

APPENDIX D

Agency Coordination



From: Joyner, Melody <Melody.Joyner@dot.state.fl.us>
Sent: Tuesday, February 10, 2026 11:08 AM
To: Brett Berube <bberube@rkk.com>; Lauk, Joe <Joe.Lauk@dot.state.fl.us>; Cothorn, Kathern <Kathern.Cothorn@dot.state.fl.us>; Feagle, Brooke <brooke.feagle@atkinsrealis.com>
Subject: FW: [EXTERNAL] 414506-1 - SR 70 Segments 12/13 Species Survey Status

EXTERNAL EMAIL: Do not click links or open attachments unless you trust the 'Sender' and know the content is safe.

Good morning! Please see Zakia's response below. It has been determined that no new surveys will need to be conducted for all species in 2026. However, surveys will be needed pre construction.

Thank you,

Melody Joyner, CPM
Corridors Program Development Manager
Florida Department of Transportation - District One
Mail Station 1-41
Office: 863-519-2822
Cell: 863-800-6267

From: Williams, Zakia <zakia_williams@fws.gov>
Sent: Monday, February 9, 2026 10:07 AM
To: Joyner, Melody <Melody.Joyner@dot.state.fl.us>
Subject: Re: [EXTERNAL] 414506-1 - SR 70 Segments 12/13 Species Survey Status

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Hello Melody,

I hope you are doing well. Thank you for reaching out regarding the SR 70 widening project and the species surveys. After reviewing the surveys and considering the details provided, it has been determined that new surveys will not need to be conducted for all species in 2026 even though the 12-month timeframe will have passed. However, I must note that new surveys will need to be completed pre-construction to ensure accuracy and compliance.

Please let me know if you have any further questions or need additional clarification. I am here to help and look forward to assisting you further.

Best regards,
Zakia Williams

Zakia Williams

Fish and Wildlife Biologist
US Fish and Wildlife Service
7915 Baymeadows Way, Ste. 200

(c) 904-200-2678

$$\begin{array}{c} \overline{(\text{ } \vee \text{)}} \\ ((\underline{\text{ } })) \\ \wedge \wedge \end{array}$$

Then submit your project request along with the IPaC letter to: fw4flesregs@fws.gov

Subject: [EXTERNAL] 414506-1 - SR 70 Segments 12/13 Species Survey Status

3

- Sand skink/bluetail mole skink: 2018, 2023, and 2025

Prior to completion of the 2025 surveys, John confirmed on September 24, 2024, that a 2025 Florida scrub-jay survey would not be necessary and that the results of the 2023 scrub-jay survey conducted for this project and scrub-jay territory data from Archbold Biological station could be used in lieu of reconducting the survey (correspondence attached).

Based on all surveys completed, the FDOT's project team documented observations for the project as follows:

- Scrub pigeon-wings (*Clitoria fragrans*) – documented by Archbold within the project study area. Not documented during FDOT surveys but presumed present due to timing of surveys.
- Highlands scrub hypericum (*Hypericum cumulicola*) – documented within the project study area in 2019, 2023, and 2025.
- Scrub blazing star (*Liatris ohlingerae*) – documented in multiple locations within the study area during the 2019 survey. Still presumed present due to timing of following surveys.
- Britton's beargrass (*Nolina brittoniana*) – documented within the study area during the 2023 survey. Still presumed present due to timing of 2025 survey.
- Paper nailwort (*Paronychia chartacea*) – documented within the project study area during the 2019, 2023, and 2025 surveys.
- Florida jointweed (*Polygonum basiramia*) – documented within the study area during the 2023 survey. Still presumed present due to timing of 2025 survey.
- Crested caracara – one nest was documented within the project limits south of the SR 70 and CR 29 intersection during the 2018 survey. However, this nest was not active during either the 2023 or 2025 surveys. Additionally, nests were documented within the limits of adjacent widening projects; however, coordination for these nests is being completed under those projects.
- Florida grasshopper sparrow – no active nests or foraging territories documented within the project limits during the 2025 survey.
- Florida scrub-jay – based on the 2023 survey, there is a total of 69.78 acres of occupied Florida scrub-jay habitat within the proposed ROW. Of the 69.78 acres, there is 33.97 acres of Type I habitat, 1.60 acres of Type II habitat, and 34.21 acres of Type III habitat.
- Eastern black rail – no black rails or nests were documented during the 2025 survey.
- Everglade snail kite – no snail kites or nests documented during the 2025 survey.
- Sand skink and bluetail mole skink – 73.94 acres of the project area is occupied by skinks based on the results of the 2025 survey (44.87 acres) and areas of assumed skink presence (29.07 acres).
- Florida bonneted bat – 14 calls were recorded during the acoustic 2025 survey; however, based on the overall low instances of both overall calls and those occurring in the roosting window, it is unlikely that Florida bonneted bats are roosting within the project area.
- Tricolored bat – 490 instances of this species were documented during the 2025 acoustic survey.

The schedule for the subject project has been delayed due the development of necessary pond sites and consequently the NRE is now not anticipated to be ready for submittal to USFWS until July 2026 at the earliest. This would place the NRE being submitted to the USFWS more than one year after the completion of all species-specific surveys, as the most recently completed survey was the Florida grasshopper sparrow survey completed in June 2025. To this end and considering the number of surveys FDOT has previously completed for this project, the **FDOT is seeking clarification on the USFWS' view of how long species survey results collected during this past spring season may be considered valid.** Based on the FDOT's prior coordination with Mr. Wrublik, it is our understanding that species surveys generally remain valid for at least 12 months from the last date of field work. **Could you please provide clarification and note if any species surveys should be completed during the 2026 survey windows?** For your reference, we have provided the draft survey memos of all of the most recently completed surveys for this project in the link below, which are anticipated to be included as Appendices in the NRE.

Thank you for your time and we look forward to your reply.

Melody Joyner, CPM
Corridors Program Development Manager
Florida Department of Transportation - District One
Mail Station 1-41
Office: 863-519-2822
Cell: 863-800-6267

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Catie Neal

Subject: RE: [EXTERNAL] FW: 414506-1 - SR 70, Jefferson to CR 29 - NRE

From: Wrublik, John <john_wrublik@fws.gov>
Sent: Thursday, March 26, 2020 6:14 AM
To: Pipkin, Gwen G <Gwen.Pipkin@dot.state.fl.us>
Subject: Re: [EXTERNAL] FW: 414506-1 - SR 70, Jefferson to CR 29 - NRE

EXTERNAL SENDER: Use caution with links and attachments.

Gwen,

This email is to confirm that the Florida Department of Transportation has agreed to re-initiate consultation with the Service formally during the design phase of the State Road 70 from Jefferson to CR 29 Project. This is agreeable to the Service.

Sincerely,

John M. Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960
Office: (772) 469-4282
Fax: (772) 562-4288
email: John_Wrublik@fws.gov

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From: Pipkin, Gwen G <Gwen.Pipkin@dot.state.fl.us>
Sent: Wednesday, March 25, 2020 3:54 PM
To: Wrublik, John <john_wrublik@fws.gov>
Subject: [EXTERNAL] FW: 414506-1 - SR 70, Jefferson to CR 29 - NRE

Hi John,

I hope you are working from a virus free zone! I am teleworking myself.

I have a quick question for you: On January 30, we had a phone discussion about the NRE for the SR 70 from Jefferson to SR 29 project. We wanted to finalize the NRE with a commitment to reinitiating formal consultation for the project during the design phase. We agreed that would be the way to go. I sent you a follow up email (attached) to confirm our discussion.

OEM is asking me for an email confirmation from you that we had the discussion, and what we agreed on. Would it be possible for you to reply to this email (or the one in the attachment) so I can get this completed? I would greatly appreciate it!

Thanks!

Gwen G. Pipkin, CPM

District Environmental Manager

Office - 863.519.2375

Cell - 863-280-5850

gwen.pipkin@dot.state.fl.us

From: Pipkin, Gwen G

Sent: Friday, January 31, 2020 10:23 AM

To: John Wrublik (john_wrublik@fws.gov) <john_wrublik@fws.gov>; Garrett, Harrison <Harrison.Garrett@dot.state.fl.us>

Cc: Cross, Vivianne <Vivianne.Cross@dot.state.fl.us>; Catie Neal <CNeal@kcaeng.com>; Turley, David <David.Turley@dot.state.fl.us>

Subject: 414506-1 - SR 70, Jefferson to CR 29 - NRE

Hi John,

Thanks for discussing this project with me this morning! Just to recap, we are going to finalize the NRE with a commitment to reinstate formal consultation during design. I am copying OEM in this email so they will know what we discussed. We will be sending you out a copy of the NRE once we have revised it and OEM has approved it.

Thanks!

Gwen G. Pipkin, CPM

District Environmental Manager

Office - 863.519.2375

Cell - 863-280-5850

gwen.pipkin@dot.state.fl.us

Dear Mr. McDaniel

I have received your email requesting the initiation of formal consultation for the State Road 70 from Jefferson Avenue to County Road 29 Project. I currently don't have enough information to initiate formal consultation for the Project, and request the following information:

- 1) Please provide the total acreage of the project footprint and the acreage of each land use/cover type that occurs within the project footprint (as indicated by Florida Land Use Cover and Forms Classification System).
- 2) Please indicate if the project includes the construction of stormwater ponds. If it does, please provide a location map of the proposed pond(s), and include the acreage of each pond and its land use/cover types in the response to item 1.
- 3) The project will result in adverse effects to the caracara and take of the caracara through loss of foraging habitat in the primary zone (i.e., all lands within 985 feet) of an active caracara nest, and the potential loss and destruction of the

nest tree. Based on the information provided, the current active caracara nest site is located approximately 65 feet south of State Road 70 at its intersection with County Road 29. As a conservation measure to benefit the survival and recovery of the caracara, and to help the Federal Highway Administration's (FHWA) and Florida Department of Transportation's (FDOT [currently acting to conduct formal consultations per agreement with FHWA]) meet its responsibilities under Section 7(a)(1) of the Endangered Species Act, the Service requests that FDOT provide \$100,000.00 to the caracara fund administered by the Fish and Wildlife Foundation of Florida. The monies acquired are used to fund activities (e.g., the acquisition, preservation and long term management of caracara habitat) that benefit the survival and recovery of the caracara. The Service notes that the amount requested is commensurate with monies provided to this fund for past FDOT road widening projects that have adversely affected the caracara. The Service also requests that construction of the project not begin until the Service receives a receipt in the form of a letter or email from the FWFF, indicating that the funds have been provided by the FDOT, and the FDOT receives a email from the Service stating that we have received the notification from the FWFF. Please indicate if the FDOT is agreeable to these requests. For your convenience, the contact information for the FWFF is provide below.

Street Address

Mr. Will Bradford
Wildlife Foundation of Florida
620 South Meridian Street
Tallahassee, Florida 32339

E-Mail Address

info@wildlifeoflouisiana.org

FEID number

59-3277808

4) To minimize the adverse effects of the project to the caracara, the Service requests that the FDOT conduct land clearing within 985 feet of the active caracara nest site discussed above, outside the caracara nesting season from May 1 through November 30th. If land clearing is proposed to occur outside of this area during the caracara nesting season (December 1 through April 30), we request that the FDOT's consultants survey suitable nesting habitat within the project footprint (i.e., those lands located within the project footprint but not within 985 feet of the active caracara nest site) to identify any new active caracara nests that may have been established since the last nest survey was conducted. These surveys should be conducted prior to the initiation of the proposed land clearing. If a new nest(s) is/are observed, than a buffer of all lands within 400 feet shall be established around each new nest, and land clearing/construction activities will not occur within the buffer until the nest has chicks have been documented to fledge, or the nest site has been documented to be abandoned by the adult male and female caracaras. Please indicate if these protective measures are agreeable to the FDOT.

5) Information in the biological assessment for the project indicates that active caracara nest tree described in item 3. may need to be removed in conjunction with land clearing associated with the project. Please indicate if the active caracara nest tree will be removed in association with the construction of the project. If the active nest tree is proposed to be removed, the Service requests that the removal of the nest tree occur outside the caracara nesting season from May 1st through November 30th. Please indicate if this is acceptable to the FDOT.

6) The FDOT has determined that the project may affect the Eastern indigo snake. The Service has a record of an eastern indigo snake occurring approximately 0.48 mile south of State Road 70 at latitude 27.2012, longitude -81.3697. Due to the proximity of this record to the project site, the large home range known to be exhibited by the species, and the presence of suitable habitat between the location of this observation and the project footprint, the Service finds that the eastern indigo snake is reasonably certain to occur within the project footprint. The Service recommends that the FDOT change its recommendation from may affect to may affect, likely to adversely affect. Please indicate if the FDOT is agreeable to changing its determination for the eastern indigo snake.

7)The FDOT has determined that the project may affect, but is not likely to adversely affect the endangered grasshopper sparrow. The grasshopper sparrow prefers dry prairie habitat, and will occasionally occur within unimproved pasture. It does not appear that dry prairie habitat occurs within the project footprint. Based on the minimal amount of potential suitable habitat for the grasshopper sparrow that currently occurs in the project footprint, and the fact that grasshopper sparrow were not observed during pedestrian surveys of the project foot conducted by the FDOT's consultants, the Service finds that the grasshopper sparrow is unlikely to occur within the project site and the project will not affect the

grasshopper sparrow. I recommend that the FDOT change its determination from may affect, not likely to adversely affect to no effect. Please let me know if this is agreeable to the FDOT.

If you have any questions, please let me know.

I had another question regarding the project referenced above. The biological assessment for the project indicates that a wildlife crossing within the Lake Wales Ridge Wildlife and Environmental Area will be evaluated by the FDOT. The Service supports the construction of a wildlife crossing associated with the project. Please indicate if the FDOT has agreed to construct the crossing in association with the project. Also, please provide plans for the crossing, if available. We recommend that any crossing built include sufficient barrier fencing to keep animals off the paved roadway and help direct wildlife to the crossing.

Thank you for the information.

John

John M. Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960
Office: (772) 469-4282
Fax: (772) 562-4288
email: John_Wrublik@fws.gov

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Florida Department of Transportation

RON DESANTIS
GOVERNOR

801 N Broadway
Bartow, FL 33830

KEVIN J. THIBAUT, P.E.
SECRETARY

December 20, 2019

Mr. John Wrublik
United States Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, FL 32960
john_wrublik@fws.gov

RE: Natural Resources Evaluation
State Road 70 from Jefferson Avenue to County Road 29
Project Development & Environment Study
Financial Project ID No. 414506-1-22-01
Highlands County, Florida

Dear Mr. Wrublik,

Please find enclosed the Draft Natural Resources Evaluation (NRE) prepared for the above-referenced project. The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed widening of State Road 70 from Jefferson Avenue to County Road 29 in Highlands County, Florida, a distance of 7.0 miles. The purpose of the PD&E Study is to provide documented information necessary for FDOT to reach a decision on the type, design, and location of improvements; as well as to assess the project's potential impacts to natural resources within the project study area. This improvement is necessary to provide additional capacity to accommodate future travel demand generated by the projected population and economic growth in Highlands County.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding (MOU) dated December 14, 2016 and executed by the Federal Highway Administration and FDOT. This review is also being coordinated with representatives of the U.S. Environmental Protection Agency, National Marine Fisheries Service, U.S. Army Corps of Engineers, Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission, Florida Department of Agriculture and Consumer Services, and Southwest Florida Water Management District.

The NRE assesses potential effects of the proposed roadway improvements on wetlands, surface waters and other surface waters and state and federal listed species and their respective habitats. The evaluation includes field inspections by qualified biologists, literature and database reviews, and coordination with natural resource agencies. Details on the study methodologies and results are provided in the NRE.

As a result of the evaluation, the FDOT has concluded that implementation of the recommended alternative will result in 22.48 acres of unavoidable impacts to wetlands (18.60 acres) and surface waters (3.88 acres). In accordance with federal and state requirements, the full range of mitigation options were considered in developing this project, including impact avoidance, minimization, restoration, enhancement, and creation. This NRE presents conceptual mitigation alternatives, as appropriate, for unavoidable wetland impacts.

As a result of the data collection effort, field reviews, and agency coordination, the FDOT has determined that the project will have the following effects determinations for federal listed species:

No effect

- Red-cockaded woodpecker

May affect, but not likely to adversely affect

- Florida grasshopper sparrow
- Florida panther
- Wood stork
- Florida bonneted bat

May affect

- Eastern indigo snake

May affect and is likely to adversely affect

- Blue-tailed mole skink
- Audubon's crested caracara
- Sand skink
- Florida Scrub-jay

The FDOT appreciates the FWS' involvement with this project. As this project is using Federal funds and in accordance with the MOU previously discussed, the FDOT requests to initiate formal consultation pursuant to Section 7 of the Endangered Species Act, as amended. If you have any questions or require additional information, please contact me at 863.519.2375 or gwen.pipkin@dot.state.fl.us.

Sincerely,



for Gwen G. Pipkin
Environmental Manager
FDOT, District One

Catie Neal

From: Wrublik, John <john_wrublik@fws.gov>
Sent: Wednesday, August 30, 2017 8:32 AM
To: Mark Easley
Cc: Andrews, Steven; Cross, Vivianne
Subject: Re: SR 70 from Jefferson Avenue to CR 29 (FPID: 414506-1-22-01) - Species Specific Surveys

I have reviewed the survey plan and it looks good. I offer no further comments at this time.

John

John M. Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960
Office: (772) 469-4282
Fax: (772) 562-4288
email: John.Wrublik@fws.gov

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On Tue, Aug 29, 2017 at 8:04 AM, Mark Easley <Mark.Easley@kisingercampo.com> wrote:

John,

As you may recall, on May 26, 2017 we had a meeting at your office to discuss the SR 70 from Jefferson Avenue to CR 29 PD&E project in Highlands County and potential effects the project may have on federal listed species. The key species that may be affected by the project include the Florida scrub jay, crested caracara, sand skink/blue-tailed mole skink, and federal listed ridge plant species (approximately 20 potential species). We have developed the survey plan to be used to assess and quantify impacts to these species and wanted you to review and provide any input you may have on the plan before we start the implementation process. While your ETDM Planning Screen comments also identified the wood stork and Eastern indigo snake as species of concern, impacts to these species will be quantified based on wetland impacts (wood stork) and habitat impacts (indigo snake) and species specific surveys are not anticipated.

We would ask that you review the attached plan (see link) and provide us with any comments.

