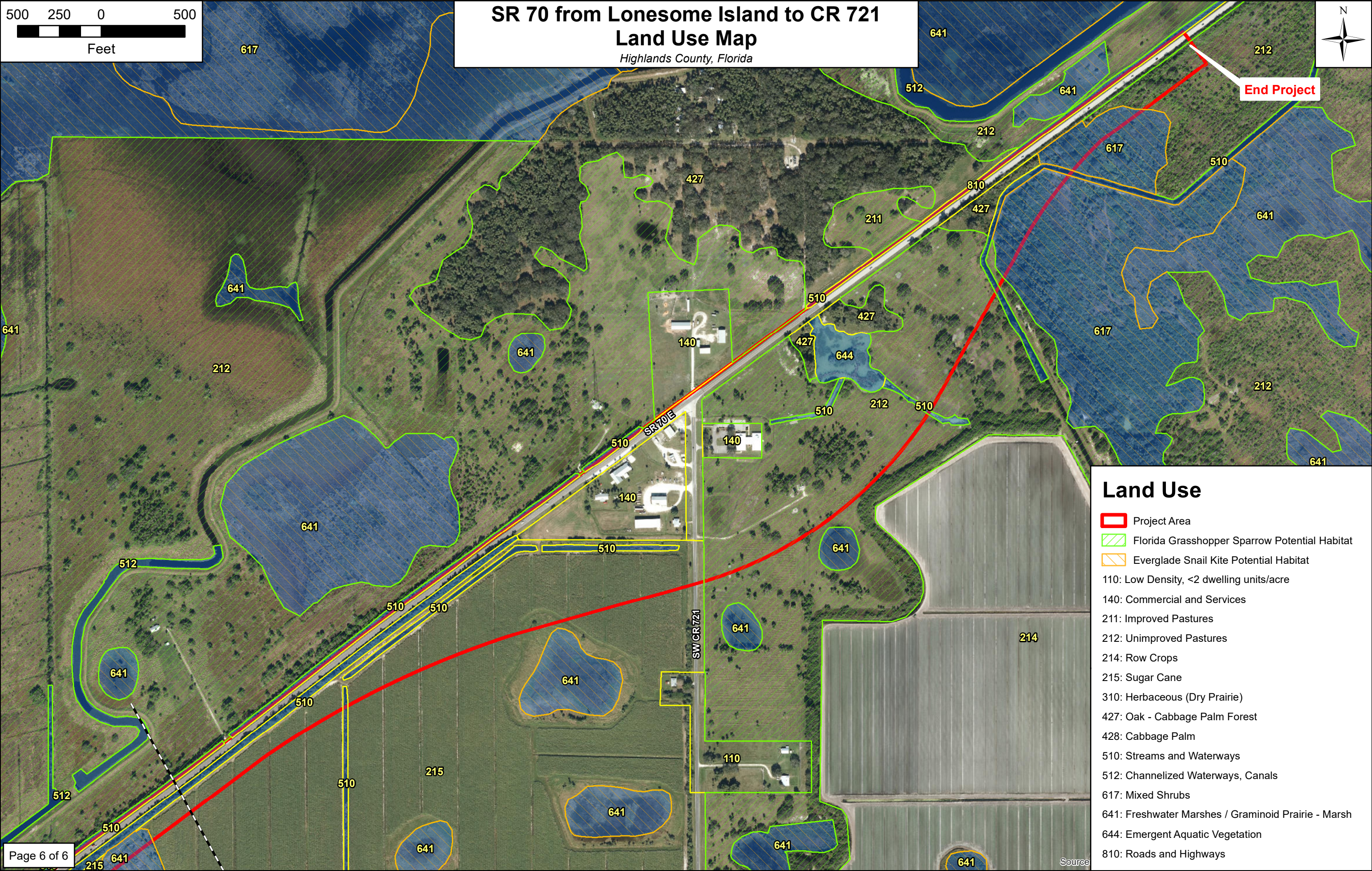


# SR 70 from Lonesome Island to CR 721 Land Use Map

Highlands County, Florida



End Project

## Land Use

- Project Area
- Florida Grasshopper Sparrow Potential Habitat
- Everglade Snail Kite Potential Habitat
- 110: Low Density, <2 dwelling units/acre
- 140: Commercial and Services
- 211: Improved Pastures
- 212: Unimproved Pastures
- 214: Row Crops
- 215: Sugar Cane
- 310: Herbaceous (Dry Prairie)
- 427: Oak - Cabbage Palm Forest
- 428: Cabbage Palm
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 617: Mixed Shrubs
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 644: Emergent Aquatic Vegetation
- 810: Roads and Highways



**Attachment C**

**Representative Land Use Photographs**





**Photograph 1.** Low Density Residential (FLUCFCS 110).



**Photograph 2.** Commercial and Services (FLUCFCS 140).





**Photograph 3.** Improved Pastures (FLUCFCS 211).

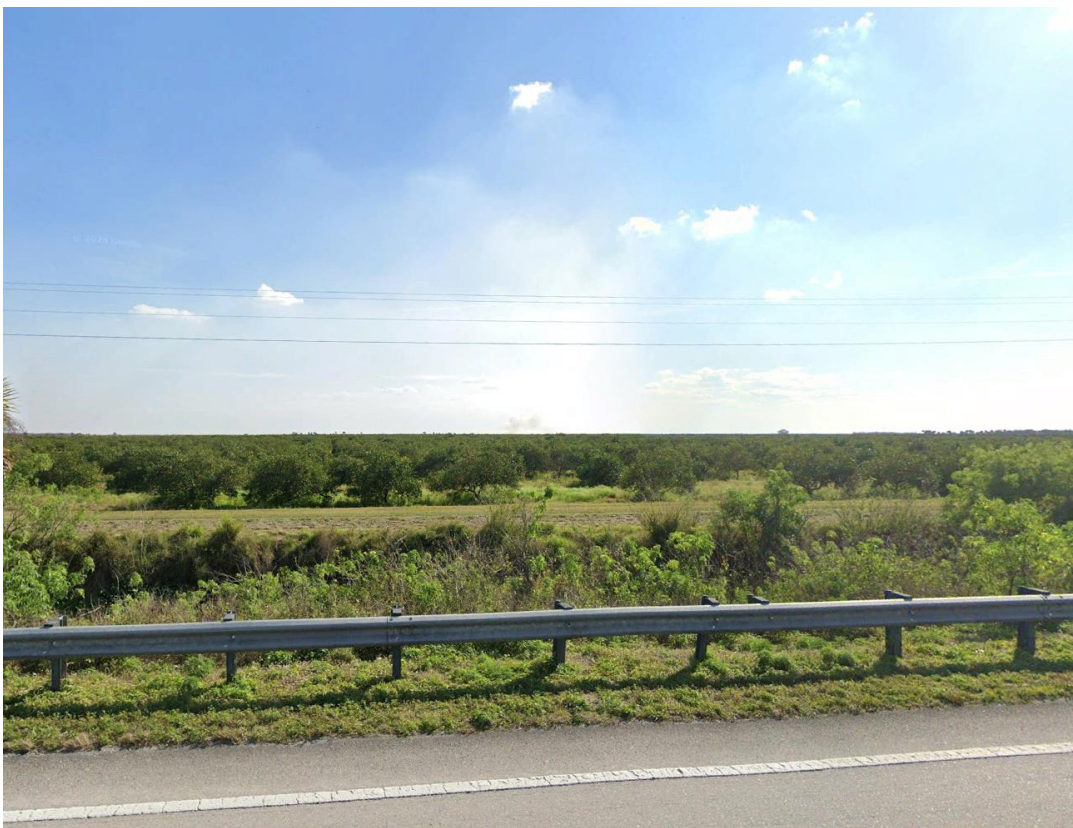


**Photograph 4.** Unimproved Pastures (FLUCFCS 212).





**Photograph 5.** Sugar Cane (FLUCFCS 215).



**Photograph 6.** Abandoned Groves (FLUCFCS 224).





**Photograph 7.** Upland Shrub and Brushland (FLUCFCS 320).



**Photograph 8.** Oak - Cabbage Palm Forest (FLUCFCS 427).





**Photograph 9.** Cabbage Palm (FLUCFCS 428).



**Photograph 10.** Streams and Waterways (FLUCFCS 510).





**Photograph 11.** Channelized Waterways, Canals (FLUCFCS 512).



**Photograph 12.** Mixed Shrubs (FLUCFCS 617).





**Photograph 13.** Freshwater Marshes / Graminoid Prairie – Marsh (FLUCFCS 641).



**Photograph 14.** Wet Prairie (FLUCFCS 643).





**Photograph 15.** Emergent Aquatic Vegetation (FLUCFCS 644).



**Photograph 16.** Roads and Highways (FLUCFCS 810).



**Attachment D**

**Potential Florida Grasshopper Sparrow and Everglade Snail  
Kite Habitat Photographs**





**Photograph 1.** Potential Florida grasshopper sparrow habitat. Improved pasture south of project study area. Unsuitable due to heavily grazed vegetation. Ditches present throughout causing periodic wet conditions. Saw palmetto not present.



**Photograph 2.** Potential Florida grasshopper sparrow habitat. Unimproved pasture north of project study area. Unsuitable due to maintenance for grazing and periodic flooding. Minimal growth of native vegetation.





**Photograph 3.** Potential Everglade snail kite habitat. Unsuitable due to overgrown substrate, water depth below 0.2-1.3, and the substrate's proximity to the roadway.



**Photograph 4.** Potential Everglade snail kite habitat. Unsuitable due to substrate's proximity to the roadway. Apple snails not present.





**Photograph 5.** Potential Everglade snail kite habitat. Unsuitable due to lack of substrate, steep side slopes, and exceeding water depth requirements.



**Photograph 6.** Potential Everglade snail kite habitat. Unsuitable due to overgrown vegetation and substrate's proximity to the roadway.



***APPENDIX F***

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**IPaC ESA Species List for Project Code: 2025-0121637**





## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Florida Ecological Services Field Office

777 37th St

Suite D-101

Vero Beach, FL 32960-3559

Phone: (352) 448-9151 Fax: (772) 562-4288

Email Address: [fw4flesregs@fws.gov](mailto:fw4flesregs@fws.gov)



In Reply Refer To:

07/15/2025 14:19:53 UTC

Project Code: 2025-0121637

Project Name: SR 70 from Lonesome Island Rd to CR 721S

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

**Please include your Project Code, listed at the top of this letter, in all subsequent correspondence regarding this project.** Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of



this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Florida Ecological Services Field Office**

777 37th St

Suite D-101

Vero Beach, FL 32960-3559

(352) 448-9151



## PROJECT SUMMARY

Project Code: 2025-0121637

Project Name: SR 70 from Lonesome Island Rd to CR 721S

Project Type: Road/Hwy - Maintenance/Modification

Project Description: The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) study for proposed improvements to the State Road (SR) 70 corridor in Highlands County. The intent is to enhance safety along the SR 70 corridor, a major east-west roadway spanning the state. The project limits extend approximately 7.6 miles from Lonesome Island Road to the southern leg of County Road (CR) 721.

The study focuses on improving safety of this section of SR 70. Alternatives to be evaluated include adding an additional through lane in each direction, adding a median, and widening travel lanes from 10 feet to 12 feet as part of the project. Multimodal facilities (i.e., a shared use path) will also be considered along the project.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@27.217098399999998,-81.10661658781515,14z>



Counties: Glades and Highlands counties, Florida



## ENDANGERED SPECIES ACT SPECIES

There is a total of 30 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.



## MAMMALS

NAME	STATUS
Florida Bonneted Bat <i>Eumops floridanus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8630">https://ecos.fws.gov/ecp/species/8630</a>	Endangered
Florida Panther <i>Puma (=Felis) concolor coryi</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1763">https://ecos.fws.gov/ecp/species/1763</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/56YEULANMFGU7ODR76MU7PXX2A/documents/generated/7123.pdf">https://ipac.ecosphere.fws.gov/project/56YEULANMFGU7ODR76MU7PXX2A/documents/generated/7123.pdf</a>	Endangered
Puma (=mountain Lion) <i>Puma (=Felis) concolor (all subsp. except coryi)</i> Population: FL No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6049">https://ecos.fws.gov/ecp/species/6049</a>	Similarity of Appearance (Threatened)
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

## BIRDS

NAME	STATUS
Crested Caracara (audubon's) [fl Dps] <i>Caracara plancus audubonii</i> Population: FL DPS No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8250">https://ecos.fws.gov/ecp/species/8250</a>	Threatened
Eastern Black Rail <i>Laterallus jamaicensis ssp. jamaicensis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10477">https://ecos.fws.gov/ecp/species/10477</a>	Threatened
Everglade Snail Kite <i>Rostrhamus sociabilis plumbeus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/7713">https://ecos.fws.gov/ecp/species/7713</a>	Endangered
Florida Grasshopper Sparrow <i>Ammodramus savannarum floridanus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/32">https://ecos.fws.gov/ecp/species/32</a>	Endangered
Wood Stork <i>Mycteria americana</i> Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8477">https://ecos.fws.gov/ecp/species/8477</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/56YEULANMFGU7ODR76MU7PXX2A/documents/generated/6954.pdf">https://ipac.ecosphere.fws.gov/project/56YEULANMFGU7ODR76MU7PXX2A/documents/generated/6954.pdf</a>	Threatened



## REPTILES

NAME	STATUS
American Alligator <i>Alligator mississippiensis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/776">https://ecos.fws.gov/ecp/species/776</a>	Similarity of Appearance (Threatened)
Blue-tailed Mole Skink <i>Eumeces egregius lividus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2203">https://ecos.fws.gov/ecp/species/2203</a>	Threatened
Eastern Indigo Snake <i>Drymarchon couperi</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/646">https://ecos.fws.gov/ecp/species/646</a>	Threatened
Sand Skink <i>Neoseps reynoldsi</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4094">https://ecos.fws.gov/ecp/species/4094</a>	Threatened

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened

## FLOWERING PLANTS

NAME	STATUS
Avon Park Harebells <i>Crotalaria avonensis</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7093">https://ecos.fws.gov/ecp/species/7093</a>	Endangered
Carter's Mustard <i>Warea carteri</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/5583">https://ecos.fws.gov/ecp/species/5583</a>	Endangered
Florida Ziziphus <i>Ziziphus celata</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2950">https://ecos.fws.gov/ecp/species/2950</a>	Endangered
Garrett's Mint <i>Dicerandra christmanii</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8333">https://ecos.fws.gov/ecp/species/8333</a>	Endangered
Highlands Scrub Hypericum <i>Hypericum cumulicola</i> Population:	Endangered



NAME	STATUS
No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2940">https://ecos.fws.gov/ecp/species/2940</a>	
Lewton's Polygala <i>Polygala lewtonii</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6688">https://ecos.fws.gov/ecp/species/6688</a>	Endangered
Papery Whitlow-wort <i>Paronychia chartacea</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1465">https://ecos.fws.gov/ecp/species/1465</a>	Threatened
Pigeon Wings <i>Clitoria fragrans</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/991">https://ecos.fws.gov/ecp/species/991</a>	Threatened
Pygmy Fringe-tree <i>Chionanthus pygmaeus</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1084">https://ecos.fws.gov/ecp/species/1084</a>	Endangered
Sandlace <i>Polygonella myriophylla</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/5745">https://ecos.fws.gov/ecp/species/5745</a>	Endangered
Scrub Blazingstar <i>Liatris ohlingerae</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/864">https://ecos.fws.gov/ecp/species/864</a>	Endangered
Scrub Mint <i>Dicerandra frutescens</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/799">https://ecos.fws.gov/ecp/species/799</a>	Endangered
Short-leaved Rosemary <i>Conradina brevifolia</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2929">https://ecos.fws.gov/ecp/species/2929</a>	Endangered
Snakeroot <i>Eryngium cuneifolium</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7487">https://ecos.fws.gov/ecp/species/7487</a>	Endangered
Wireweed <i>Polygonella basiramia</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1718">https://ecos.fws.gov/ecp/species/1718</a>	Endangered



## LICHENS

NAME	STATUS
Florida Perforate Cladonia <i>Cladonia perforata</i>	Endangered
Population:	
No critical habitat has been designated for this species.	
Species profile: <a href="https://ecos.fws.gov/ecp/species/7516">https://ecos.fws.gov/ecp/species/7516</a>	

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## **IPAC USER CONTACT INFORMATION**

Agency: Private Entity  
Name: Karina Gelinas  
Address: 201 N. Franklin St.  
Address Line 2: Suite 900  
City: Tampa  
State: FL  
Zip: 33602-5132  
Email: kgonthier@kcaeng.com  
Phone: 4133647660

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Department of Transportation

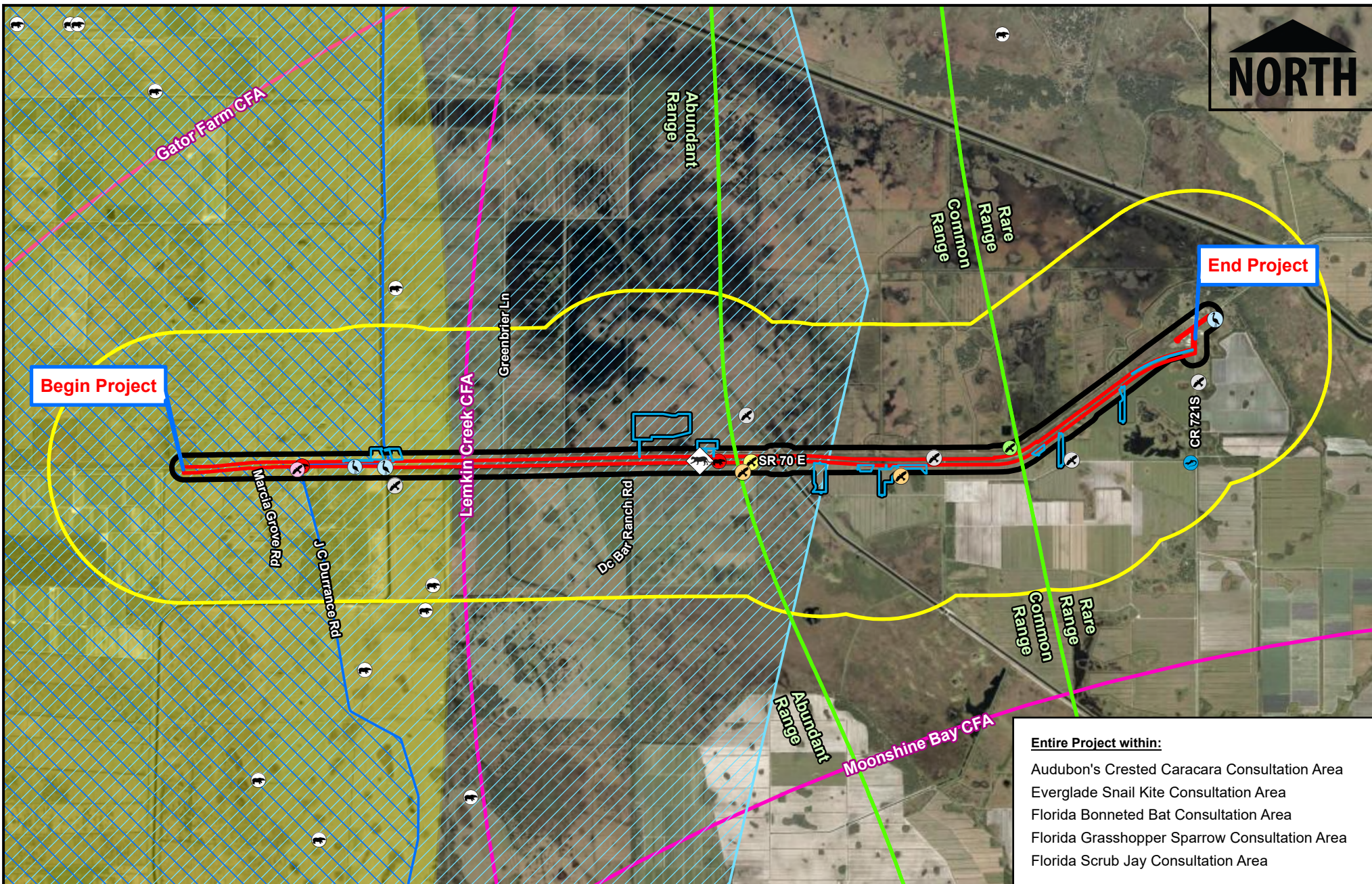


## ***APPENDIX G***

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### **Protected Species Map**





Begin Project

End Project

**Entire Project within:**

Audubon's Crested Caracara Consultation Area  
Everglade Snail Kite Consultation Area  
Florida Bonneted Bat Consultation Area  
Florida Grasshopper Sparrow Consultation Area  
Florida Scrub Jay Consultation Area

- Preferred Alternative
- 1 Mile Buffer of Project Area
- Project Action Area
- Preferred Pond
- Panther Mortality
- Eastern Indigo Snake (USFWS)
- Florida Black Bear Mortality
- Florida Black Bear Related Call

- Blue-tailed Mole Skink Consultation Area
- Florida Black Bear Range
- Lake Wales Ridge Plants Consultation Area
- Sand Skink Consultation Area
- Wood Stork Core Foraging Area (2)

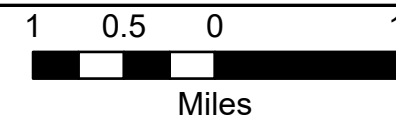
**2024 Observation**

- Southeastern American Kestrel
- Bald Eagle
- Wood Stork
- Audubon's Crested Caracara Nest (Observed)
- Everglade Snail Kite
- Juvenile Bald Eagle

**Protected Species Map**

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida





## ***APPENDIX H***

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### **Listed Species Effect Determination Keys**

***Consultation Key for the  
Eastern Indigo Snake***



A. Project is not located in open water or salt marsh.....go to B

Project is located solely in open water or salt marsh.....no effect

B. Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site preparation and project construction.....go to C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested.....may affect

C. The project will impact less than 25 acres of eastern indigo snake habitat (e.g., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....go to D

The project will impact 25 acres or more of eastern indigo snake habitat (e.g., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....may affect

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured during project activities.....NLAA

The project has known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and /or injured.....go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of the burrow<sup>1</sup>. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.....NLAA<sup>2</sup>

Permit will not be conditioned as outlined above.....may affect

## End Key

<sup>1</sup> If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>.

<sup>2</sup> Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range

***Wood Stork Effect Determination Key  
for South Florida***



The SFESO recognizes a 29.9 kilometer [km] (18.6-mile) core foraging area (CFA) around all known wood stork colonies in south Florida. Enclosure 2 (to be updated as necessary) provides locations of colonies and their CFAs in south Florida that have been documented as active within the last 10 years. The Service believes loss of suitable wetlands within these CFAs may reduce foraging opportunities for the wood stork. To minimize adverse effects to the wood stork, we recommend compensation be provided for impacts to foraging habitat. The compensation should consider wetland type, location, function, and value (hydrology, vegetation, prey utilization) to ensure that wetland functions lost due to the project are adequately offset. Wetlands offered as compensation should be of the same hydroperiod and located within the CFAs of the affected wood stork colonies. The Service may accept, under special circumstances, wetland compensation located outside the CFAs of the affected wood stork nesting colonies. On occasion, wetland credits purchased from a "Service Approved" mitigation bank located outside the CFAs could be acceptable to the Service, depending on location of impacted wetlands relative to the permitted service area of the bank, and whether or not the bank has wetlands having the same hydroperiod as the impacted wetland.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing the Wood Stork Effect Determination Key below. If the use of this key results in a Corps determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination<sup>1</sup>. This Key is subject to revisitation as the Corps and Service deem necessary.

The Key is as follows:

- A.** Project within 0.76 km (0.47 mile)<sup>2</sup> of an active colony site<sup>3</sup> ..... "may affect"<sup>4</sup>
- Project impacts Suitable Foraging Habitat (SFH)<sup>5</sup> at a location greater than 0.76 km (0.47 mile) from a colony site..... "go to B"

<sup>1</sup> With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

<sup>2</sup> Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

<sup>3</sup> An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

<sup>4</sup> Consultation may be concluded informally or formally depending on project impacts.

<sup>5</sup> Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

Project does not affect SFH.....“no effect”.

**B.** Project impact to SFH is less than 0.20 hectare (one-half acre)<sup>6</sup>.....NLAA<sup>1”</sup>

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre).....go to C

**C.** Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site .....go to D

Project impacts to SFH within the CFA of a colony site .....go to E

**D.** Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod<sup>7</sup> of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance<sup>8</sup>..... NLAA<sup>1”</sup>

Project not as above.....“may affect”<sup>4”</sup>

**E.** Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod<sup>7</sup> of the wetlands affected, and provides foraging value similar

<sup>6</sup> On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

<sup>7</sup> Several researchers (Flemming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.

<sup>8</sup> For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.



to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance<sup>8</sup>.....“NLAA<sup>1</sup>”

Project does not satisfy these elements .....“may affect<sup>4</sup>”

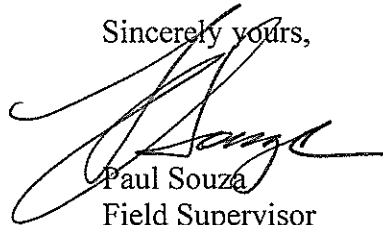
This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

#### Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued where the effect determination was: “may affect, not likely to adversely affect.” We request that the Corps send us an annual summary consisting of: project dates, Corps identification numbers, project acreages, project wetland acreages, and project locations in latitude and longitude in decimal degrees.

Thank you for your cooperation and effort in protecting federally listed species. If you have any questions, please contact Allen Webb at extension 246.

Sincerely yours,



Paul Souza  
Field Supervisor  
South Florida Ecological Services Office

#### Enclosures

cc: w/enclosures (electronic only)  
Corps, Jacksonville, Florida (Stu Santos)  
EPA, West Palm Beach, Florida (Richard Harvey)  
FWC, Vero Beach, Florida (Joe Walsh)  
Service, Jacksonville, Florida (Billy Brooks)

***Florida Bonneted Bat  
Consultation Key***



## Florida Bonneted Bat Consultation Key<sup>#</sup>

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

- 1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1).....**Go to 2**
- 1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1).....**No Effect**
- 2a. Potential FBB roosting habitat exists within the project area.....**Go to 3**
- 2b. No potential FBB roosting habitat exists within the project area.....**Go to 13**
- 3a. Project size/footprint\*  $\leq$  5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C) then Go to 4**
- 3b. Project size/footprint\*  $>$  5 acres (2 hectares).....**Conduct Full Acoustic/Roost Surveys (Appendix B) then Go to 6**
- 4a. Results show FBB roosting is likely .....**Go to 5**
- 4b. Results do not show FBB roosting is likely.....**MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**
- 5a. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 6a. Results show some FBB activity.....**Go to 7**
- 6b. Results show no FBB activity.....**No Effect**
- 7a. Results show FBB roosting is likely.....**Go to 8**
- 7b. Results do not show FBB roosting is likely.....**Go to 10**
- 8a. Project will not affect roosting habitat.....**Go to 9**
- 8b. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 10a. Results show high FBB activity/use.....**Go to 11**
- 10b. Results do not show high FBB activity/use.....**Go to 12**
- 11a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 11b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 12a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 12b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

- 13a. FBB foraging habitat exists within the project area and foraging habitat will be affected.....**Go to 14**
- 13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected **OR** no FBB foraging habitat exists within the project area.....**No Effect**
- 14a. Project size\* > 50 acres (20 hectares) (wetlands and uplands) .....**Go to 15**
- 14b. Project size\* ≤ 50 acres (20 hectares) (wetlands and uplands) ..... **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^.....**Conduct Full Acoustic Survey (Appendix B) and Go to 16**
- 15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^.....**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 16a. Results show some FBB activity.....**Go to 17**
- 16b. Results show no FBB activity.....**No Effect**
- 17a. Results show high FBB activity/use.....**LAA+ Further consultation with the Service required.**
- 17b. Results do not show high FBB activity/use..... **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

# If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

\*Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

+Project modifications could change the LAA determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations.

^Determining if **high quality potential roosting areas** are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.



