound. The burrow floor often contains loose soil caused by tortoise activity. The burrow mound is usually clear of vegetation, and it may contain recently excavated soil. Inactive burrows are in good repair, but do not show recent tortoise use. In contrast, an abandoned burrow appears unused and dilapidated. The burrow is partially or completely filled with leaves or soil, entrance is partially or completely collapsed and burrow collapse does not appear to be caused by recent rains or activity by livestock or humans. There are no trails into the burrow that might indicate that a tortoise recently passed through the leaf litter or that a small tortoise is using a dilapidated, adult burrow.

Rookery (aka breeding colony): a colony of breeding birds, also known as a rookery. A breeding colony will be distinguished from roosting birds by the presence of nests or nesting activity (as shown below).



Photographs by Nicholas Vitale, University of Florida

State Imperiled Species: for the purposes of this program, State Imperiled Species means the 16 species listed in and made part of this manual, which are: Crystal Darter, Harlequin Darter, Bluenose Shiner, Blackmouth Shiner, Tessellated Darter, Santa Fe Cave Crayfish, Black Creek Crayfish, Barbour's Map Turtle, Georgia Blind Salamander, Florida Bog Frog, Gopher Tortoise, Burrowing Owl, Little Blue Heron, Tricolored Heron, Florida Sandhill Crane, and Southeastern American Kestrel (aka Sparrow Hawk). Additional information for all State Listed Species can be found at: <http://myfwc.com/wildlifehabitats/imperiled/profiles/>.

Incidental take: any taking otherwise prohibited, if such taking is incidental to, and not the purpose of the carrying out of an otherwise lawful activity.

Take: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The term "harm" in the definition of take means an act which actually kills or injures fish or wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. The term "harass" in the definition of take means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.

NOTES