Please give Vivianne Cross a call at 863.519.2805 (vivianne.cross@dot.state.fl.us) or me a call at 813.871.5331 (mark.easley@kisingercampo.com)

Thanks for your help with this.

ME

Files attached to this message

Filename	Size	Checksum (SHA256)
17-08-25 SR 70 jefferson to cr 29 - protected species survey memo + attachments.pdf	46.7 MB	35a40af488e01a7650bb65c20943daaae9f97bf3008ec5dd404f7e538530631e

Please click on the following link to download the attachments:

<https://fta.kcaeng.com/message/RgExf9b8kd24nxB7ItddUC>

This email or download link can be forwarded to anyone.

The attachments are available until: **Thursday, 28 September.**

Message ID: RgExf9b8kd24nxB7ItddUC



Mark Easley
Senior Project Manager - Environmental Services

Email: Mark.Easley@kisingercampo.com
Work: 813.871.5331 ext 4144
201 N. Franklin St., Suite 400, Tampa, FL 33602

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To: John Wrublik, USFWS

From: Mark Easley, KCA

CC: Steven Andrews, FDOT
Vivianne Cross, FDOT

Date: August 25, 2017

RE: SR 70 FROM JEFFERSON AVENUE TO CR 29
FINANCIAL PROJECT NO.: 414506-1-22-01
FDOT CONTRACT: C9J73
ETDM PROJECT NUMBER 3054
PROTECTED SPECIES SURVEY PLAN

As we discussed during our meeting of May 26, 2017 at your office, the Florida Department of Transportation (FDOT) is conducting a Project Development and Environmental (PD&E) study to evaluate options for widening State Road 70 (SR 70) in Highlands County. A copy of the meeting notes from that meeting are provided in **Attachment A**. The study covers approximately 7.1 miles of SR 70 beginning west of Jefferson Avenue/Placid Lakes Boulevard and ending east of County Road 29 (CR 29). The study area and project limits are shown in **Figure 1**. The objective of the PD&E study is to evaluate widening the existing two-lane undivided roadway to a four-lane divided roadway.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project #3054. An ETDM *Programming Screen Summary Report* containing comments from the Environmental Technical Advisory Team (ETAT) was published on July 29, 2016. A copy of the USFWS comments submitted for this project is provided as **Attachment B**. Key project related concerns identified by the US Fish and Wildlife Service (Service) included potential impacts to the following federal listed species:

- Wood stork
- Florida scrub jay
- Sand skink
- Blue-tailed mole skink
- Audubon's crested caracara
- Eastern indigo snake
- Federal ridge plants

While additional concerns were identified as part of the Service ETAT review, the purpose of this memorandum is to identify methods to quantify the potential impact the proposed project may have on the **Florida scrub jay, sand skink/blue-tailed mole skink, Audubon's crested caracara and federal ridge plants**. As the habitat and land uses vary throughout the project corridor (see **Attachment C – Project Aerial Map**), the specific area to be studied and assessed for each of

these species or species groups varies. As such, discussions of the methodology to be used for each is discussed separately below.

Florida Scrub Jay

The Florida scrub jay is known to be present within both the Lake Wales Ridge Wildlife and Environmental Area and Archbold Biological Station. Both of these large conservation tracts are located within the project's western segment, west of US 27. In addition, small areas of potential scrub jay habitat are present within existing FDOT right-of-way located adjacent to Archbold Biological Station. While potential scrub habitat is present within the eastern project segment, east of US 27, much of this habitat has been impacted by residential development and conversion to citrus groves. However, those areas of residential development located to the north of SR 70, and a small area located to the south of SR 70, still contain areas of viable scrub jay habitat.

The graphic in **Attachment D** shows potential scrub jay habitat located within the project area. This map is based on the Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, Florida Statewide Scrub Jay Habitat map developed by Archbold Biological Station. Minor edits were made to the original map to include areas that contain scrub habitat and to exclude areas that have been developed after the original map was created.

With this scrub jay assessment, it is our intent to determine the presence or absence of scrub jays, and the boundaries of any scrub jay territories that extend into the project area. To accomplish this, all scrub habitat located within the footprint of the proposed project will be surveyed in accordance with the USFWS, *Scrub-Jay Survey Guidelines* (updated August 24, 2007) (see **Attachment E**). We will also extend our surveys outside of the project area, as needed, to verify the boundaries of scrub jay territories that extend into the project area. As agreed to during our May 26, 2017 meeting, scrub jay habitat that is located adjacent to existing FDOT right-of-way but will not be impacted by the proposed project, will not be surveyed. That is, if the proposed roadway widening will occur to the south of the existing roadway, and no construction activities will occur north of the existing maintained right-of-way, than scrub jay habitat located to the north of the existing right-of-way will not be surveyed.

Sand Skink / Blue-tailed Mole Skink

The majority of the proposed project is located on the Lake Wales Ridge, and as such, is at an elevation and contains the soil types that are indicative of skink habitat. The map contained within **Attachment F** shows those areas that meets both the elevation and soil type requirements for sand skink habitat identified within the USFWS - *Peninsular Florida, Species Conservation and Consultation Guide, Sand Skink and Blue-tailed (Bluetail) Mole Skink* (see **Attachment G**).

To determine those areas of the proposed project that contain skinks (i.e., occupied skink habitat), all potential skink habitat located within the proposed project boundaries will be surveyed in accordance with Appendix A – *Sand Skinks and Blue-tailed Mole Skinks, Survey Protocol*,

Peninsular Florida, of the above referenced document (see **Attachment G**). In addition, to quantify the impact to occupied skink habitat, guidance provided by Lourdes Mena of the USFWS will be utilized (see **Attachment H**). This guidance states that all skink habitat within a 188-foot radius of a positive skink identification (i.e., pedestrian survey or cover board) is considered occupied skink habitat.

Audubon's Crested Caracara

As stated within the USFWS – *Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season)* (see **Attachment I**), the crested caracara is typically found within dry or wet prairies with scattered cabbage palm, lightly wooded areas, and improved pasture. Much of the SR 70 project corridor contains land uses and land cover types that would not be considered caracara habitat. The majority of the corridor is comprised of residential development, citrus, and high quality oak scrub. However, areas located along both the western and eastern terminus of the project consist primarily of improved pasture with scattered wetlands and oak scrub, and row crops. These areas are shown on the figure found in **Attachment J**. To determine the presence or absence of nesting caracara, these areas will be surveyed in accordance with the above referenced protocol. This includes the establishment of survey stations which will allow review of all appropriate habitat within 1500 meters of the proposed roadway corridor.

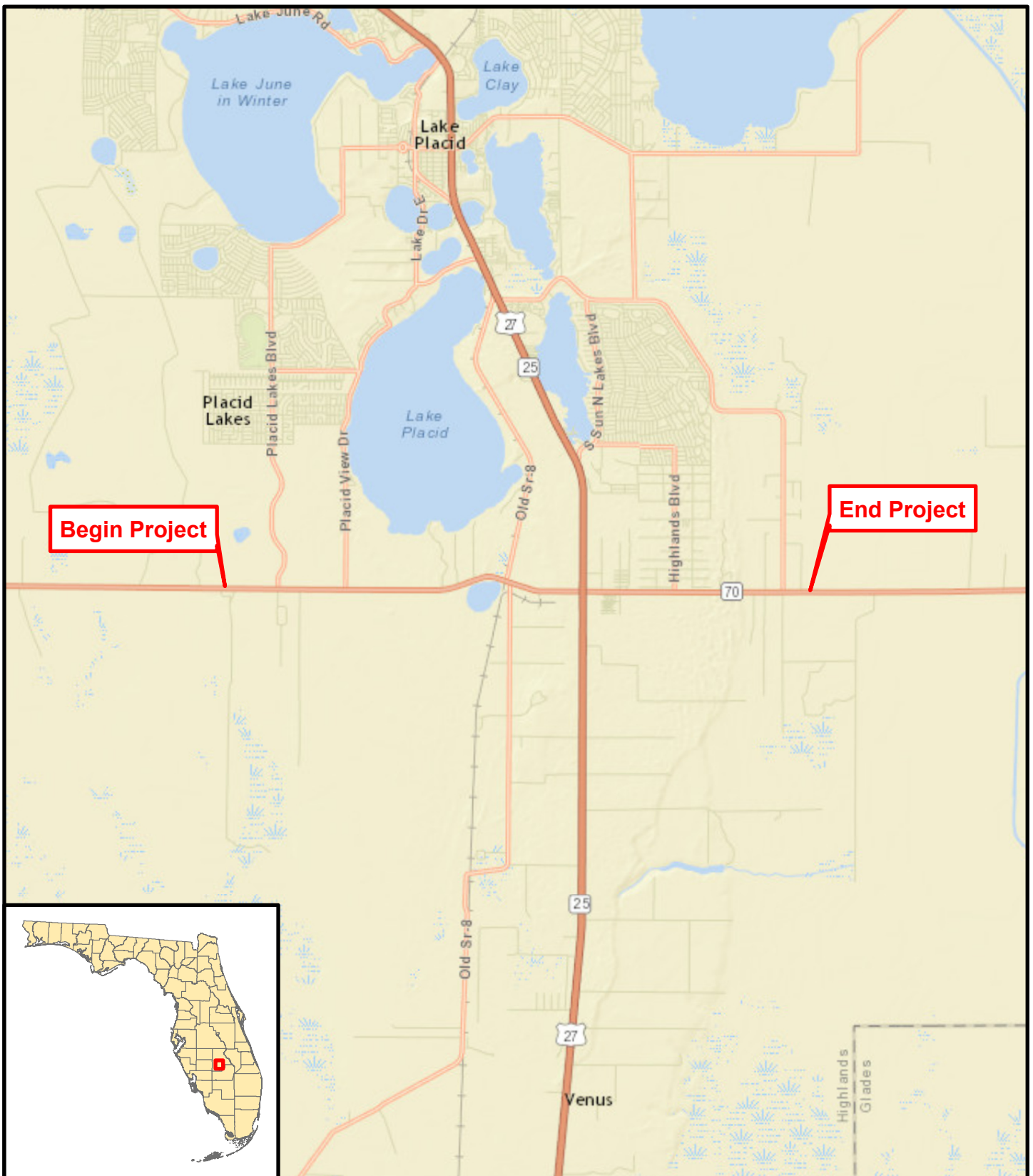
Federal Ridge Plants

Multiple federal listed plant species are found within the various habitats located on the Lake Wales Ridge. The majority of these species are associated with scrub habitats similar to those found within the project corridor. In order to determine the presence and abundance of federal listed plant species, all potential habitat located within the proposed project area will be surveyed. Specific target species for these surveys are listed within the *Endangered, Threatened, or Rare Species of the Lake Wales Ridge, Central Florida* (see **Attachment K**). and were verified through the USFWS - Information for Planning & Consultation (IPac) website. As identification of many of these species is dependent on seasonal characteristics, four surveys events will be conducted, for a total of four events. Surveys will be conducted along established transect through all appropriate habitat.

We would ask that you review the attached information, and if you agree with the planned survey methodologies discuss above, provide us with your concurrence.

If you have questions or would like to discuss this project or the information contained within this memorandum, please do not hesitate to contact me at 813.871.5331 or mark.easley@kisingercampo.com.

FIGURES

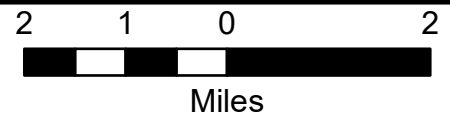


**Florida Department of Transportation
Highlands County**

SR 70 from Jefferson Avenue to CR 29
Project Development & Environment Study

FPID No. 414506-1-22-01

References:
Basemap: ESRI, 2015



Project Location Map

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

Figure 1

ATTACHMENTS

ATTACHMENT A
MAY 26, 2017 MEETING NOTES

MEETING NOTES
US Fish and Wildlife Service Meeting
SR 70 from Jefferson Avenue to CR 29
Project Development & Environment Study
Financial Project No.: 414506-1-22-01
FDOT Contract: C9J73
KCA Project No. 6201410.00 [File #411](#)

May 26, 2017 – 10:30 to 11:45 am

Attendees:

Steven Andrews – FDOT
Vivianne Cross – FDOT
Jonathon Bennett – FDOT

John Wrublik - USFWS
Mark Easley – KCA
Michael Campo - KCA

Mark Easley opened the meeting with introductions and an overview of the project location and limits.

He detailed the limits where right-of-way acquisition will be required to provide for the proposed improvements. He noted that there would be two typical sections proposed for the widening of the project; a suburban and a rural typical section. The primary difference between the two is the median of the suburban is ten feet less than the rural, and the suburban has an inside curb.

Mark then discussed the four project alternatives. He noted that the western project segment (Segment A) consisted of a rural typical section, the middle project segment (Segment B) consisted of a suburban typical section, and the eastern project segment (Segment C) utilized either a rural or suburban typical segment, based on the alternative. Michael Campo noted that SR 70 is a SIS facility and there is a high percentage of truck traffic. Mark explained that this is, in part, why the rural typical section is preferred where practical. Mark identified the alternatives as follows:

- Alternative 1
 - Western segment – rural typical to north
 - Central segment – suburban typical in existing R/W
 - Eastern segment – suburban typical to south
- Alternative 2
 - Western segment – rural typical to north
 - Central segment – suburban typical in existing R/W
 - Eastern segment – rural typical to south
- Alternative 3
 - Western segment – rural typical to south
 - Central segment – suburban typical in existing R/W
 - Eastern segment – suburban typical to south
- Alternative 4
 - Western segment – rural typical to south
 - Central segment – suburban typical in existing R/W
 - Eastern segment – rural typical to south

Mark stated that the western segment of the project widened either to the north or south because there was a Florida Gas Transmission (FGT) gas pipeline to the south of the existing right-of-way and the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) was located to the north and south of the existing right-of-way. It was determined that the widening of the roadway in both directions was not feasible. Mark stated that relocation of the FGT pipeline would cost more than \$21,000,000.00, which was more than the cost to construct this segment of the project. He noted that widening to the north would result in approximately 51 acres of impacts to the LWRWEA, while widening to the south would impact approximately 8 acres of the LWRWEA. John Wrublik stated that the USFWS would not expect FDOT to relocate the pipeline.

John asked if the FDOT would be compensating the Florida Fish and Wildlife Conservation Commission (FWC) for the loss of the lands in the LWRWEA. Mark stated that, based on FWC requirements, the FDOT would be required to mitigate for the loss of the land at a 1.5 to 1.0 ratio. He also stated that the FDOT would work with the FWC to identify lands to be used as mitigation. Additional mitigative actions that the FDOT had identified included:

- Wildlife Crossings – Mark identified conservation lands within the region and the wildlife corridors that has been created by these lands. He also identified the location of primary bear travel corridors based on existing telemetry data. Within the project area, there are two primary bear corridors across SR 70. Mark identified these on the project maps. John asked if the FDOT planned on constructing wildlife crossings at these two areas. Mark noted that the western location was buffered on both the north and south sides by the LWRWEA, while the eastern location was buffered by Archbold Biological Station on the south and by private lands consisting of bay swamp on the north. Mark also noted that the development credits from the private lands had been transferred and development in this area would not occur. As a result, crossings at these two locations would meet the FDOT wildlife crossing criteria.
- Fencing – John asked if fencing would be constructed as part of the wildlife crossings. Mark stated that it would be constructed along both the north and south sides of the crossings.
- Signage – Mark noted that both the FWC and Archbold Biological Station has requested the addition of dynamic wildlife and burn management signage with beacons along the project corridor. The purpose of this signage would be to warn drivers of wildlife crossing the road, and that burn management of the LWRWEA and/or Archbold Biological Station was being conducted.

Mark noted that Archbold Biological Station was listed in the National Register of Historic Places as a historic resource. He also stated that the proposed project would not impact the site and that the FDOT was maintaining existing access points into the station.

Mark then discuss federal protected species that had the potential to be impacted by the project. These species included:

- Sand Skink / Bluetail Mole Skink – Mark noted that there are significant soils along the corridor that support skinks. He also noted that they had been identified along the corridor during preliminary field reviews. Based on the soils along the project corridor, there is approximately 135 acres of potential skink habitat within the project corridor. All four alternatives have about the same amount (from 132 to 137 acres).
- Audubon's Crested Caracara – Mark stated that the caracara has been seen along the project corridor but potential nesting within the area is limited. Much of the lands along the corridor are in citrus, scrub, or developed. John stated that if there are no nesting habitat within the area then caracara surveys would not be needed.
- Florida Scrub Jay – Mark noted that scrub jays are present along the project corridor in both the LWRWEA and within the eastern segment of the project corridor. Mark stated that the scrub jays on the eastern end of the project were on the north side of the road and out of the construction area. John stated that, if they would not be impacted by construction then surveys would not be needed. Mark stated that they would conduct surveys in the area of any proposed stormwater ponds located on the north side of the road. Mark stated that Archbold Biological Station had been conducting

surveys on the scrub jay family units in the LWRWEA and they typically survey the areas every other year. The data shows the family units are stable and the territories are consistent. Mark asked if it would be possible to utilize the Archbold data vs. conducting additional surveys. John stated that if the data supported existing conditions, it could be used.

- Wood Stork – The project falls within the core foraging area (CFA) of one nesting colony. John stated that mitigation would be needed for foraging habitat loss.
- Indigo Snake – Mark stated that the project would meet the requirements of the US Army Corps of Engineers Key; there will be more than 25 gopher tortoise burrows along the corridor. John stated that the USFWS has not identified any habitat replacement requirements for the indigo snake but FDOT could use the habitat replacement for the LWRWEA to offset impacts to indigo snake habitat. Mark also stated that the FWC had requested that the gopher tortoises be relocated to the LWRWEA and not a mitigation bank.
- Ridge Plants – Mark noted that Archbold has been surveying plants within the LWRWEA and would provide their information. In addition, surveys for plants will be undertaken. This would require seasonal surveys during the flowering times of the plants (four events). If it is determined that species specific surveys will be undertaken during the PD&E study, these plant surveys will need to begin in approximately two months. Mark stated that any plants identified within the project area could be relocated to the LWRWEA and/or Bok Tower Gardens. John asked if native plants could be planted along the project border areas vs. grass. Mark stated that this is something that FDOT District 5 is doing along the SR 40 corridor in Marion County and it may be possible to collect seed and topsoil during construction and spread it after construction is completed.