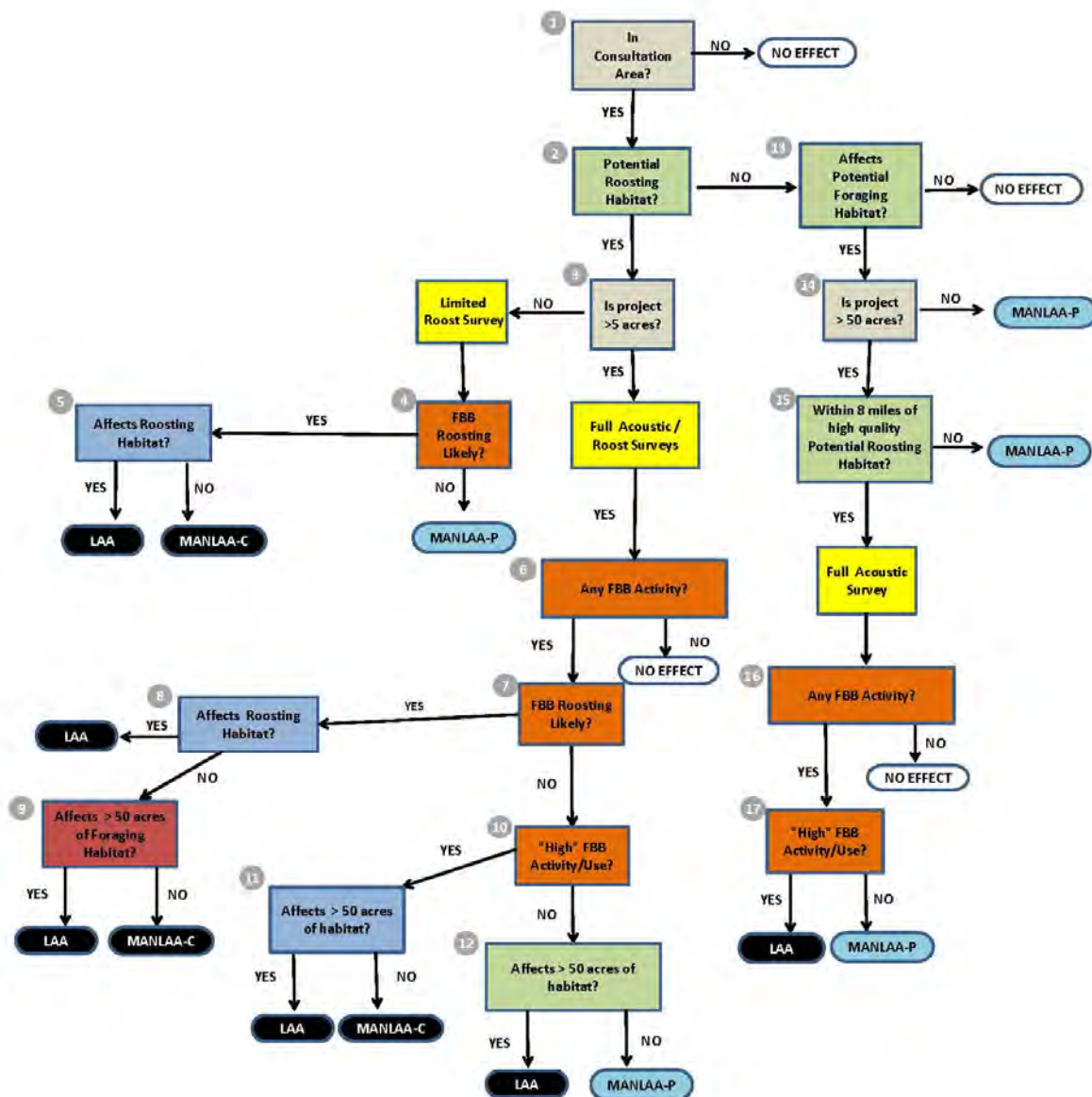


Figure 3. Florida bonneted bat Consultation Flowchart. “No effect” determinations do not need Service concurrence. “May affect, but not likely to adversely affect”, **MANLAA-P**, in blue have programmatic concurrence through the transmittal letter of these Guidelines, and therefore no further consultation with the Service is necessary unless assistance is needed in interpreting survey results. **MANLAA-C** determinations in black require further consultation with the Service. Applicants are expected to incorporate the appropriate **BMPs** to reach a **MANLAA** determination. “May affect, and is likely to adversely affect”, **LAA**, (also in black) determinations require consultation with the Service. Further consultation with the Service may identify project modifications that could change the **LAA** determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations. The Service requests Florida bonneted bat survey reports for all determinations.

## Appendix D: Best Management Practices (BMPs) for Development Projects

Ongoing research and monitoring will continue to increase the understanding of the Florida bonneted bat and its habitat needs and will continue to inform habitat and species management recommendations. These BMPs incorporate what is known about the species and also include recommendations that are beneficial to all bat species in Florida. These BMPs are intended to provide recommendations for improving conditions for use by Florida bonneted bats, and to help conserve Florida bonneted bats that may be foraging or roosting in an area.

The BMPs required to reach a “may affect, but is not likely to adversely affect” (MANLAA) determination vary depending on the couplet from the Consultation Key used to reach that particular MANLAA. The requirements for each couplet are provided below followed by the list of BMPs. If the applicant is unable or does not want to do the required BMPs, then the Corps (or other Action Agency) will not be able to use this Guidance and formal consultation with the Service is required.

Couplet Number for MANLAA from Consultation Key	Required BMPs
4b	BMP number 1 if more than 3 months has occurred between the survey and start of the project, and any 3 BMPs out of BMPs 4 through 13
5b	BMP number 2, and any 3 BMPs out of BMPs 3 through 13
9b	BMPs number 2 and 3, and any 4 BMPs out of BMPs 5 through 13
11b	BMPs number 1 and 4, and any 4 BMPs out of BMPs 5 through 13
12b	BMP number 1, and any 3 BMPs out of BMPs 3 through 13
14b	Any 2 BMPs out of BMPs 3 through 13
15b	Any 3 BMPs out of BMPs 3 through 13
17b	Any 4 BMPs out of BMPs 3 through 13

### BMPs for development, construction, and other general activities:

1. If potential roost trees or structures need to be removed, check cavities for bats within 30 days prior to removal of trees, snags, or structures. When possible, remove structure outside of breeding season (*e.g.*, January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.
2. When using heavy equipment, establish a 250 foot (76 m) buffer around known or suspected roosts to limit disturbance to roosting bats.
3. For every 5 acres of impact, retain a minimum of 1.0 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained.
4. For every 5 acres of impact, retain a minimum of 0.25 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained..
5. Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.



6. Conserve and/or enhance riparian habitat. A 50-ft (15.2 m) buffer is recommended around water bodies and stream edges. In cases where artificial water bodies (*i.e.*, stormwater ponds) are created, enhance edges with native plantings especially in cases in which wetland habitat was affected.
7. Avoid or limit widespread application of insecticides (*e.g.*, mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage or roost.
8. Conserve natural vegetation to promote insect diversity, availability, and abundance. For example, retain or restore 25% of the parcel in native contiguous vegetation.
9. Retain mature trees and snags that could provide roosting habitat. These may include live trees of various sizes and dead or dying trees with cavities, hollows, crevices, and loose bark. See “Roosting Habitat” in “Background” above.
10. Protect known Florida bonneted bat roost trees, snags or structures and trees or snags that have been historically used by Florida bonneted bats for roosting, even if not currently occupied, by retaining a 250 foot (76 m) disturbance buffer around the roost tree, snag, or structure to ensure that roost sites remain suitable for use in the future.
11. Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly lighting (*i.e.*, downward facing and lowest lumens possible). Avoid permanent night-time lighting to the greatest extent practicable.
12. Incorporate engineering designs that discourage bats from using buildings or structures. If Florida bonneted bats take residence within a structure, contact the Service and Florida Fish and Wildlife Conservation Commission prior to attempting removal or when conducting maintenance activities on the structure.
13. Use or allow prescribed fire to promote foraging habitat.

***Florida Panther Effect  
Determination Key***



Enclosure

Florida Panther Effect Determination Key  
February 19, 2007

A. Project is not within Panther Focus Area ..... B

Project is within Panther Focus Area..... C

B. Project will have no increase and/or change in vehicle traffic patterns or other identifiable effects to panthers or their habitat..... *No effect*

Project is greater than 1 acre in size and will have a net increase and/or change in vehicle traffic patterns or other identifiable effects to panthers or their habitat ..... *May affect*  
*Consultation with the Service is requested*<sup>1</sup>

C. Project is less than 1 acre.....*May affect, not likely to adversely affect*

Project is greater than 1 acre.....*May affect*  
*Consultation with the Service is requested*<sup>1</sup>

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<sup>1</sup> Consultation may be concluded informally or formally depending on project effects.

Rationale for the  
Florida Panther Effect Determination Key  
February 19, 2007

The following discussion provides background for terms used in the key and areas delineated on the accompanying map.

Panther Focus Area (see accompanying map)

The Panther Focus Area was based on results from recent panther habitat models south of the Caloosahatchee River and north of the Caloosahatchee River (Kautz et al. 2006 and Thatcher et al. 2006). In addition, marked panthers have been found throughout the delineated area.

The Kautz et al. (2006) model of landscape components important to Florida panther habitat conservation was based on an analysis of panther habitat use and forest patch size south of the Caloosahatchee River. This model was used in combination with radio-telemetry records, home range overlaps, land use/land cover data, and satellite imagery to delineate primary and secondary areas that would comprise a landscape mosaic of cover types that are especially important to support the current panther breeding population south of the Caloosahatchee River.

Thatcher et al. (2006) developed a habitat model using Florida panther home ranges in south Florida to identified landscape conditions (land-cover types, habitat patch size and configuration, road density and other human development activities, and other similar metrics) north of the Caloosahatchee River that were similar to those associated with the current panther breeding population south of the Caloosahatchee River.

The Panther Focus Area south of the Caloosahatchee River is divided into Primary, Secondary, and Dispersal Zones. North of the Caloosahatchee River it is named the Primary Dispersal/Expansion Area.

*Primary Zone* is currently occupied and supports the only known breeding population of Florida panthers in the world. These lands are important to the long-term viability and persistence of the panther in the wild.

*Secondary Zone* lands are contiguous with the Primary Zone and although these lands are used to a lesser extent by panthers, they are important to the long-term viability and persistence of the panther in the wild. Panthers use these lands in a much lower density than in the Primary Zone.

*Dispersal Zone* is a known corridor between the Panther Focus Area south of the

Caloosahatchee River to the Panther Focus Area north of the Caloosahatchee River. This zone is necessary to facilitate the dispersal of panthers and future panther population expansion to areas north of the Caloosahatchee River. Marked panthers have been known to use this zone.

*Primary Dispersal/Expansion Area* is the Fisheating Creek/Babcock-Webb Wildlife Management Area region. These are lands identified by Thatcher et al. (2006) as potential panther habitat with the shortest habitat connection to the Panther Focus Area in south Florida. Several collared and uncollared male panthers have been documented in this area since 1973, and the last female documented north of the Caloosahatchee River was found in this area.

In addition, the Thatcher Model Dispersal Pathways delineate model locations that show some areas where panthers have historically moved to areas further north.

*Thatcher Model Dispersal Pathways* are the most likely dispersal routes, based on Thatcher's (2006) least-cost pathways model, to potential habitats to the north. Panthers have historically been documented in this area.

### Project Analysis

Projects within the Panther Focus Area can negatively affect panthers in different ways, such as loss and fragmentation of habitat, loss of available prey, increase potential for traffic related mortalities, and increase potential for human/panther interactions.

In addition, projects outside the Panther Focus Area, depending on type and size, can affect panthers and habitat used by panthers in different ways such as increasing traffic within or adjacent to the Panther Focus Area, changing hydrological conditions that affect the habitats that support panther or panther prey in the Panther Focus Area, increasing potential for human/panther interactions, and modifying habitat that provides some functional value for panthers.

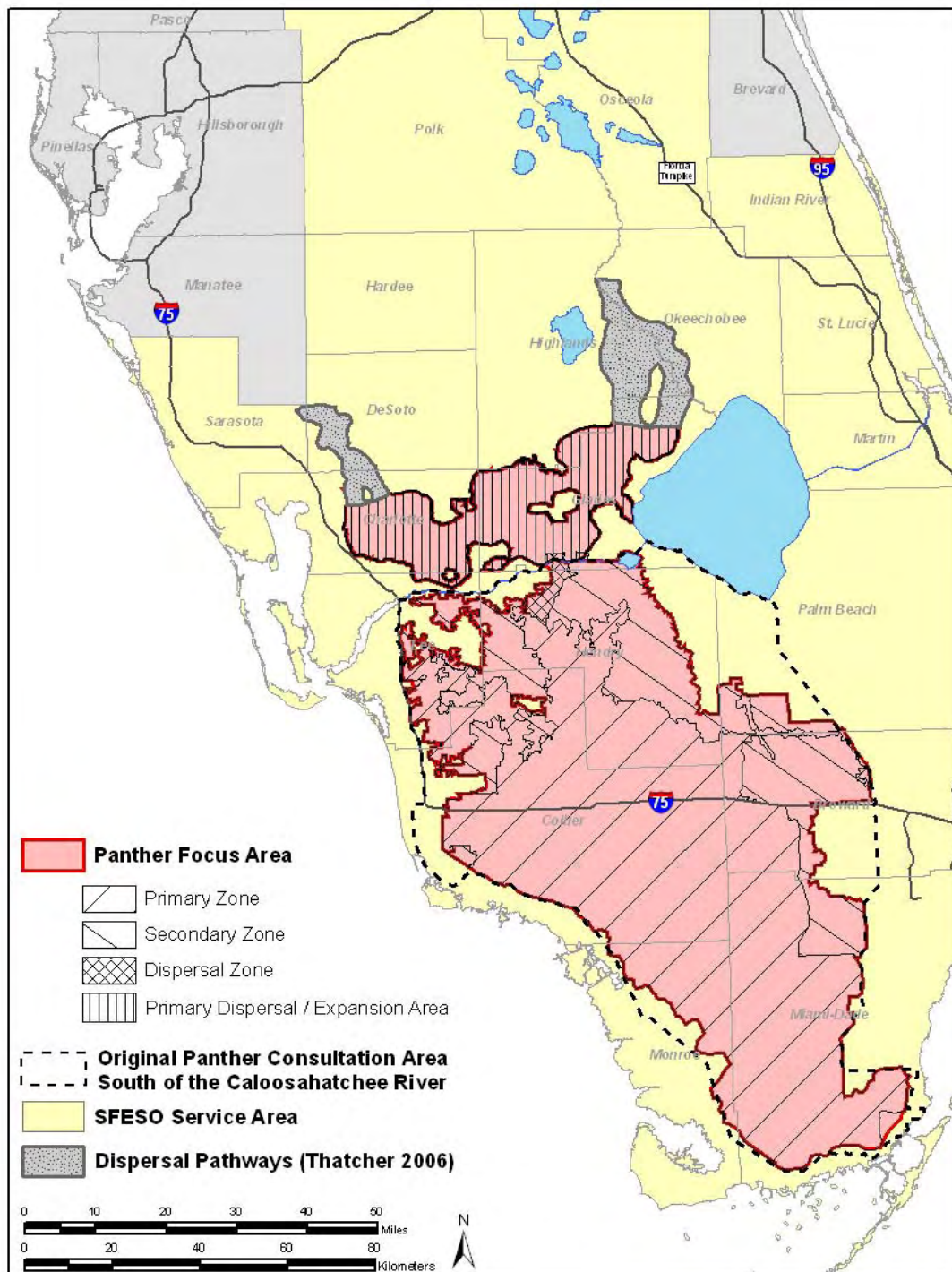
### Net Increase in Traffic

A net increase in traffic in or adjacent to the Panther Focus Area such as an increase in the number of trips per day averaged over a week is considered a traffic increase that may lead to adverse effects for purposes of this key.

### Other Identifiable Effects

Dispersing panthers are known to occur outside of the Panther Focus Area. South of the Caloosahatchee River, where the only breeding population of panthers is known to exist, a project is considered to potentially have an effect on panthers if it occurs in





## ***APPENDIX I***

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### **Audubon's Crested Caracara Survey Technical Report**

# **SR 70 FROM LONESOME ISLAND ROAD TO CR 721 SOUTH**

**FPID No. 449851-1**

**Audubon's Crested Caracara Survey Technical Report**

**Prepared for  
FDOT District One**

**December 2023**





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# SR 70 FROM LONESOME ISLAND ROAD TO CR 721 SOUTH

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## Audubon's Crested Caracara Survey Technical Report

### Introduction

This report summarizes the methods and results of a 2023 species-specific Audubon's crested caracara (*Polyborus plancus audubonii*) survey conducted for the proposed improvements to State Road (SR) 70 from Lonesome Island Road to County Road (CR) 721 South in Highlands County, Florida (**Figure 1**). The U.S. Fish and Wildlife Service (USFWS) Audubon's crested caracara Consultation Area (CA) overlaps the entire project limits; therefore, there is the potential for habitat of this species to be impacted. This survey was conducted in accordance with the 2016 USFWS Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season).

### Species Information

#### Species and Habitat Description

The Audubon's crested caracara is a large, boldly patterned raptor with a crest, naked face, heavy bill, elongated neck, and long legs. It has a body length of about 50-60 centimeters (cm) (20-24 inches) and a wingspan of about 124 cm (50 inches). The adult is blackish-brown on the crown, upper abdomen, rump, wings, and thighs. The lower part of the head, throat, upper breast, lower abdomen, and undertail coverts are white or cream. The lower breast has blackish barring with a buff background color. The back is also heavily barred with black and white. The tail is white with 11 to 14 narrow dark crossbars and a broad terminal band; there are conspicuous white patches in the outer part of the wing in flight. The bill is bluish-gray which contrasts with the bright yellow facial skin, which turns reddish-orange when flushed with blood. The legs and feet are deep yellow. Juveniles have a similar color pattern but are brownish and buff with the breast and upper back streaked instead of barred. In addition, facial skin of juveniles is pinkish in color and the legs are gray.

Caracaras inhabit open xeric to mesic habitats. Its preferred habitat is native dry or wet prairie with associated marshes, cabbage palm (*Sabal palmetto*), and cabbage palm - live oak (*Quercus virginiana*) hammocks. Native prairie habitats have been greatly reduced in Florida via residential and commercial development causing caracara to frequently utilize unimproved and improved

pastures. Adult caracaras maintain and defend large territories, usually with their mates. Breeding activity can occur between September and June with the primary season being November through April. Suitable nest trees are an important component of caracara habitat. Cabbage palms are most frequently utilized followed by live oaks, cypress (*Taxodium* spp.), and occasionally Australian pine (*Casuarina* spp.), black gum (*Nyssa sylvatica*), slash pine (*Pinus elliottii*), red cedar (*Juniperus virginiana*), and saw palmetto (*Serenoa repens*). Caracaras usually construct their nests 12 to 50 feet above the ground and they consist primarily of woven vines trampled to form a depression (Humphrey and Morrison 1997). Caracara pairs sometimes have two or three alternate nest trees that may be used in different years or for a second nesting effort within the same year. All nest trees are typically situated in the same general vicinity, usually within 0.3 miles of each other.

Caracaras forage extensively on the ground with a foraging range average of 3,000 acres and a radius of approximately one mile. Caracaras are opportunistic feeders with a diet consisting of carrion as well as a wide variety of live invertebrate and vertebrate prey. This species also closely follows agricultural equipment to capitalize on prey that may be exposed during agricultural activities. Agricultural drainage ditches, cattle ponds, roadside ditches, and other shallow water features also provide good feeding areas for caracaras (Morrison 2001). Within native habitats, caracaras regularly scavenge in recently burned areas and forage along the margins of wetlands within dry prairie communities.

## Status

The Audubon's crested caracara is listed as a federally designated threatened species by the USFWS and is protected by both the Endangered Species Act (ESA), as amended (16 U.S.C. 1531 et seq.) and the Migratory Bird Treaty Act. No Critical Habitat has been designated for this species.

The decline of the caracara in Florida is primarily due to habitat loss. In particular, the optimal habitat for caracaras, dry prairie, has been largely destroyed or modified for agriculture and residential/commercial development. Additionally, previous regulatory mechanisms did not adequately prevent the destruction or modification of the caracara's habitat, located mainly on private land. Both of these factors led to the federal listing of the species.

In order to reduce the potential for nest abandonment and loss of eggs and small chicks from human disturbance, the USFWS recommends that primary and secondary protection zones be placed around nest trees (2004 USFWS). The primary zone encompasses a 360-degree area extending 300 meters (985 feet) outward from the nest tree. Morrison (2001) found that the adult caracaras are most sensitive to human disturbance during incubation or early nesting stages if the source of disturbance is within 300 meters from the nest tree. Year-round restrictions in the primary zone typically include activities such as alteration to pasture, wetlands, nest trees, and other vegetation, as well as construction of buildings, roads, power lines or canals, changes in land management activities, and chemical applications that are harmful to wildlife. Nesting season limitations within the primary zone include normal agricultural activities (only until nestlings fledge), human entry, and low flyovers by aircraft.



A 360-degree secondary zone is recommended as a foraging protection zone and extends 1,500 meters (4,920 feet) outward from the nest tree. Conservation measures for this zone include maintaining pasture, grassland, and wetlands (including ditches and canals) that are necessary for caracara foraging habitat. Conversion of pasture and wetland habitats in this zone to row crops, sugarcane, citrus groves, pine plantations or hardwood forest may adversely affect caracaras. The use of chemicals toxic to wildlife including pesticides, fertilizers, or herbicides should be limited as they may impact the food supply available for caracaras. Normal ranching and agricultural operations (including sod farming), hiking, bird watching, fishing, camping, picnicking, hunting, and recreational off-road vehicle use are allowed within the secondary zone.

## Existing Environmental Characteristics

Natural/biological features and land use within the survey boundary were initially reviewed using the 2017 Florida Land Use, Cover, and Forms Classification System (FLUCFCS) Geographic Information System (GIS) data layer available South Florida Water Management District (SFWMD). A 1,500-meter secondary zone buffer of the project limits, which comprises the project action area for this species, was created. Improved Pastures (FLUCFCS 2110, ~ 38%) is the predominant land use, followed by Citrus Groves (FLUCFCS 2210, ~ 19%). The remaining land use / land cover categories with significant coverage in the 1,500-meter buffer include: Unimproved Pastures (FLUCFCS 2120, ~ 11%), Fallow Cropland (FLUCFCS 2610 ~8%), Freshwater Marshes / Graminoid Prairie - Marsh (FLUCFCS 6410, ~ 7%), and Sugar Cane (FLUCFCS 2156 ~4%). These categories total 87% of the land use/land cover within a 1,500-meter buffer of the project limits. **Figure 2** depicts the land uses within the 1,500-meter buffer. Lands surrounding the project limits are impacted due to agricultural activities such as growing row crops, cattle grazing, and citrus farming.

## Methodology

### Preliminary Data Collection

A comprehensive literature and GIS database search was conducted for the project action area (1,500-meter buffer of the project boundary) to determine if the Audubon's crested caracara was previously documented within the project limits and if suitable habitat was available. The literature and database search included standard references such as the Rare and Endangered Biota of Florida Series, Florida Geographic Data Library (FGDL) GIS databases, as well as the Florida Fish and Wildlife Conservation Commission (FWC) and USFWS lists of protected species and their GIS databases.

Based on this preliminary data collection effort, caracara findings include the following:

- The project falls within the USFWS Audubon's crested caracara CA;
- No critical habitat has been designated for the caracara;
- Suitable foraging and nesting habitat was identified within and outside the project limits; and

- One (1) generalized location of non-breeding communal roosts and gathering places for caracara, as documented by the USFWS, is located within the caracara secondary zone for the proposed project. Two (2) additional caracara non-breeding communal roosts and/or gathering places are located just outside the caracara secondary zone for the proposed project.

## Field Survey Methodology

Project biologists examined current aerial imagery and the 2017 SFWMD FLUCFCS data to identify appropriate areas to survey for caracara nests. The 1,500-meter survey boundary buffer was used to identify any potential nests that would have a primary and/or secondary protection zone that overlaps with the proposed project. Potential survey stations were identified, and a field review was conducted to verify the suitability of the survey stations.

Ten (10) survey stations were established (Stations 9-19) which allowed for a field of view that included potential caracara nesting trees. Determination of survey stations was based upon potential available nesting habitat, area of visibility, and suitable foraging habitat. Caracara foraging and nest tree surveys were conducted bi-weekly from January 3, 2023, through April 26, 2023, and each survey event included field surveys in the morning per the 2016 USFWS Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season). As a note, Station 18 caracara surveys were completed until May 26, 2023, due to potential nesting observations at the end of the survey season. Foraging and nest tree surveys began fifteen (15) minutes before sunrise and lasted three (3) hours. For each survey event, a team of one or two field biologists monitored a predetermined survey station. Typically, each person worked individually and routinely, assessing the project area to the greatest extent possible and monitoring areas that had suitable nesting and/or foraging habitat in the vicinity. Survey efforts were focused in open and woodland pastures which provided the best foraging habitat for the species, contained potential nest trees, and provided the best visibility for the survey area. Survey stations and observation blocks are presented in **Figure 3**. Once a caracara nest tree was identified, a productivity survey was then initiated following the USFWS guidelines.

USFWS Caracara Survey Forms were used to record survey observations and all survey forms are provided in **Appendix A**. Information recorded on the forms includes names of observers, current weather, number of caracaras observed, their age class, crested caracara activity, and incidental wildlife species observed. Crested caracara data from the survey forms is summarized as a table in **Appendix B**.

## Results

Potential foraging habitat for the species was identified throughout the project landscape. Pastureland, citrus groves, lightly wooded areas, and roadways (which provide roadkill) offer foraging opportunities for caracaras and are present within the project area. Potential nesting habitat for the species was also identified within the project area; specifically, pastureland and rural residential land containing cabbage palms. Within the SR 70 existing right-of-way (ROW) and proposed ROW, potential nesting habitat was observed which consists of cabbage palms and slash pines. All caracara observations were recorded, and the results are presented

in **Figure 4**. A summary of the caracara survey data is documented in **Appendix B**. Photographs documenting the representative field of view at each survey station are in **Appendix C**. Incidental wildlife observations are included in **Appendix D**. Caracara observer experience is documented in **Table 1** shown below.

**Table 1. Caracara Observer Experience.**

<b>Name</b>	<b>Primary or Secondary Observer</b>	<b>Total Hours of Experience</b>	<b>Number of Caracara Nests Previously Found</b>
Alan Alshouse	Primary	342	2
Emily Keenan	Primary	41	0
Tori Kuba	Primary	211	3
Jennifer Korn	Primary	679	17
Church Roberts	Primary	1000+	50+
Brett Solomon	Primary	43	2
Zackary Yawn	Primary	48	1

Caracaras were observed at all ten (10) survey stations during field surveys, but nesting activity was only observed at Stations 10, 13, 14, 16, and 18 (**Figure 4**). It is important to note that caracara activity, copulation, nest building, feeding and tending to the chicks, and observations of young fledging the nest, were noted at Stations 15, 17, and 19, as well. Stations 14 and 15 had clear views of the nest site for Station 14, Stations 16 and 17 had clear views of the nest site for Station 16, and Stations 13 and 19 had clear views of the nest site for Station 13. Additionally, Station 18 appears to have had two failed nest attempts, see below for details.

Potential nesting activity was first observed at Station 10 on March 7, 2023, and the location of the nest was documented on March 21, 2023, in a cabbage palm. On April 7, 2023, two immature caracaras/fledglings were observed feeding on the ground with food from the adult. This event indicates a successful fledge from the nest.

Potential nesting activity was first observed at Station 13 on February 10, 2023, and the location of the nest was documented on February 20, 2023, in a cabbage palm. On March 10, 2023, one adult, one juvenile, and two fledglings (immature) caracaras were observed walking together in the horse pasture on the east side of CR 721. The nest site is approximately 100 yards south of where the birds were walking about. The fledglings were doing a lot of exploring and making short hopping flights. On March 24, 2023, one immature caracara/fledgling was observed walking around in the pasture and flying into the nest area. This event indicates a successful nesting season with two fledglings observed.

As a note, scientists conducting caracara surveys at Station 19 observed caracara activity in the vicinity of Station 13. On February 27, 2023, two adult caracaras were observed feeding one



fledgling on the ground in the vicinity of the nest tree at Station 13. On March 13, 2023, observers from Station 19 noted two fledglings in the pasture. For the remaining surveys at Station 19 (March 28, April 10, and April 21, 2023) observations indicate only one fledgling was observed.

Potential nesting activity was first observed at Station 14 on January 7, 2023, and the location of the nest was documented on January 20, 2023, in a cabbage palm. On March 2, 2023, adult caracaras were observed feeding young in the nest, scientists estimated that there was one chick in the nest. On March 17, 2023, scientists observed one adult caracara flying into nest with food then exited and flew into adjacent cabbage palm. Scientists observed the individual fly down and back up to adjacent tree. Scientists observed fledge. On March 29, 2023, scientists conducting caracara surveys at Station 15 documented an adult caracara taking carrion to Station 14 to feed fledglings. On April 25, 2023, scientists conducting caracara surveys at Station 15 documented one adult and three juvenile caracaras on the berm of the canal north of road on Lykes property. These appear to be the Station 14 fledglings, which confirms they had three young fledge. Another adult caracara brought a piece of food to one of the juveniles which further confirms these are the Station 14 adults and their fledged young.

Potential nesting activity was first observed at Station 16 on January 5, 2023. A pair of adult caracaras were observed copulating on January 5 and 17, 2023, by scientists conducting caracara surveys at Station 17. Scientists conducting caracara surveys at Station 16 confirmed the location of the nest on January 18, 2023, in a cabbage palm. On February 1, 2023, scientists observed adults feeding young and heard sounds of chicks in the nest, but they could not determine how many young were in the nest. On February 28, 2023, scientists confirmed one chick was present in the nest (from Station 17). On March 15, 2023, the immature caracara was observed flying around and begging the adult for food, indicating a successful fledge from the nest. Observations at Station 17 on March 28, 2023, indicate adults bringing carrion to and feeding the fledgling at Station 16. On April 11, 2023, scientists observed the adult caracara and fledge from Station 16 landing and feeding at Station 17. Scientists hypothesized that this observation was an indication that there is no other active territory or nest near this area since Station 16 adult and juvenile were unbothered using the area.

Potential nesting activity was first observed at Station 18 on January 30, 2023. Caracaras were observed at Station 18 throughout the survey season, but no nest or potential nesting behavior was observed until April 27, 2023. A potential nest was observed on April 27, 2023, in a cabbage palm. Two adult caracaras were observed flying in and out of the same cabbage palm. Additionally, territorial displays were observed. Scientists returned to Station 18 on May 11, 2023, to see if this caracara pair had a nest, but no caracaras were observed. On May 26, 2023, no nest was observed again, but the same caracara pair was present. Based on the observations, it appeared the pair had an unsuccessful nesting attempt.

## Conclusions

Based on the field surveys five (5) active crested caracara nests were documented within 1,500 meters of the project limits; nests were observed at Station 10, Station 13, Station 14, Station 16,

and Station 18 (**Figure 5**). The proposed project is within the 300-meter primary zone for nests located near Station 10 and Station 16. The proposed project is within the 1,500-meter secondary zone for the nests located near Station 10, Station 13, Station 14, Station 16, and Station 18.

For the caracara nest documented near Station 10, the nest is located on the south side of SR 70, approximately 536 feet from the proposed ROW. The primary zone for this nest overlaps the project limits.

A total of 10.85 acres of the SR 70 project footprint is located within the 300-meter primary protection zone for the caracara nest located at Station 10. Land uses within the proposed project footprint include 3.19 acres of Cropland and Pastureland (FLUCFCS 2120), 1.08 acres of Tree Crops (FLUCFCS 2210), 0.05 acres of Other Open Lands – Rural (FLUCFCS 2610), 2.29 acres Streams and Waterways (FLUCFCS 5120), 0.94 acres of Transportation (FLUCFCS 1840), and 3.30 acres of Disturbed Land (FLUCFCS 7470). A total of 9.91 acres of primary zone habitat will be converted to roadway use based on the proposed project.

For the caracara nest documented near Station 16, the nest is located on the north side of SR 70, approximately 50 feet from the proposed ROW. The primary zone for this nest overlaps the project limits.