Mark asked when species specific surveys should be done for the project and John stated that the surveys and species impact assessments would need to be completed before he could issue the project Biological Opinion.

The project schedule was then discussed. Mark stated that the Alternatives Public Workshop was held on March 28, 2017. If species specific surveys were to be conducted as part of the PD&E study, they would need to begin in a couple of months (plants). The project public hearing was anticipated to be conducted in early 2019.

The meeting ended approximately 11:45 am.

Attachments:

Meeting Agenda

Project Typical Sections

Sign-In Sheet

AGENDA
SR 70 FROM JEFFERSON AVENUE TO CR 29
HIGHLANDS COUNTY
PROJECT DEVELOPMENT & ENVIRONMENT STUDY
FINANCIAL PROJECT NO.: 414506-1-22-01
FDOT CONTRACT: C9J73
KCA PROJECT NO. 6201410.00

U.S. FISH AND WILDLIFE SERVICE MEETING
MAY 26, 2017 AT 10:30 AM

1. Introductions

2. Discussion Item

a. Project Alternative Alignment

- i. Two typical sections
 - 1. Suburban
 - 2. Rural
- ii. Four alternatives carried forward
 - 1. Alternative 1
 - a. Western segment – rural typical to north
 - b. Central segment – suburban typical in existing R/W
 - c. Eastern segment – suburban typical to south
 - 2. Alternative 2
 - a. Western segment – rural typical to north
 - b. Central segment – suburban typical in existing R/W
 - c. Eastern segment – rural typical to south
 - 3. Alternative 3
 - a. Western segment – rural typical to south
 - b. Central segment – suburban typical in existing R/W
 - c. Eastern segment – suburban typical to south

4. Alternative 4

- a. Western segment – rural typical to south
- b. Central segment – suburban typical in existing R/W
- c. Eastern segment – rural typical to south

b. FGT Gas Line

- i. How to address relocation for Alternatives 3 and 4?
- ii. Agreement states FGT does first analysis of relocation
- iii. Anticipated relocation costs \$21,000,000.00.

c. Lake Wales Ridge Wildlife and Environmental Area

- i. Anticipated impacts
 - 1. Alternatives 1 & 2 – approximately 51 acres
 - 2. Alternatives 3 & 4 – approximately 8 acres
- ii. Alternative mitigative actions
 - 1. Direct payment
 - 2. Acquisition of additional lands (replacement)
 - 3. Alternative mitigation – wildlife crossings, fencing, signage, etc.

d. Historic Resources

- i. Archbold Biological Station
 - 1. No impacts anticipated

3. Potential Species Impacts

a. Federal Species

- i. Sand Skink / Bluetail Mole Skink
 - 1. Identified within corridor
 - 2. Potential impacts
 - a. Alternative 1 = 135 acres

- b. Alternative 2 = 137 acres
 - c. Alternative 3 = 132 acres
 - d. Alternative 4 = 133 acres
- ii. Audubon's Crested Caracara
- iii. Florida Scrub Jay
 - 1. Identified within corridor
- iv. Wood Stork
 - 1. Within CFA of one nesting colony
- v. Indigo Snake (ACE Key)
 - 1. USACE key - > 25 gopher tortoise burrows
- vi. Ridge Plants

b. Available Data

- i. Protected species survey data (Archbold)
- ii. Land management data (Archbold/LWRWEA)

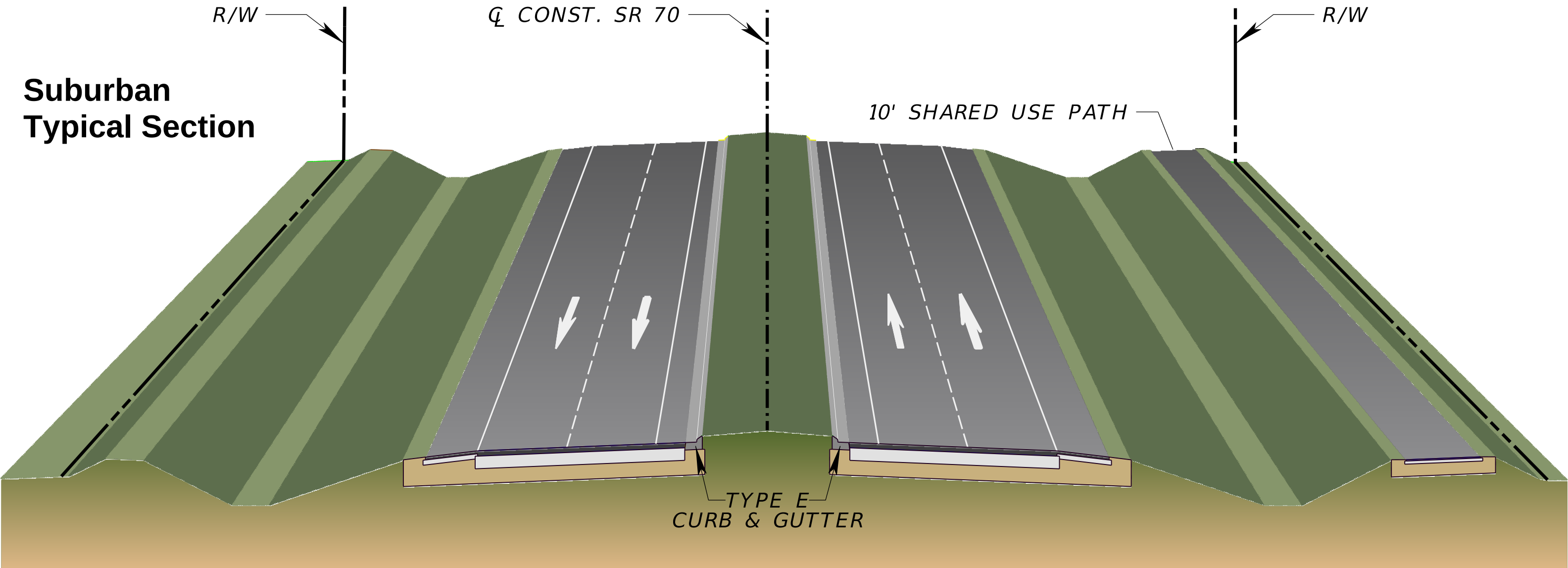
4. Schedule

- a. Public workshop – March 28, 2017
- b. Species specific surveys (if needed) – starting summer-2017
- c. Public hearing – early 2019

5. Open Discussion

6. Action Items

Suburban Typical Section



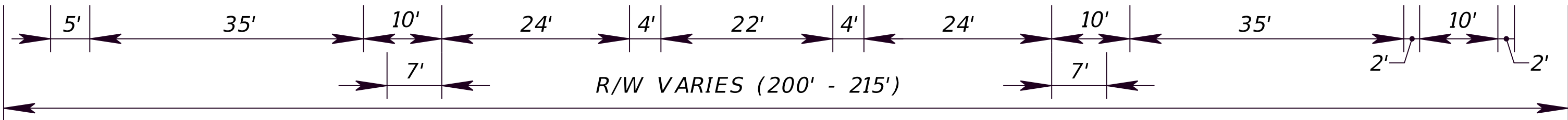
Q CONST. SR 70

R/W

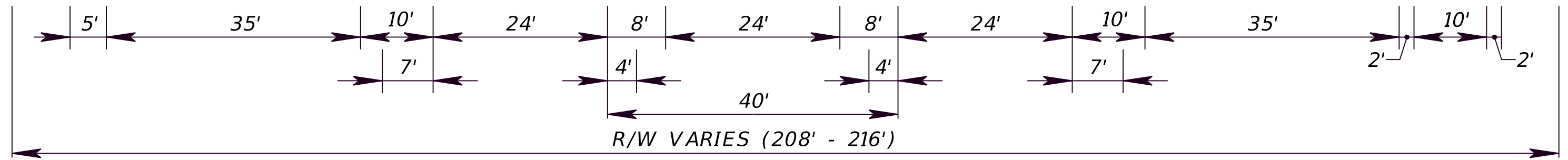
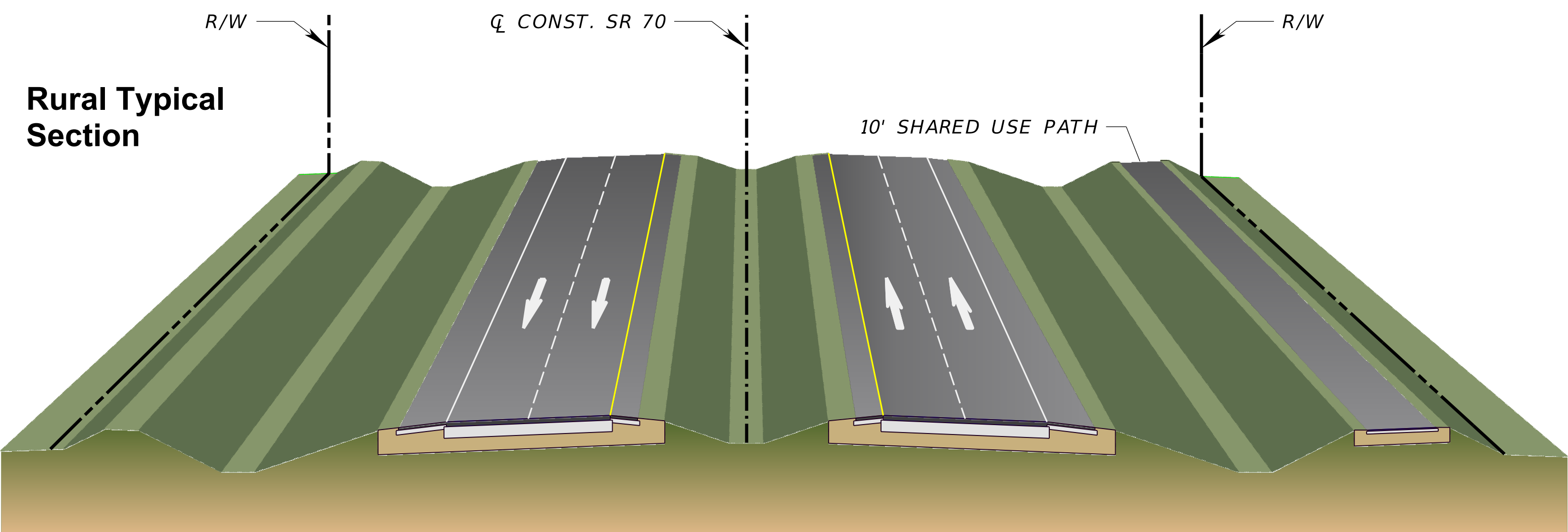
10' SHARED USE PATH

TYPE E
CURB & GUTTER

R/W VARIES (200' - 215')



Rural Typical Section



SR 70 from Jefferson Avenue to CR 29
KCA File 6201410.00 File #411

US Fish and Wildlife Service Meeting
May 25, 2017

[illegible]

ATTACHMENT B
USFWS ETDM COMMENTS

USFWS COMMENTS
SR 70 Widening 2-4 Lanes
ETDM Project #3054
Programming Screen - July 29, 2016

4 US Fish and Wildlife Service (04/10/2015)

Wildlife and Habitat Degree of Effect: Substantial

Reviewed By: John Wrublik

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

Federally-listed species and fish and wildlife resources

Comments on Effects to Resources:

Federally-listed species -

The Service has reviewed our Geographic Information Systems (GIS) database for recorded locations of Federally listed threatened and endangered species on or adjacent to the project study area. The GIS database is a compilation of data received from several sources. Based on review of our GIS database, the Service notes that the following Federally listed species may occur in or near the project area.

Wood Stork

The project corridor is located in the Core Foraging Areas (CFA)(within 18.6 miles) of an active nesting colony of the endangered wood stork (*Mycteria americana*). The Service believes that the loss of wetlands within a CFA due to an action could result in the loss of foraging habitat for the wood stork. To minimize adverse effects to the wood stork, we recommend that any lost foraging habitat resulting from the project be replaced within the CFA of the affected nesting colony. Moreover, wetlands provided as mitigation should adequately replace the wetland functions lost as a result of the action. The Service does not consider the preservation of wetlands, by itself, as adequate compensation for impacts to wood stork foraging habitat, because the habitat lost is not replaced. Accordingly, any wetland mitigation plan proposed should include a restoration, enhancement, or creation component. In some cases, the Service accepts wetlands compensation located outside the CFA of the affected wood stork nesting colony. Specifically, wetland credits purchased from a "Service Approved" mitigation bank located outside of the CFA would be acceptable to the Service, provided that the impacted wetlands occur within the permitted service area of the bank.

For projects that impact 5 or more acres of wood stork foraging habitat, the Service requires a functional assessment be conducted using our "Wood Stork Foraging Analysis Methodology" (Methodology) on the foraging habitat to be impacted and the foraging habitat provided as mitigation. The Methodology can found on our website at: http://www.fws.gov/verobeach/BirdsPDFs/20120712_WOST_Forage_Assessment_Methodology_Appendix.pdf .

Florida Scrub-Jay

The project occurs within the geographic range of the threatened Florida Scrub-Jay (*Aphelocoma coerulescens*). If suitable habitat occurs in the project corridor, we recommend that surveys based on Service protocol be conducted to determine the status of the Florida scrub-jay in the project area. The Service's Florida scrub-jay survey protocol can be found at:

<http://www.fws.gov/verobeach/BirdsPDFs/FSJConservationGuidelinesALLINCLUSIVE1.pdf>

Sand skink and blue-tailed mole skink

The project occurs within the geographic range of the threatened sand skink (*Plestiodon reynoldsi* = *Neoseps reynoldsi*) and blue-tailed mole skink (*Plestiodon egregius lividus* = *Eumeces egregius lividus*). The Service has records of these species occurring in the project area. If suitable habitat occurs in the project corridor, we recommend that surveys based on Service protocol be conducted to determine the status of the sand skink and the blue-tailed mole skink in the project area. For additional information, please review the Service's Species Conservation and Consultation Guide for the Sand Skink and the Blue-Tailed Mole Skink found at:

http://www.fws.gov/verobeach/ReptilesPDFs/20120206_Skink_CCG_Final.pdf

Audubon's crested caracara

The project occurs within the geographic range of the threatened Audubon's crested caracara (*Polyborus cheriway* = *Polyborus plancus audubonii*). If suitable habitat occurs in or near the project corridor, we recommend that nest surveys based on Service protocol be conducted to determine the status of caracara nesting in the project area. The Service's caracara nest survey guidance can be found at:

<http://www.fws.gov/verobeach/ListedSpeciesBirds.html>

The Service believes that the following federally listed species have the potential to occur in or near the project site: wood stork, Florida scrub-jay, sand skink, blue-tailed mole skink, Audubon's crested caracara, Eastern indigo snake (*Drymarchon corais couperi*), and Federally listed plants in Highlands County at <http://ecos.fws.gov/ipac/>. Accordingly, the Service recommends that the Florida Department of Transportation (FDOT) prepare a Biological Assessment for the project (as required by 50 CFR 402.12) during the FDOT's Project Development and Environment process.

Fish and Wildlife Resources

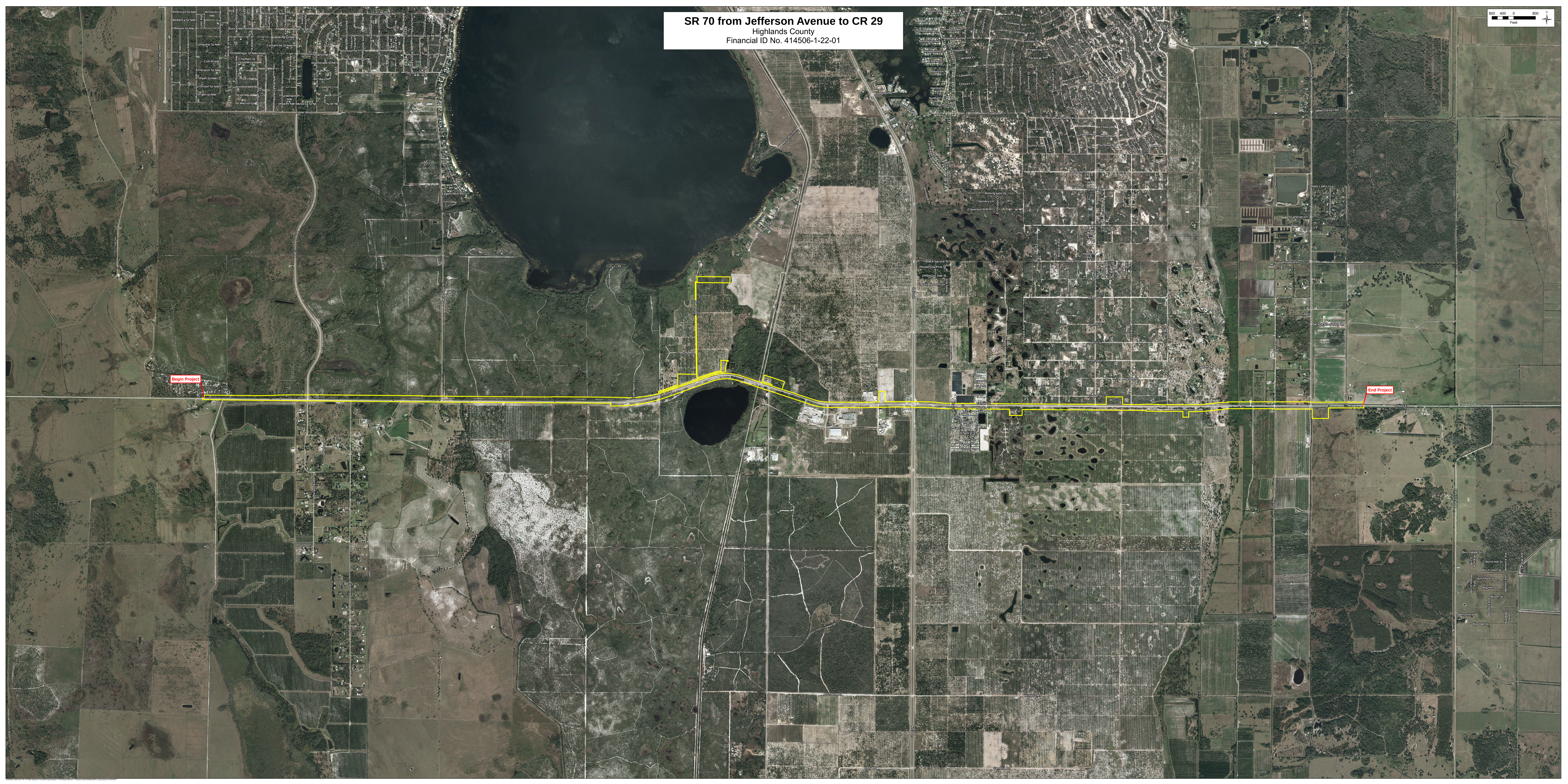
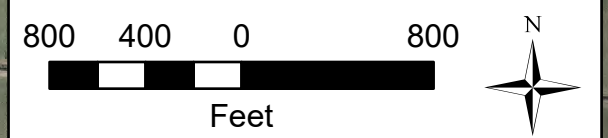
The project appears to be located within conservation lands located in the State of Florida's Lake Wale Ridge Wildlife and Environmental Area (LWRWEA), and the privately owned Archbold Biological Station (ABS). These lands provide valuable habitat for a diverse assemblage of fish and wildlife. If this is the case, we recommend that the project be designed to minimize the impacts to these lands to the greatest extent practicable. If development of lands within these conservation areas is unavoidable, we urge the FDOT to compensate for the loss of conservation lands, preferably by acquiring currently unprotected lands to add to these areas.