A total of 11.10 acres of the SR 70 project footprint is located within the 300-meter primary protection zone for the caracara nest located at Station 16. Land uses within the proposed project footprint include 9.82 acres of Improved Pastures (FLUCFCS 2100) and 1.28 acres of Roads and Highways (FLUCFCS 8140). A total of 9.82 acres of primary zone habitat will be converted to roadway use based on the proposed project.

There are recommendations in place to reduce impacts to the caracara. The primary and secondary zones of a caracara nest are particularly important to this species during nesting season; therefore, the following construction precautions are recommended to reduce any potential impact to the nest.

Within FDOT ROW, primary zone nest conservation measures and construction precautions include:

- Avoiding the use of chemicals toxic to wildlife;
- Maintaining nest trees and other trees in the primary zone;
- Maintaining foraging habitat in wetlands, ditches, canals, and pastures for feeding;
- Limiting all human activities during nesting season;
- Avoiding construction of buildings, roads, power lines, or canals;
- Avoiding changes in land management activities;
- Limiting normal agricultural activities (only until nestlings fledge) during nesting season;

- Limiting low flyovers by aircraft;
- Land clearing and/or construction activities for the project will be conducted outside of the caracara nesting season (November 1 through April 30) in project areas located within the 300-meter primary nest zone. Since caracara nesting season is from November 1 through April 30, land clearing and/or construction activities within the primary nest zone should be completed between May 1 and October 31; and
- Should it be necessary to conduct land clearing and/or construction activities within 1,500 meters of a potential nest tree during nesting season (November 1 through April 30), the applicant or their designated agent will survey suitable caracara nesting habitat within the project site to determine if an active caracara nest occurs within or adjacent to (i.e., within viewing distance) the project site. If an active nest is observed on or near the project site (i.e., within 300 meters), land clearing and/or construction activities within 300 meters (985 feet) of the nest will not occur until monitoring has determined the nest has either been abandoned, or chicks within the nest have fledged and left the nest site.

Within FDOT ROW, secondary zone nest conservation measures and construction precautions include:

- Maintaining pasture, grassland, and wetlands (including ditches and canals) that are necessary for caracara foraging habitat;
- Limiting the use of chemicals toxic to wildlife including pesticides, fertilizers, or herbicides as they may impact the food supply available for caracaras; and
- Should it be necessary to conduct land clearing and/or construction activities within 1,500 meters of a potential nest tree during nesting season (November through April), the applicant or their designated agent will survey suitable caracara nesting habitat within the project site to determine if an active caracara nest occurs within or adjacent to (i.e., within viewing distance) the project site. If an active nest is observed on or near the project site (i.e., within 300 meters), land clearing and/or construction activities within 300 meters (985 feet) of the nest will not occur until monitoring has determined the nest has either been abandoned, or chicks within the nest have fledged and left the nest site.

Because the proposed project will impact a small area of habitat within the primary zone, no caracara nest trees are proposed to be impacted, and land clearing and/or construction activities are proposed to occur outside of the caracara nesting season, it is anticipated that this project “may affect, but is not likely to adversely affect” the Audubon’s crested caracara.



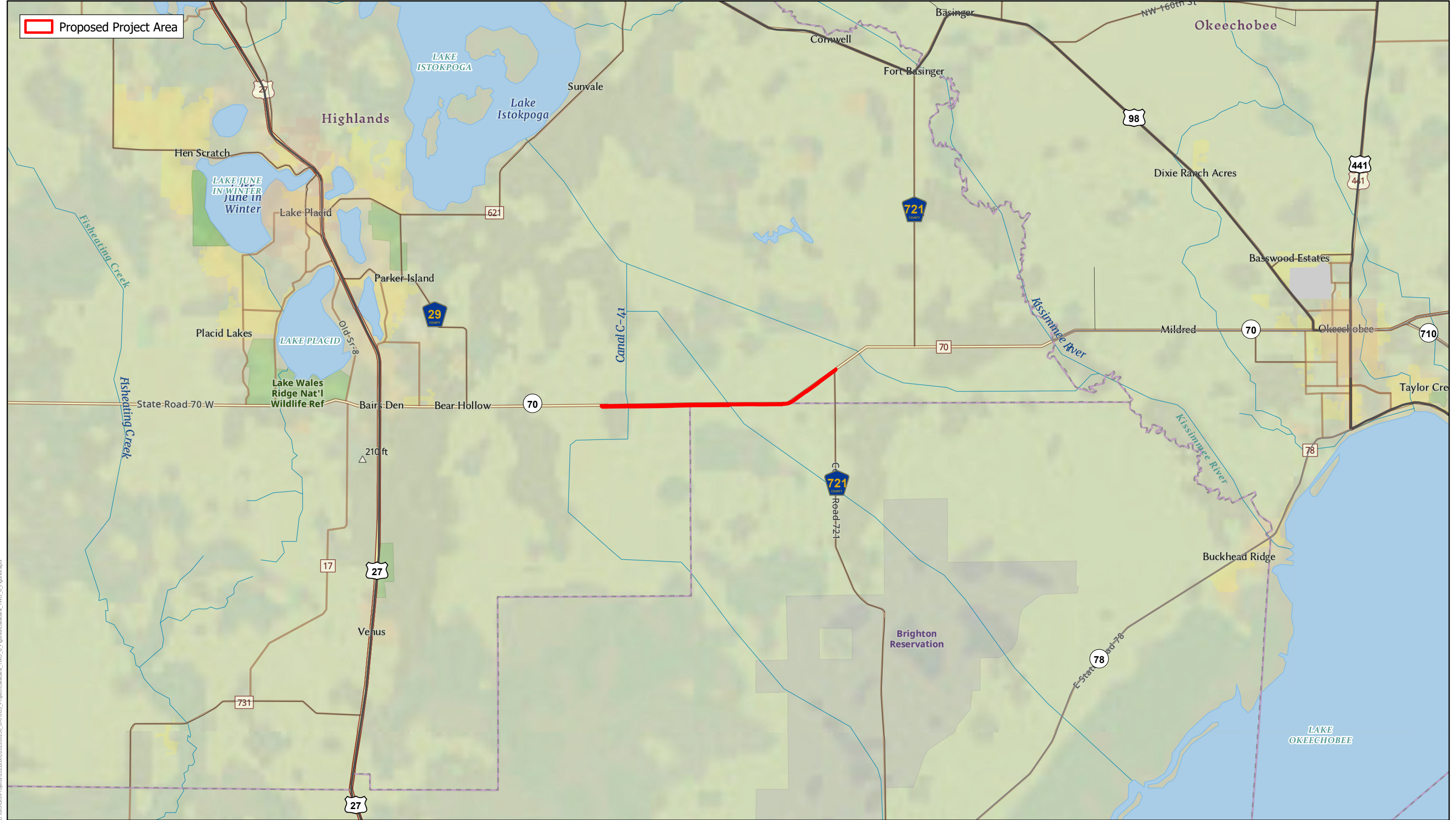
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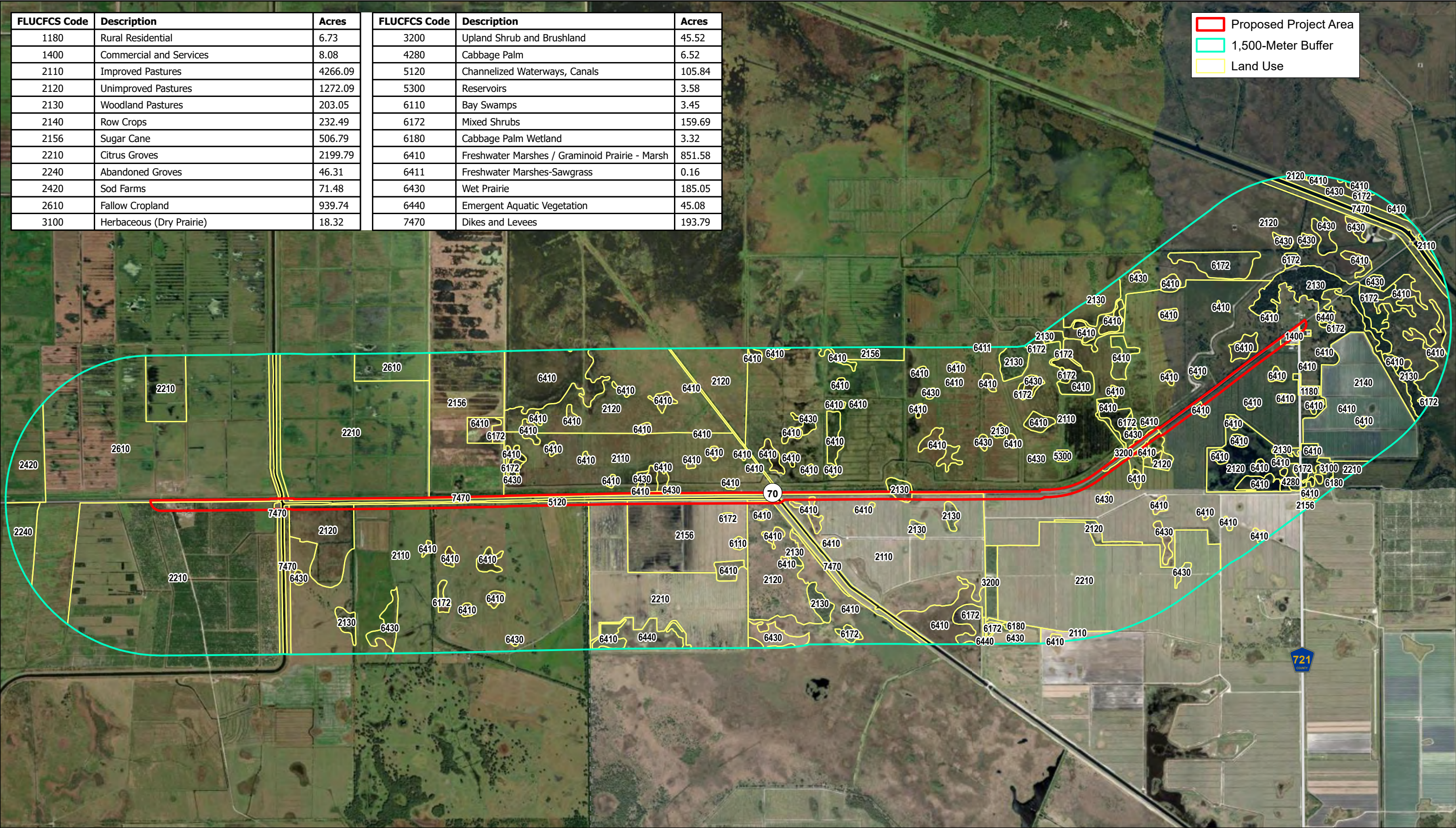
## Figures

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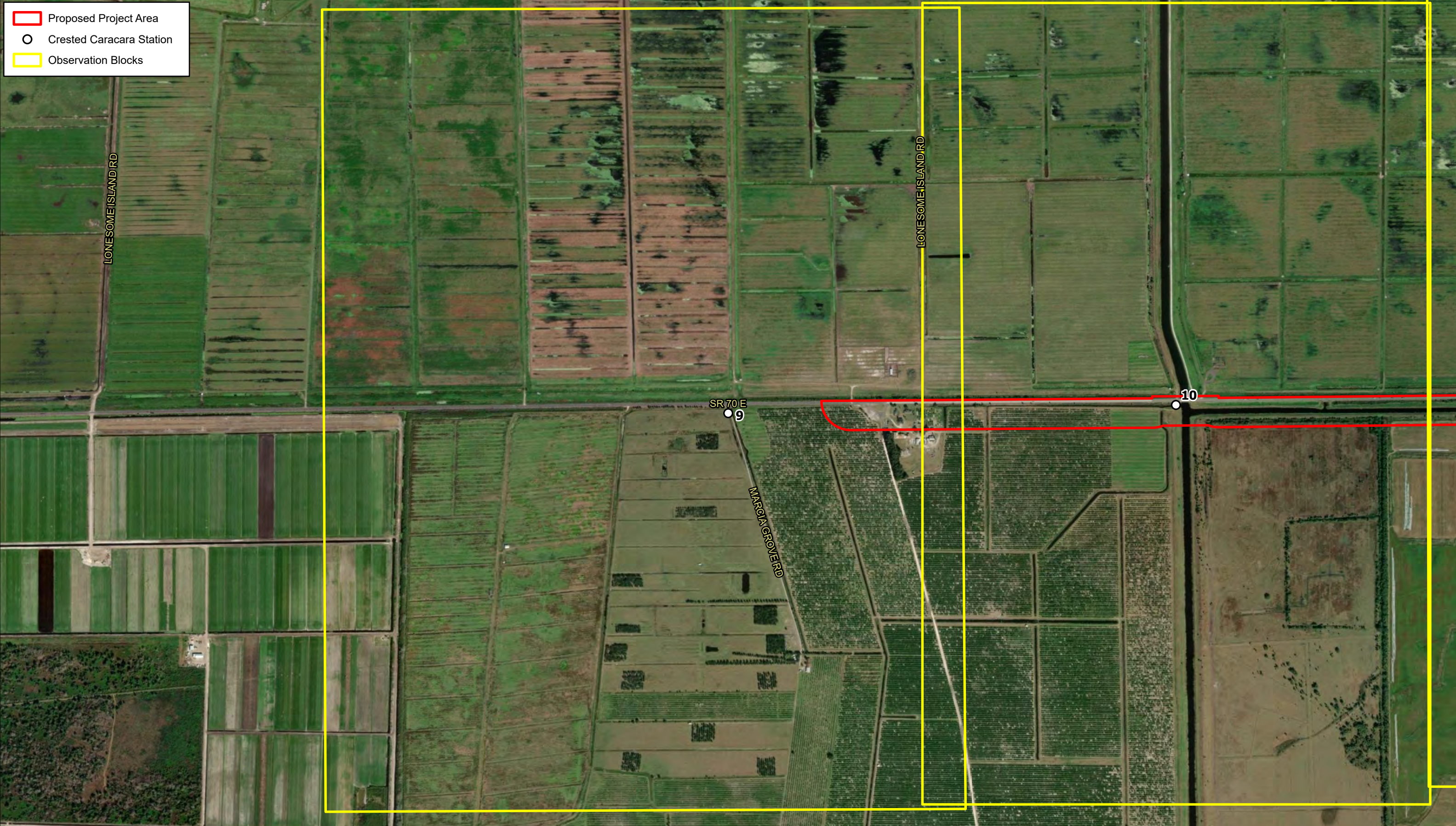
- Figure 1 Project Location Map
- Figure 2 Land Use Within 1,500-Meter of Project Area Map
- Figure 3 Crested Caracara Survey Stations and Observation Blocks Map
- Figure 4 Crested Caracara Nest Tree Locations and Flight Paths Map
- Figure 5 Primary and Secondary Buffer Zones of Nest Tree



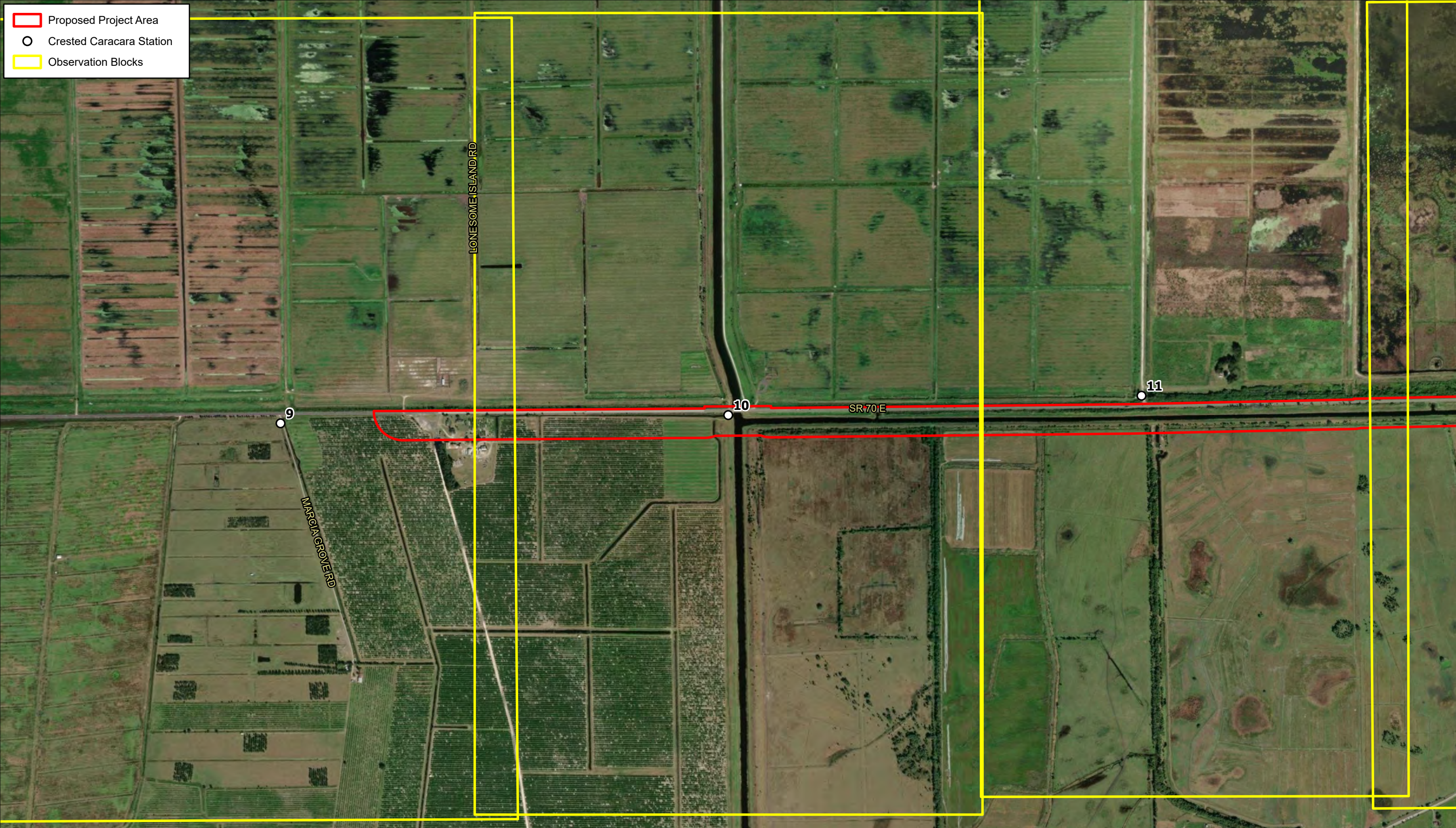




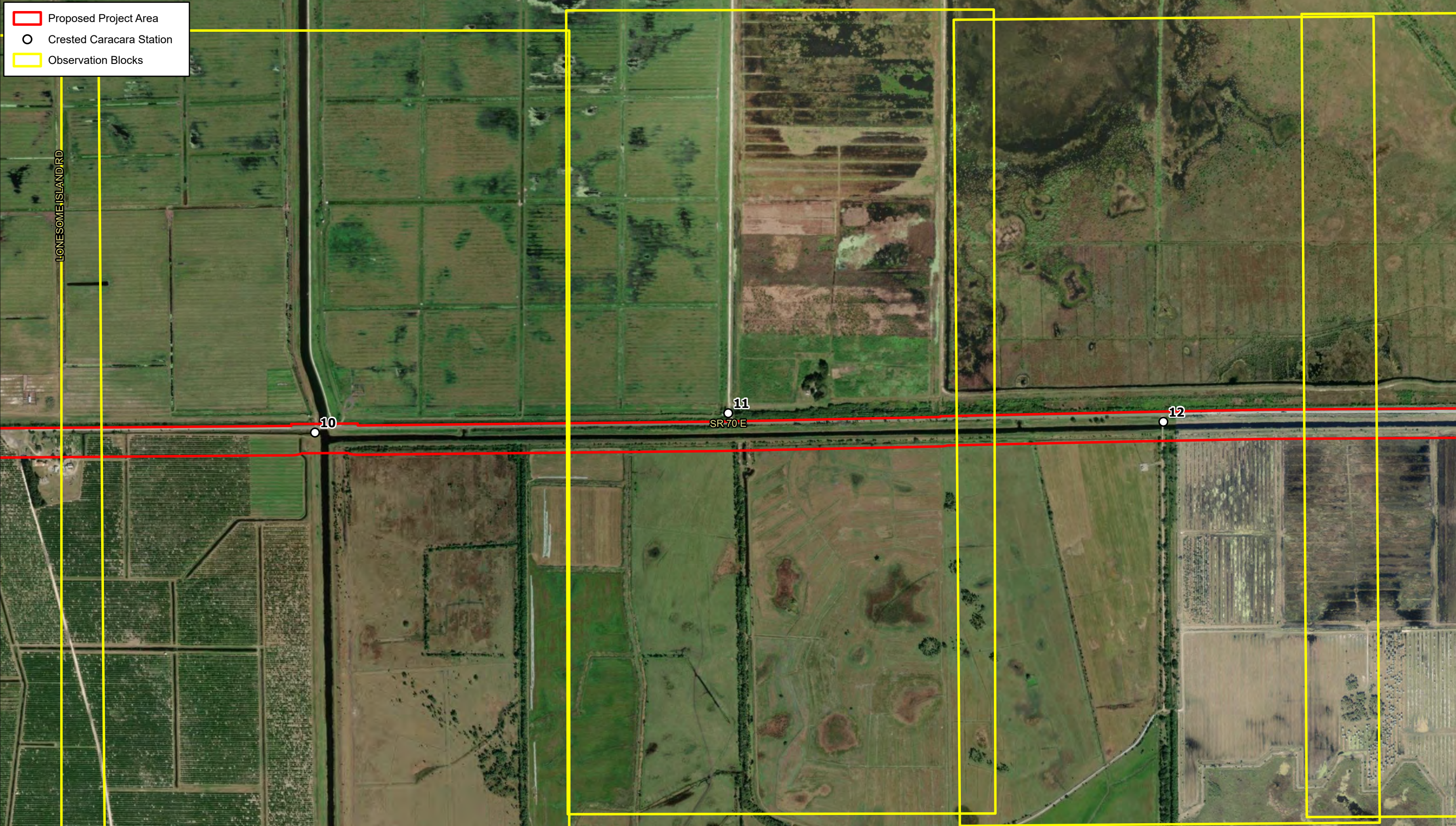




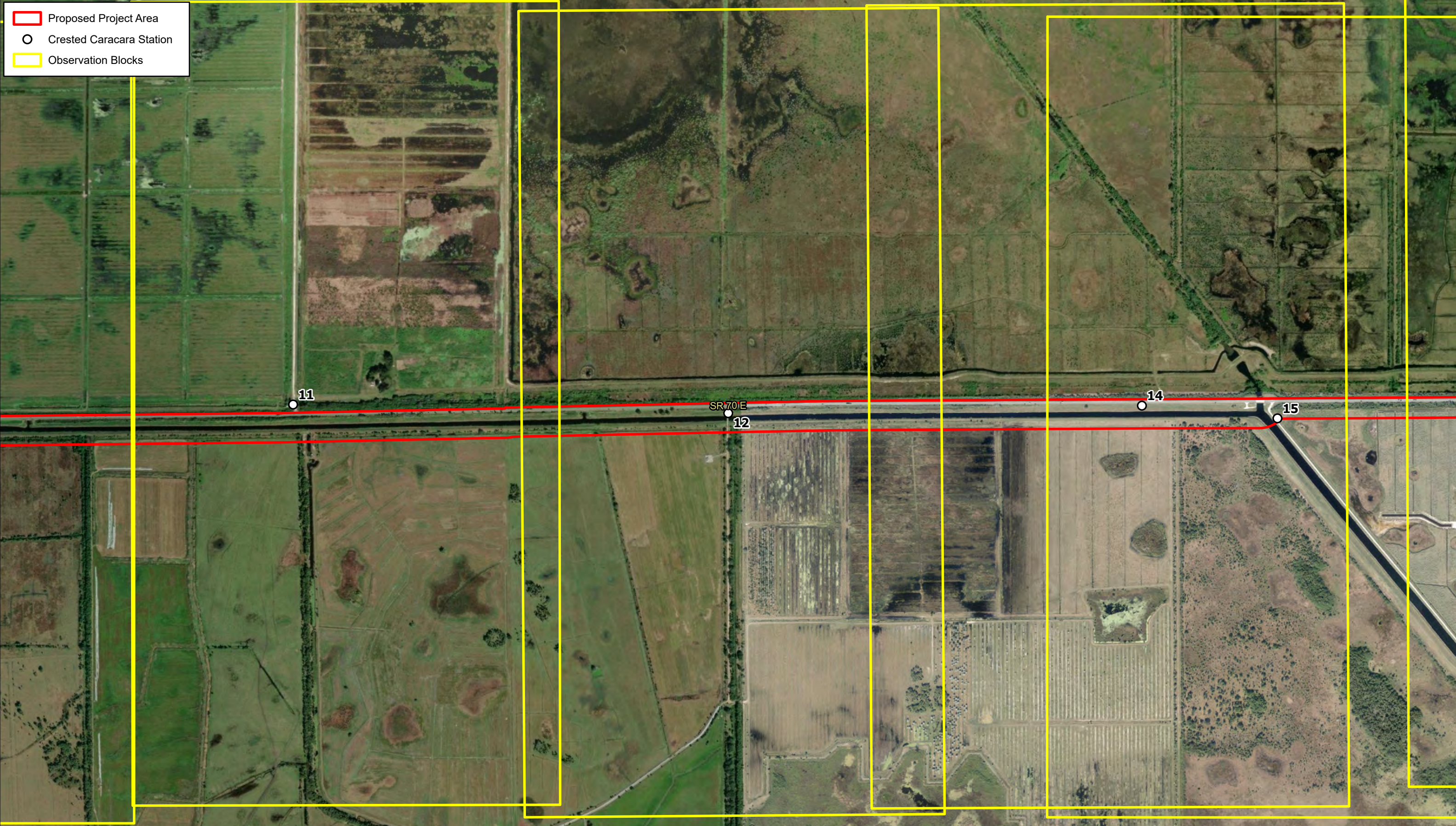




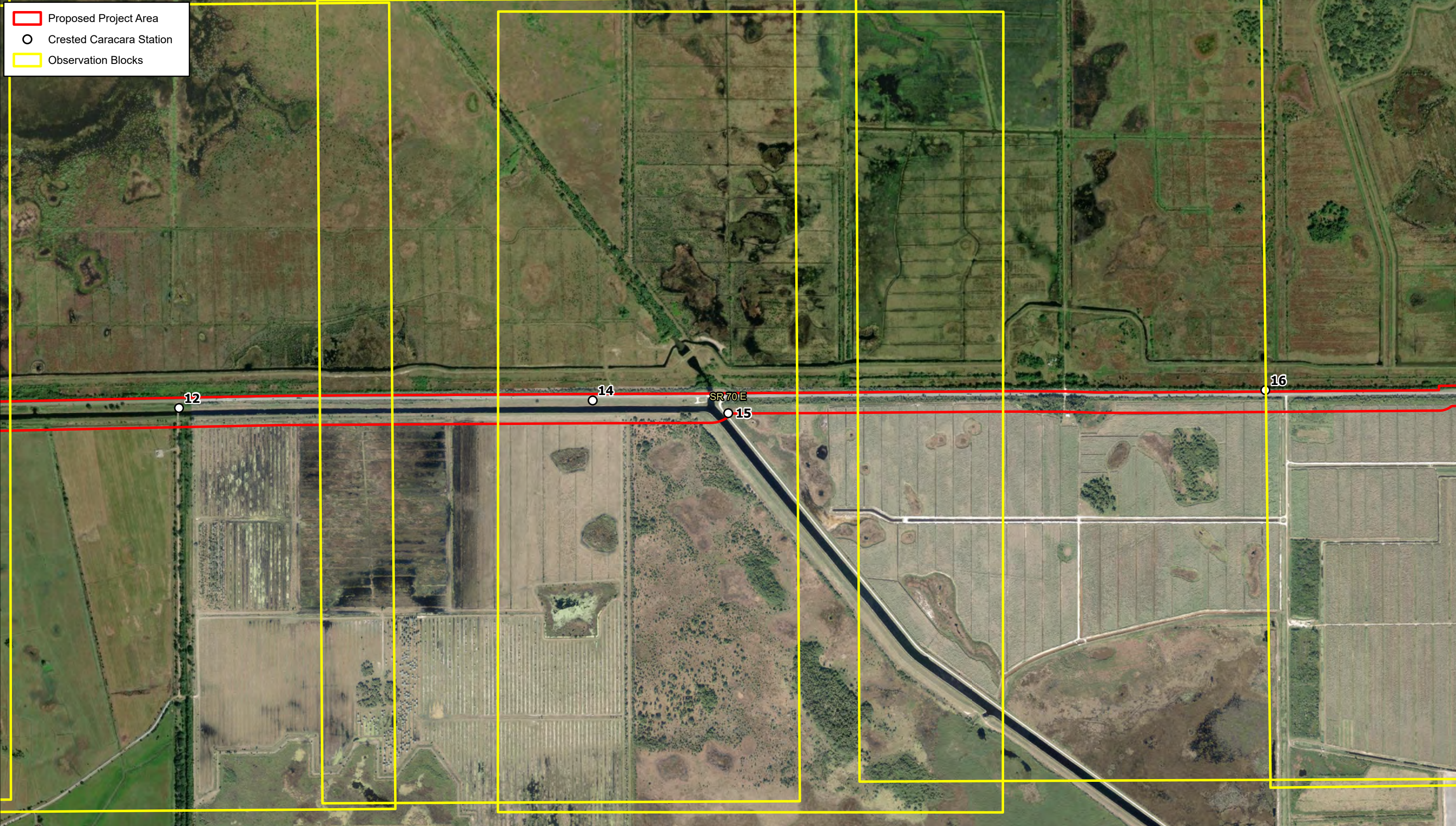












Proposed Project Area

Crested Caracara Station

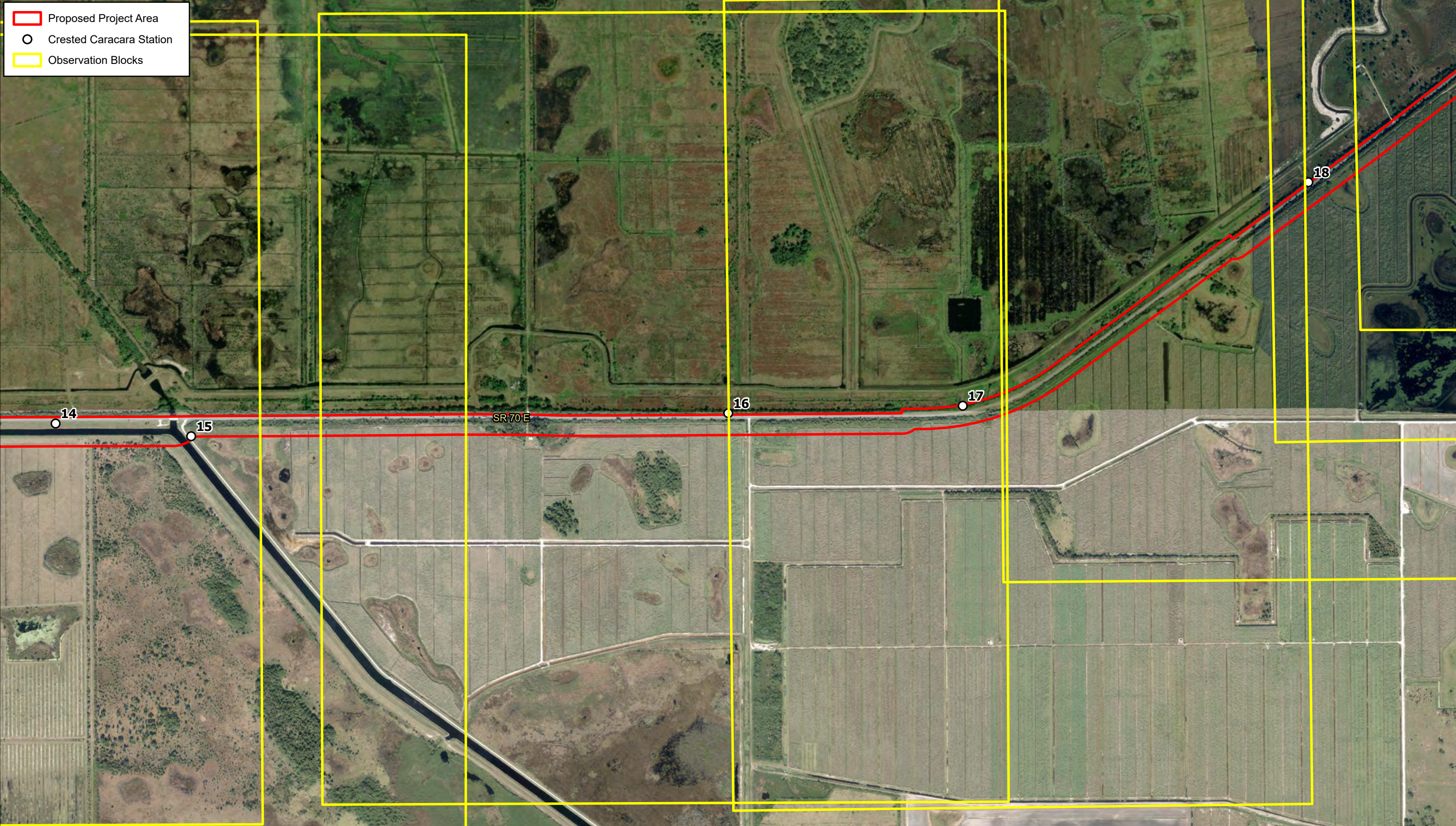
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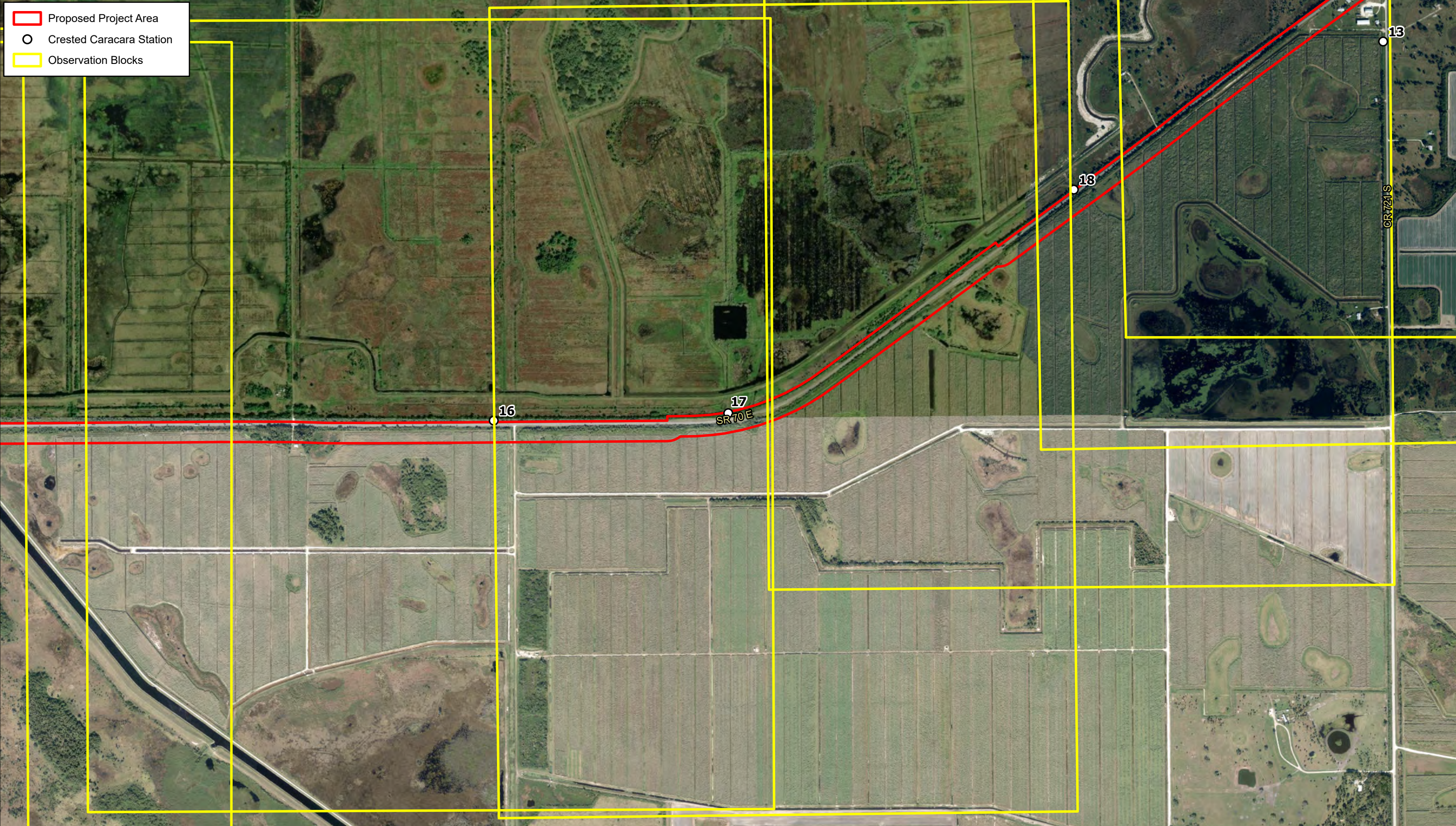
Proposed Project Area

Crested Caracara Station

Observation Blocks







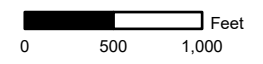
Proposed Project Area


Crested Caracara Station

Observation Blocks

Figure 3 - Crested Caracara Survey Stations and Observation Blocks Map

Sheet 7 of 9  
FPID#: 449851-1  
SR 70 from Lonesome Island Road to CR 721 S  
Highlands County, Florida





All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

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-ESA

Imagery Source:  
-ESRI Aerial Imagery

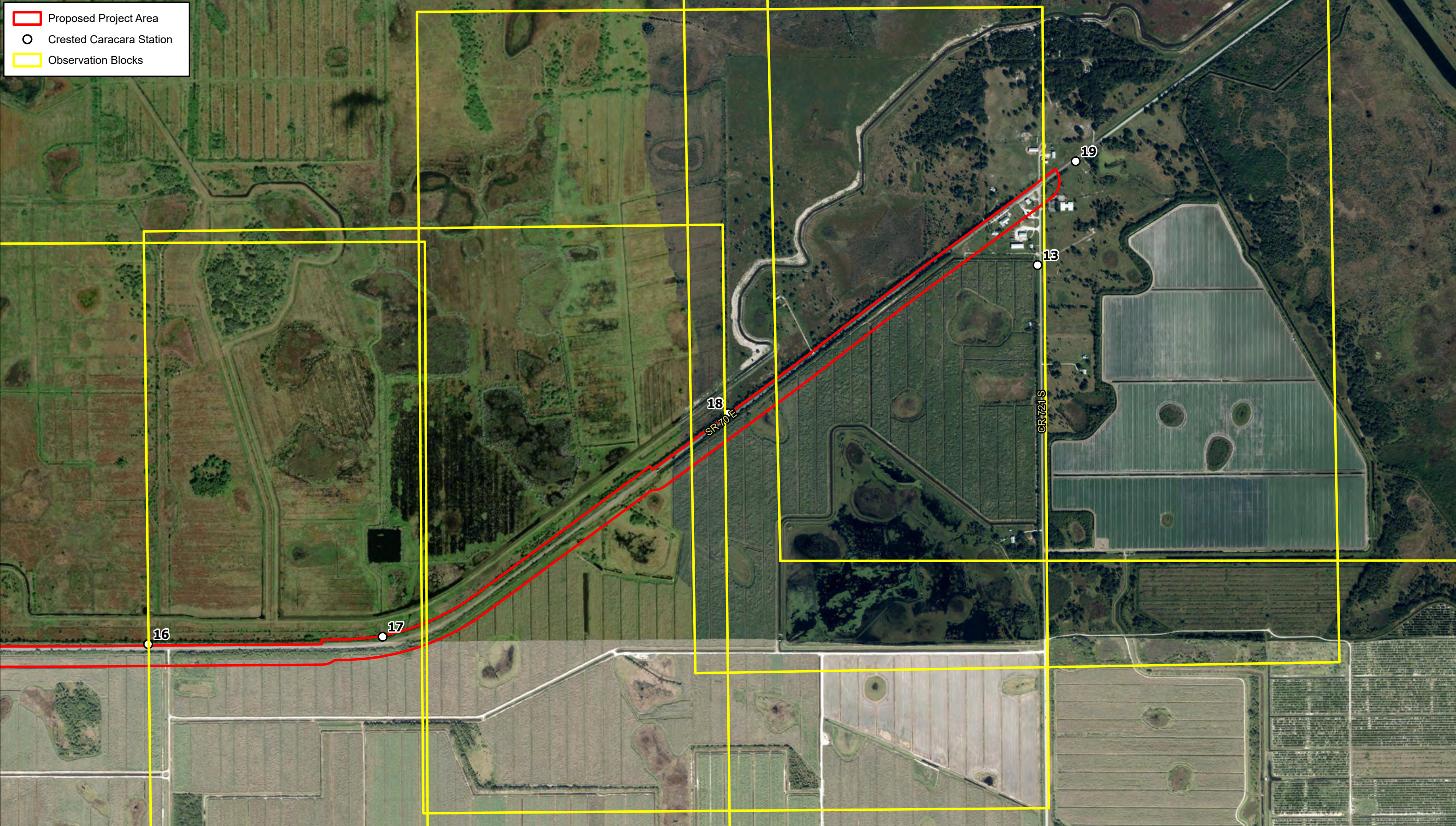




Proposed Project Area

Crested Caracara Station

Observation Blocks

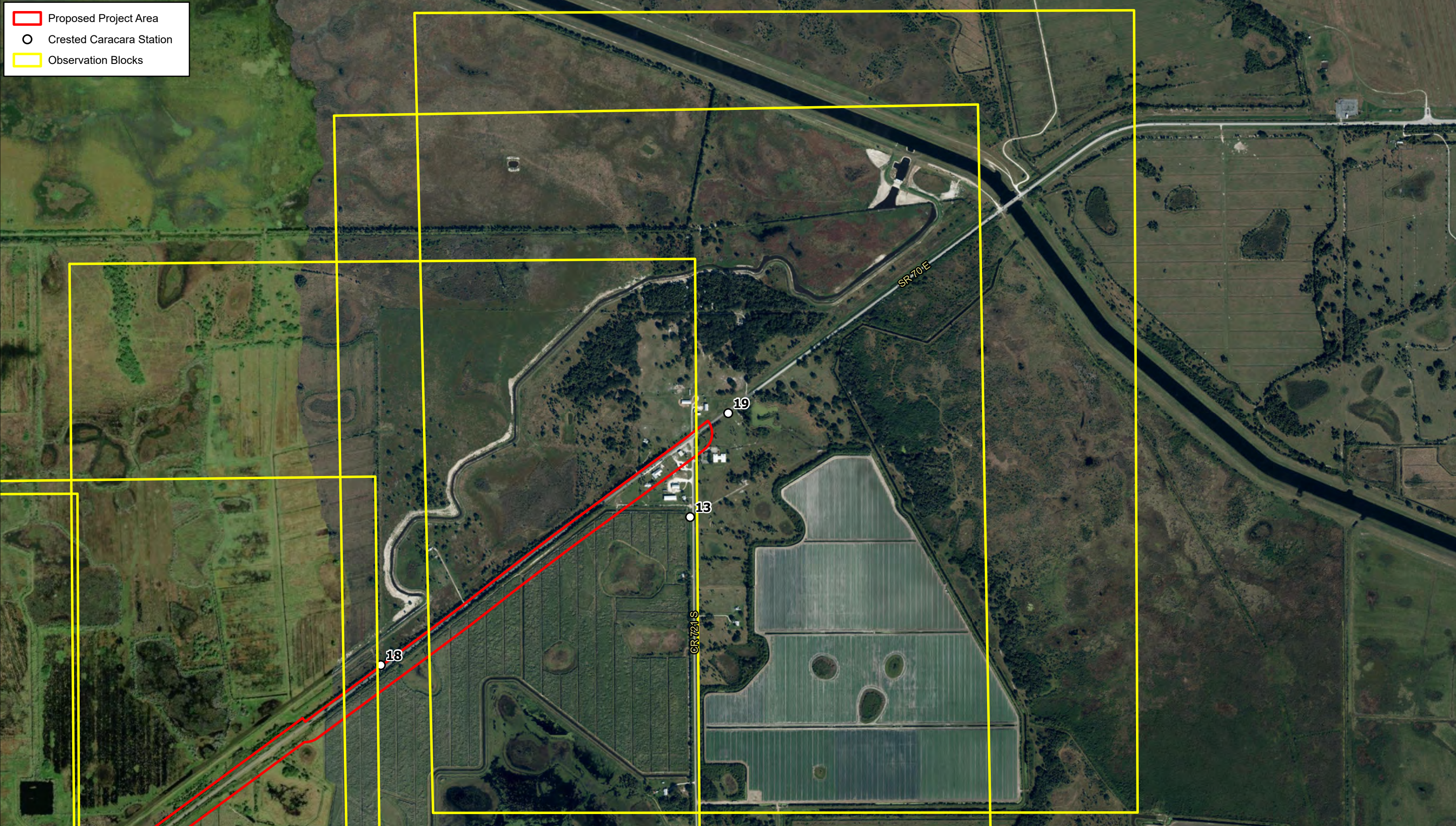




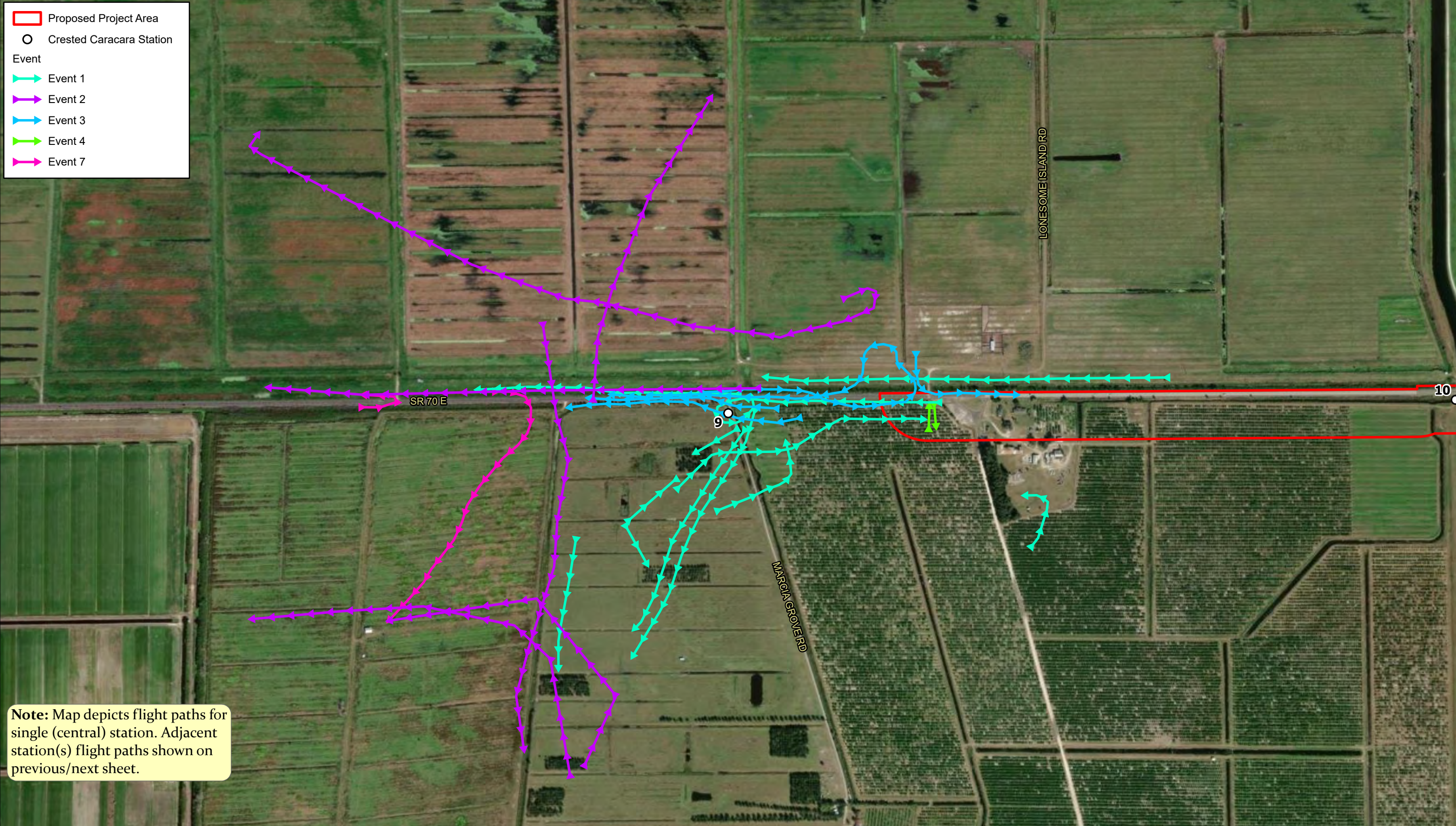
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Crested Caracara Station

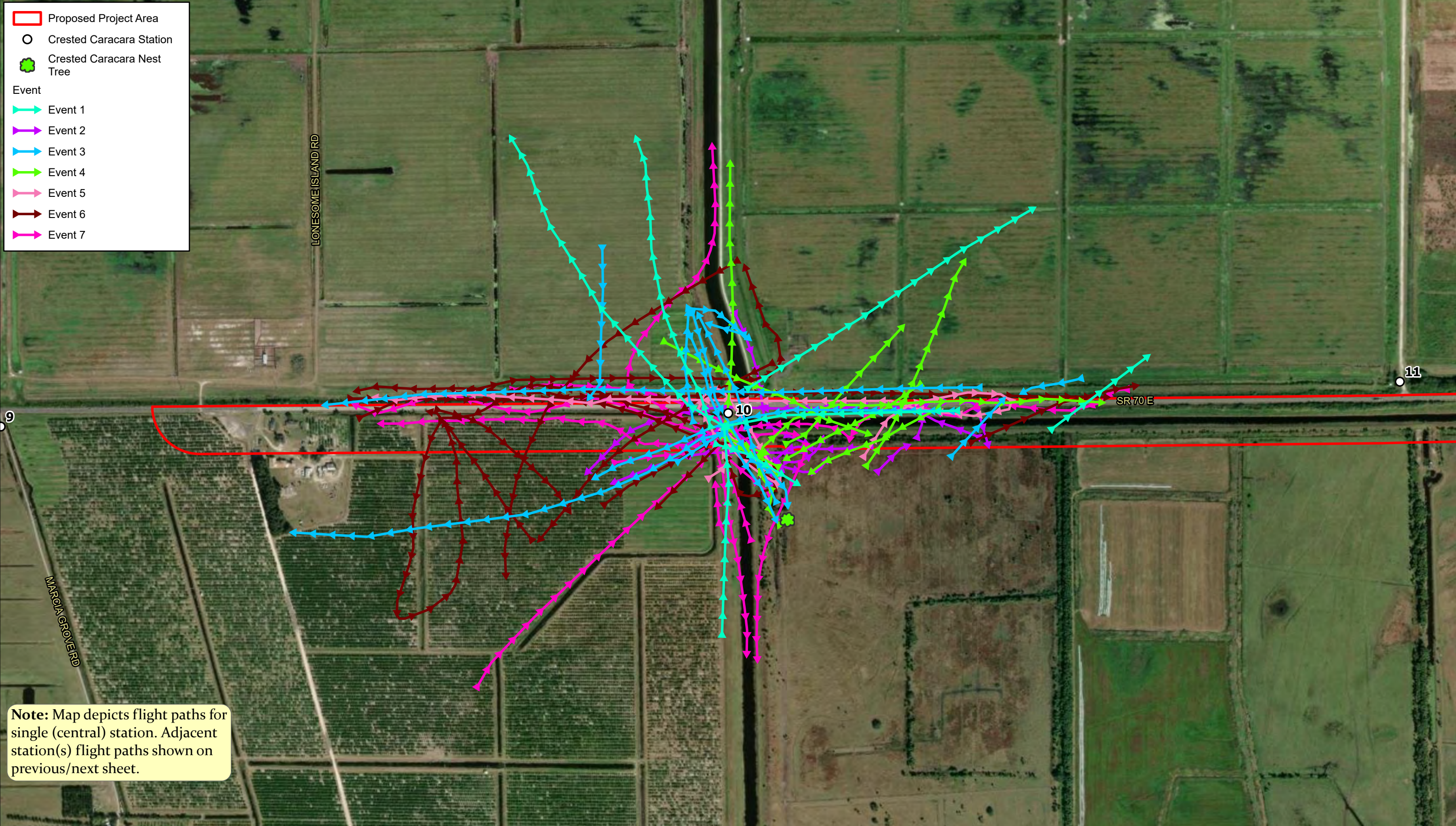
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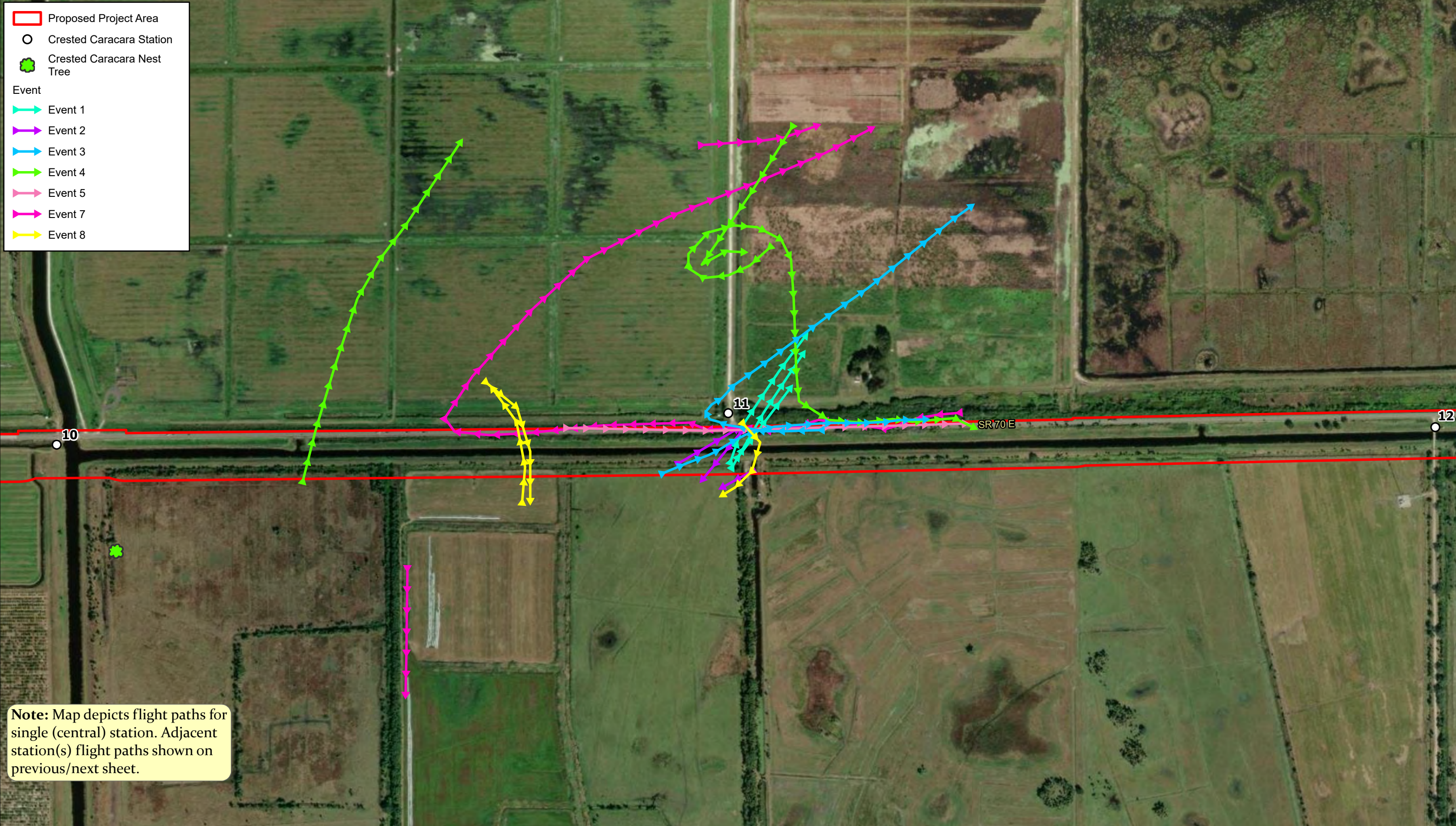




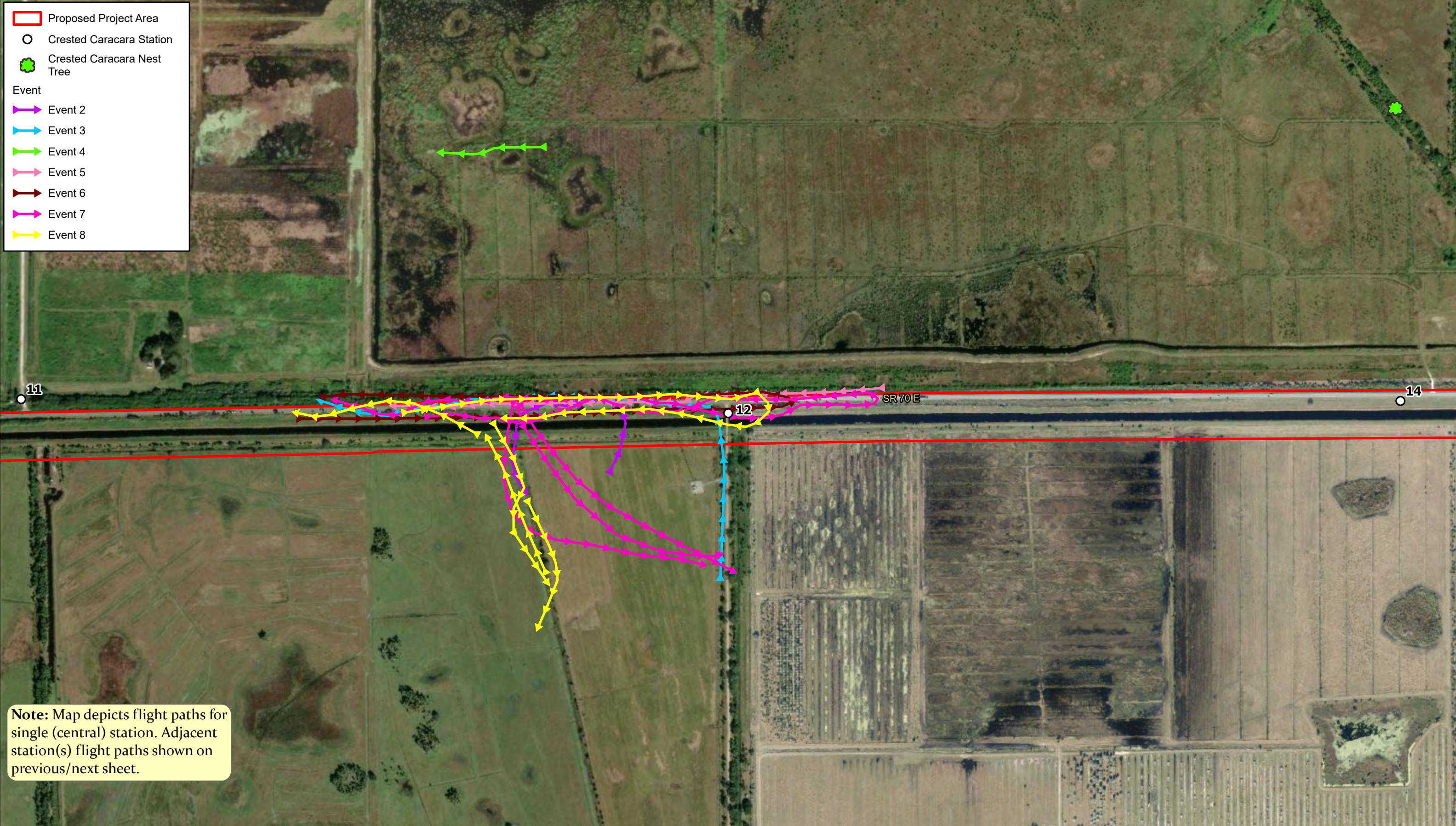


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Proposed Project Area

Crested Caracara Station

Crested Caracara Nest Tree

Event

Event 2

Event 3

Event 4


Event 5

Event 6

Event 7

Event 8

**Note:** Map depicts flight paths for single (central) station. Adjacent station(s) flight paths shown on previous/next sheet.