Information provided by the environmental screening tool indicate that eight road kills of the State listed Florida Black Bear (*Ursus americanus floridanus*) have been reported in the project area. To provide safe passage for black bears and other wildlife, we recommend that the FDOT consider installing a wildlife crossing and barrier fencing in association with the project west of U.S. Highway 27. There appears to be protected conservation lands located on both sides of the road in this area. Such a crossing would also promote human safety because the potential for collisions among wildlife and motor vehicles would be reduced.

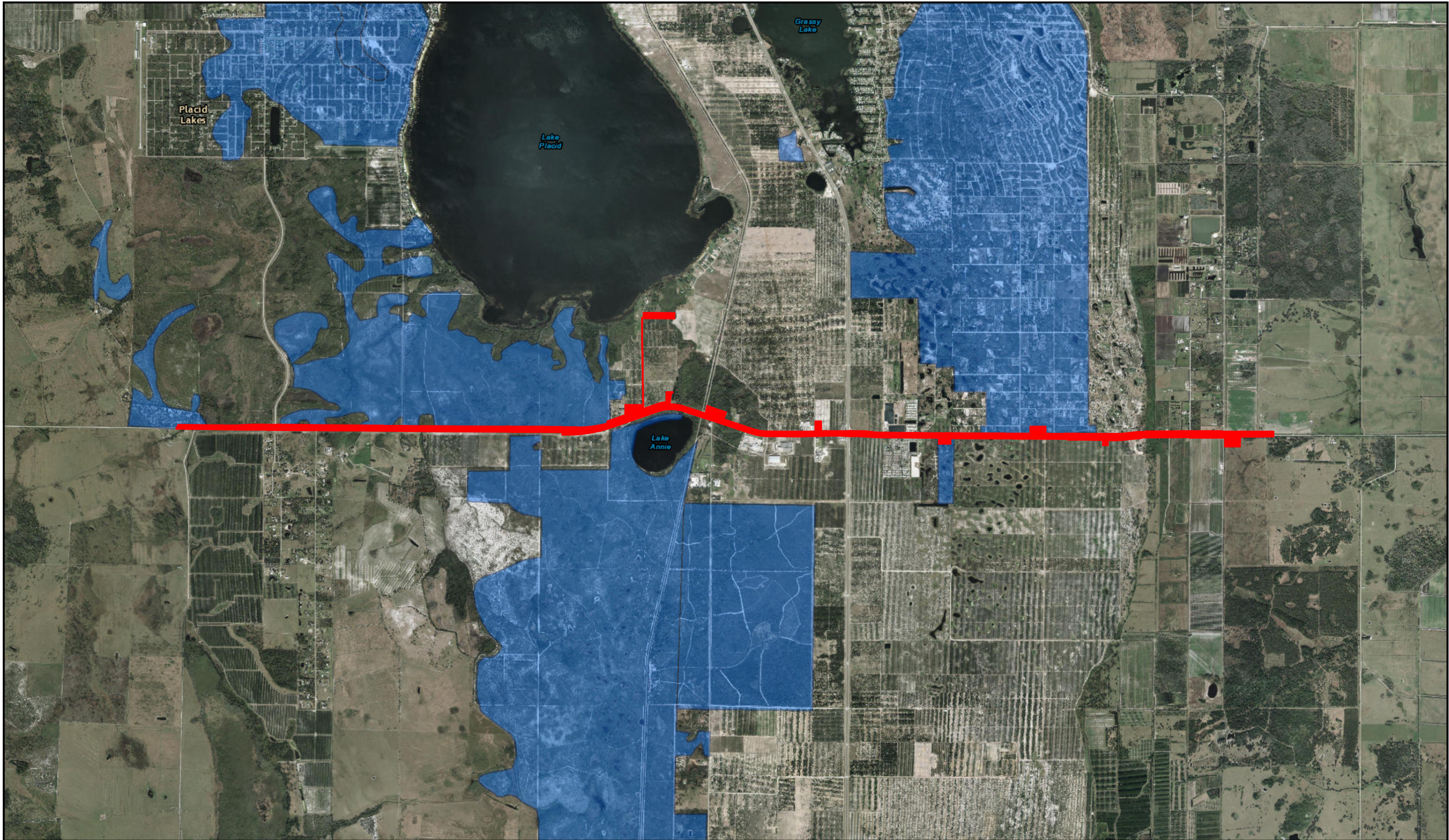
Wetlands provide important habitat for fish and wildlife. According to the data provided in the Environmental Screening Tool, wetlands may occur in or near the project site. However, this information has not yet been verified by field inspections. In the event that wetlands are found to occur in the project area, we recommend that the project be designed to avoid these valuable resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.

ATTACHMENT C
PROJECT AERIAL MAP

SR 70 from Jefferson Avenue to CR 29
Highlands County
Financial ID No. 414506-1-22-01



ATTACHMENT D
FLORIDA SCRUB JAY HABITAT MAP



Legend

SR70 Alternative 2 ROW

Florida Scrub Jay Habitat

Source: FWC 1992-93, modified

Florida Scrub Jay Habitat Map

SR 70 from East of Jefferson Avenue
to East of CR 29

FPID: 414506 1 22 01



3,500 1,750 0 3,500

Feet

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

ATTACHMENT E
USFWS SCRUB-JAY SURVEY GUIDELINES

Scrub-Jay Survey Guidelines

(Updated 08/24/2007)

Adapted from: J.W. Fitzpatrick, G.E. Woolfenden and M.T. Kopeny. 1991. *Ecology and development-related habitat requirements of the Florida scrub-jay (Aphelocoma coerulescens)*. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 8. Tallahassee, FL. 49pp.

The most effective method for surveying a site for Florida scrub-jays is to traverse the area systematically, using a high quality tape recording of Florida scrub-jay territorial scolding in an attempt to attract the jays. The recording should include clear examples of all typical territorial scolds, including the female "hiccup" call. Vocalizations are available by contacting:

Macaulay Library
Cornell Lab of Ornithology
159 Sapsucker Rd.
Ithaca, NY 14850
Email: macaulaylibrary@cornell.edu
<http://birds.cornell.edu>

Map plant communities either on a 7.5 foot U.S. Geological Survey (USGS) topographic map or an aerial photograph at a scale of no more than 400 feet per inch. The vegetation map must show all forms of existing development. On the vegetation map, establish parallel line transects with playback stations along each transect. Space the transects and playback stations so that all different scrub types will be sampled for jays (i.e., so that the taped calls will be effectively broadcast across areas of concern). These scrub types should include not only the more "classic" xeric oak scrub, scrubby pine flatwoods, scrubby coastal strand, and sand pine scrub, but should also include:

- pine-mesic oak
- xeric oak
- sand live oak
- improved, unimproved, and woodland pastures;
- citrus groves;
- rangeland;
- pine flat woods;
- longleaf pine xeric oak;
- sand pine;
- sand pine plantations;
- forest regeneration areas;
- sand other than beaches;
- disturbed rural land in transition without positive indicators of intended activity; and disturbed burned areas.

The presence of scrub oaks, no matter how sparsely distributed, is the key indicator of "scrub" habitat.

Distances between transects, and between stations along transects, depend on many factors, including power of the speaker used for broadcasting the calls, topography of the site, and the density of the surrounding vegetation. Adequate spacing between transects can be estimated roughly as the distance at which a person listening to the tape directly in front of the speaker perceives the "bird" to be no more than about 100 meters away. A distance of 100 to 200 meters between transects and between stations is generally adequate when using a good-quality, hand-held cassette player broadcasting at full volume.

Surveys should be carried out on calm, clear days about one hour after sunrise, and should terminate before midday heat or wind. Surveys should not be conducted in winds stronger than a moderate breeze (5-8 mph), in mist or fog, or in precipitation exceeding a light, intermittent drizzle. Heat and especially wind lowers the tendency for jays to respond to distant territorial scolds, and wind reduces the distance over which recordings can be heard. Jays are also reluctant to fly on windy days regardless of hour or season. Surveys also should NOT be conducted if accipiters or other scrub-jay predators are present in the area; in the event this is the case, the surveyor should either wait until the predator is gone or come back on another day.

Surveys may be conducted anytime between March 1 through October 31. However, Ideal survey periods include: 1) spring (especially March), 2) fall (September and October), when territorial displays are most frequent and vigorous, and 3) midsummer (July) when young of the year are independent but still distinguishable by plumage. The poorest times of the year to survey are late winter, when jays are most likely to fly far for food, and late spring when the young are quiet and the adults are occupied with molt and feeding fledglings.

Transects may be driven or walked. If driven, step out or stand atop the vehicle at each playback station. Broadcast the calls at each station for at least 1 minute in all four directions around the playback station, emphasizing any direction in which low-growing oak scrub is the predominant vegetation. On the vegetation map, plot the locations and indicate group size of all Florida scrub-jays where they are first seen or heard. Distinguish adult-plumaged jays from juvenile-plumaged jays whenever possible.

At localities with car trails, large areas of scrub can be surveyed with a vehicle in one day. On foot, the process is more laborious because of the relatively large size of territories (often 10 to 40 acres). Once a group is located, stop broadcasting at that station. Remaining at this station briefly should result in the assembly of the entire group. This allows one to estimate group size and, if done during the midsummer, to distinguish young of the year from adults.

Sometimes two or more groups will be attracted to one station, usually from different directions. Observers should be careful, therefore, to plot each group where it was first spotted or heard, not at the site to which the jays were attracted. In rare circumstances, especially at sites where numerous groups congregate at artificial food or water sources, it may be difficult to differentiate groups. This is especially true where jays have become habituated and tame to human approach. Again, in such cases careful observation is extremely important. Studies of such congregations using color-marked jays have confirmed that almost always they consist of members of different family groups. Often they may have crossed several territory boundaries to reach the neutral feeding or drinking areas. The result gives a false impression of extremely high jay density.

It is essential that the subject area be surveyed as often as necessary (for a minimum of 5 days) to establish an accurate count of jay groups and territorial boundaries. If more than 8 to 10 jays are encountered at a single playback station during a fall or spring survey period, the jays at this site should be monitored carefully over several visits and different times of day. Numbers will shift as groups arrive and depart. Often it is possible to watch where the jays come from or return to as a means of determining how many groups are represented. For determining territorial boundaries, it is essential that the surveyor be familiar with different types of behavior exhibited by scrub-jays. Territorial boundaries may be most accurately predicted through a combination of observing scrub-jays and listening for territorial behavior (in the case where several families of scrub-jays exist in contiguous habitat) or by including habitat suitable for occupation by scrub-jays within a territorial boundary (in the case where a family of scrub-jays is somewhat isolated from other groups). If a question exists as to how many groups of scrub-jays are onsite, or where to draw territorial boundaries, it is strongly recommended that the U.S. Fish and Wildlife Service receive permission from the land owner to conduct an independent survey onsite.

The key end products of this procedure are: (1) a complete count of all jay groups onsite and (2) an approximate territory map or home range center for each group. Provide the U.S. Fish and Wildlife Service with a final report that includes the following, as applicable:

- A. An information sheet including:
 - Dates and starting and ending times of all surveys conducted.
 - Weather conditions during all surveys, including average temperature, wind speed and direction, visibility, and precipitation.
 - Total number of jay groups found, number of jays in each group and number of juvenile-plumaged jays in each of these groups.
- B. An aerial photograph or vegetation map depicting:
 - The entire area of interest.
 - Transect lines and playback stations.
 - Locations of all jays seen or heard while conducting the survey or at any other time, including flight direction.
 - Approximate suspected territory boundaries between jay groups or suspected home range centers for each group.

Mail Scrub-jay survey reports to:

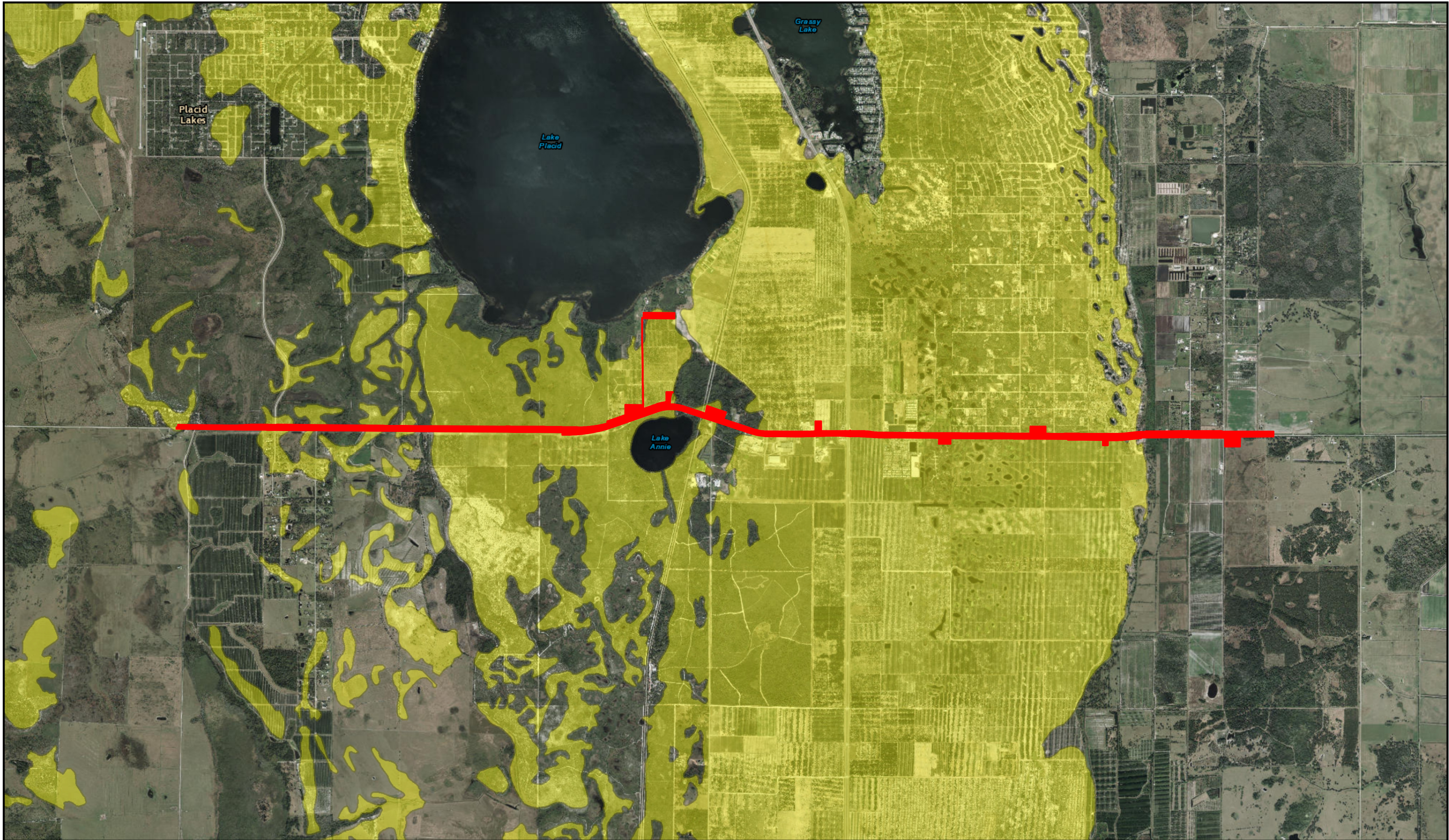
North Florida Counties

Scrub-Jay Survey
U.S. Fish and Wildlife Service
7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517

South Florida Counties

Scrub-Jay Survey
U.S. Fish and Wildlife Service
1339 20th St.
Vero Beach, FL 32960-3559

ATTACHMENT F
SAND SKINK HABITAT MAP



Legend  SR70 Alternative 2 ROW  Sand Skink Critical Habitat	Sand Skink Habitat Map SR 70 from East of Jefferson Avenue to East of CR 29 FPID: 414506 1 22 01	3,500 1,750 0 3,500 Feet Kisinger Campo & Associates, Corp. 201 N. Franklin Street, Suite 400 Tampa, FL 33602 Phone: 813/871-5331 Fax: 813/871-5135
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ATTACHMENT G
USFWS SAND SKINKS & BLUE-TAILED
MOLE SKINKS SURVEY PROTOCOL

Peninsular Florida Species Conservation and Consultation Guide

Sand Skink and Blue-tailed (Bluetail) Mole Skink

This guide for sand skink (*Neoseps reynoldsi*) and blue-tailed mole skink (*Eumeces egregius lividus*) conservation and Endangered Species Act (ESA) consultation is intended to assist project proponents to determine if or how a proposed action may affect sand skinks or blue-tailed mole skinks.

The sand skink and blue-tailed mole skink are listed as threatened pursuant to the ESA. The ESA prohibits the unauthorized “take”^a of threatened and endangered species. Individuals and entities intending to conduct projects that may affect listed species may lawfully incidentally take those species after consulting with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 or 10 of the ESA. When a project is conducted, funded, or authorized by a Federal agency, listed species consultation occurs through section 7 of the ESA. When there is no Federal nexus (*e.g.*, Federal authorization or funding), a non-Federal entity who wishes to conduct an activity may legally “take” listed species after obtaining an Incidental Take^b Permit (ITP) from the Service in accordance with section 10 of the ESA.

In this guide, we first summarize sand skink and blue-tailed mole skink status, life history, distribution, habitat, and threats. Then we discuss the consultation steps, including: assessing the effects of the proposed action, making effect determinations, and incorporating conservation measures into proposed actions to maximize beneficial effects and to avoid or minimize negative effects to listed skinks and their habitat. Appendix A provides a recommended skink survey protocol and Appendix B provides a variety of possible Conservation Measures, including conservation, compensation, and mitigation guidance. The current guide will be updated as new information becomes available and will be posted on the Service’s South Florida website at <http://www.fws.gov/verobeach/>.

For more information on sand skink and blue-tailed mole skink biology, habitat needs, threats, taxonomy, and recovery criteria and goals, see the Bluetail Mole Skink and Sand Skink 5-Year Status Review (Service 2007) and the South Florida Multi-Species Recovery Plan (Service 1999). Published literature as well as unpublished reports, information, and data referenced in the skink conservation and consultation guide are available at the Service’s South Florida

^a “Take” is defined as harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. The term “harm” includes any act which actually kills or injures fish or wildlife, and emphasizes that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish and wildlife. The term “harass” is defined as any act that creates the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include but may not be limited to breeding, feeding, or sheltering.

^b “Incidental Take” is defined as take that results from, but is not the purpose of, carrying out an otherwise lawful activity.

Ecological Services Office (SFESO) in Vero Beach, Florida (by phone at 772-562-3909 or by mail at 1339 20th Street, Vero Beach, Florida 32960-3559).

Status

The Service listed the sand skink and the blue-tailed mole skink as threatened under the ESA in 1987 primarily due to modification and destruction of xeric upland communities in central Florida. Habitat loss, habitat fragmentation, and changes in land use still threaten sand skinks and blue-tailed mole skinks. In addition, lack of habitat management, competition from non-native and invasive plant species, and loss of genetic diversity threaten sand skink and blue-tailed mole skink existence (Service 1999; 2007).

Life History

Little is known about sand skink and blue-tailed mole skink population or reproduction ecology. Both sand skinks and blue-tailed mole skinks are difficult to detect and study due to their small size and semi-fossorial to fossorial habits. Sand skinks and blue-tailed mole skinks generally partition rather than compete with one another for resources. Sand skinks are primarily fossorial; they move or “swim” below the surface of the ground in sandy soils and take prey below the surface. Blue-tailed mole skinks are semi-fossorial; they hunt at the soil surface and consume mostly terrestrial arthropods (Smith 1977).

No data are available on sand skink or blue-tailed mole skink home ranges, or blue-tailed mole skink dispersal. Information on sand skink dispersal and movement patterns is limited. Sand skinks can move more than 3,280 feet (ft) (1 kilometer [km]) at appropriate elevations where suitable soils are contiguous and there are no natural or manmade barriers to movement (Mushinsky et al. 2011a).

Sand skink studies in the early 2000s documented dispersal distances of more than 460 ft (140 meters [m]) (Mushinsky et al. 2001, Penney 2001, Penney et al. 2001) to more than 780 ft (240 m) (Penney 2001). Evidence suggested smaller sand skinks might move greater distances than larger individuals. Researchers believed these documented sand skink dispersal distances likely underestimated dispersal capability. More recent studies documented the longest sand skink movement at 26,250 ft (8 km) and an average movement of 5,250 ft (1.6 km) in naturally fragmented scrubby flatwoods at the Archbold Biological Station (Mushinsky et al. 2011a).

Sand skink dispersal distances documented in field studies are supported by sand skink genetic research. Genetic relatedness of sand skinks was similar between individuals captured as far as 3,280 to 6,560 ft (1 to 2 km) from one another (Schrey et al. 2010). Sand skink genetic relatedness tended to decline beyond the 1 km distance, although it appeared to be influenced by the time since fire (Schrey et al. 2010, Mushinsky et al. 2011b). Fires that occur too frequently could negatively decrease sand skink genetic diversity. Although dispersal data is not available for blue-tailed mole skinks, research suggests that they likely disperse shorter distances than sand skinks (Schrey et al. in press).

Distribution

Reptile research and incidental observations to date indicate blue-tailed mole skinks typically occur with sand skinks. Only sand skinks leave visible signs, or tracks, on sandy soil surfaces. Therefore, sand skink occurrence is used as an indicator of blue-tailed mole skink occurrence where the two species overlap in distribution. Blue-tailed mole skink genetic studies indicate that conservation actions for sand skinks will also likely benefit blue-tailed mole skinks (Schrey et al. in press).

Both sand skinks and blue-tailed mole skinks are endemic to, which means they occur only on, the sandy ridges of central Florida. Skink distribution is defined by three factors: county, elevation, and soil types. Primary populations of sand skinks occur on the Lake Wales, Winter Haven, and Mt. Dora Ridges in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam Counties. Blue-tailed mole skinks seem to be restricted to the Lake Wales Ridge in Highlands, Polk, and Osceola Counties.

Skinks are generally found at elevations 82 ft above sea level and higher (Florida Natural Areas Inventory 2007). Recent skink occurrences documented at 70 ft above sea level indicate skinks occur at lower elevations where suitable soil conditions for skinks continue down slope (Service unpubl. data).

Skinks occur in excessively drained, well-drained, and moderately well-drained sandy soils that include the Apopka, Arredondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber soil series, referred to as “skink soils” in this guide. Soil series maps are available online (<http://soildatamart.nrcs.usda.gov/>) and through county extension offices.

Habitat

Skink habitat identified in this guide includes skink soils at and above 82 ft above sea level. Skink searches or surveys following a standardized protocol (Appendix A) should be conducted in all skink soils above 82 ft elevation to determine skink occupancy before project-related soil or vegetation disturbance. Additional skink surveys, monitoring, and observations will likely improve knowledge of skink occurrence and distribution, as well as understanding of skink habitat use.

Skink soils typically support scrub, sandhill, or xeric hammock natural ecological communities, such as oak-dominated scrub, turkey oak (*Quercus laevis*) barrens, high pine, and xeric hammocks. Typical upland habitat for both sand skinks and blue-tailed mole skinks consists of sand pine (*Pinus clausa*)-rosemary (*Ceratiola ericoides*) scrub or longleaf pine (*Pinus palustris*)-turkey oak association. Sand skinks have also been documented in skink soils where natural vegetative cover has been altered for human uses such as pine plantations, active or inactive citrus groves, pastures, and residential developments, as well as neglected vegetative cover like old fields and overgrown scrub (Pike et al. 2008). Blue-tailed mole skinks occur in habitat

similar to that used by sand skinks. Habitat condition or vegetative cover alone cannot be used to exclude areas that might be used by sand skinks or blue-tailed mole skinks.

Both sand skinks and blue-tailed mole skinks typically occur in areas that contain a mosaic of open sandy patches interspersed with forbs, shrubs, and trees. Sand skink tracks are usually observed in open sandy areas, yet both skink species use a variety of micro-habitats within xeric vegetative communities. Sand skink tracks appear most abundant in the ecotone, or edges, between areas with abundant leaf litter and vegetative cover and adjacent open sands. Blue-tailed mole skinks are typically found under leaf litter, logs, palmetto fronds, and other ground debris (Christman 1992).

Specific physical structures of habitat that sustain sand skink populations, and likely blue-tailed mole skink populations as well, include a well-defined leaf litter layer on the ground surface and shade from either a tree canopy or a shrub layer, but not both. Leaf litter likely provides important skink foraging opportunities. Shade provided by a tree canopy or a shrub layer likely helps skinks regulate body temperature to prevent overheating. However, having both a tree canopy and a shrub layer appears to be detrimental to skinks (McCoy 2011, University of South Florida, pers. comm.).

Either natural fires started by lightning or prescribed burns are necessary to maintain habitat in natural scrub ecosystems. However, if fire occurs too frequently, leaf litter might not build up sufficiently to support skink populations. At Archbold Biological Station, sand skinks appear to be most abundant after 10 years of leaf litter development. The ideal fire frequency to maintain optimal leaf litter development for skinks likely varies by site and other environmental conditions (Mushinsky 2011, University of South Florida, pers. comm.).

Threats

Habitat loss, fragmentation, and changes in land use continue to threaten sand skinks and blue-tailed mole skinks. Development and agricultural conversion have resulted in the loss of approximately 85 percent of the scrub and sandhill habitats on the Lake Wales Ridge (Turner et al. 2006). Habitat degradation and fragmentation also continue to affect populations, even on protected lands. Active management is necessary to maintain suitable habitat for skinks. Much of the remaining habitat occurs in small, isolated patches surrounded by residential areas or citrus groves, making the suitable habitat patches and connections between patches difficult to protect and manage. Many habitat patches are overgrown and in need of restoration, but vegetation restoration and management programs are costly and depend upon availability of funding. Privately-owned sites remain at risk of being developed, and destruction or habitat modification due to improper or lack of management remains a concern. Conversion of rural lands to urban use in central Florida where skinks occur is projected to continue over the next 50 years. In addition, fire suppression, improper stand management, competition from invasive plant species, and loss of genetic diversity continue to threaten the existence of the sand skink and blue-tailed mole skink.

Critical Habitat

Critical habitat has not been designated for either sand skinks or blue-tailed mole skinks.

Consultation Area

The Service delineated a consultation area (Figure 1) to assist project proponents to determine if a proposed action might affect sand skinks or blue-tailed mole skinks. The consultation area is intended to guide project proponents of both Federal and non-Federal actions. The consultation area includes: (1) known sand skink and blue-tailed mole skink locations, (2) skink soils at appropriate elevations defined as skink habitat, and (3) natural and developed ecosystems that are known to support sand skinks or blue-tailed mole skinks. Experts cannot determine the location of each sand skink and blue-tailed mole skink throughout the year, or the exact areas that support sand skink and blue-tailed mole skink feeding, breeding, and sheltering, even if extensive continuous year-long research is conducted in south Florida. Therefore, the consultation area outlines a geographic landscape with a higher likelihood of skink occupancy than the landscape outside of the consultation area.

In general, proposed actions inside the consultation area are more likely to affect sand skinks and blue-tailed mole skinks, and proposed actions outside the consultation area are less likely to affect skinks. Though the consultation area provides an initial analysis tool, users evaluating a proposed action should not consider the consultation area as the only factor in deciding whether or not consultation is required. The consultation area is based on best available information to date. We expect that more information will improve and refine our knowledge of skink occurrence in the future. Consultation is required if proposed actions outside the delineated consultation area may affect sand skinks or blue-tailed mole skinks. Similarly, consultation may not be required if proposed actions inside the consultation area will not affect sand skinks or blue-tailed mole skinks (*e.g.*, if the project location is not within the appropriate elevation or does not contain suitable skink soils).

Consultation

Federal and non-Federal project proponents have different responsibilities for conducting consultations to ensure compliance with the ESA. All project proponents should follow Steps 1 and 2 regardless of whether they are consulting on Federal actions through section 7 or seeking technical assistance through section 10. Federal project proponents should continue with Steps 3 and 4. Non-Federal project proponents seeking incidental take authorization through section 10 of the ESA should contact the Service at 772-562-3909 in South Florida or 904-731-3336 in North Florida for additional information.

Federal Action Agencies

In addition to this guide, the ESA section 7 Consultation Handbook (Services 1998) and the Species Conservation Guidance Introduction (Service 2004a) provide information on consultation for Federal actions. The Guide to a Complete Initiation Package (Service 2004b) provides details on how to prepare a complete consultation initiation package. The Species

Conservation and Consultation Guide flowchart (Figure 2) can help the user evaluate the potential effects of a proposed Federal action on sand skinks and blue-tailed mole skinks.

Non-Federal Entities

When an action, such as clearing vegetation, conducting development activities, or permitting of such activities, is proposed within the Skink Consultation Area and there is no Federal nexus, we recommend that non-Federal entities (*i.e.*; private land owners; businesses; state, county, or local municipalities) request technical assistance from the Service under section 10 of the ESA prior to initiating or authorizing the proposed activity. The Service will review the information provided to assess if the action has the potential to result in take of sand skinks or blue-tailed mole skinks or other listed animal or plant species. If the proposed action is likely to take listed species, the Service recommends that the non-Federal entity apply for an Incidental Take Permit (ITP) to ensure compliance with the ESA and to minimize the risk of third party law suits. As part of the ITP application, applicants develop a Habitat Conservation Plan (HCP). Among other things, the HCP describes the actions that the applicant will implement to minimize and mitigate negative impacts to listed species, demonstrates that there will be no appreciable reduction in the survival of the species, and demonstrates that there is adequate funding and other assurances to ensure the plan will be fully implemented. For more information, contact the Service at 772-562-3909 in South Florida or 904-731-3336 in North Florida. Additional information on section 10 consultation can be found on the Service's national website (<http://www.fws.gov/endangered/what-we-do/hcp-overview.html>) and the South Florida Ecological Services (SFESO) website (<http://www.fws.gov/verobeach/>).

Step 1: Describe the Proposed Action

Fully describe all features and activities related to the proposed action, such as: proposed project purpose; all aspects of proposed construction, including road access, staging areas, and any associated land clearing and filling; information on surveys and monitoring; and anticipated post-project operations, maintenance, and management. Describe the project location, habitat, soil types, and elevations affected. Develop and provide maps of all project locations, boundaries, county lines, soil types, elevation, and habitat. On the maps, delineate project boundaries, map suitable soils and elevations, and quantify the acreage of proposed impact.

Interrelated and interdependent activities should be considered and described as part of the proposed action. Interrelated activities are part of a larger action and depend on the larger action for their justification. An example is constructing a road to access a proposed action site. The access road would not be necessary but for the proposed action. Interdependent activities have no independent utility apart from the proposed action. An example is annual maintenance of the access road. Maintenance would not be necessary but for continued need for access to the proposed action.

More information on complete proposed action descriptions can be found in the Species Conservation Guidance Introduction. Early coordination with the Service can reduce requests for additional information and reduce consultation time frames.

Step 2: Determine and Describe Species, Habitat, or Critical Habitat that May Be Affected.

- 2a: Species Location by County. Check to determine if the proposed action is in a county where sand skinks or blue-tailed mole skinks occur. Skink habitat typically supports federally listed plants and other species that should be consulted on, as well (See Figure 1, the species-county matrix, or the Service's website at <http://ecos.fws.gov/ipac/>).
- 2b: Consultation Area. If the proposed action is in a county where sand skinks or blue-tailed mole skinks generally occur, check the skink consultation area map (Figure 1) to see if the proposed action is in or close to the delineated consultation area. Keep in mind that a proposed action may affect skinks whether or not it is within the consultation area boundary (*e.g.*, where skink soils are found or skinks or skink sign are detected outside of the boundary). Additional analysis may be needed.
- 2c: Species Occurrence by Habitat. If the proposed action is in the consultation area or otherwise might affect skinks, determine if skink habitat may be affected. Potential skink habitat includes all areas with skink soils (Apopka, Arredondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber soil series) at or above 82 ft elevations on ridges in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam Counties. Skink habitat consists of natural xeric vegetative cover and areas altered for human uses, including but not limited to: pine plantations, active or inactive citrus groves, pastures, residential developments, and neglected vegetative cover like old fields and overgrown scrub.

Check the species-community matrix to determine if the proposed action is in or might affect natural ecological communities that traditionally indicated skink habitat. Because of the cumulative conversion of natural xeric communities for human uses, remaining natural xeric scrub is particularly important to maintain and support remaining skink populations.

A proposed action's potential to affect skinks is not dependent on the action's location relative to natural, managed, or altered skink habitat. Additional analysis may be needed. Site-specific assessments of parcels proposed for modification are necessary to determine if the proposed action may affect potential skink habitat.

- 2d: Survey or Opt to Assume Presence. Because skinks spend most of their time below ground, they are difficult to detect. Therefore, if it is determined that skink habitat is present or may be affected following the evaluation of 2a through 2c (above), a project proponent may choose to assume skink presence in all suitable areas and proceed directly to step 3. If occupancy is verified on all or most of the proposed site through observation of skinks or skink sign (such as "S"-shaped tracks), the project proponent should also proceed directly to step 3.

Otherwise, a project proponent may choose to conduct skink surveys for proposed actions in potential skink habitat to provide additional information regarding skink occupancy. See Appendix A for the Service's recommended survey protocol. Survey procedures should be followed closely and surveyors should have qualifications that include prior skink survey experience to increase the probability of detecting listed skinks where they occur. As stated in the protocol, the Service strongly recommends that project proponents contact us prior to initiating surveys.

If the project proponent opts to assume skink presence or skinks are confirmed to occur within all or part of a proposed action area, whether inside or outside of the consultation area (Figure 1), the site where skinks occur is considered occupied. The proposed action must be evaluated to determine if it may affect skinks.

Because skinks spend most of their time below ground and are difficult to detect, it is important to note that failure to find skinks with a coverboard survey does not necessarily mean that the site is not occupied. If skinks or skink sign, are detected at any time after surveys are completed, including during project construction, the site is considered occupied. See Reinitiation of Consultation section below.

The risk of a proposed action affecting occupied skink habitat does not depend solely on whether or not the action is located within known occupied skink habitat. Additional analysis (as described in Step 3a-b below) is needed to determine if project activities might affect skinks. A project may be so benign as to not affect skinks. If an analysis indicates a project presents only insignificant (small in size) or discountable (extremely unlikely to occur) negative risks to skinks, the applicant may consider incorporating conservation measures (see Step 3c and Appendix B), as appropriate, into the project design to further avoid or minimize direct or indirect negative effects to skinks. If a project will adversely affect skinks, it may be necessary to incorporate compensation or mitigation into the project design (Appendix B) to help offset anticipated incidental take.

Contact the Service or other sources early in the project planning and development process for more information on sand skinks and blue-tailed mole skinks and their habitat that may be affected by a proposed action.

Step 3: Evaluate Effects of the Proposed Action and Incorporate Conservation Measures.

- 3a: Describe potential effects of the proposed action, as well as interrelated and interdependent activities, which may affect sand skinks or blue-tailed mole skinks. Proposed actions that would alter sites occupied by listed skinks that contain preferred soil types above 82 ft elevation in the consultation area could potentially affect sand skinks or blue-tailed mole skinks (*e.g.*, ground-disturbing or soil-compacting activities; clearing; construction, access, and staging activities; operation and maintenance activities; chemical applications; etc.)(Figure 1).