All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

Figure 4 - Crested Caracara Survey Stations and Flight Paths

Sheet 4 of 11

FPID#: 449851-1

SR 70 from Lonesome Island Road to CR 721 S

Highlands County, Florida

0

500

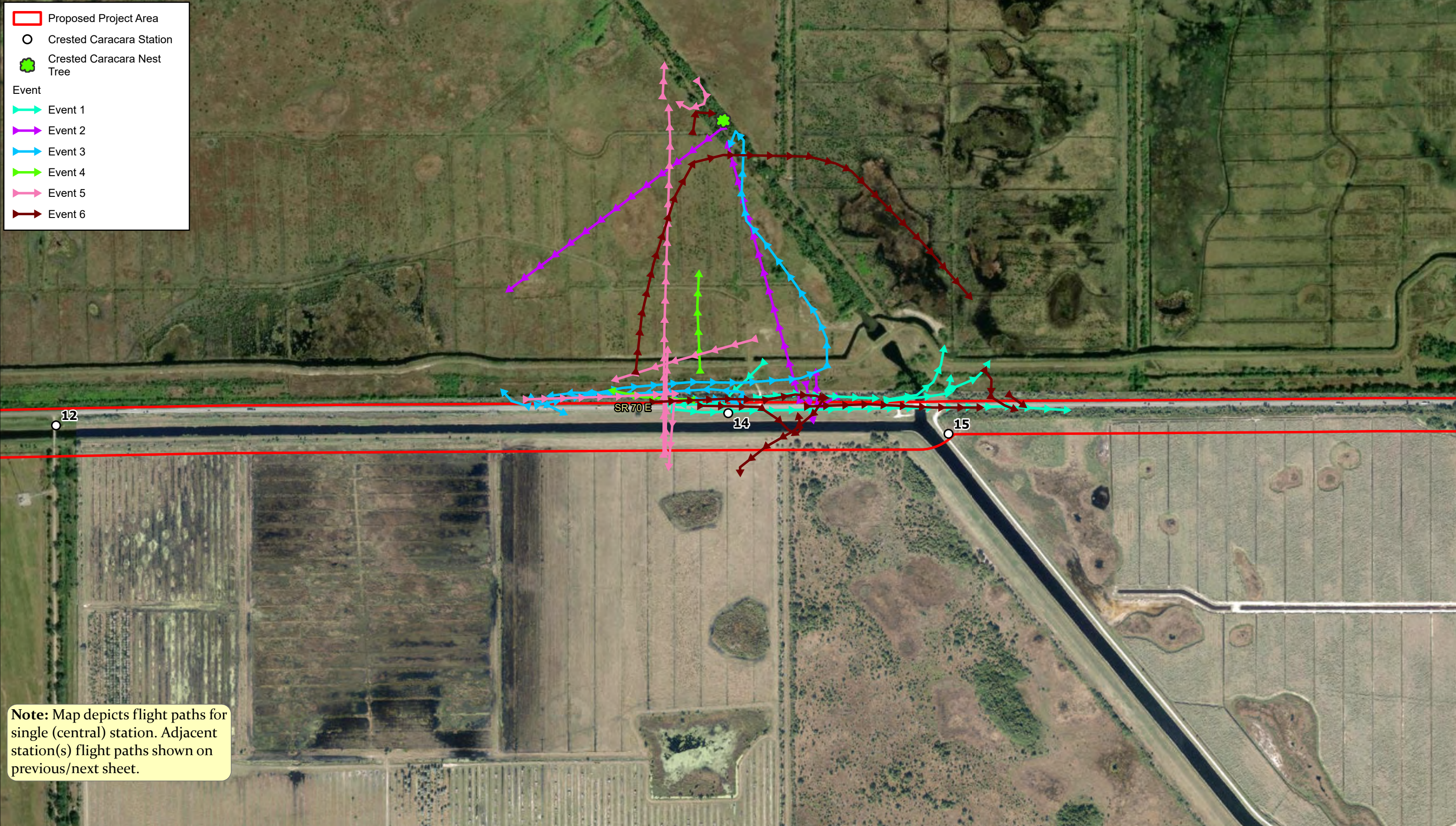
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Feet

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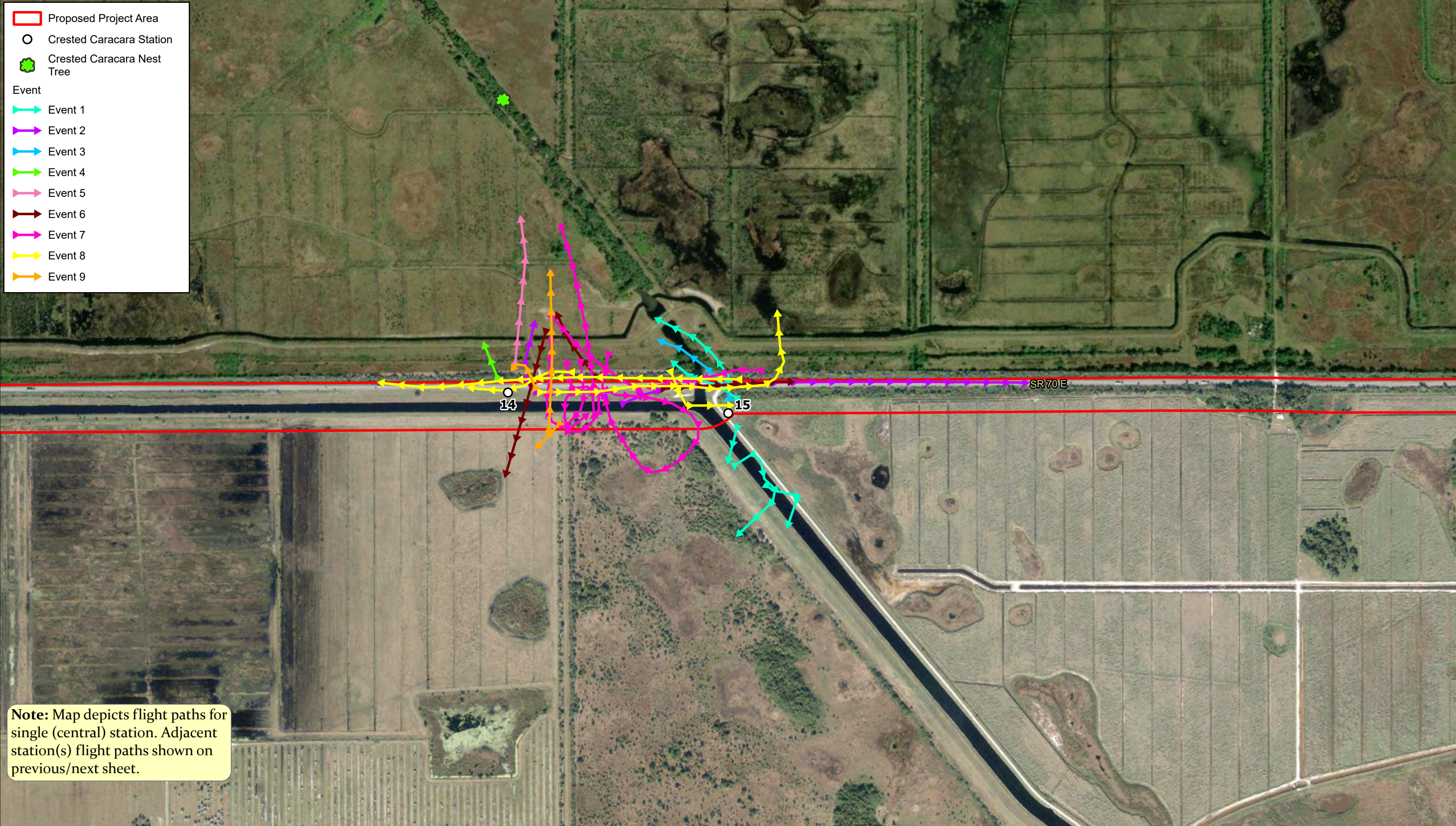
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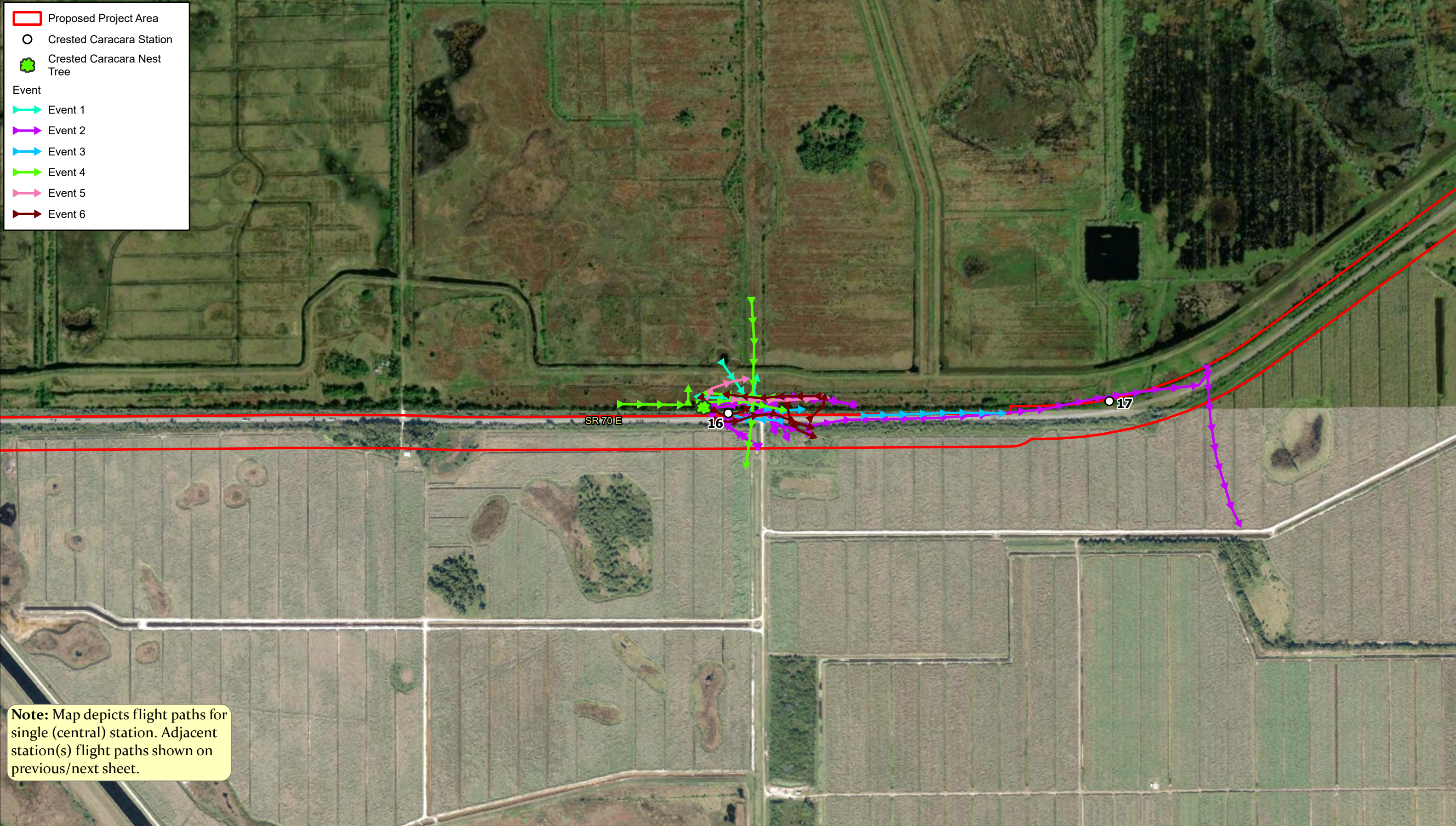
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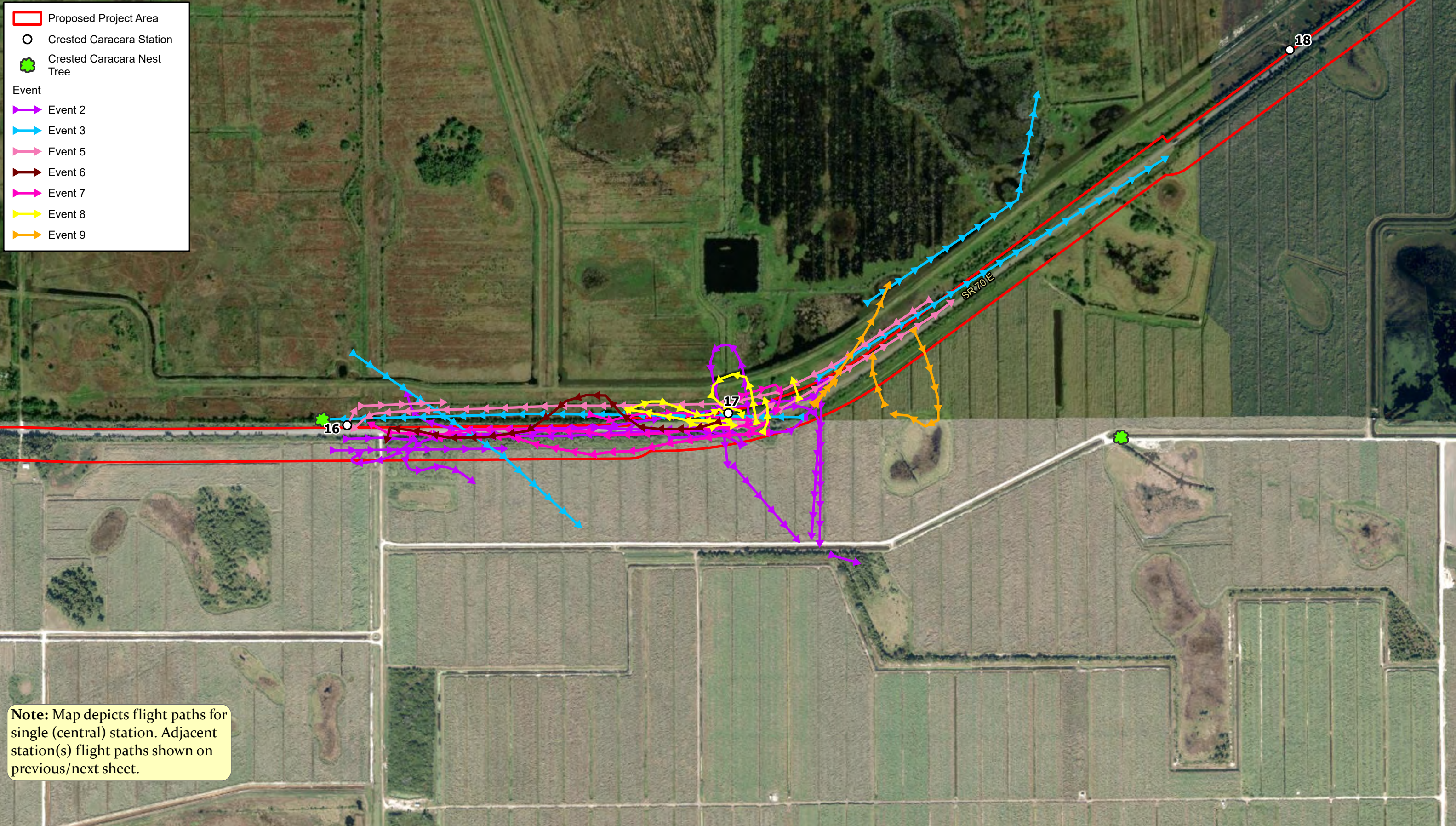
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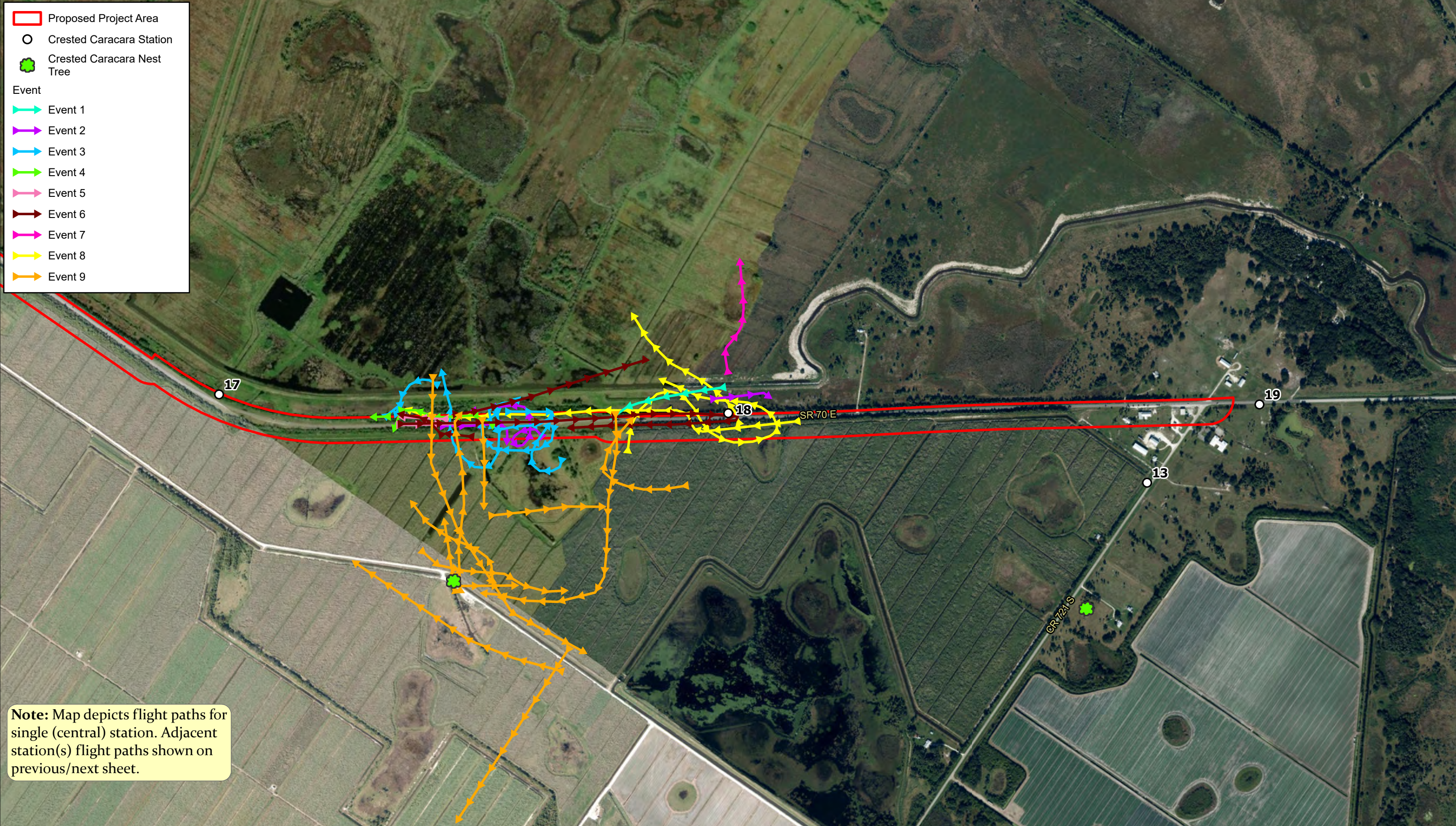


**Note:** Map depicts flight paths for single (central) station. Adjacent station(s) flight paths shown on previous/next sheet.











Proposed Project Area

Crested Caracara Station

Crested Caracara Nest Tree

Event

Event 1

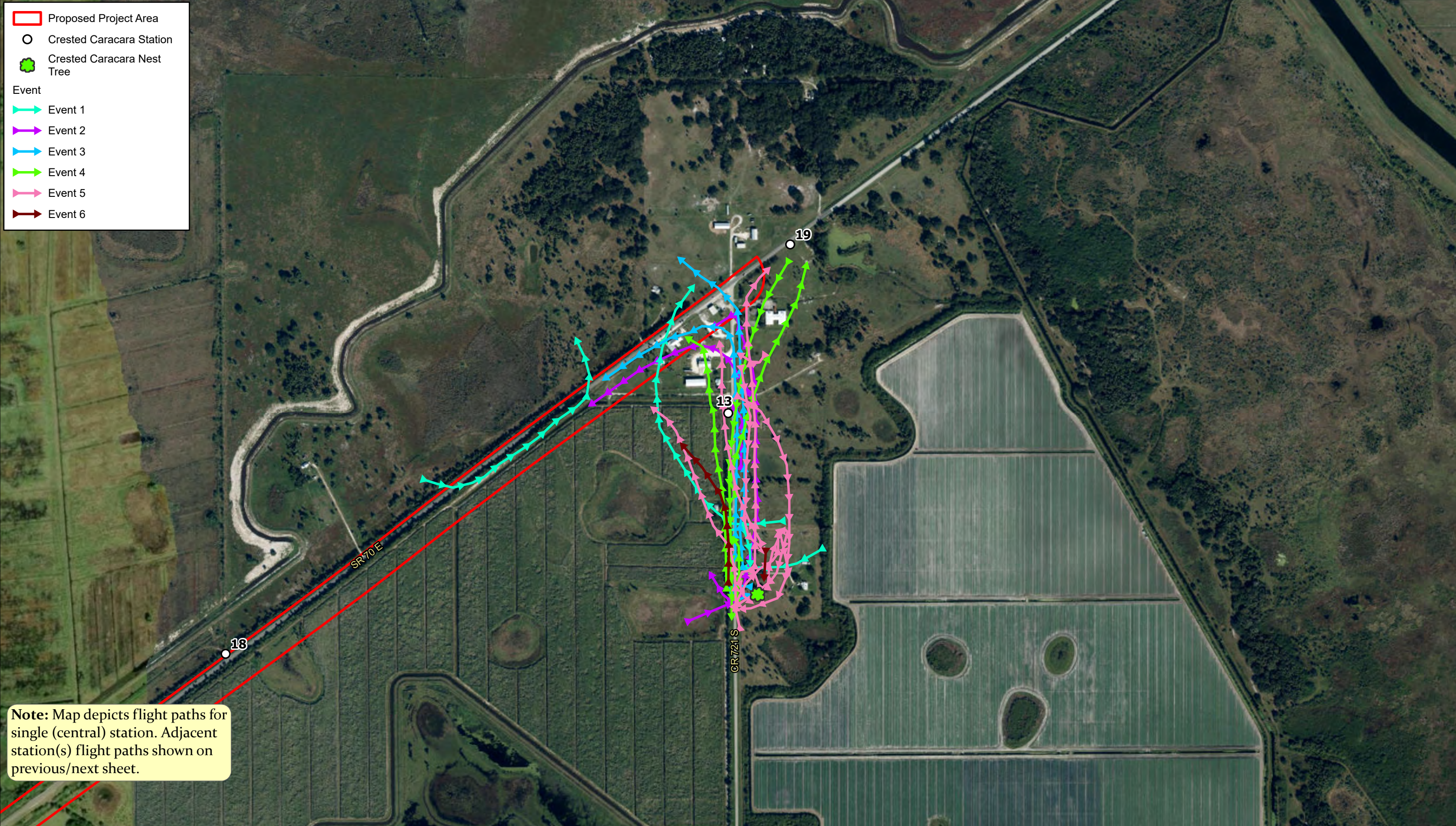
Event 2

Event 3

Event 4

Event 5

Event 6





Proposed Project Area

Crested Caracara Station

Crested Caracara Nest Tree

Event

Event 1

Event 2

Event 3

Event 4

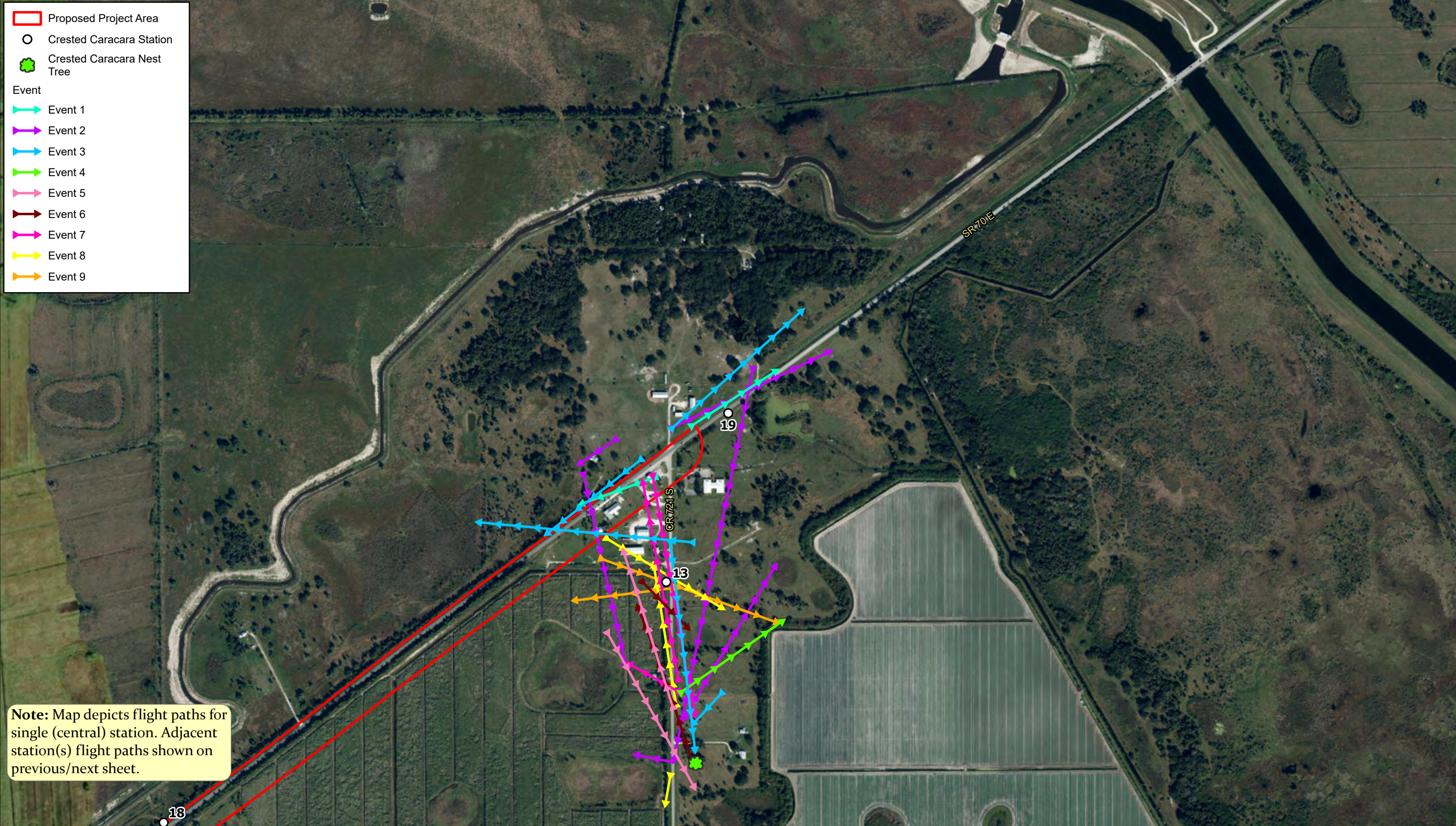
Event 5

Event 6

Event 7

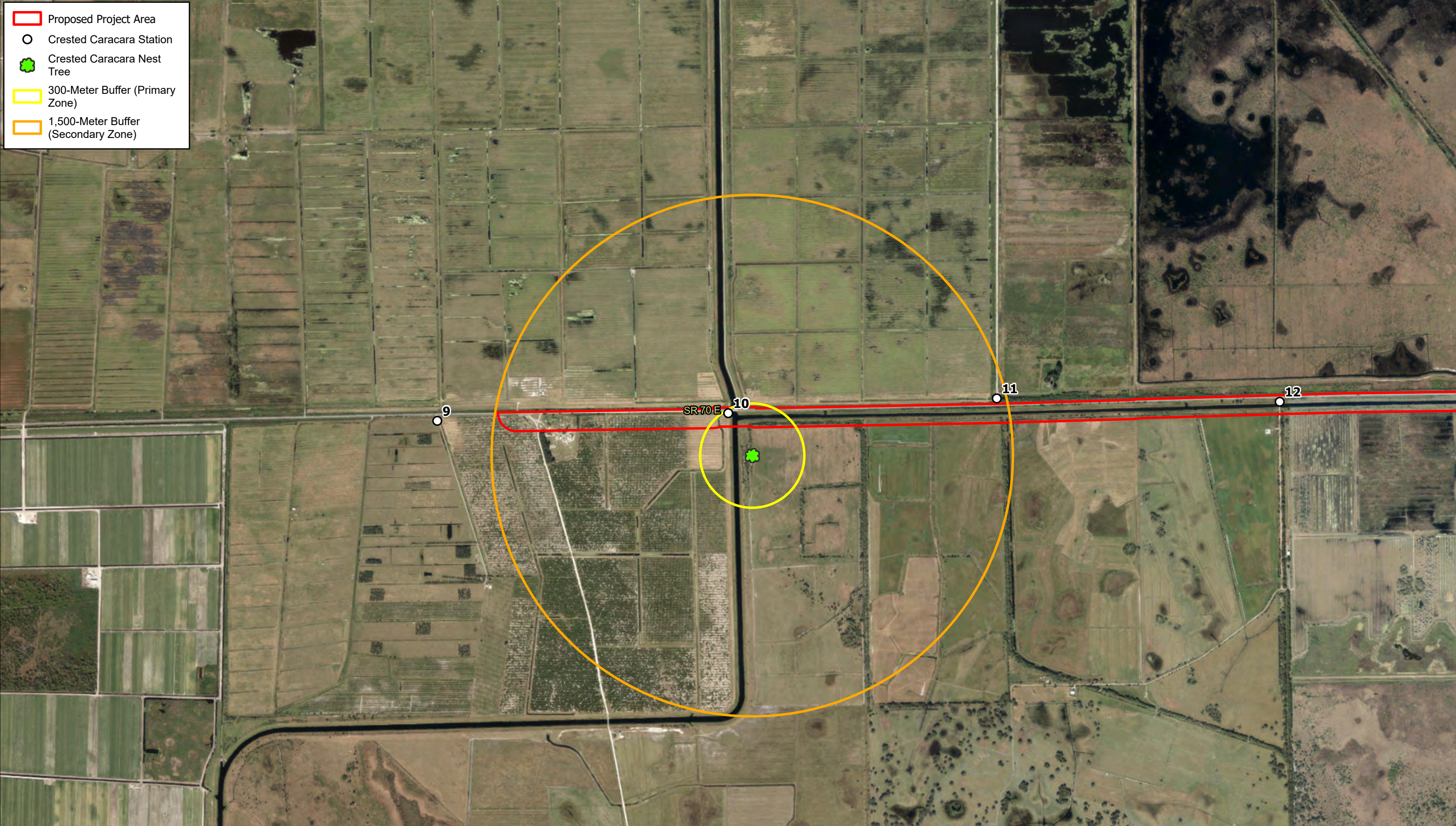
Event 8

Event 9

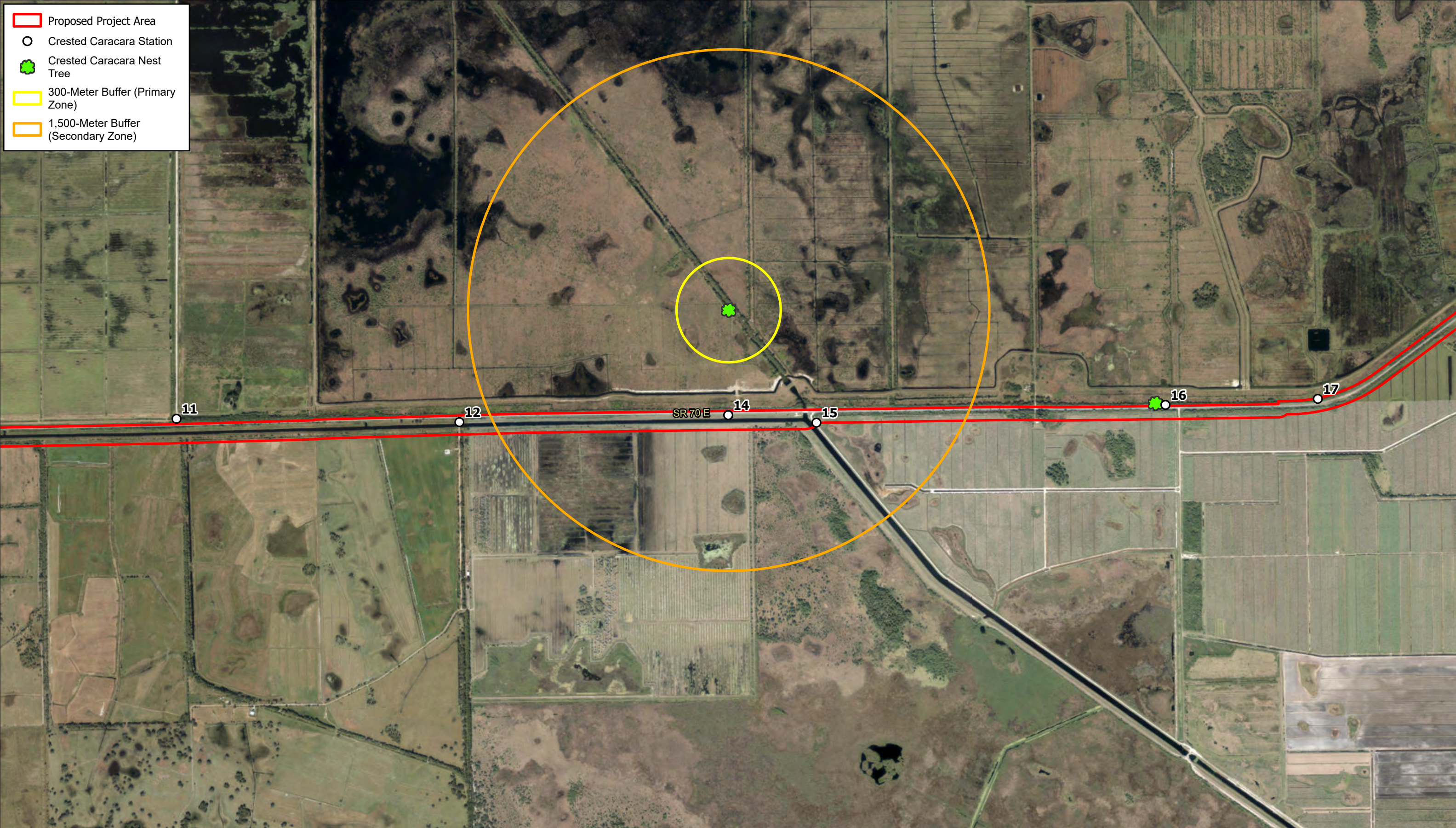


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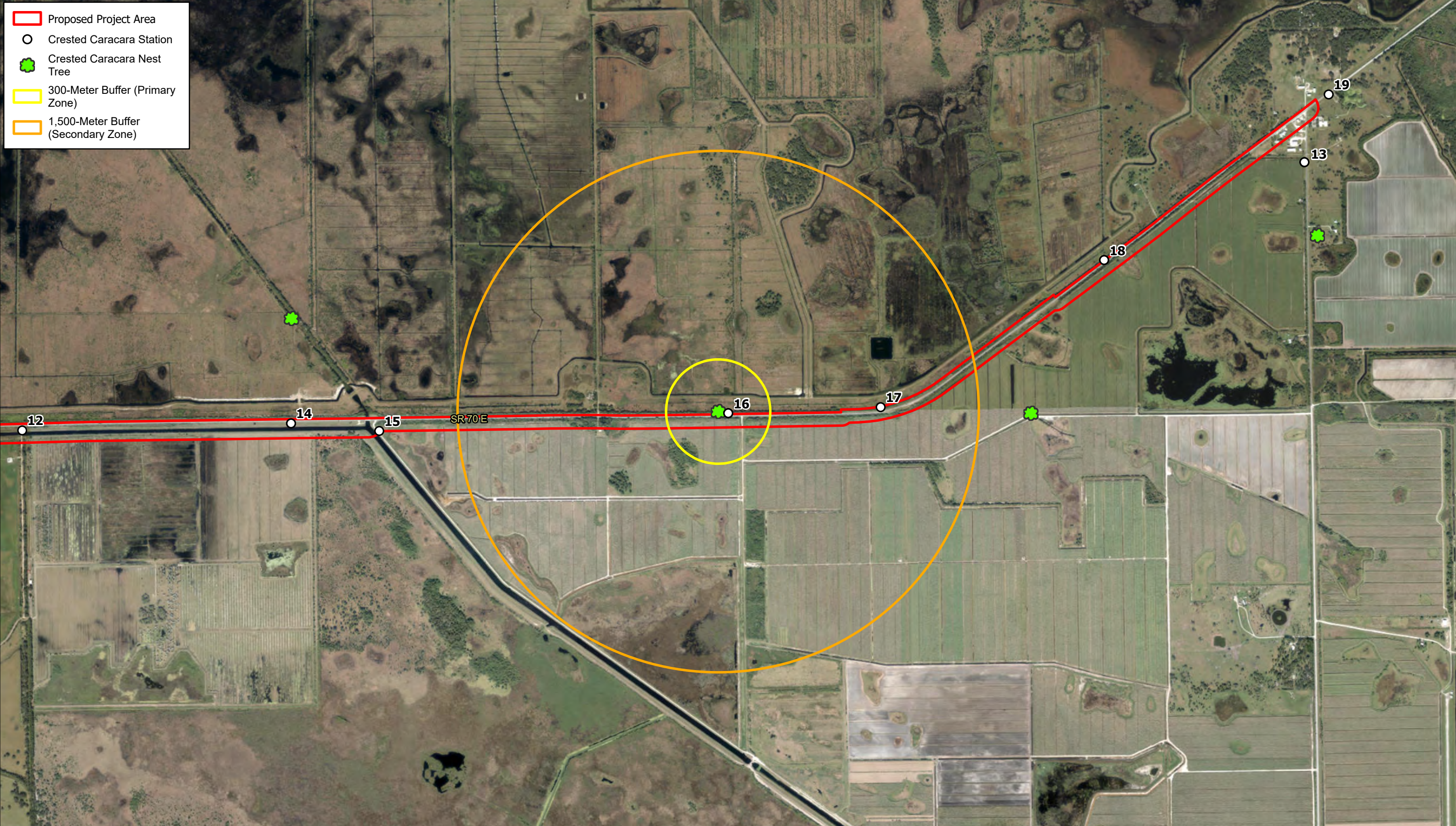


- Proposed Project Area
- Crested Caracara Station
- Crested Caracara Nest Tree
- 300-Meter Buffer (Primary Zone)
- 1,500-Meter Buffer (Secondary Zone)

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- Proposed Project Area
- Crested Caracara Station
- Crested Caracara Nest Tree
- 300-Meter Buffer (Primary Zone)
- 1,500-Meter Buffer (Secondary Zone)









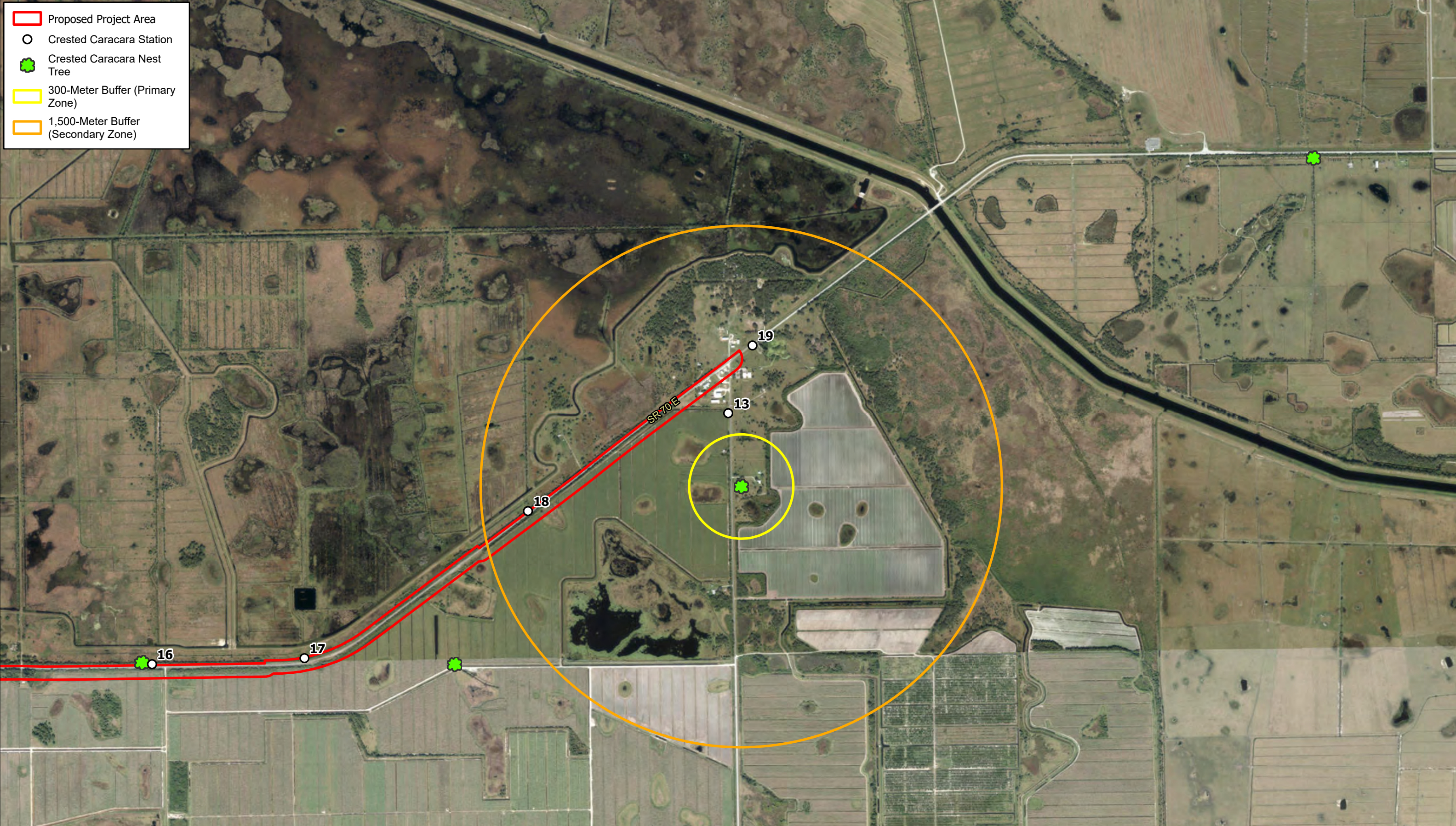


Figure 5 - Primary and Secondary Buffer Zones of Nest Tree

Sheet 5 of 5  
FPID#: 449851-1  
SR 70 from Lonesome Island Road to CR 721 S  
Highlands County, Florida

0 1,000 2,000 Feet

Data Source:  
-ESA  
Imagery Source:  
-ESRI Aerial Imagery





## **Appendices**

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- A. USFWS Caracara Survey Forms
- B. Summary of Caracara Survey Data
- C. Representative Field of View Photographs for Survey Stations
- D. Wildlife Species Observed During Caracara Surveys



## **Appendix A**

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USFWS Caracara Survey Forms



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Station 9 Vehicle/BIK 9/

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.8.2023	7:01 a.m	10:01 a.m	Alan Althouse 342 hrs

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:01	52°F	None	80%	Alto cumulus	None
Finish: 10:01	69°F	E 4mph	30%	Strato cumulus	None

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Station 9 on South side of SR 70, 130 Marcia Grove Rd address. North side of SR 70 tame grass pasture with occasional cabbage palm, cattle grazing. SW of SR 70 is tame grass pasture w/cattle grazing. Occasional Cabbage Palm 3 blocks of live oak grove (planted). SE of Station a recent mowed grove site preparation and active citrus grove. Canal & ditches

CC = Caracara

**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
Station 9	1-CC A	7:38 to 7:52 a.m	Flew from Sunday entrance (A), west to east toward Station 9, flew over vehicle and landed on south side of SR 70 ~ 50 ft east of vehicle. (X) pulled fresh road kill of edge of road into ROW ~ 10 ft from edge of pavement. Not effected by high speed traffic. Flew SW with piece of carion (B)
Station 9	1-CC A	7:55 to 9:00 a.m	One adult CC returned un-noticed and was feeding on a different piece of carion. CC was ~ 50 ft SE of vehicle in mowed grove. Flew SW towards oak grove, flew under canopy, chased by 2 crows. Crows and CC landed under canopy of oak grove. (D)

Other Wildlife Obsv:

Fish crow	Woodstork	Rd Str Hawk	Am Egret	Gallinule	Rock Dove
Kestrel	Cattle egret	RW BIK Bird	E King Bird	BT Grackle	
Morning Dove	Palm warbler	North Harrier	Mocking Bird	Catbird	
				SHC	Meadow Lark



1.8.2023

## Block 9, Station 9, Alan Alshouse

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

SR70

Station 9	2-cc A #1 A #2	8:05 to 8:21am	2 cc flying acrobatically at 600 ft south of station 9 along edge of mowed grove and mature citrus grove. #1 cc perched on top of mature citrus tree as sentinel. (E)
			#2 cc went to south side of SR70 ROW to feed on carion mentioned in 1st sighting. Observed #2 feeding then flew into mowed
			grove with carion (F). While #2 was feeding, #1 flew to #2 and assumed the breeding posture on top of #2. #1
			dismounted and fed with #2. Both cc flew towards station within 100 ft and fed on carion (G). Departed flying to the SW
Station 9	3-cc A #1 A #2 A #3	8:48 to 9:15am	3 cc flew from the SW. #1 continued to fly east toward Sun Ray Farm entrance (H) #2 cc flew perched atop citrus tree (E)
			#3 cc flew to carion in ROW of SR70 (X) #3 cc flew west along SR70 until out of sight. #2 a few min later also
			flew west along SR70 until out of sight. (F)



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Station 10 Vehicle / BIK 10/

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.9.2023	7:01	10:01	Alan Alshouse Primary 392 hrs

**Weather** Mike Poniatowski Secondary

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:01	55°F	None	80%	stratocumulus	None
Finish: 10:01	72°F	N - 3 mph	0	None	None

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Parked at SR70, south side, along Harnag Pond Canal.  
N of SR70. Tame grass pasture cattle grazing. Sporadic cab palm.  
North of SR70. SW corner mowed grove site prepared and mature citrus.  
Power poles on N & S side of SR70.

cc = Caracara

**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
10	#1 cc Juv	7:23 to 8:58	Atop powerpole south of station ~100 ft. preening. Stayed for 1 hr 35 min. Flew SE over canal into pasture.
10	#2 cc A	7:30	Flying high, arrived from the south. Flew over cc on power pole, across SR70 and departed in a NE direction until out of sight.
10	#3 cc Juv	8:20	Arrived from the east, flew around #1 cc sitting on power pole. Continue to fly high in a NW direction over SR70 until out of sight.
10	#4 cc	8:37	Flying high in NE direction

Kingfisher  
Fishcrow  
Kestrel  
BT Grackle

Rd Str HK  
N Harrier  
Tree swallows  
GBH

Cattle egret  
SHC  
wd HK  
Am Egret

Red Tailed HK  
m dove  
BK Vulture  
Anhinga

Cormorant



BLK 10, Station 10, SR 70

1.9.2023

Alan Alshouse  
Mike Poniatowski

page 2

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

10	# 5cc Juv	9:47 to 9:55	Perched on power pole unnoticed (A) Flew North until out of sight.



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Station 11 Vehicle/BLK 11

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.10.23	7:00 am	10:00 am	Alan Althouse 342 hr

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:00	54°F	None	30%	Alto cumulus	light fog
Finish: 10:00	73°F	NW-N 3mph	60%	Cirrus	None

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Address 870 Green brier Ln. NE is follow rough pasture with a few scattered young cab palm 2-8 ft tall to the bud. Shell road going north with mix of young and older cab palm, not dense. 11 Mature cab palm at station under high power - power line. NW-tame grass pasture w/ cattle grazing. Wildlife camera at the gate. Pair of Rd Sldr HK building nest in 11-mature cab palm. South of SR 70 is a tame grass pasture with cattle grazing. Sporadic cab palms.

**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
Station 11	Clark 1cc 2cc 3cc	7:18 am	#1 cc perched on telephone pole south side of SR 70. #2 flew by #1 and #1 vocalized. #2 flew over SR 70 in NE direction. #2 followed and #3 followed #2.
			The cc flew between me and the rising sun so could not identify Ad Juv.

Fish Crow      Rd Sldr HK      Northern Harrier      Mocking bird      B/K Vulture  
 BT Grackle      Cattle egret      Yellow Rump Warb      white-tailed-deer  
 Catbird      Tree Swallow      Parula warb. 8      Anhinga  
                  BG Nuthatch      Rd Wg B/K Bird      SHC



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR70 **Station 12**  
**Location/Observation Block/Lat-Long:** 112 / 27°12'29" 81°10'11"

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/9/23	7:05	10:25	Emily Keenan, Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:05	57	E 0 MPH	40	cirrus	0
Finish: 10:25	67	NNW 4	<5	cirrus	0

CBH  
BV  
WE  
SE  
Hawk  
LE

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Pastureland, numerous cabbage palm on perimeter  
 Canal E/W through site Pasture SW of site actively managed  
 active cattle ranch  
 cell tower adjacent to site.

cleared

**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
			No caracara observed

LBB  
Cardinal  
Crow  
Pigeon  
Sparrow  
RWBB

Note: Park to side, Active Access Road



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

87.2219429,

**Location/Observation Block/Lat-Long:** Station 13

- 81.0945943

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
11/9/2023	7:13		T. Kuba - Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:13	54°F	NW 1 mph	40%	cirrostratus	—
Finish: 10:13	67°F	NNW 4 mph	0%	—	—

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Adjacent to CR 721, sugarcane to SW, open pasture w/ occasional c. palm to NE, some commercial development @ SR 70

**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
vehicle	A1	8:31	From NW headed NE along SR 70 tree line then N out of sight
vehicle	A2	8:52 - 9:03	flew across CR 721 for road kill several times would perch on fence post
vehicle	A2	9:03	Flew across CR 721 + into c. palm group lost sight of A2
vehicle	A3	9:46 - 10:17	obs. A3 per on utility pole ear c. palm group flew south stirred some crows then

obs. wildlife: meadow lark, mocking bird, crow, black vulture, ibis, 8 cattle egret, snowy egret, wood stork, glossy ibis, little blue heron, bittern

back w/ crows perched too



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

Project Name: SR 70

Location/Observation Block/Lat-Long: Site 14

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/7/23	700	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	47	NNW 9	0	N/A	N/A
Finish:	62	NE	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture ± scattered cabbage palms  
to north & south of SR 70, canals on both  
sides of C-40 canal running N/S

**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
①	A	716	adult flew in from NE & perched on power pole. RSHA flew up & took perch at 718 & circled. flew over to perch on next power pole
①	A	723	adult flew east along roadway scanning for carrion. Followed up to station 15 <del>but</del> but then got stuck by traffic but bird continued east out of sight
②	A, Im	752	an <sup>14 yr</sup> <del>immature</del> adult flew east along road then perched on power pole next road
			adult. adult threw head back then started preening itself. Same power pole as observed perched at Site 15 during 1/6/23

Other species observed

BLVD AMUR MHA TRSW WEMI PEFA  
TUVU GRBE ATWA DCA MUA Coyote  
GREY GRIB BTAR RBWD CAREW TAVIE SNAKE  
WHIB AMLE LIMP GICA



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

②	Im	805	The 1st yr young adult flew east & north away from adult that stayed perched on power pole
②	A	839	adult flew from perch on power pole & landed on next power pole to the east
②	A	841	adult flew N down from pole out of sight
①	-	-	do not see any activity by possible nest tree marked yesterday on station 15 survey, but does appear there is an active territory overlapping Stations 14 & 15 & nest tree needs to be located
②	A	929	adult is back perched on eastern power pole. other flew to @ 839 then flew NE



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70  
**Location/Observation Block/Lat-Long:** Site 5

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
11/6/23	700	1000	J. Klein

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	58	NNW 7	2	Stratus	N/A
Finish:	63	NNW 9	0	N/A	N/A

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture & scattered cabbage palms near of SR 70. <del>Heavy forest</del> canal running south & pasture & sugar cane crops to east & west

**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
①	A	750	1 adult caracara flew north from behind observer & went NW out of sight. There is a nice clump of cabbage palms in direction bird was heading. May have had small bit of food in beak.
①	A	808	adult flew from behind observer north across SR 70 to perch on power pole. An adult was observed on this pole on 1/6/23 while observer was leaving Site 16. May be sentinel / perch & nest nearby. Based on observations of just one adult @ time, seems likely pair would be @ incubation stage.

Other species observed

AMCR    TRSW    RSITA    ANIKE    MCA  
 COAR    PAWA    MHA    MOPO    BAOR    KILL    STHA  
 GIBITE    BLV    LIMF    GREY    GREA    FAPT  
           YENA    ANIE    BGEN    BEKI



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2020-2021 Breeding Season)**

①	A	832	adult on pole flew NNW & down 1m from pole. Could see past vegetation along road
②	A	844	located possible nest @ 484817 3010230 approx 1/3 mile north of SE70 of inside Riverat property. A Flatwoods Condalia tree & individual were inside property & appeared to be monitoring the nest. Difficult to tell stages the pair @ this distance. One adult (at least) can be seen moving around in tree. Need to bring scope @ next survey to confirm if nest building/incubating, etc. The amount of movement of observed bird seems most likely would be nest building
①	A	904	adult caracara eating carrion walking after 2 BLVU & TUVU looking on
①	A	910	same adult flew SW across canal & landed by BLVU looking for food
①	A	913	same adult flew back across canal & took food from BLVU
①	A	935	same adult flew SE along canal, then short territorial display & 2nd adult flying from North, then one flew east & landed & other flew <del>SW</del> out of sight SW

① A 939 one that landed flew across canal & landed by Vulture then walked up to berm

Summary: there is likely a nest tree ~ 5 mi. NW from survey station 2 as marked on map; also likely a nest tree ~ 1.7 mi. to the East by Station 16. Perhaps another territory to the SW where an adult was observed flying after territorial interaction.



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Site 16

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
<del>658</del> 1/18/23	658	958	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	69	58	100	fog	dense fog
Finish:	74	56	85	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture & scattered cabbage palms on north side. Sugar cane/row crop & some pasture on south side.

**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
①	A	933	adult flew in low from north & landed in oak on north side of road where mate already sitting. Spent 10 minutes all preening & mated/copulated.
①	A	945	male flew west & landed on pole then flew low south but not across SR 70.
①	A	948	female flew low & north, lost sight.
①		950	checked cabbage palms in area & one seems possible for nest. Will confirm on next survey.

Summary: there is likely a territory & first seen in vicinity of Station 16.

Other species observed:

CIRCA	PANA	GREG	GLEG	marsh	about 1	AMKE	KOWA
NOLA	YKWA	SHUG	LOST	BLW	EAPH	RBWO	
DEGN	AMER	FAHE	TRSW	PINA	BACR	TRSW	
CARN		LIMP					



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** FDUT SC70

**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/4/23	658	758	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	66	NNE5	10	stratus	103 just starting to disperse
Finish:	76	59	40	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture & scattered cabbage palm north of SK70, low crop (cayenne cane) & pasture south of SK70
---

**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
			No caracara observed

Other Species Observed

NOZA GLIB EAPR MODU NOBA AUBA  
 TRSW BTGR ERCA SACR LAMP PAWA  
 RWBL AMUR YRNA TRHE GBIH NUHA  
 ANHT AREH BGRN MSF AEBE EAME



**USFWS Crested Caracara Survey Protocol  
(2021-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** FDOT SR 70

**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/3/23	659	759	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	66	E4	3	stratus	hazy
Finish:	75	NE4	2/5	stratus cumulus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

2 lane highway w no shoulder, pasture w scattered cabbage palms to north; pasture w old van prop to south (sugar cane)

**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
①	A	712	1 adult caracara flying <sup>South</sup> West (north of SR 70), may have landed in patch of cabbage palms but could not view directly
			no other caracara observed

Other species observed

AMOR NOTA GLIB FUCD EAPIF TRSW EAME RSHA AMKE  
 PAWA EUST WIEVE BGIN RBWD 1 CABE BLW NANO  
 GREY MRCR MODU NDIA YRNA DOWD YRWA BCU  
 WLSB BTGR PABU BMTA COYE ANHE RASP WOST



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

**Caracara Survey Form** (updated 12/9/2016)

Project Name: SR 70

Location/Observation Block/Lat-Long: 27°13'35.32"N 81°5'36.58"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1-3-2012	7:00	10	Ornithologist

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7	66	ESE 4 mph	30		NA
Finish: 10	73	SSE 11	30		

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Basic traffic on SR 70 & 721

**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
C1 70/721	A?	0716	Possible adult observed at 70/721 flying East along 70
C2 19	A	0726	Adult perched on pole north of 721/70
C2 19	A	0727	A dropped to ground out of view
C3 19	A	8:51	A flew around north & south of 70/721, perched in grass south of 70/721, flew east along 70



# Caracara Survey Form (updated 12/9/2016)

Project Name: SR 70 (Station # 9)

Location/Observation Block/Lat-Long: \_\_\_\_\_

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/24/23	0654am	1015am	Brett Solomon

## Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0654	49	Calm	20	Conrus	None
Finish: 1015	63	9mph NE	50	Stratus	None

## 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
#9	A	0710	Caracara flew from perched on oak (approx 50 yds west to SR 70) and flew N out of sight to the W)
#9	A	0720	Single adult approaching from S approx 300 yds SW then passed up and continued W out of sight
#9	A	0722	Flew overhead from E and continuing W parallelly SR 70 out of sight
#9	A	0738	Flew from N heading S across SR 70 and flew S out of sight parallelly the groves



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

[illegible]



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Sta 10/BK10 / 27.20882°N  
81.20129°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.24.23	6:59	9:59	Alan Als house

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 06:59	50°	North 2 mph	30%	Altostratus	0
Finish: 09:59	66°	NE 5-6 mph	80%	Altostratus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Harney Pond Canal. Cabbage Palms line the south side of the E-W canal and the east side of the North-South canal south of SR70. Cattle pasture N+S of SR70, Citrus grove SW of station 10.

**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
10	A #1	0705 - 0709	Flew from the east over cabbage palms lined along south bank of E-W canal to live oak tree on east bank of N-S canal. Flew low into pasture to the east near #2.
10	Im #2	0709 - 0712	Perched in large Brazilian Pepper. Flew to power pole on south side of E-W canal
10	Im #2	0712 - 0731	Perched on Power Pole. Tree obstructing view somewhat but still visible, preening, Flew away in unknown direction
10	Im #3	0805	Flying high North to South then flew over tops of cabbage palms on south side of E-W canal

GBH	Red Shd HK	Wht Egret	Palm warbler	Mocking bird
BT Grackle	Crow	Wood Stork	Meadow lark	Scissortailed flycatcher
Kestrel	N. Harrier	Wild turkey	Sandhill Crane	Rd Wg Bk Bird
m Dove	White-tail-deer	Cormorants	Glossy Ibis	Little Blue Heron
		Blk Vulture		Bald Eagle



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

Observer Location	Age A/Hm	Time	Description of behavior, flight path
10	Im #4	0830	Flew from the east to tractor-brush mower mowing in grove west of canal. Followed mower by fly + walking behind mower with cattle egrets
10	Im #5	0914	Flew from grove to power pole + the flew low thru cabbage palms along N-scand + over pasture out of sight
10	#6 same ↓	0930	Flew from pasture to power pole
10	#6	0935	Flew from power pole over/on highway and picked up something flying to next power pole east.
			Feeding on carrion at the power pole
10	#6	0940	Flew from power pole over highway and to where tractor-brush mower is mowing in grove
			Following mower with a group of cattle egrets.