- 3b: Describe potential cumulative effects which are the effects of future State or private activities, not involving Federal activities, which are reasonably certain to occur within the action area of the Federal action subject to consultation. These include effects that result in abiotic disturbances like chemical, radiation, or temperature changes and biotic disturbances like water quality, soil condition, vegetation cover, or topographic changes.
- 3c: Describe conservation measures incorporated into the project plan to avoid or minimize negative effects, in particular avoidance or minimization of adverse effects to sand skinks and blue-tailed mole skinks or their habitat. Describe conservation measures applied to compensate for anticipated incidental take. See more on Conservation Measures in Appendix B.

Contact the Service early in the consultation process for assistance in evaluating effects of the proposed action on sand skinks and blue-tailed mole skinks.

Step 4: Document methods, evidence, analyses, and reasoning and make a determination; prepare and submit a complete consultation initiation package, which includes:

- 4a. A complete description of the proposed action.
- 4b. A complete description of federally listed resources (listed species and, if applicable, designated critical habitats) that may be affected.
- 4c. A complete description of potential direct (caused by the action, likely to affect listed resources, reasonably certain to occur), indirect (similar to direct effects but occur later in time), and cumulative (non-Federal actions reasonably certain to occur in the action area) effects and conservation measures incorporated to avoid, minimize, or compensate for negative and adverse effects. Also, provide a complete description of conservation measures applied to compensate for adverse effects anticipated to result in incidental take.
- 4d. Reasoning or logic statements that connect the proposed action, affected listed resources, potential effects, and conservation measures; the reasoning should provide logical support and justification for the effect determinations.
- 4e. (An) effect determination(s), or a conclusion(s), and further coordination with the Service. Three effect determinations are possible:
 - i. “No effect” - If the proposed action is outside the consultation area or inside the consultation area but contains no suitable habitat and will not affect sand skinks or blue-tailed mole skinks, the proposed action determination might be “no effect.” To reach this determination, one should document surveys and their results, effects analysis, and reasoning. You may obtain optional written concurrence from the Service, if desired. If evidence of sand skink or blue-tailed mole skink use is detected, a “no effect”

determination is not warranted, and you should contact the Service to develop or implement conservation measures and initiate consultation.

ii. “May affect, not likely to adversely affect” - If the proposed action is in the consultation area and contains suitable habitat, the project proponent may assume sand skinks and blue-tailed mole skinks are present or conduct a survey (see Step 2). If sand skinks, blue-tailed mole skinks, or sign are not detected or presumed to be present or the proposed action will have only beneficial, insignificant, or discountable effects on sand skinks or blue-tailed mole skinks, the proposed action determination might be “not likely to adversely affect.” Contact the Service early to help develop conservation measures and clearly document surveys and their results, effects analysis, and reasoning. Written concurrence from the Service is required for a “not likely to adversely affect” determination.

iii. “May affect, likely to adversely affect” - Whether or not the proposed action is within or outside of the consultation area, if sand skinks or blue-tailed mole skinks are known, detected, or assumed to be present and the proposed action will adversely affect sand skinks or blue-tailed mole skinks, contact the Service early to help determine conservation measures. If the proposed action will have any adverse effects on skinks that are not insignificant or discountable, the proposed project may be “likely to adversely affect” sand skinks or blue-tailed mole skinks. If so, request formal consultation with the Service.

Reinitiation of Consultation

While the issuance of the Service’s biological opinion or concurrence letter concludes consultation, reinitiation of consultation is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals the action may affect listed species or critical habitat in a manner or to an extent not considered; (3) the action is modified which causes an effect not previously considered; or (4) a new species is listed or critical habitat designated that may be affected by the action. Any operation causing incidental take which exceeds the amount or extent anticipated must cease, and the Service must be contacted immediately.

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GIS Data

Skinks_CA_20110920 Consultation Area for sand skinks and blue-tailed mole skinks

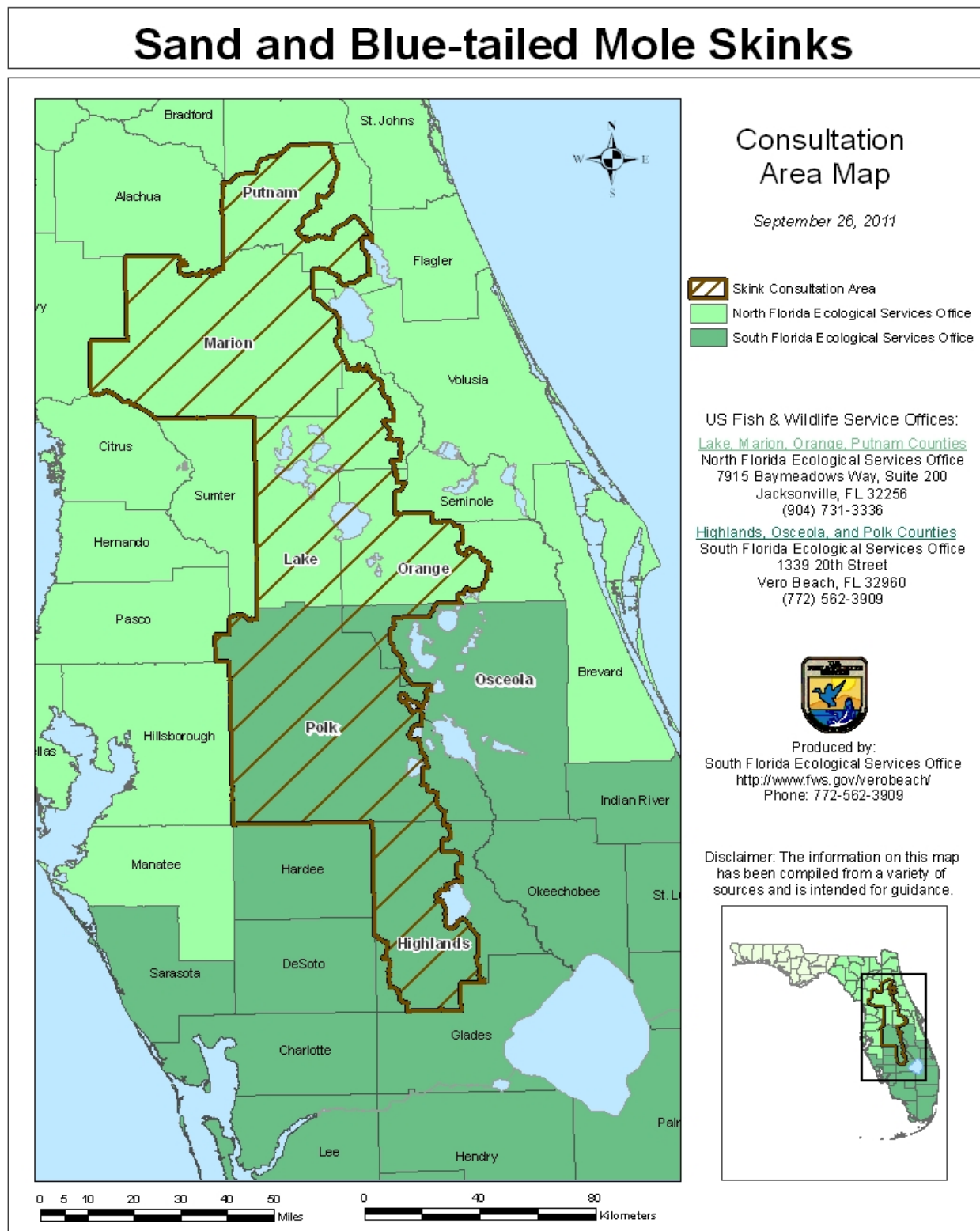


Figure 1. Sand skink and blue-tailed mole skink consultation area. County names depicted in shadowed bold text indicate the counties where skinks are known to occur.

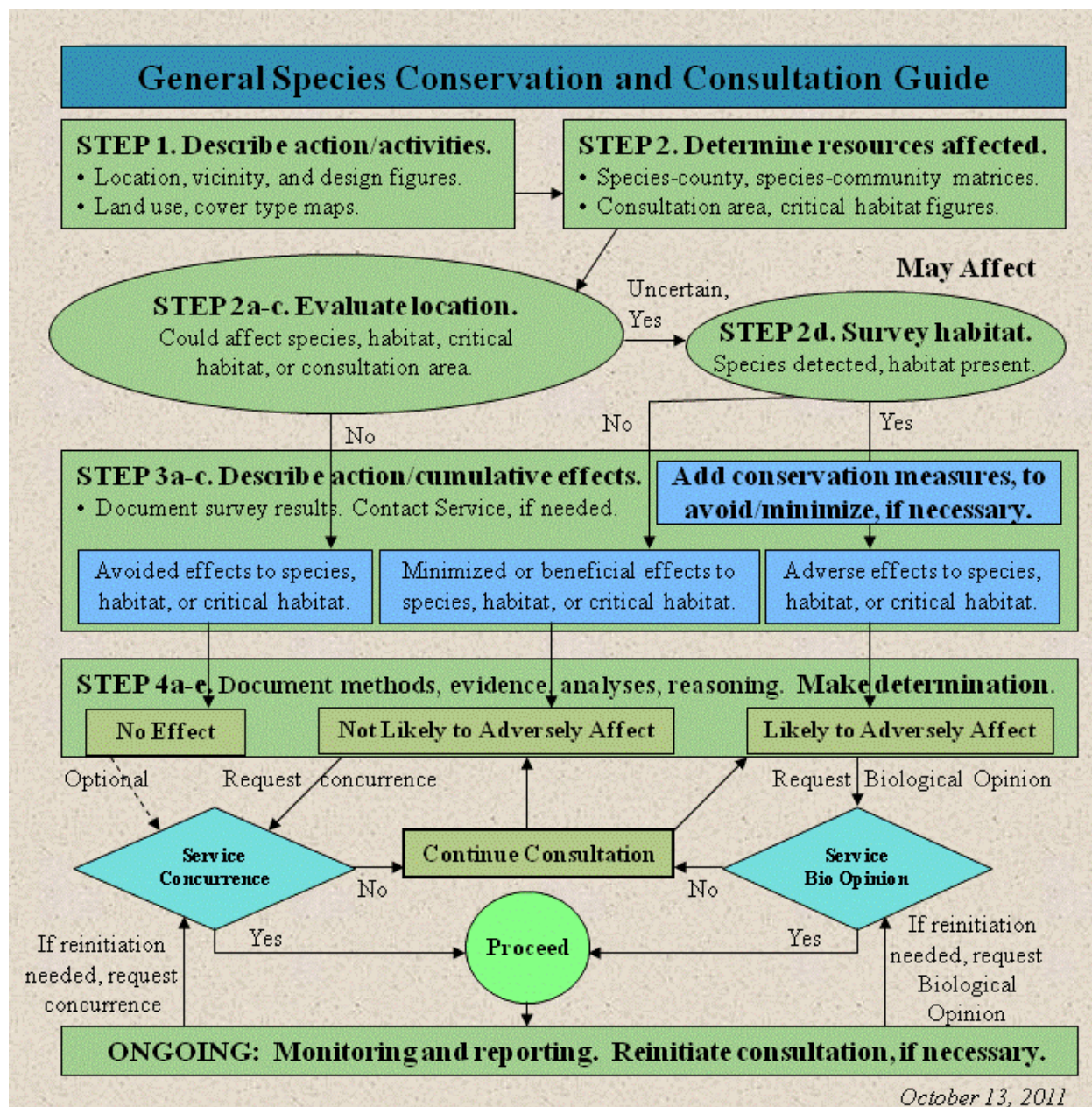


Figure 2. General species conservation and consultation chart for Federal actions that may impact federally listed species. Each step corresponds to a description in the text of the document.

ATTACHMENT H
USFWS SAND SKINK IMPACT GUIDANCE

Mark Easley

From: Lyon, Casey <Casey.Lyon@dot.state.fl.us>
Sent: Friday, April 15, 2016 9:36 AM
To: Mark Easley; Jason Houck; Ben Shepherd; Dinardo, Mike
Subject: FW: I-4 BtU USFWS Consultation Update

FYI... updated sand skink guidance.

From: Drauer, Mike [mailto:mike.drauer@stantec.com]
Sent: Wednesday, April 13, 2016 2:29 PM
To: Stys-Palasz, Beata; Owen, Catherine; Walsh, William; Chasez, Heather; Johnstone, Heather; Lyon, Casey; Chacon, Catalina; Diaz, Luis; Moore, John; Booth, Kristee
Subject: I-4 BtU USFWS Consultation Update

All – Cathy has been communicating with Lourdes at USFWS in an attempt to move the consultation forward and assist her so that she has all the info necessary. We have received concurrence on the informal consultation for Segments 2,3, and 4 and Segment 1, so we are cleared for all species included in those, and now are concerned with the formal consultation on scrub-jays for segment 4, and sand skinks for segment 1. Cathy was working on setting up a meeting to discuss Segment 1, and to provide any additional information on Segment 4 for the scrub-jay impacts and mitigation. Lourdes informed her that she has been working on the scrub-jay draft and might need some info on our mitigation, **and that USFWS has introduced a new designation to determine the occupied habitat for sand skinks based upon positive hits from a cover-board survey. This new method is immediately active, and states that a 188-foot radius around each positive hit will be considered occupied sand skink habitat (that means that each positive hit = 2.55 acres of impacted habitat).** As such, we now will have new impacts and new mitigation requirements for the segment 1 pond with sand skinks present. We have taken a look at our survey results and mapped these with the 188-foot radius to calculate new impacts – for the Segment 1 pond, we now have 13.25 acres of occupied habitat, which at the 2:1 ratio means that we will need to provide for 26.5 acres of mitigation at a skink conservation bank. This is obviously higher than the 2.77 acres of occupied habitat that we proposed in the ESBA and the consultation package. I will provide this map and some revised language for review which we can then submit to Lourdes (and discuss at our meeting with her in early May).

Since segment 5 is going to a different reviewer, **I checked in with John Wrublik at USFWS Vero Beach this morning to ask if they are also using this 188-foot radius and he told me that they were** - so we also have to revise our Segment 5 skink impacts and mitigation. Cathy had finalized the consultation letters for this segment and was finishing reviewing the updated ESBA so that we could submit this consultation package to Cathy at FHWA. With this change, we need to revise the letter and the ESBA to include the new impact and mitigation numbers. We are working on the maps right now, and should have the impact numbers later today, so that we can plug them in. I will provide this info to Gwen and Vivianne at D1 prior to our submittal to FHWA so that they are included in the discussion.

Mike Drauer

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Subject: FW: skink calculations for Wekiva

From: Mena, Lourdes [mailto:lourdes_mena@fws.gov]

Sent: Friday, May 13, 2016 10:06 AM

To: Lyon, Casey

Subject: Re: skink calculations for Wekiva

Casey,

The following was part of the discussion/reasoning for the amount in one of the emails shared between FHWA, CH2 and FWS:

3. Paying into an account for a managing entity to create and manage mitigation is the best option.

Because USFWS thought the Silvestri or Pine Plantation sites might serve as mitigation, if managed, we looked up the land value for each on the Orange County Property Appraiser's website (estimates property values) and reached out to mitigation banks (prices that would cover both the property and management). Based on that information we recommend \$20,000/acre (also referred to as credit).

The data to support this includes:

1. USFWS asked about the Silvestri and Pine Plantation parcels to use for mitigation. The land value for the Silvestri and Pine Plantation parcels would be around \$15,000/acre (without the administrative fees and endowment funding) based on the Orange County Property Appraiser's website.

- a) Silvestri market value has been \$12,000/acre since 2012. In 2011 the value was higher, which translates to about \$15,189/acre.

- b) Pine Plantation market value is \$15,000/acre.

2. The Lake Wales Ridge mitigation banks range from \$18,000 - \$22,000/credit right now based on the emails attached. As mitigation banks are set up based on the price of the land and management efforts, this would be the amount that covers the price of the land plus the administrative fees and endowment funding.

Based on this information, we proposed the middle of the mitigation bank range of \$20,000/acre, which would be \$**452,000**.

I mentioned they looked at market value of parcels. This was how they got to the \$452, 000 to meet the 2:1 ratio for compensation.

Hope this helps. Give me a call if you have questions.

Lourdes

Lourdes Mena
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
North Florida Ecological Services Office
7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517
Phone: 904-731-3119

On Fri, May 13, 2016 at 9:39 AM, Lyon, Casey <Casey.Lyon@dot.state.fl.us> wrote:

Hey Lourdes, can you send how you came up with mitigation for Wekiva for CSX? Since we can't purchase credits due to being on a ridge with no banks... Thank you!

Casey Lyon, M.S.

District Environmental Permit Coordinator

Florida Department of Transportation – District Five

719 S. Woodland Blvd.

DeLand, FL 32720

Office: (386) 943-5436

Main: (386) 943-5000

DOTNET: 885-5436

Email: casey.lyon@dot.state.fl.us

ATTACHMENT I
USFWS CRESTED CARACARA DRAFT SURVEY
PROTOCOL – ADDITIONAL GUIDANCE

USFWS Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season)

The northern crested caracara (*Caracara cheriway*) is a resident, diurnal, and non-migratory raptor that occurs primarily in Florida, Texas, Arizona, Cuba, Mexico, Central America, and the northern portions of South America (Morrison and Dwyer 2012). Only the Florida population, which is isolated from the remainder of the species, is listed as threatened under the Endangered Species Act.

In order to avoid the potential for unauthorized take, future project sites within the caracara consultation area (Figure 1) containing habitats (same or similar) as described below should undergo a formal caracara survey to determine site utilization by caracaras. The intent of caracara surveys is three-fold: (1) to determine the location(s) of active caracara nest(s) that could be adversely affected by the proposed project; (2) to determine the presence and use of the project area by breeding and non-breeding caracaras, including the approximate boundaries of breeding territories, if possible; and (3) to determine the fate and productivity of any caracara nest found.

We recommend coordinating with the U.S. Fish and Wildlife Service (Service) prior to conducting surveys, including submittal of a proposed survey plan and list of observers which follows the guidance below. Following the guidance will ensure that the surveys are timed during the period of greatest detection to document caracaras within or adjacent to the proposed project. The Service has caracara observation and nest location data as well as designated caracara congregation areas that may be of use for planning surveys. For project consultations under the Endangered Species Act, surveys must follow this protocol and must be no older than the previous caracara nesting season (January – April) in order to be considered valid. In the event that construction or vegetation clearing activity will occur more than one year after permitting is completed, contact the Service to discuss the need for follow-up surveys.