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 27.20964°N  
**Location/Observation Block/Lat-Long:** Sta 11 / BIK 11 91.18535°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.25.23	0659	10:00	Alan Alshouse 342 hrs

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0659	64	0	10%	Cirrus	light grad fog
Finish: 10:00	78°	SE 10mph	20%	Cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Cattle pastures N and S with SR 70 bisecting  
Heavy traffic

**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
11	Im #1	8:55 9:00	Flew to Roadkill Possum <sup>x</sup> on SR 70 ~20 yd from station. Crows buzzing CC. Flew south w/ mouth full of cation
11	Im #2	9:03 9:15	Feeding on cation in SR 70. Possibly same bird as above. Fly up & down as traffic approaches & leaves. Flew SW
11	Unk CC #3	9:20 9:23	CC perched on telephone pole. Sunglare prohibiting age determination. Flew west out of site.

Catbird  
Fish Crow

Robin  
Boat-tailed Grackle

B-G Nighthawk  
E Kingbird  
M Dove  
Rusht HK  
Red Wg BK Bird

Bluegray Gnatcatcher  
Cardinal  
8 Tree Swallow  
Woodstork  
Mockingbird

N. Harrier  
Cattle Egret  
BK Vulture  
Cormorant  
Red-tailed HK



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 27.20929° N  
**Location/Observation Block/Lat-Long:** Station 12/BK12 81.16972° W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.26.23	0659	1000	Alan Althouse 342 hrs

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0659	65°	NW 1-2 mph	100%	Nimbo stratus	0
Finish: 10:00	65°	NW 10-12 mph	100%	Altostratus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Cattle pasture N + S of SR 70. Sporadic cabbage palms in pastures. Radio tower ~100 yd south of station. Cabbage palm + live oak line DC Bar Ranch Rd going south from station. Canal 39 + SR 70 east + west.

**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
12	Im #1	0942	Flew from south over canal and SR 70 then flew south over canal and perched in oak tree for 3 min then flew south and landed in pasture ditch. Row of hay bales, blocked view Corsiage bag

Pigeon	Cattle egret	Boat tailed Grackle	Catbird
M Dove	RWBK Bird	Osprey	Mockingbird
Am Egret	Eur Collared Dove	Cormorant 8	Cardinal
Ibis	Crow	Little Blue Heron	Yellow Rump Warbler
	BK Vulture	GBH	Woodstork



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

**Caracara Survey Form (updated 12/9/2016)**

Station 13

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:**

27.22242°N  
81.09456°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1.27.23	0657	1000	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0657	52°	North 11mph	70%	Altostratus	0
Finish: 1000	64°	North 12-14mph	50%	Altostratus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Near intersection of SR 70 and CR 721 South  
Horse pasture east of CR 721

**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
13	Im	7:07 #1	Flew from the south along 721 and landed 10 yd from my position next to the road with a crow
13	A	7:08 #2	Flew from the south and joined #1 along road then flew + perched on fence post. 1+2 flew south.
13	Unk	7:09 #3	1+2 flew south along 721 and met up with #3. All 3 cc perched on top of power poles on east side of 721
13	↓	↓	1 of the cc mounted a cc in breeding posture both flew away together east over hammock then back to power pole. One of the cc flew down into the

hammock while the other two remained on top of power poles. Next page....

TU Kestrel  
GBH Mockingbird  
Crow Cattle egret

Red Shd HK

8

Eur Cladove

Page 1 of 3



SR 70 1-27-2023 Alan Althouse

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

Observer Location	Age A/Im	Time	Description
13	#1 #2	End time 0718	Continued from Page 1. The remaining two CC flew towards SR 70/721 intersection then west what appeared to be along SR 70 until out of sight
13	A #4 #5	0740	moved to closer position in front of power building (A) Feeding on carion in live oak tree south side of driveway. X flew to top of power pole. 2nd CC walking on ground in Nammark
13	↓	↓	and cabbage palm head
13	Im #6	0805 → 0809 →	Perched on power pole, looking moved to next power pole to the south
13	#6 #6	0817 0819	Flew north to power pole near intersection Flew west out of sight
13	#7 Im	0835	Flew up from oak/cab palms on east side of 721 to top of power pole next to driveway. looking
13	A #8	0840	Bringing food in beak flew to oak/cab palms. #7 followed
13	↓	0842	Both #7 & #8 flew back to power pole #8 had no food

0845 7+8 flew west out of sight.



5270 1.27.2023 Alan Althouse

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

Observer	Age	Time	Description
13	A #9	0915	Flew W to E with food
13	Im A and	0920	cc Flew from Oak/Cab Palm hedge to power pole tops at driveway entrance
13	Im + A	0925	Flew to fence post along driveway
13	A A Im	0935	2 Adults 1 Im fly together acrobatically over house, horse barn area



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70  
**Location/Observation Block/Lat-Long:** Site 14

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/20/23	659	1006	J Korman

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	68	WNW 5	95	stratus	N/A
Finish:	72	NNW 5	95	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

<p>pasture + north of SR 70  sugar cane &amp; pasture to south  C-40 canal running SE</p>
---

NEST LOCATED 484741 3010307

**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
①	A	700	adult perched on zinc fence pole as 1/19/23
①	A	710	adult flew to road to dead grass. I moved grass to grass on S of road
			because caracara was almost getting hit by cars try to see grass on road
①	A	715	adult took piece of grass to flew in but could not follow through trees along road But nest is suggested

in that area

Other birds  
observed

PINK GRCA SUKE  
 GREY PAWA BGEN  
 GRBK YRNA CARW  
 GBLF RSHA EAPH  
 LEAF TRSW  
 BGR BLVU NO HA  
 MDDU PIWA WEUI



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2020-2021 Breeding Season)**

①	A	720	adult returned to roost & ate
①	A	<del>745</del>	adult flew north to food, was able to follow & entered nest tree
①	A	750	left nest tree to food & entered tree to west to cache, then flew to nearby tree & perched
			(in the first species on previous survey) Nest confirmed incubating since 2nd adult not seen. coordinates approx since pin marked on map to NW corner of property
②	A	755	adult left & flew WSW
②	A	851	adult sitting on edge of nest tree preening then entered nest
			Estimated hatching sometime between 1/30 - 2/6/23
			<del>_____</del> <del>_____</del> <del>_____</del> <del>_____</del>

~~\_\_\_\_\_~~  
~~\_\_\_\_\_~~  
~~\_\_\_\_\_~~  
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USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2022-2023 Breeding Season)

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
11/19/23	658	958	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	55	N4	10	stratus	light fog
Finish:	76	SE7	5	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to north of SR70  
Sugar cane to pasture to south  
C-40 canal running SE

**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
①	A	706	adult caracara sitting on power line
②	A	715	adult flew in into fog & could not follow
②	A	727	adult returned to perch on power pole (from east) from unknown direction, preening
②	A	900	adult from power pole flew SE & landed along canal then flew East down road, tried to follow but lost bird because of height & northern to pull off

Other Species Observed

WEVE AMKE LIMP SNKE GRCA BLVD  
NOCA AMCR CARW KEC EAME  
TRSW AM20 RSNA CAEA  
Wtuff @PUEH



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

		9/5	caracara did not return but behavior resembled a <del>several</del> perch then leaning for food. <del>Perch</del> Still seems likely there is a nest in this area



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 14

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
11/18/23	658	958	J. Kohn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	52	SSE4	100	-	heavy fog
Finish:	68	ENE5	5	stratus	N/A

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture on north side of SR70 sugar cane & pasture on S side NEST LOCATED 487230 3009709

**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
①	A	658	1 adult perched on top of power pole then flew S across rd through heavy fog
①	A	759	adult flew from wire & landed on top of oak
①	A	801	adult flew S across road & landed in another oak & preened
①	A	809	adult flew east low, difficult to tell if along road or thru a cabbage palm due to fog

Other species observed

MOZL AMCR DOWD PAWA GBIKE C.AEM  
CARW COYE AMRO YRLWA GREY AMLE  
GRCA RWBL BTER SNKE AMHI



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

②	A	805	found adult far from any road to east sitting on power line
②	A	817	adult then flew east & lost in fog
②	A	821	located adult again on another power pole, preening
②	A	855	perched adult flew S toward area where believe nest is located on Site 17, could not follow to see destination
①	A	932	adult flew E toward NW & landed on low power pole; 2nd adult flew from nest tree & went East & landed then went somewhere unknown
			Adult E flew entered nest tree then flew west
		940	adult returned & landed on low power pole near nest
-	-	-	Because pair were observed together & copulated 1/17/23 the nest stage is most likely egg laying or very start of incubation. Adult bringing food would have been for the other adult & not young.

Nest structure possible is there but no young seen or heard

Nest located @ 487230 3009709  
earliest hatching estimated week 8 2/15/23

① A 954 adult perched on sentinel pole  
flew west east

but prob week of 2/22



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70  
**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/17/23	700	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	44	NE 4	2	stratus	light haze
Finish:	63	WNW 6	50	N/A	N/A

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture to north of SR 70 crop to south NEST LOCATED, need to return coordinates

**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
①	A	715	adult flew in from nest along south of road, crossed then landed on top power pole
①	A	719	2nd adult flew east along road the south across field out of sight
①	A	725	adult flew south to tree on far side of sugarcane & perched & other adult lost them when repositioning
①	A Im	847	subadult flew N, circled & 2 adults but no interaction

1 adult then flew S across sugarcane

Other Species Observed

AMER PRAIRIE BLW A WHITE SACK  
 GREY YRWA GRCA CABE AMKE  
 LIMP SUKE BTAR AMKE FAGE



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

<del>①</del>	A	851	adult that flew S is perched in oak that previously perched in @ 725 (nest area?) possible sentinal? tree?
①	A	906	perched adult flew down into tree unable to see from this distance
①	A Im	925	an adult & subadult flew west along road the adult went N. & subadult circled 1E
②	A	931	2 adults landed in tree & vocalized, 3rd adult flew from west & perched adult flew to it & had territorial display. 3rd adult continued east. 2nd adult landed back to mate & copulated then both flew low N same area 2 adults observed copulating @ Site 16 survey & looking N
①	A	938	adult that continued east went to sentinal tree from 857 & mated & copulated observed when 1 adult flew low into tree unable to see which one seems likely a nest in this area approx 1100 feet from road
①	A	948	2nd adult pad within 2 <del>to</del> made & aligned.

① A 957 1 adult flew ~~SE~~ ESE & entered a  
cabbage palm @ approximately  
488436 3009400 (need to refine  
these coordinates on future  
surveys)



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70 E  
**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
11/14/23	700	1000	J. Korman

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	40	N 2	0	N/A	Some fog
Finish:	53	NW 2	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

*pasture to north of SR 70, sugar cane to south*

**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
①	A	710	adult caracara flew east
②	A	741	adult flew from S, circled around dead cotton then flew N + W
②	A	940	adult flew E along road then SE out of sight over trees, possibly landed nearby

*Other species observed*

NOHA AMKE GREG AMKE GREG RBWD NOME  
 GIBIE LIMP NOHA KELL RWBL CARW EAPH  
 BLW COHR PAWA GLEB TRHE RSHA MODU  
 WITIB SNKE (group) AMKE WOST BAGR MODU  
 DECC YRWA



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** 5270

**Location/Observation Block/Lat-Long:** 19/27.226N-81.093W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1-16-23	7	10	Church

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7	39	NNE 4	15		
Finish: 10	52	W 9	0		

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Basic J rubble

**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
19	?	7:13	possible A observed flying E on 70 then S
19	?	7:45	possible A flying W, N of 70, then S along 721 out of view
19	?	7:55	2 possible A's 7,000' S of 70/71
19	?	8:40	3 C's flying > 2,000' S of 721/70



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

19	♂	8:13	perched briefly on power pole, fly & hear chatter if flying
19	♂	8:20	3 c' F flying E of 721, ♂ perched on power pole on 721
19	♂	8:28	♂ flew NE into pasture out of view
19	♂	8:45	Ad. ID perched on power pole along 721
19	♂	8:50	♂ flew NE over pasture and view
19	♂?	9:50	possible ♂ observed N of 70, flew south to same pole on 721



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SE 70

**Location/Observation Block/Lat-Long:** Station 9 27.2088545, -81.2182431

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/8/23	6:50AM	9:50 AM	Zack Yawn "Authorized Observer"

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	60°	6 mph W	5%	stratus	none
Finish:	73°	8 mph W	0%	N/A	none

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
This station is located in the ROW of SE 70. North, South, East + West consists mostly of improved pasture and agricultural land. Other than heavy traffic on SE 70 there was no other activity.

**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
Vehicle	Adult	7:11 AM	one adult was spotted flying from the north to SE 70 then turning East following the road out of sight.
Vehicle	Adult	7:21 AM	one adult flew from the East over truck and landed on a telephone pole west of me. 7:26 flew from perch west out of sight.
Pedestrian	Adult	7:22 AM	one adult flew from East and continued west out of sight.
Vehicle	Adult	7:47 AM	one adult flying East on the north ROW of SE 70. It cleared the road flying East then turned and meandered back west out of sight.

Eastern Phoebe, Wood Stork, Palm Warbler, Gray Catbird, meadow lark, Am. Crow, Cattle egret, White Woodpecker, Redwing blackbird, Tricolored heron, Boat-tailed grackle, Redstart, Black vulture, Common Moorhen, Loggerhead Shrike,



## Caracara Survey Form (updated 12/9/2016)

27.20882° W  
81.20129° N

## Weather

### Observation Point Information

Harney Pond Canal + SR 70  
Cattle pastures NW, NE + SE Qtrs  
Citrus Grov SW Qtr

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

Crow  
 BT Grackle  
 Red trel  
 Meadow lark  
 Palm warbler  
 Common Yellow throat  
 Mocking Bird  
 Morning Dove  
 RWBB  
 Yellow ramp warb  
 tree swallow  
 8  
 Red tailed hawk  
 Cormorant  
 Anhinga  
 Red Bellied WPK  
 GBH  
 Bk Vulture  
 Turkey Vulture  
 Am Egret  
 Scissor tailed  
 flycatcher



Sta 10 SR 70 2.7.2023 Alan Alshouse

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

Obs loc	Age	Time	
10	Im #5	0800	Flew from Pasture South to land atop of high voltage power pole Flew down to SR70 RdW
10	Im #6	0826 0838	Flew from grove to power pole top. Preening → Flew west to edge of citrus grove
10	Im #7	0942	Flew across SR70 flying north into pasture. Landed in pasture near heavily vegetated ditch/canal west side of HP canal
10	#8 A	0943 0948	#8 at the location where #7 landed Both birds feeding on carion. #8 flew with food south across SR70
10	#9 A	0952	cc Returning from location #8 Flew to suspect #9 is #8 bird. Returning w/ no food in beak.
10	#10 A	0955	Flew from carion in pasture site with large piece of carion across canal and dropped carion on bank. Returned to carion site
10	#11 A	1000	Flew across SR70 with food in beak to same location as #8 + #9. Flying low. Seems to land north of big oak tree on east side of levee berm



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Sta 11/BK 11

27.20964°N  
81.18535°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.8.23	0652	1000	Alan Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0652	55°	E 6mph	0	0	0
Finish: 1000	76°	E-10mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

North West Quad - cattle pasture, NE Quad - fallow/rough pasture  
south of SR 70 cattle pasture

**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
11	unk	0708	Flying East along SR 70
11	A #2	0728	Flying over SR 70 then NE over pasture until out of sight

Catbird  
 Crow  
 Robin  
 Rd Shrike  
 Boat tailed Grackle  
 Yellow Warb  
 SHC  
 Cattle egret  
 BK Vulture  
 Tree Swallow  
 Rdw sBB  
 BG Gnat catcher  
 Am Egret  
 Turkey Vul  
 G-BH  
 Cormorant  
 Rd Shrike  
 Little Blue Heron  
 Mocking bird  
 Red bellied WP  
 Indigo  
 No Parula  
 Rd Shrike  
 E. King Bird  
 Yellowthroat  
 Cardinal  
 N. Harrier  
 sparrow  
 pin warb  
 wood stork



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Sta 12/BK 12

27.20929° N  
81.16972° W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.9.23	0651	1000	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0651	64°	E 1-2 mph	0	0	0
Finish: 0955	72°	SE 8-10 mph	20%	cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

DC Bar Ranch Rd going south of SR70 is lined with cabbage palms and live oaks. South of SR70 is active cattle pasture, 100 ft canal south side of SR70. North of SR70 cattle pasture.

**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
12	Im #1	0750	Flew north along ranch road to SR70 then flew west over SR70 until out of sight.

BT Grackle  
Tree Sparrow  
m Dove  
Pigeon  
BK Vulture

N. Harrier  
T. B. 3  
Am. Osprey  
cattle egret  
BG Gnatcatcher

SHC  
Eur. Collared Dove  
8  
Fish Crow  
Palm Warbler  
Robin

Limpkin  
Redtailed HK  
Redshoulder HK  
Meadowlark  
Turkey Vulture  
Cuckoo



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR70 27.22242°N  
**Location/Observation Block/Lat-Long:** Sta 13/BIK 13 81.09456°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.10.23	0651		Alan Althouse <span style="float: right;">Qualified</span>

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0651	65°	0	50%	Alto stratus	46rd fog
Finish:					

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Sugarcane field west side of CR 721  
 East of CR 721 is cattle/horse pasture. East of pasture is  
 a cabbage farm field. Power line on east side of 721

**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
13	A #1	0649	Flew from hammock, circled low over road (721) then back into hammock.
13	A #2	0653	Perched on top of power pole in front of hammock (Potential nest site)
13	A #3	0657 0659	Flew north over 721 and then west along SR70 Returned fly so on 721 + perch on power pole
13	A #4	0710	Flew north along 721 and west over SR70

(row) Cattle egret Meadow lark  
 m Dove B+ Grackle  
 BIK Owl E. Kingbird  
 T-bis Yellow rump Warb



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

observer loc	Age	Time	Description
13	A #5	0756	Flew from SW to power pole in front of pot nest site
13	A #6	0757	Flew low out of pot. nest site and then right back in.
13	A #7	0800	Flew off power pole south along 721 then veered to the SW
13	A #8	0805	Perched on top of power pole near pot nest site looking around
13	A #9	0815	Flew off pole low over Row and into pot nest site
13	IM #10	0819 0859	Flew out of pot nest site to top of power pole Flew south along 721 until out of sight
13	A #11	0848 0849	Flew out from pot nest site and perched 2 poles south of IM bird Flew SE out of sight towards cabbage field
13	A #12	0908 0912	Flew from nest site to power pole closest to driveway Flew north over 721, Lykes work center until out of sight
13	A #13	0955	Drove by nest site Adult perched in cabbage palm on the south side of hammock

The 3<sup>rd</sup> bird



USFWS Crested Caracara Survey Protocol

2022-2023 (Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 14

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/3/23	055	1030	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	67	SW 2	5	stratus	light fog
Finish:	79	WSW 5	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture, canal, N of SR70  
sugar cane S of SR70  
C-40 canal running N to SE

**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
①	A	820	1 adult perched on power pole by highway
①	A	853	perched adult flew down to road
①	A	902	adult flying east along power line, landed & perched on pole
①	A	931	perched adult flew in along power line then landed & perched on pole farther west

Other Species

BLVV NODU RSHA PAWH DCCC  
EAME AAKH EAPH YRWA  
AMCR BTGR WEST GREAT  
HOLMR



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2022-2023 Breeding Season)**

		<del>939</del>	
①	A	939	perched aduice flew east to position fence pole pole
②	A	943	perched aduice flew east then N towards nest then landed behind c/s <del>to the east of nest on ground</del> & perched in a CP to east of nest.
		955	pair are possibly @ end of incubation, or possibly have very small hatchlings. <del>though</del> <sup>when</sup> not observed taking food to nest today. Should definitely be feeding young by next survey event



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/2/23	615	915	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	66	SW 6	10	stratus	heavy fog
Finish:	73	WNW 4	0	NA	NA

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture on N side SR70 sugar cane crops on S side SR70

**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
1	A	930	1 adult perched in the pyramid; flew NW toward Site 14 which

Other species

GREY BREA COYE RSWO BEKE  
 AMBL BLUU PAWA RTHT WEVS  
 LIMP TUVU YRWA AMKE HAWK



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/31/23	658	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	65	NEZ	10	stratus	light fog
Finish:	77	SEZ	40	stratus intermediate	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to N of SR70  
sugar cane crop to S of SR70

**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
①	A	704	adult caracara perched in dead tree by canal then flew NE along road
①	A	718	1 adult perched in oak near sugarcane field then fog thickened & could no longer see
①	A	740	adult flew from NW along road then landed in tree from 704 then flew low over sugar
①	A	847	adult perched on power pole

Other species

BLUU BTERK YRWA LIMP NOCA  
TUVU TRSW RSLTA RWBZ BGGN  
WITB GULFB COYE PAWA  
AMUR SMKE GREEN AMKE USPR  
EAPA



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

③	A	848	2nd aduice flew & joined 1st on power pole & adlopreened
②	A	902	1 adult flew NE along road then looped S & W, lost in distance
②	A	905	adult perched on power pole, likely on from 902
②	A	910	followed aduice 2 feet (other 2 still on poles) w/ along road to Site 16 nest, <del>then</del> aduice entered then exited & dead caracara chick? in beak
			I searched ground for chick but couldn't find it (this pair then observed young feeding young on 2/1)
③	A	914	adult flew SE & anything in beak
①	A	951	adult caracara sitting on same power pole as 905
			There is a mated pair in Site 17 vicinity. Did not see taking food anywhere, but were together too long to be incubating. Either haven't laid, or are feeding young (but just no observed today)
			Still need to locate nest. So either opposite to S as earlier suspected or to the E near Site 18

Need to confirm if birds seen 1/30 & 1/31 are same pair or two different



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

Project Name: SR 70

Location/Observation Block/Lat-Long: Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/30/23	658	<del>940</del> 1040	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	64	NZ	20	stratus	moderate fog
Finish:	79	NZ	10	stratus	d/a

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR 70; sugar cane crop S of SR 70

**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
①	A	911	adult caracara <del>at</del> perched on power pole. Preening & lifting one leg up under chest
①	A	927	adult flew S then W & back to power pole one pole <del>down</del> in from previous perch
①	A	930	2nd adult flew from S of tree island & to tree to land on 1st power pole
①	A	934	2nd adult flew, did 102 sec duration

Other Species

ETWE	PAWA	SNKE	CARW	WIST	SACK	BAEA
GREG	YRWA	WHJB	FAPH	BAGN	KSHA	GLIB
LIMP	TUTI	GOHE	BTAR	cricket		
BLUU	AMCR	COYE	TRSW	RWBZ		
TUVU	COGR	ANHI	DECO			



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

①	A	945	perched adult flew E across tree line out of sight then flew S & landed directly in front of truck, flicked @ truck then flew S & E, crossed road & flew E behind tree line
②	A	1005	adult on power pole west of previous perches same bird? or site 17 bird? unknown
			As stated in previous surveys, pretty certain there is a nest in this vicinity as indicated on map. Both adults seen on survey today so either have not started incubating, or already have young. Need to confirm & locate nest on future surveys
③	A	1010	adult flew NE & landed on previous perch near site 18
			or perhaps the 930 9434 observations were the search out for incubation & the 2nd adult perched briefly before returning to rest? 2nd adult only seen briefly

② A 1030 RSTA flew & landed on pole as adult chick flew S on sugar cane & landed N & W & land on new pole RSTA flew to pole & adult chick flew N out of sight. Then S & W to perch on next power pole

② ④ 1035 flew to ground behind tree line  
Will confirm nest on next survey



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** 19/ 27°13'11.5"N/81°5'41.31"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1-30-23	7	10	Church

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7	68	E 4	35		Light fog
Finish: 10	75	SSE 4	25		

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
Based on observations Clicks have likely had used - NEST Tree Coordinates 27°13'8.33"N 81°5'38.78"W

**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
19	A	7:08	A fly 5 along 70
19	A	7:16	A perched on pole with food
19	A	7:18	A Flew into palm w/ food
19	A	7:23	A back on pole



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

19	A	7:36	Flew NW w ovd of view
19	A	7:50	A on pole
19	A	8	A flew w ovd of view
19	A	8:16	A on pole near bait
19	A	8:17	A has brief interaction w BK Vulture north of potential nest
19	2A	8:27	2 A's near bait
19	A	8:29	A flew to nest w/ food



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Station 9 27.2688545, -81.2182431

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/23/23	7:10AM	10:10AM	Zack Yawn & Mike M. "Authorized Observer"

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	66°F	6MPH N	10%	Cirrus	Foggy
Finish:	79°F	8MPH N	25%	Cumulus	None

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Weather conditions this morning provided foggy conditions postponing survey start time. no other activities to mention.

**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
Pedestrian	8:20AM	Adult	Feeding on carion on East bound ROW of SR 70 to the East of station 9. Spotted on the ground. Running South away from road as cars passed. Could not locate where it went 8:28am
Pedestrian	8:37AM	Adult	Feeding on carion on Eastbound ROW of SR 70 to East of station 9. spotted on the ground. Running South away from road as cars passed. Potentially same carion as before. Feeding activity continued until 9:15 am.

Other species: meadow lark, Redwinged black bird, Cattle egret, Boat-tailed grackles, Eastern Phoebe, Common yellow throat, white ibis, night heron,



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat- Long:** Station 10: 27.20882°N, 81.20129°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.21.23	0642	1025	Alan Als house Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0642	62°F	SW 5-6mph	100	Alto stratus	Light fog
Finish: 1025	71°F	W 7mph	100	Alto stratus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 - Harney Pond Canal  
NE, NW, SE quarters are cattle pasture  
SW qtr citrus grove

**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
10	unk #1	0858	Flying over SR 70
10	Im #2	0910	Flying then perched on top of power line pole
10	Adult #3	0912	Flying with food in beak. Flew behind Cabbage Palm out of sight.
10	Adult #4	0918	Flying until out of sight

Belt tailed grackle  
RWBB  
crow  
Yellow ramp warbler

Anhinga  
M Dove  
Cormorant  
meadow lark

Catbird  
GBH  
BIR Vult  
Mocking bird

cattle egret  
tree swallow



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

10	Adult #5	0932 0935	Flew to top of power pole, Preening Flew into cabbage palms
10	Im #6	0937	Flew to oak tree with carion. Throwing head back vocalizing with food in mouth
10	11	11	Other vocalizing could be heard. #6 was constantly looking N-NE.(X) Two Adults flew from where #6
10	Adults 7 & 8	0944 #7 & 8	Was looking <sup>(X)</sup> , flying around #6. Both adults fly Northeast.
			#6 Flew east out of sight a short distance behind cabbage palms
10	1 Adult 1 Im #9	1015 1025	Flew to power pole Adult was preening Im around neck Im was tossing head back vocalizing Flew North over canal



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name: SR 70**

**Location/Observation Block/Lat- Long: Station 11: 27.20964°N, 81.18535°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.22.23	0640	0940	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0640	61°F	W-2mph	0	0	4 Fog
Finish: 0940	78°F	SE-7mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 NW, SE & SW Quadrant Active Cattle Pasture  
NE Quadrant Fallow/Pough pasture  
NW pasture appeared burned from recent fire

**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
11	A #1	8:43	Flying to burned pasture NW Quadrant
11	A x 2 #2	8:45	Two caracara Flew low over line rock road, landed and were out of sight
11	A x 2 #3	9:00	Two CC flying, high & low, landed in pasture
11	A #4	9:07	Flying high High = ~ 50-75 ft

Rd Sldr Hawk    Outbird    RWBB    Cardinal    Bk Vulture  
 Crow    Common yellow throat    GBH    BT Grackle    M Dove  
 BG gnatcatcher    Snipe    8 Cattle egret    Mocking bird    Grd Dove  
 Robin    Bullfrog    Palm warbler    Tree swallow    White-tailed deer  
 Painted Bunting    Northern Harrier    Limpkin    SHC



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat- Long:** Station 12: 27.20929°N, 81.16972°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.23.2023	0639	0939	Alan Althouse Qualified

**Weather**

Time		Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0639		64°F	SE - 4mph	10%	Cirrus	Lt grd fog
Finish: 0939		81°F	SE - 8-10mph	10%	Cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 + Harney Pond Canal E and West  
North Fallow/rough pasture  
South Active tame grass cattle pasture

**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
12	A <sub>1</sub>	0845	Fly + Soaring

Kestrel  
 Meadow lark  
 M Dove  
 Red-tailed Grackle  
 Am Egret  
 Crow  
 cattle egret  
 Limpkin  
 Osprey  
 Cat Bird  
 Anhinga  
 Grd Dove  
 Greenback Heron  
 Bk Vulture  
 Pigeon  
 Palm Warbler  
 Cardinal  
 Little Blue Heron  
 mottled Ducks  
 Marsh rabbit



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name: SR 70**

**Location/Observation Block/Lat- Long: Station 13: 27.22242°N, 81.09456°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2.24.23	0637	0937	Alan Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0637	64°F	None	0	0	Lt Fog
Finish: 0937	76°F	SE - 8-10mph	20%	Cumulus	0

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
Secondary Observation location (SOL) = P on map 27.22059°N Cattle/Horse pasture on east side of CR 721 81.09454 W Sugarcane field on west side of 721. Heavy traffic on CR 721

**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
13	A #1	0644	Flew to power pole from suspected nest site. Looking
13 SOL-P	A #2 ★	0648	Flew down to road (721) looking for food. Would fly to adjacent fence post as cars drove by then back to road.
13 P	A #3	0655	Flew back to telephone pole #1 - #3 is the same CC.
"	"	"	★ Flew within 20 yds of observation vehicle. Seemed unaffected by my presence.