Foraging and Nesting Habitat

The Florida caracara population commonly occurs on dry or wet prairies with scattered cabbage palms (*Sabal palmetto*). It may also be found in lightly wooded areas. Scattered saw palmetto (*Serenoa repens*), scrub oaks (*Quercus geminata*, *Q. minima*, *Q. pumila*), and cypress (*Taxodium* spp.) may also be present. Widespread changes in land use may have caused a change in habitat use in this species. Morrison and Humphrey (2001) found a strong association of caracara home ranges with improved pasture. The presence of seasonal wetlands, which may serve as foraging habitat, is an important factor in the attractiveness of these pastures to caracaras (Service 1999). Therefore, today we recognize caracara foraging habitat (and nesting territories) as those areas with short herbaceous vegetation. This includes native wet and dry prairies, but also improved, unimproved, and woodland pastures, sod farms, row crops, levees, and rangeland. Juvenile caracaras may also use citrus and tree farms.

The primary nesting substrate is cabbage palm, although there have been rare reports of nesting in slash pine (pers. obs.), cypress, oak, red cedar (Morrison 2007), Australian pine

USFWS Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season)

(*Casuarina* sp.), saw palmetto, and black gum (*Nyssa sylvatica*), and even more atypical locations such as an electrical substation, radio tower, and billboard (Dwyer and DallaRosa 2015).

Survey Design and Planning

The protective area for a caracara nest is a radius of about 1,500 meters (m) (4,920 feet) from the nest. Therefore, the survey area should include the project area and a 1,500-m buffer zone around the perimeter of the project area (including access roads) to account for off-site nest trees in territories that might overlap onto the project area. A recent aerial photograph depicting the project boundary and buffer zone should be used to identify all areas of suitable habitat and to preliminarily map observation blocks. An observation block is defined as an area easily observable from one vantage point. Enough observation blocks must be identified to cover all suitable habitats within the project boundary and 1,500-m buffer. Surveyors should try to obtain legal access to non-project property within the survey area where suitable habitat exists; these efforts should be documented (e.g., copy of letter, email, etc.). If permission cannot be obtained, contact the Service for additional guidance prior to initiating surveys.

Prior to the first survey, a site visit should be conducted to confirm suitable habitat and the location of observation blocks. Based on this site assessment (e.g., presence of visual obstructions), observation blocks may need to be revised. During the site visit, also identify observer survey stations (at least one per observation block). Survey stations should be located to allow full, unobstructed view of the observation block – strategic points are those where caracaras are more likely to be seen going to and from potential nesting or foraging sites. Based on the site assessment, update the aerial photo to show suitable habitat, and labeled observation blocks and their respective survey stations. The location of survey stations may be adjusted if needed based on initial survey results in order to obtain a different/better view of caracara activity. Any adjustments to the survey design should be documented via revised maps.

Observer Qualifications

Information from a recent study (Dwyer *et al.* 2012) suggested that the probability that a visit or series of visits (i.e., a survey) would lead to the discovery of an existing caracara nest increases with an experienced observer. Due to their cryptic nest site locations and unorthodox method of foraging (walking on the ground), successful nest site surveys require a specific skillset acquired by conducting numerous surveys under the supervision of an experienced caracara surveyor. In addition, caracaras can be hard to find and identify at long distances, especially under low-light conditions. Caracaras may also be wary of humans and will change their behavior in the presence of people, which can make locating nests extremely difficult for less experienced observers. Due to these factors, surveys must be conducted by a qualified biologist having at least two years of experience conducting bird surveys and at least 40 hours of caracara survey experience (i.e., equivalent to one survey season) under the supervision of an experienced caracara surveyor. If an observer does not meet these minimum qualifications,

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the observer should be accompanied by a qualified observer who will serve as the primary observer. Even in cases of qualified observers, and where staff resources allow it, having two observers at the same station can increase the probability of finding a nest.

Conducting Foraging and Nesting Surveys

The highest probability of success in finding caracara nests is during the period of January through March. This period covers the time when adult caracaras are foraging to feed nestlings and therefore, become more visible to observers. As such, surveys must start no later than January 10 and continue through April 30 to provide adequate data to conclude whether or not the site contains an active caracara nest and/or foraging habitat. If the survey starts after January 10, and no nest are found, the survey may not be considered valid by the Service. Surveys considered invalid should be repeated the following nesting season using the latest Service protocol to ensure that early nesting birds were not missed. Surveys should not be conducted in November or December without additional coordination with the Service to avoid disturbing nesting caracaras during nest initiation or incubation, when they are more prone to disturbance.

A complete survey of the project area consists of one survey session every two weeks of each observation block within the project area and the 1,500-m buffer from early January (i.e., Jan 1 - 10) through April 30 (unless a nest is found within the observation block prior to April 30; in that event, begin Productivity Surveys as described below). A survey session is defined as a single survey within an identified observation block initiated at least 15 minutes prior to sunrise and lasting 3 hours (Dwyer et al. 2012). The entire 3-hour survey session must be spent viewing the one observation block – observers cannot rotate between stations, cruise roads, or leave the observation block unless following a flying caracara. If the survey area is large or includes obstructed views, and multiple observation blocks are required, then multiple observers (preferred) or additional survey sessions will be needed to complete the survey of the entire project area. Afternoon or evening surveys are optional, but cannot be substituted for early morning surveys (in the event of not finding a nest). More frequent morning surveys (i.e., more than one during any two-week period) of an observation block are also optional, and can increase the probability of finding a nest, but cannot replace the subsequent “once per two-week surveys” through April 30 (in the event of not finding a nest).

Surveys should be conducted from inside a vehicle (best option is a truck or similar vehicle to maximize height and minimize view obstructions) or an appropriate wildlife blind using high-power binoculars. This minimizes caracara disturbance and behavior alteration, and increases the probability of finding nest locations. Depending on the distance being surveyed, or the proximity of the caracara/nest being observed, it may also be acceptable for the observer to be adjacent to the vehicle if that affords better viewing. A spotting scope is essential when documenting behavior of caracaras and confirming nest tree locations that are far away. If this cannot be accomplished (e.g., due to visibility or vehicle access restrictions), the Service should be contacted to provide site-specific guidance.

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Weather conditions must be adequate to clearly view the whole area. Surveys should not be conducted when it is rainy or foggy (Dwyer *et al.* 2012). Wind speed should be less than 12 miles per hour (19 kilometers per hour; Beaufort Number 3). Weather conditions and other important information must be recorded on field data sheets as itemized below (see Reporting).

During the survey, from a stationary position, search for caracara activity, including birds perched in trees or on sentinel posts, flying along roads or levees, or carrying nesting material or food. Watch for other birds, such as American crows (*Corvus brachyrhynchos*), red-tailed hawks (*Buteo jamaicensis*), red-shouldered hawks (*Buteo lineatus*), bald eagles (*Haliaeetus leucocephalus*), and turkey vultures (*Cathartes aura*), that might elicit an aggressive response from caracaras. Nesting caracaras will often chase potential predators away from the nest, thus revealing their presence. Also, vultures can indicate the presence of carrion that may attract caracaras. If the observer is near or on a road, pay attention to road-killed animals that may serve as forage for caracaras. If in a pasture, look for cow or calf carcasses on which caracaras may forage.

If a caracara is sighted, document its activity (*i.e.*, foraging, roosting, preening, territorial behavior, etc.) and location on an aerial map. If a caracara is in flight, document on the aerial map the direction the bird came from, the direction it is flying in, and if it is carrying nesting material or food. Make all reasonable efforts to track the bird to a potential nest location. If a potential nest tree is detected, then the observer can reposition to improve observation of the bird's behavior. All observer locations during a survey should be marked on the aerial. All caracara observations must be recorded on the field data sheets, including time of observation, number of birds, plumage (adult/juvenile), activity/behavior (*e.g.*, perching, foraging, feeding, preening, courtship or territorial display, etc.), and nest stage (building, incubating, nestlings, fledglings), if applicable. Corresponding caracara locations and flight paths must be marked and labeled on the aerial map. Also mark any potential or confirmed nest tree locations on the aerial photo, with GPS coordinates of the observation site and an estimate of the direction and distance of the nest from the observation point (a rangefinder may help to measure distance). Do not try to approach the nest as this may cause the caracara to abandon their nesting attempt. It may be possible to use a compass bearing from two different locations to triangulate the location of a nest tree that may be too far away and not near recognizable landmarks.

Survey sessions of each observation block must be repeated at two week intervals. Once a nest tree location is confirmed, report the location to the Service and transition to Productivity Surveys. In addition to location of nest trees, the survey data described above can be used to understand the use of the survey area (*e.g.*, as foraging or roosting habitat) by both breeding and non-breeding caracaras. Non-breeding caracaras can include both juveniles and adults. Detailed survey data are also useful in approximating boundaries of breeding territories, which is typically important to identifying the number of territories that may be impacted by a proposed project and the anticipated effect that proposed activities may have on a breeding

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caracara pair. This is especially true for projects which are large in size or include habitat conversion. For more details on caracaras, see Service (1999) and Morrison and Dwyer (2012).

Conducting Productivity Surveys

Once a nest tree is confirmed or highly suspected, begin productivity surveys. These surveys involve the same repeated, two-week visits, but the surveyor need only observe the nest for the amount of time necessary to determine nest status (*i.e.*, incubating, nestlings, fledglings, or failed) and may survey the nest tree at any time during the day (assuming the weather conditions are appropriate). This will likely require much less effort per day than nest surveys. Many times, a spotting scope can be more useful than binoculars in observing activity in the nest that will indicate the nest status. As nesting progresses, the nestlings will become more active and easier to observe. Record the bird activity and number of nestlings. Record the fledging date and number of fledglings. From the fledging date, and previous observations, estimate the egg-laying date. If the nest appears to fail, continue surveying the nest tree area until April 30 as re-nesting may occur. If nests are deemed active on April 30, continue surveying those nest trees until they are either successful or have failed.

Reporting

An example field data sheet is provided at the end of this document, but observers may use their own data sheet format as long as the required information is collected. Requirements for final reports are as follows:

1. Map of field-verified habitat types within the project area and 1,500-m buffer;
2. Copies of marked aerial photo(s) showing all suitable habitat, with labeled observation blocks and their respective survey stations (including any alternate station locations used);
3. For each survey station, copies of any photos taken that document the field of view, nest tree or caracaras;
4. Documentation of efforts to contact adjacent landowners, and copies of access agreements, if applicable;
5. A summary table with the following information for each observer: name, hours of experience conducting caracara surveys (as of January 1), approximate number of caracara nests previously found, and whether the observer served as a primary or secondary observer;
6. Copies of all individual field data sheets which include the following information for each survey:
 - observation block/survey station identification,
 - survey date,
 - observer name(s),
 - observer location (*e.g.*, in a vehicle, blind, on foot),
 - start and end times,

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- start and end weather conditions (temperature, wind speed and direction, cloud cover, visibility, and precipitation),
 - caracara location/activity details including (for each observation):
 - o time of observation,
 - o number of birds,
 - o plumage,
 - o activity/behavior, and
 - o nesting stage, if applicable, and
 - an aerial map showing all observed caracara locations and flight paths (labeled to correspond with activity details) and any potential/confirmed nest tree locations; and
7. Location data (e.g., latitude/longitude) for all caracara observations and potential/confirmed nest trees in Excel, projected shapefile (the preferred projection is Florida Albers NAD83 in meters), or .kml/.kmz format and attributed to include the information in (6) above.

Additional survey or reporting requirements may exist if the caracara surveys are required by a Service Biological Opinion (BO)(in this event, refer to the Terms and Conditions of the BO). For questions or additional guidance regarding the above survey protocol, please contact the Service's caracara lead biologist, Steve Schubert, at 772-469-4249 or 772-562-3909.

Literature Cited

- Dwyer, J.F., and J.P. Dalla Rosa. 2015. Use of anthropogenic nest substrates by crested caracaras. *Southeastern Naturalist* 12(1):N10-N15.
- Dwyer, J. F., J. L. Morrison, and J. D. Fraser. 2012. Factors influencing detection of nesting crested caracaras. *The Journal of Wildlife Management* 76(4):857–862.
- Morrison, J. L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Polyborus plancus audubonii*) in Florida. Technical Report No. 18. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida.
- Morrison, J. L. 2007. Characteristics of nest sites used by crested caracaras in South-Central Florida. *Florida Field Naturalist* 35(1):1-8.
- Morrison, J. L. and J. F. Dwyer. 2012. Crested Caracara (*Caracara cheriway*), *The Birds of North America* (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology. Retrieved from the Birds of North America: <https://birdsna.org/Species-Account/bna/species/crecar1>
- U.S. Fish and Wildlife Service (Service). 1999. South Florida multi-species recovery plan. Atlanta, Georgia.
<http://www.fws.gov/verobeach/MSRPPDFs/AudubonsCrestedCaracara.pdf>

**USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)**

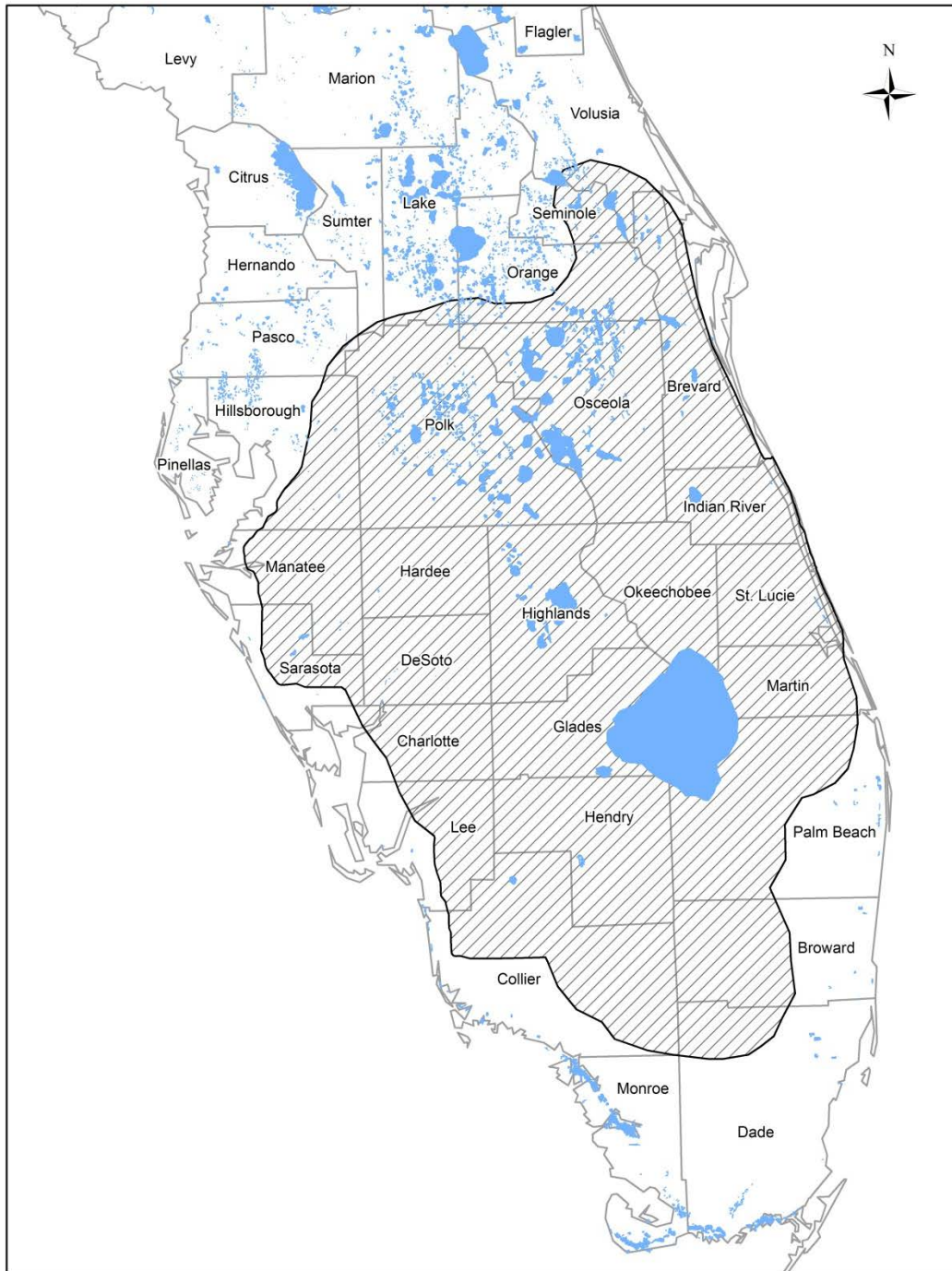


Figure 1. USFWS consultation area for crested caracara.

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Caracara Survey Form (updated 12/9/2016)

Project Name: _____

Location / Observation Block / Lat-Long: _____

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain / Fog
Start:					
Finish:					

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

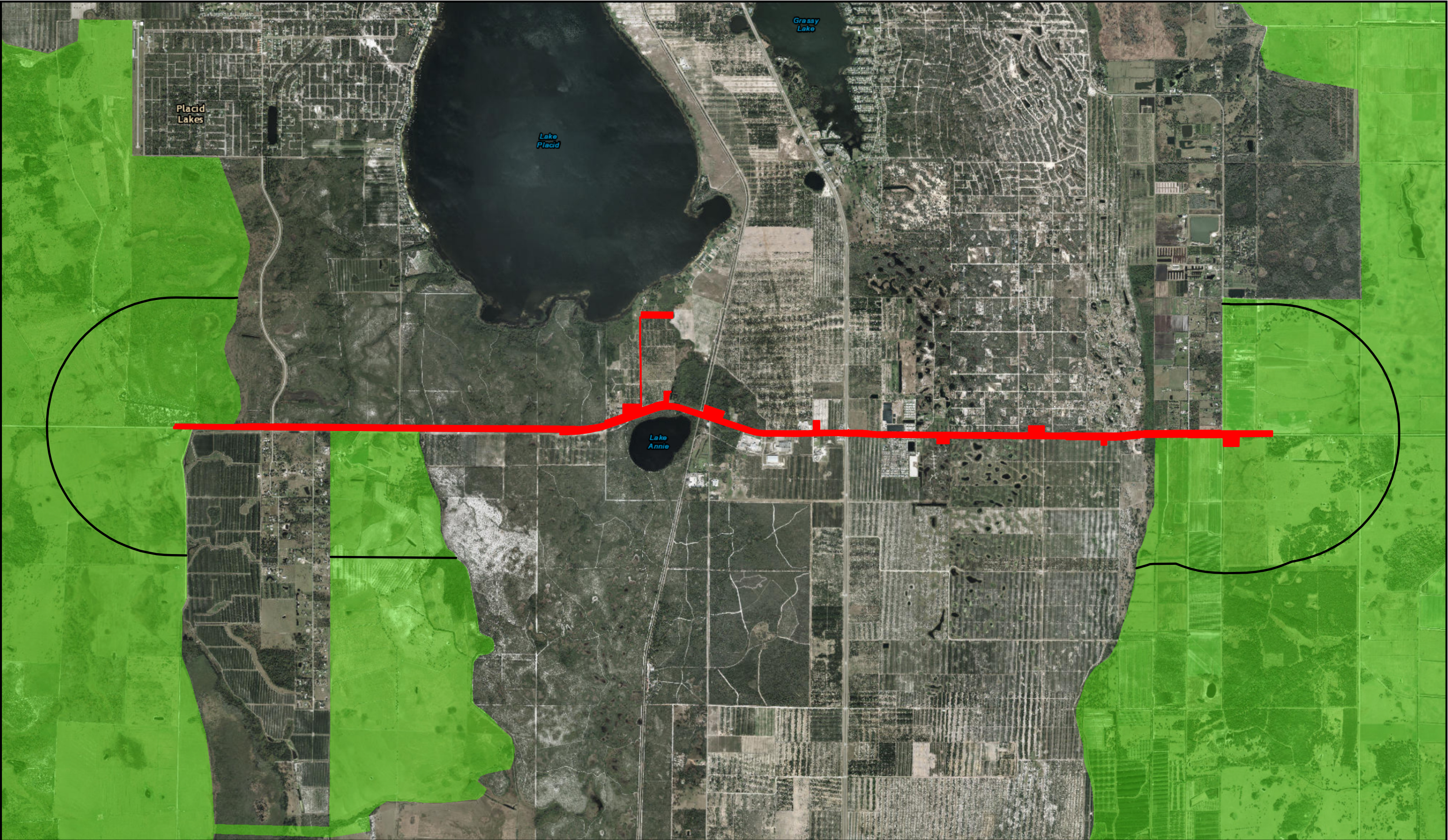
Observations

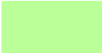
(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A / Im	Time	Description of behavior, flight path, etc

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ATTACHMENT J
CRESTED CARACARA HABITAT MAP



Legend  SR70 Alternative 2 ROW  Crested Caracara Habitat  1500 Meter Buffer	Crested Caracara Habitat Map SR 70 from East of Jefferson Avenue to East of CR 29 FPID: 414506 1 22 01	3,500 1,750 0 3,500  Feet Kisinger Campo & Associates, Corp. 201 N. Franklin Street, Suite 400 Tampa, FL 33602 Phone: 813/871-5331 Fax: 813/871-5135
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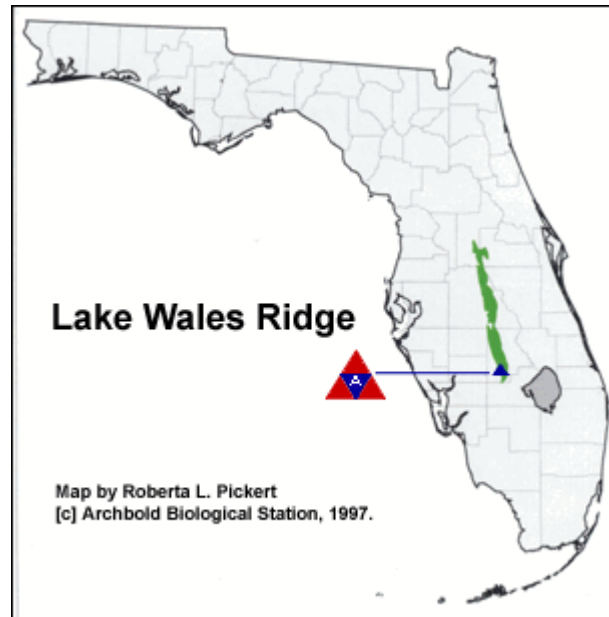
ATTACHMENT K
ENDANGERED, THREATENED OR RARE SPECIES OF THE
LAKE WALES RIDGE, CENTRAL FLORIDA

Endangered, Threatened, or Rare Species of the Lake Wales Ridge, central Florida

[plants](#) | [animals](#)
[amphibians](#) | [reptiles](#) | [birds](#) | [mammals](#)

ANCIENT SPECIES, RECENT THREATS

Species. These ancient sand dunes that we call the Lake Wales Ridge were periodically isolated from North America by rising sea levels during recent ice ages. The plants and animals living in the harsh environment of these dunes were also isolated from their continental relatives and some developed differences that persisted when the sea receded and the Ridge was reunited with North America. Many of these dune plants and animals remained restricted to the Ridge. Thus, the Lake Wales Ridge has one of the highest concentrations in North America of endemic (locally- restricted) species (Dobson, A.P., et al. 1997. Geographic distribution of endangered species in the United States. *Science* 275:550-553.).



Threats. Since 1945, land-use changes on the Ridge have greatly reduced the native upland habitats of oaks and pines and the populations of plants and animals dependent on them. By 1990, about 83% of these Ridge habitats were lost to agriculture or to commercial and residential development (Archbold Biological Station, Menges, E.S., et al., unpublished data).



A rosemary bald, with young sand pines, at Archbold Biological Station (Bald 89, Tract 31), Highlands County, Florida. This is important habitat for several endangered herbaceous plants and for sand skinks. Digital photo by Christine V. Hawkes, February 2000.

ENDANGERED/THREATENED SPECIES FEDERAL PROTECTION

USFWS. Beginning in 1985, the [U.S. Fish and Wildlife Service](#) determined that some Ridge plants and animals were either endangered or threatened with extinction and qualified for federal protection under the Endangered Species Act of 1973. As of 2000, these Lake Wales Ridge, Federally-listed species include 19 plants, 3 reptiles, and one bird (see Table 1 below) (see also: U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. USFWS, Southeast Region, Atlanta, Georgia. 2172 pp.).

STATE PROTECTION

FWCC. The [Florida Fish and Wildlife Conservation Commission](#) (FWCC) is responsible for Florida's endangered, threatened, and of special concern animals (Rules 39-27.003, 39-27.004, and 39-27.005, respectively, Florida Administrative Code (F.A.S.)), and they maintain a [list of species](#), as well as some educational information on their Web site.

FDA. The [Florida Department of Agriculture and Consumer Services](#) (FDA), [Division of Plant Industry](#) (DPI) is responsible for [endangered, threatened, and commercially exploited plants](#) (Chapter 5B-40, F.A.C.). Their list of protected plants is included in the FWCC list mentioned above.

THE LIST OF SPECIES

This list (see [Table 1](#) below) of endangered, threatened, or rare species of the Lake Wales Ridge includes plants and animals of the Florida scrub (and associated upland communities such as sandhills, scrubby flatwoods, seepage slopes, and sandhill upland lakes) that occur in Highlands, Lake, Polk, Orange, and Osceola counties. The list includes only species

associated with uplands as defined in the Florida Natural Areas Inventory (FNAI) database (see [FNAI](#) below). The Ridge supports 35 plant taxa (with 21 endemic to the Ridge) and 14 vertebrate taxa (with 2 endemic to the Ridge) listed (as of June 2000) as endangered, threatened, or of special concern by federal or state government, or tracked as rare by the Florida Natural Areas Inventory (FNAI). This list is linked to **internet sources** of pictures or brief text.

Two important sets of **hard-copy publications** exist that contain information about these Ridge species.

1) The FCREPA (Florida Committee on Rare and Endangered Plants and Animals) volumes in the "Rare and Endangered Biota of Florida" series, published by [University Press of Florida](#), are available in most public libraries and bookstores in Florida.

- plants. Ward, D.B. editor. [1979] Rare and endangered biota of Florida. Volume 5, Plants. Univ. Presses of Florida, Gainesville. [out of print]
- amphibians and reptiles. Moler, P.A. editor. 1992. Rare and endangered biota of Florida. Volume III, Amphibians and reptiles. Univ. Press of Florida, Gainesville.
- birds. Rodgers Jr., J.A., H.W. Kale II, and H.T. Smith, editors. 1996. Rare and endangered biota of Florida. Volume V, Birds. Univ. Press of Florida, Gainesville.
- mammals. Humphrey, S.R. 1992. Rare and endangered biota of Florida. Volume I, Mammals. Univ. Press of Florida, Gainesville.

2) The recently published FNAI ([Florida Natural Areas Inventory](#)) field guides are well-illustrated, loose-leaf notebooks that will be updated periodically. These field guides are also available on the Internet.

- Chafin, L.C. 2000. Field guide to the rare plants of Florida. Florida Natural Areas Inventory, Tallahassee.
- Hipes, D., D.R. Jackson, K. NeSmith, D. Printiss, and K. Brandt. 2001. Field guide to the rare animals of Florida. Florida Natural Areas Inventory, Tallahassee.

Sources of Images

FNAI. Since 1981, the [Florida Natural Areas Inventory](#) (FNAI) has been tracking Florida's biodiversity. In May 2001, FNAI published their "Field guide to the rare plants of Florida" by Linda C. Chafin. A Web edition was published in June 2001. The "Field guide to rare animals of Florida," by Dan Hipes, et al., was published in hard-copy in 2001, and on the Web in June 2001. (See also: Schultz, G.E., L.G. Chafin, and S.T. Krupenevich. 1999. Rare plant species and high quality natural communities of twenty-six CARL sites in the Lake Wales Ridge Ecosystem. Florida Natural Areas Inventory, Tallahassee. 200 pp.)

ISB. The [Institute for Systematic Botany](#) (ISB), at University of South Florida's Herbarium, has developed an illustrated Internet atlas of Florida's plant distribution. Each Lake Wales Ridge plant species listed here is linked to one, or several images (if they exist) at the ISB Web site.

Other Sources of Images

Floridata. One of the best sources for scrub information is Steve Christman's authoritative

"[The Florida scrub](#)" at the Floridata Web site.

FMNH. The [Florida Museum of Natural History](#) is the state's official center for research and education about Florida's diverse natural history. Each department is developing its own Web-based educational resources. We link here to the [Herpetology](#) and [Bird](#) departments' Web pages.

FWCC. The [Florida Fish and Wildlife Conservation Commission](#).

ABS. [Archbold Biological Station](#).

THE STATUS CODES

Federal Status-USFWS.

- LE: Listed as Endangered: any species in danger of extinction throughout all or a significant portion of its range.
- LT: Listed as Threatened: a species which is likely to become endangered in the foreseeable future.
- N: Not listed nor being considered for listing.

State Status-FFWCC.

- LE: Listed as Endangered: a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factor that it is in immediate danger of extinction or extirpation from Florida.
- LT: Listed as Threatened: a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become endangered in the foreseeable future.
- LS: Listed as Species of Special Concern: a species or population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming threatened.

State Status-FDA.

- LE: Listed as Endangered: Plant species native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue.
- LT: Listed as Threatened: Plant species native to Florida that are in rapid decline in number of plants within the state, but which have not so decreased in such numbers as to cause them to be endangered.

FNAI-Status Rank. The Global (G) element rank is based on a species' worldwide status; the State (S) rank is based on the species' status in Florida.

- 1: Critically imperiled. Extremely rare (5 or fewer occurrences or less than 1000

individuals) or extremely vulnerable to extinction.

- 2: Imperiled. Very rare (6 to 20 occurrences or less than 3000 individuals) or vulnerable to extinction.
- 3: Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction.
- 4: Apparently secure globally (may be rare in part of its range).
- 5: Demonstrable secure globally.
- T: Rank of a taxonomic subgroup; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup.

◆ This Endangered Species Web page was not part of the original 1998 booklet, "Florida's Ancient Islands." It was created in June 2000 by Fred E. Lohrer and Hilary M. Swain, Archbold Biological Station.

◆ Web page design by Fred E. Lohrer and Web development by Anita Huber and Robert Connors, [Insight America](http://insightamerica.com).

◆ Web development of this page was made possible by a grant from The [Elizabeth Ordway Dunn Foundation](http://elizabethordwaydunnfoundation.org) to the [Archbold Biological Station](http://archboldbiologicalstation.org).

© 2000, Archbold Biological Station, 7 August 2000; corrections, 10 August 2000; last revision 5 December 2001.

◆ Webmaster, Fred E. Lohrer flrohrer@archbold-station.org

Table 1. Endangered, Threatened, or Rare Species of the Upland Habitats of the Lake Wales Ridge

Plants		status codes				
Scientific Name	Common Name	Federal/State Legal Status	FNAI	FWCC	USF/ISB	Other Sources
<i>Asclepias curtissii</i>	Curtiss' milkweed	N/LE	G3/S3		ISB	
<i>Bonamia grandiflora</i>	Florida bonamia	LT/LE	G3/S3		ISB	Floridata
<i>Calamintha ashei</i>	Ashe's savory	N/LT	G3/S3		ISB	Floridata
<i>Chionanthus pygmaeus</i>	Pygmy fringe-tree	LE/LE	G3/S3		ISB	Floridata
<i>Cladonia perforata</i>	Perforate reindeer lichen	LE/LE	G1/S1			
<i>Clitoria fragrans</i>	Scrub pigeon-wing	LT/LE	G3/S3		ISB	
<i>Conradina brevifolia</i>	Short-leaved rosemary	LE/LE	G2/S2		ISB	Floridata
<i>Crotalaria</i>	Avon Park	LE/LE	G1/S1		ISB	

<i>avonensis</i>	harebells					
<i>Dicerandra christmanii</i>	Garrett's mint	LE/LE	G1/S1		ISB	Floridata
<i>Dicerandra frutescens</i>	Scrub mint	LE/LE	G1/S1		ISB	
<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	Scrub buckwheat	LT/LE	G4T/S3		ISB	
<i>Eryngium cuneifolium</i>	Wedge-leaved button-snakeroot	LE/LE	G1/S1		ISB	
<i>Gymnopogon chapmanianus</i>	Chapman's skeletongrass	N/N	G3/S3			
<i>Hypericum cumulicola</i>	Highlands scrub St. John's-wort	LE/LE	G2/S2		ISB	
<i>Hypericum edisonianum</i>	Edison's ascyrum	N/LE	G2/S2		ISB	
<i>Ilex opaca</i> var. <i>arenicola</i>	Scrub holly	N/N	G5T3/S3		ISB	Floridata
<i>Illicium parviflorum</i>	Yellow star anise	N/LE	G2/S2		ISB	
<i>Lechea cernua</i>	Nodding pinweed	N/LT	G3/S3		ISB	
<i>Lechea divaricata</i>	Pine pinweed	N/LE	G2/S2		ISB	
<i>Liatris ohlingerae</i>	Scrub blazing star	LE/LE	G3/S3		ISB	Floridata
<i>Lupinus westianus</i> var. <i>aridorum</i>	Scrub lupine	LE/LE	G2T1/S1		ISB	Floridata
<i>Nolina brittoniana</i>	Britton's beargrass	LE/LE	G2/S2		ISB	Floridata
<i>Panicum abscissum</i>	Cutthroat grass	N/LE	G3/S3			
<i>Paronychia chartacea</i> <i>chartacea</i>	Papery whitlow-wort	LT/LE	G3/S3		ISB	

<i>Persea humilis</i>	Scrub bay	N/N	G3/S3		ISB	Floridata
<i>Polygala lewtonii</i>	Lewton's milkwort	LE/LE	G2/S2		ISB	
<i>Polygonella basiramia</i>	Florida jointweed	LE/LE	G3/S3		ISB	
<i>Polygonella myriophylla</i>	Small's jointweed	LE/LE	G3/S3		ISB	Floridata
<i>Prunus geniculata</i>	Scrub plum	LE/LE	S2/S3		ISB	Floridata
<i>Salix floridana</i>	Florida willow	N/LE	G2/S2		ISB	
<i>Schizachyrium niveum</i>	Scrub bluestem	N/LE	G1/S1			
<i>Stylisma abdita</i>	Scrub stylisma	N/LE	S2/S3		ISB	
<i>Warea amplexifolia</i>	Clasping warea	LE/LE	G1/S1		ISB	
<i>Warea carteri</i>	Carter's warea	LE/LE	G1/S1/S2		ISB	
<i>Ziziphus celata</i>	Florida ziziphus	LE/LE	G1/S1		ISB	ABS

Animals

Amphibians

[status codes](#)

Scientific Name	Common Name	Federal/State Legal Status	FNAI	FWCC	USF	Other Sources
<i>Rana capito</i>	Gopher Frog	N/LS	G3/S3	FWCC		FMNH
<i>Eumeces egregius lividus</i>	Bluetail Mole Skink	T/T	G4T2/S2			<FLORIDATA<td> Floridata
<i>Gopherus polyphemus</i>	Gopher Turtle	N/LS	G3/S3	FWCC		Floridata
<i>Neoseps reynoldsi</i>	Sand Skink	T/T	G2/S2			Floridata
<i>Pituophis melanoleucas mugitus</i>	Florida Pine Snake	N/LS	G5T3?/S3			FMNH
<i>Sceloporus woodi</i>	Scrub Lizard	N/N	G3/S3			Floridata
<i>Stilosoma</i>	Short-tailed	N/T	G3/S3			FMNH

<i>extenuatum</i>	Snake					
Birds status codes						
Scientific Name	Common Name	Federal/State Legal Status	FNAI	FWCC	USF	Other Sources
<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	T/T	S3			FMNH
<i>Falco sparverius paulus</i>	Southeastern American Kestrel	N/T	G5T3T4/S3?			FMNH
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	N/T	G5T2T3/S2S3	FWCC		
Mammals status codes						
Scientific Name	Common Name	Federal/State Legal Status	FNAI	FWCC	USF	Other Sources
<i>Podomys floridanus</i>	Florida Mouse	N/LS	G3/S3			ABS
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	N/LS	G5T2/S2	FWCC		
<i>Ursus americanus floridanus</i>	Florida Black Bear	N/LS	G5T2/S2	FWCC		