CROW      Glossy Ibis      Bk Vulture      Yellow Rump Warbler  
 Meadowlark      Ibis      Red Shdr HK      Am Egret  
 Boat-tail grackle      Humkin  
 Cattle egret      Mocking bird      8  
                                  SHC  
                                  Eur Collard Dove



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

13-P	Unk #4	0733	Observed CC 3 poles south of #3 CC. CC was on top of power pole feeding
13-P	A #5	0734	Flew off power pole in northerly direction. (Perched for 39 min)
13-P	A #6	0755	Feeding on fresh kill in road ~20yd behind (North of) observation vehicle. Fighting off crows trying to steal food
13-P	A #7	0800	Flew in NE direction and returned flying south over CR721 then perched on telephone pole
13-P	A #8	0815	Perched on telephone pole south of drive way. (B)
13-P	Im #9	0835	A second CC perched on top of power pole (A) preening
13-P	A Im	0855	Flew down into suspect nest location.
13-P	A	0859 0937	Flew from suspect nest location to power pole A; looking Remained on top of power pole
←		0945	Post Survey note → Drove by nest location on CR721 and Im was on power pole 2 poles south of where Adult remained.

Note: Vehicles Leaving residence at 0750 S/E 4th St. CC  
Nem un affected by residents activities



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SK 70  
**Location/Observation Block/Lat-Long:** Site 14

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/7/23	645	1030	J Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	63	55	5	stratus	possibly fog
Finish:	76	59	40	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

<p>pasture to N of SK70  sugar cane + pasture to S of SK70  C-40 canal running NW-SE  possibly  productivity - feeding young?</p>
---

**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
①	A	700	adult perched on power pole
①	A	745	perched adult flew west along road
①	A	816	adult (2nd?) exited rose tree & perched to the W where unable to see. Likely feeding young
①	A	950	adult returned to perch on power pole

Other Species

BLVU RSHA AMER SACK  
LIMP CAEG ANTHI TUVU  
BEKI GRPC TRSW



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2020-2021 Breeding Season)**

①	1	1600	perched above flew to nest & pecked nearby
			Did not observe feeding, but difficult to see @ this distance. If not, then <del>there</del> will certainly be watched by nest survey



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/16/23	0500	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	62	ESE 6	5	stratus	light fog
Finish:	72	SE 9	10	<del>stratus</del> stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to N of SR 70 sugar cane to S of SR 70 C-40 canal running NW-SE
---

**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
①	A	745	1 adult perched on power pole. almost <del>100%</del> certainly one of the pair from the nest N of Site 14
①	A	800	adult flew low into N behind trees
		815	small kite flew SSW carrying sticks (nesting material)
			no other caracaras observed in Site 15

Other species

BLVV AMCR OSPR CABC  
PAMA LIMP GREEN GIBITE  
YREWA RITA



USFWS Crested Caracara Survey Protocol  
(2021-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/14/23	650	950	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	45	SE 1	1	stratus	light fog, passing
Finish:	56	SSE 6	5	stratus	

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to N of SR70  
 sugar cane to S of SR70

**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
			no caracara observed
			no activity seen in the area to the S where previously suspected there may have been a nest

Other Species

BLVV PAWA WTSB DECO  
 AMUR GRWA RSTA AME  
 LIMP BTAR EAPF



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70  
**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/13/23	645	<del>700</del> 1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	52	<del>SE</del> NW 9	0	N/A	light haze
Finish:	63	N 2	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to NW of SR 70  
 Sugar cane to SE of SR 70

**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
①	A	700	adult caracara perched on power pole along road (where seen perched on previous survey)
①	A	711	perched adult flew N low behind trees where it was & see where landed
①	A	715	adult appeared & perched on power pole directly W of previous pole
①	A	718	adult flew W along road, followed, but lost sight as it entered a tree along road of farm across field

Other species

BLU LIMP EARED ANTI  
 TUUU MORO DOO GIBBE  
 BTGR WEIR AMER RSHA  
 GREY SNKE GLIB



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2020-2021 Breeding Season)**

①	A	728	adult returned to perch on power pole a little further W 078 map then flew out of sight



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** 19/27°13'06"N 81°05'40"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2-13-23	7	10	Church

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7	52	NW 9	0		
Finish: 10	68	NW 8	0		

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Basic traffic

**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
19	A	7:43	A Fly into nest
19	A	8:01	A leaves nest & perches on pole
19	A	8:07	A Flies north along 721 to another pole
19	A	8:10	A Flies ENE out of view



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

19	A	8:31	A return to nest, not sure if carrying food
19	<del>A</del>	8:32	Second A on pole by nest
19	A	8:38	A on Pole drops into field to east end of view
19	A	8:39	A observed taking food into nest



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Station 9 (27.2086264, -81.2120133)

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/10/23	6:44 AM	9:44 AM	Zack Yawn "Authorized Observer"

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	61°F	3 mph N	15%	Altostratus	Light fog
Finish:	74°F	7 mph N	15%	Altostratus	none

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Fog was light + at a distance from this station. Weather was clear + sunny. I set up East of previous location because I did not want to block the driveway I previously used and this was the next safest spot nearby.

**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
none			

Other wildlife: Am. crow, common grackle, mourning dove, red shoulder hawk, red bellied woodpecker, woodstork, mocking bird, red winged black bird, cattle egret, black vulture, N. harrier



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

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**Caracara Survey Form (updated 12/9/2016)**

**Project Name: SR 70**

**Location/Observation Block/Lat- Long: Station 10: 27.20882°N, 81.20129°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.7.23	0628	0928	Alan Als house Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0628	67°F	NW 5mph	0	None	ctgroggy
Finish: 0928	75°F	NW 6-7mph	10%	cumulus	0

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
SR 70, Active cattle pastures in NW, NE & SE quadrants. SW Quadrant citrus grove. Harney Pond Canal on south side of SR 70 and perpendicular to station

**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
10	A	0648 #1	Flying over SR 70, Landed where a crow was feeding in the road (X), continued to fly West over SR 70
10	Im	0700 #2	Perched on top of power pole, preening.
10	Im	0717 #2	Flew off power pole, pickup cawing in road, flew to nest area
10	Im	0720 #3	Flew from nest area to power pole

Catbird  
Bout tail Grack  
GBH  
Crow

RWB B  
Red Bel Wd Pkr  
Red H HK  
Yel Rump Warb  
Wild Turkey

Limkin  
Anhinga  
Little Blue Heron  
MDove  
Limkin

Green back heron  
Forney Vcl  
Osprey  
BG great catcher

Wood stork



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10	A	0723 #4	Perched in small oak with food. Flew in to cabbage palms east of small oak.
10	Im	0727 #5	Did not see fly off power pole but flew to nest area (cabbage palms east of small oak) with food.
10	A	0730 #6	Flew out of nest area, circled low and flew back to nest area
			Range Finder: 214 yd to large oak on fence line 186 yd to small oak
10	NA	0928	End of Survey: No CC activity since 0730 #6 above.
			Note: A range finder was used to triangulate nest site.



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name: SR 70**

**Location/Observation Block/Lat- Long: Station 11: 27.20964°N, 81.18535°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.8.2023	0627	0927	Alan Althouse Qualified

**Weather**

Time		Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0627		66°F	N - 3mph	90%	Stratus	At grid top / smoke
Finish: 0927		84°F	N - 8mph	20%	Cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR70 E+W. Hurray Pond Canal on South side off SR70  
South and NW quadrants active cattle pasture.  
NE quadrant fallow/rough pasture.

**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
U	A #1	0815	Flying West to east over SR70

G-BH	Catbird	Boat-tailed Grackle	Cooper Hawk	Tree Swallow
Bull Frog	Yel Throat Warb	Am Egret	Red bellied WP	Yellow-rump
Crow	Red Shell Hk	Woodstork 8	M Dove	156 Great Catcher
SHC	Blk Vbl	Bobwhite Quail	Pigeon	Robin
RWB	Ibis	Anhinga	Cattle egret	Wild Turkey
Cormorant	rabbit	Cardinal	Grd Dove	



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat- Long:** Station 12: 27.20929°N, 81.16972°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.9.23	0625	0925	Alan Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0625	63°F	NE 5mph	0	0	0
Finish: 0925	72°F	E-NE-8-10mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 East to West. Active cattle pasture south of SR 70. Harney Pond Canal on south side of SR 70. Fallow/rough pasture north side of SR 70.

**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
12	A	0743	Flying East to West over SR 70. Landed on hwy briefly and then continued flying West over SR 70.
			— END —

GBH  
Am Egret

BT Grackle  
Osprey

Lincoln  
meadow lark  
Tree Swallow  
Pigeon  
Cormorant

Indigo  
Little Blue Heron  
RWBB 8  
Blk Vulture  
Crow

Cattle Egret



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

**Caracara Survey Form (updated 12/9/2016)**

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**Project Name: SR 70**

**Location/Observation Block/Lat- Long: Station 13: 27.22242°N, 81.09456°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.10.23	0624	0924	Alan Alshouse - Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0624	56°F	SSW 3mph	0	0	0
Finish: 0924	72°F	S 6mph	20%	Altostratus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR70 / CR 721 Intersection. West side of CR 721 is tame grass pasture, residence + livestock barn. East side of CR 721 sugarcane. Cabbage field east of pasture

**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
13	A	0630 #1	Flew from nest site to top of power pole
13	A	0644 #2	Flew over CR 721 then over sugarcane field towards SR 70
13	unk	0649 #3	Flew from nest site across pasture (flying low). Flew towards SR70/721 intersection then headed east
13	Im	0652 #4	Flew in from east + landed in road feeding on carion. (X)

M Dove  
Mottled Duck  
Bik Vul

Ibis  
Cattle Egret  
(row)  
Red bellied WP

Eurasian collared Dove



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Additional Guidance (2016-2017 Breeding Season)

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Obs Loc	Hze	Time	
13	A #4	0654	Flew from North side of nest site, circled low and flew back in nest site.
13	Im #5	0706	Flying with large piece of carion and cached it in low cabbage palm in pasture north of nest site
"	"	"	Then flew high toward SR 70
13	Im #6	0735	Sitting on top of power pole
13	Im #7	0804	Flew to power pole in front of nest site.
13	Im #8	0812	Flew from power pole to pasture and landed on ground
13	A #9	0815	Appeared on top of power pole to the north of drive way
13	Im #10	0817	Flew low from pasture to fence post North side of Drive way
13	Im 11	0824	Flew to power pole in front of nest site

13 A #12 0829 Flew into pasture on ground to the location where #8 landed. Picked up carion and flew to drive way and fed a fledgling



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

Obs Loc	Age	Time	
13	A #13 2x Juv	0835	SUV pulled into driveway. 1 Juv flew to the other Juv and Adult to the north side of the driveway.
			Watched the A and 2-Juvs walk and hop-fly across pasture to the north foraging & looking around. They eventually met up with the Im in the pasture. Observed in
			pasture until 0915 where the made their way
			back to nest site south of the driveway by walking and hop-flying.



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** S14 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/3/23	635	935	J Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	64	SSE 12	10	<del>stratus</del> stratus	fog
Finish:	78	S 20	20	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to N of SR 70  
sugar cane to S of SR 70  
C-40 canal running SE

**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
①	A	820	adult flying to the west headed N, likely Site 14 adult

Other Species

RSJA SNKE AMRO GRCA  
BLVV PAWA AMCR BOBW  
TUVV YRWA EAFB  
BTR BASW



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/28/23	705	1015	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	67	WSW 4	40	stratus	heavy fog
Finish:	75	NNW 4	70	stratus	10% H

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

<p>pasture N of SR70 sugar cane S of SR70</p>
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**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
①	A	749	adult caracara on side of road eating carrion
③	A	752	picked up piece of corn & flew west, followed to site 16 where it showed food & fledgling
①	A	756	adult returned from NW to the carrion, chased off a few crows
①	A	759	adult picked up piece of corn & flew west to site 16 & fed young

Other Species

BLW NHA BCO COYE CAEG 1 NAVE DECO  
PAWA BTAR ANHI MCKE BTAR MOW BTGR  
MICA AMCR GLTB SNKE PSIT  
WHIB



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (:2020-2021 Breeding Season)**

①	A	812	adult returned <del>to</del> from nest & picked @ carrion & ate
①	A	831 <del>812</del>	adult picked up piece of carrion & flew west back to Site 11
④	A	929	2 adult caracaras sitting on power pole autopruning
①	A	929	1 flew east & landed on road & picked up some carrion 2nd adult flew in & both flew east then to into field & lost sight
			Pair flew into an area previously suspected of possibly having a nest but unable to confirm this area far due to difficulty seeing into private lands across trees along road



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70  
**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/27/23	646	946	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	57	W 2	100	stratus	heavy fog
Finish:	72	W 5	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR 70  
 Auger cans S of SR 70

**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
①	A	852	adult caracara flew in from west + landed on road + grabbed remnants of roadkill + took to side of road
①	A	859	adult flew west + food, followed it to Site 16 where it landed on Sentinel pole. One large immature could be seen in nest, close to fledging
			no other caracaras seen in Site 18

Other species

AMER BITEW TWO DECO SKUE  
 PAMA WHT RWHT EGEG EUCO  
 GLIB MONB ANTI



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

**Caracara Survey Form** (updated 12/9/2016)

Project Name: SR70

Location/Observation Block/Lat-Long: 19

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2-27-20	6:55	9:45	Church

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 6:55	59	WNW 2	60		Early fog
Finish: 9:45	70	SSW 6	10		

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area

Basic traffic

**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
19	2A	6:58	2 A's near nest on poles along SR70
19	A	7:44	1A Flew N, other moved to N to another pole
19	A	7:55	other A Flew N, still foggy
19	A	8:40	A returns to near nest w/food, FEELS <u>Fledgling</u> on ground



USFWS Crested Caracara Draft Survey Protocol –  
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19	A	8:55	A still feeding fledgling
19	A	9:00	A on pole, fledgling on ground
19	A	9:25	both A's on poles near nest, fledgling on ground



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Additional Guidance (2016-2017 Breeding Season)**

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Station 9

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/23/2023	0720	1020	Zack Yawn "Authorized Observer"

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	57 F	E 2 mph	0	0	light fog
Finish:	72 F	E 8 mph	0	0	none

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
Chilly morning but warmed up quickly.

**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
			No caracara observed.

Other wildlife: common grackle, mourning dove, Northern mockingbird, black vulture, turkey vulture, American crow



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

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Caracara Survey Form (updated 12/9/2016)

Project Name: **SR 70**

ESA

Location/Observation Block/Lat- Long: **Station 10: 27.20882°N, 81.20129°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.21.13	0713	1013	Alan Althouse Qualified

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0713	44°F	NNE 4mph	0	0	Said Key
Finish: 1013	64°F	NNE 6-7mph	0	0	0

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

SR 70 East-West, Harvey Pond Canal south side of SR 70 and North-South under SR 70. NW, NE & SE quadrant is active cattle pasture; SW quadrant Citrus grove

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
10	A + Im <sub>1</sub>	07:20	Flew to power pole from nest site (X). An Im followed and perched on same power pole. Preening, Power Pole west of nest site.
10	A <sub>2</sub>	07:22	Flew West over SR 70 until out of site. IAA remained, standing on one leg. Holding up (R) leg.
10	A <sub>3</sub>	07:30	Flew from West to east over SR 70 until out of site flying to the east
10	Unk <sub>4</sub>	07:32	Perched on power pole east of nest site

RWB  
Kestrel  
MDove  
Cattle Egret

Am Egret  
BT Grackle  
Tree Swallow  
Mockingbird

8 Northern Harrier  
G-BH  
Cormorant  
Turkey Vulture



**USFWS Crested Caracara Draft Survey Protocol –  
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10	Im 5	0740	Flew off power pole west over SR70, then citrus office, landed on power pole by citrus office, then flew over citrus grove
10			landed on top of citrus trees in grove.
10	Unk 6	0742	Flew past from power pole over SR70 until out of site
10	Im & A 7	0757	Im & A flying over citrus grove and grove office. landed and perched together on power pole by office.
10	A 8	0820	Flew to power pole north of SR70 along canal.
10	A 9	0848	Flew from power pole to citrus grove landed on top of citrus trees
10	Im 10	0850	Atop power pole along canal
10	Im 11	0915	Flew SW to citrus grove
10	Im 12	0935	Flew to power pole. crow hazing CC.



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10	# <sub>13</sub>	0945	Flew from citrus grove to power pole with food
10	A <sub>14</sub>	0949	Flew from power pole to nest site
10	# <sub>15</sub>	0955	Emerg'd from backside (south) of nest site and flew to power pole
10	A <sub>16</sub>	0957	Flew to citrus grove
10		1013	End of Survey



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 ESA

**Location/Observation Block/Lat- Long:** Station 11: 27.20964°N, 81.18535°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.22.23	0711	1011	Alan Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0711	52°F	NE 3mph	0	0	smokey
Finish: 1011	71°F	E-SE 9mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 east & west, Harney Pond canal on south side of SR 70 NW, SW & SE quadrants are active cattle pasture. NE quadrant is fallow/rough pasture.

**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
11			No caracara observed

Mocking bird  
Rd Shldr HK  
cat bird  
RWBB

Tree Swallow  
Lumpkin  
SHC  
crow

pigeon  
cardinal  
Cattleegret 8  
Turkey Vulture

Am egret  
Red Bel Wd PKr  
Ground Dove  
Cm Yel throat

N. Harrier  
BG Gnat Catcher



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

**Location/Observation Block/Lat- Long:** Station 12: 27.20929°N, 81.16972°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.23.23	0711	10 11	Alan Alshouse Qualified

**Weather**

Time		Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0711		57°F	E 2mph	0	0	light grd fog smokey
Finish: 1011		72°F	E-SE 8mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 East & West. Harney Pond Canal on south side of SR 70. Fallow on rough pasture north of SR 70. Active cattle pasture south of SR 70. Sporadic cabbage palms north & south. Micro Wave tower on south side of Harney Pond Canal.

**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
12	A	0723	Flying from West to East over SR 70 then turned around and flew back west over SR 70 until out of site.
12		1011	End of Survey

RWBB  
BTorackle  
Am Egret  
Pigeon

SHC  
Crow  
GBH  
Cattle egret  
Tricolor Heron

Turkey Vulture  
Tree Swallow  
M Dove  
Kingbird

Cardinal  
Crested Gnatcatcher  
Mocking bird  
Catbird

Eurasian Col Dove  
Little Blue Heron  
Red Bellied Pk  
Anhinga  
Cormorant  
Red Shldr Hawk



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**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70

ESA

13 27.22242°N, 81.09456°W

**Location/Observation Block/Lat- Long:** Station 12: 27.20929°N, 81.16972°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3.24.23	0709	1009	Alan Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0709	59°	E-6 mph	0	0	0
Finish: 1009	71°	SE-8 mph	0	0	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR70 north of primary observation location. Observer stationed at secondary location (P) on map. Horse pasture to the east of "P". CR721 north & south. Sugar cane fields west of CR721. Cabbage field east of horse pasture. Intermittent cabbage palms.

**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
13 (P)	A	07:41	Flew out from nest site to power pole on east side of CR 721. Activity occurred when vehicle started up and was leaving residence on the east side of nest site.
13 (P)	A	0749	Flew NW towards SR70
13 (P)	Juv	0815	one fledgling walking around in pasture exploring, pecking at the ground. Unaffected by the cattle egret on the ground with it,
	↓	↓	the horse nearby and the traffic on the highway. mingling with crow on the ground. Fly up to fence post & preen.

Eurasian Cld Dove  
Crow  
Tbi's  
Cattle egret

Red bellied Wd PKR  
Loggerhead Shrike  
Red Shldr HK  
Turkey Vulture

Mocking bird  
BT Grackle  
RW BB  
Bobwhite Quail  
catbird

Limpkin  
Meadow lark  
MDove



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Location	Age	Time	
13 (P)	Juv	0940	Flew from pasture towards nest site
13 (P)		1009	End of Survey



USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/16/23	725	1025	J Koon

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	50	NE 7	5	stratus	N/A
Finish:	61	ENE 10	2	stratus	N/A

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture n of SR70 Sugar cane to S of SR70

**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
①	A	712	Site 14 adult sitting on power pole then flew NW towards nest
①	A	801	<del>adult</del> adult flew in from west & continued east down road & out of view (Site 14 adult foraging on road)
①	A	811	1 adult perched on power pole (Site 14 adult foraging along road)
①	A	921	1 adult flying to south end pasture

Other species

BASW AMER GRCA Ambr E  
TRSW PAWA with 13 SNKE  
BLVV NOCA GREY MARV



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/14/23	720	1025	J. Koen

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	67	N 8	97	stratocumulus	n/a
Finish:	67	<del>N</del> N 9	98	stratus	n/a

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
pasture N of SR70 sugar cane S of SR70

**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
①	A	949	adult flew from east & went north into pasture then west to Site 17 & landed in the S. of road
			motor operating in area south of road, likely deterring the adult
			no other caracara observed

Other species

TRUV LIMP AREG RWBL FVBLT DCR  
 BLW ABCK BTBR PAWT GRCA WHTA  
 MZLT AMKE YRWT



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** J. Korn

**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/13/23	725	1025	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70	SSW 7	2	Stratus	light fog
Finish:	75	SSW 13	12	Stratocumulus	n/a

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR 70  
Sugar cane S of SR 70

**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
①	A	737	adult caracara flying east along road, turned around - started back west harassed by Antio
		739	landed on road & perched @ base of canyon then flew west followed & returned to Antio by red yam
		900	prayed dead baby raccoon off side of road (over)
		954	2 adult caracaras to the west flying NE & interacting. Couldn't follow where they went behind trees

Other Species

BTAR GLIB RSTH Cridul 1 fog low  
A-MOR WHIB marsh about COYE ASP2 DECO AMIB AMKE  
PAWA MOOD ABITE RWBL GIBBY TUVU BLDV SNKI



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

**Caracara Survey Form** (updated 12/9/2016)

Project Name: SR 70

Location/Observation Block/Lat-Long: 19°27'13"06"N 81°05'40"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3-13-23	7:10	10	Chuck

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:10	70	SW 8	50		
Finish: 10	75	SW 10	30		

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area

Basic traffic

**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/Ym	Time	Description of behavior, flight path, etc
19	A	7:20	Two A's leave from area of nest & fly N
19	A	7:36	A flew S along 721, perched on pole, flew N to another pole
19	A	8:20	Two A's perched on poles along 721
19	A	8:40	1 A flew S to ground, followed & saw 2 A's & 2 fledglings

on ground 300' N of nest



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

19	A	8:55	Both A's flew N
19	A	9:20	A flew in from W, perched on pole by fledgling
19	A	9:35	A flew N, on pole near 70/72



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

**Caracara Survey Form** (updated 12/9/2016)

Project Name: SR 70

Location/Observation Block/Lat-Long: Station 9

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/6/23	7:15 AM	10:15 AM	Zack Yawn "Authorized Observer"

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	69°F	E 3 mph	50%	Altostratus	Light fog
Finish:	79°F	E 8 mph	60%	Cumulus + Altostratus	None

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
Light fog burned off by 9:10 AM.

**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
Pedestrian	Adult	7:41 am	Flew from west to East down Row before U-turning and flying back West and out of sight
Pedestrian	Adult	7:42 AM	Adult Spotted Perched in dead cabbage palm in Eastbound Row of SR 70. 7:52 AM flew from Perch headed South out of sight.

Other Wildlife: Cattle egret, Red winged BB, Am. crow



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

Page 1 of 3

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 ESA

**Location/Observation Block/Lat- Long:** Station 10: 27.20882°N, 81.20129°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.7.11	0654	0954	Han Alshouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0654	64°	ENE 3mph	80%	cumulonimbus/ cumulus	smoke
Finish: 0954	77°	ESE 8mph	80%	cumulonimbus/ cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 East & West, Harney Pond Canal on south side of SR 70 and also perpendicular going North and South. Active cattle pastures in NE, NW, and SE quadrants. Citrus grove in SW quadrant. Scattered cabbage palms along canal levees

**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
10	A #1	0654	Adult on top of power pole when arrived.
10	A #2	0704	Flew from group of cabbage palm to power pole with A #1. Preening
10	A + A 3A 3B	0709	CC flew off power pole together. A 3A flew south over SR 70, A 3B flew North along Harney Pond Canal
10	A #4	0721	Flying West over SR 70 and landed on power pole.

RWBB  
Tree Swallow  
MDove

Anhinga  
Cattle egret  
osprey

cm yellow throat  
meadow lark  
Rd Shldr HK

Bobwhite quail  
pigeon  
Turkey Vulture  
Red bellied WP

Alligator



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

10	A #5	0722	Flew from citrus grove to power pole.
10	2 Juvs #6	0726	Two juveniles making short hop fly overs and walking in pasture
10	A #7	0730	Flew to power pole with A #5
10	A #8	0810	Flew to power pole
10	A A #9 #6	0845	Flew south Two fledglings continue to walk on the ground at #6
10	A #10	0849	Adult returned to power pole
10	A #11	0851	Adult returned to power pole with other adult, looking + preening
10	A A 12 A 12 B 12	0900	Flew SW to confront 3rd CC. Lots of Diving and Chasing. then returned to power pole.
10	A 13	0915	Flew West over SR70 while other remained on power pole.



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

10	A 14	0929	Adult returned to location of Fledgling at #6 with food. Fledglings feeding on the ground with food from adult
			Vocalization by fledglings and Adult. Fledglings sound like red-tailed hawk shrills. Adult with a chattering-clacking voice
		↓	Adult remained with Fledglings and second adult on power pole until end of survey.
10		0954	END



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 ESA

**Location/Observation Block/Lat- Long:** Station 11: 27.20964°N, 81.18535°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.6.23	0655	0955	Alan Alshouse Qualified

**Weather**

Time		Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0655		70°F	E 6mph	50%	Cirrostratus	0
Finish: 0955		77°F	ESE 12mph	60%	Cirrostratus and Cumulus	0

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
SR 70 East + West. Harvey Pond Canal on south side of SR 70. Active cattle pasture NW quad, Fallow/Rough pasture NE quad, Active cattle pasture south of SR 70. Scattered cabbage palm along roadway and in pastures.

**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
11	A #1	0719	Flying over SR70, E to West then north and NW over pasture until out of sight.
11	A #2	0720	When #1 was almost out of sight, #2 followed behind flying in same direction.
11	A #3	0940	Flying south along cabbage palm tree line.
		0955	END

Catbird  
Rd Shld HK  
Crow  
SHC

Cattle Egret  
Bobwhite Quail  
RWBB  
Palm Warbler  
Boat-tail Grackle

Cardinal  
M. Dove  
Wild Turkey  
8  
Grd Dove

Eurasian Collared Dove  
Osprey  
Meadow lark



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 ESA

**Location/Observation Block/Lat- Long:** Station 12: 27.20929°N, 81.16972°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.5.23	0656	0956	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0656	69°F	None	20%	cirro stratus	0
Finish: 0956	77°F	ESE 11mph	10%	cumulus	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR 70 East-West. North of SR 70 is fallow/rough pasture. South of SR 70 is Harney Pond Canal and active cattle pasture. Scattered Cabbage Palms on roadways and pastures.

**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
12	A #1	0756	Flying from SR 70, SE, then low over a line of cabbage palms & live oak on the north-south ranch road.
12	Im #2	0816	Flying over SR 70 and Harney Pond Canal west to east, then turned around and flew west over SR 70 & Harney Pond Canal until out of sight.
12	2-Im 3A+B	0905	Landed in SR 70. Unk which direction arrived CC-3A flew to tree location described in #1. CC-3B flew to canal bank to feed on something then flew to large oak tree.
12	Im 3B	0926	3B flew east at ground level to tree location.

Boat-tailed Grackle      Cattle Egret      Pigeon      SHC      Cardinal  
 Turkey Vulture      Eurasian Collared Dove      RWBB      Red Shd HK      Osprey  
 Crow      Tree Swallow      8      Catbird      Bobwhite Quail  
 Crested Gnatcatcher      Ibis      Glossy Ibis      Grd Dove  
                                  Limpkins                                   Morning Dove



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

12	Continued from Page 1 3B		Used range finder to approximate distance off location where CCs were flying into line of trees. 400 yds. (1,200 ft)
		0956	END



USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2022-2023 Breeding Season)

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SK70  
**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/29/23	700	1000	J Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70	NW 5	40	stratus	light fog
Finish:	76	NS	60	stratocumulus	N/A ✓

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture to N of SK70  
sugar cane to S of SK70  
C-40 canal running SE

**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
①	A	735	monitored some roadkill from road near Site 14. one caracara approaching to come up to it. flew spooked then circled around, chased by crows
②	A	739	landed on side of canal. flying roadkill but crows still mobbing
⑤	A	744	adult flew to roadkill & began eating. 2 crows still walking around
⑥	A	747	adult flew to piece of carrion & returned to Site 14 nest & fed young which has fledged

Other species

BASW resting under bridge NRWS  
AMCR BLWS TAVU CAEG GREG  
DECO NOCA WHIB BTGR  
LIMP SNKE AWHI



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

①	A	752	an adult returned to roadkill & ate then removed a piece & flew S mobbed by crows then. back N to Site 14 nest
①	A	757	an adult returned to roadkill & ate
①	A	801	adult picked up piece of carrion & flew N
①	A	806	adult returned & ate carrion
①	A	808	adult took piece of carrion & flew SW across canal, possibly <del>the</del> cached food then flew to oak & perched
①	A	813	adult took food N to Site 14 <sup>perched</sup> then returned to roadkill nest & fed fledgling
①	A	817	adult returned to roadkill, 2nd adult flew SE toward canal both adults then flew back to nest
①	A	822	adult sitting on power pole to east
①	A	834	adult flew west from power pole & landed @ roadkill, then flew N
①	A	959	adult caracara perched on power pole to the east



**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/28/23	705	1015	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	67	WSW 4	40	stratus	heavy fog
Finish:	75	NNW 4	70	stratus	10% H

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

<p>pasture N of SR70</p> <p>sugar cane S of SR70</p>
--

**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
①	A	749	adult caracara on side of road eating carrion
③	A	752	picked up piece of corn & flew west, followed to site 16 where it showed food & fledgling
①	A	756	adult returned from NW to the carrion, chased off a few crows
①	A	759	adult picked up piece of corn & flew west to site 16 & fed young

Other Species

BLW NHA BCO COYE CAEG 1 NAVE DCCO  
 PAWA BTAR ANHI MCKE BTAR MOW BTGR  
 MICA AMCR GLTB SNKE PSIT  
 WHIB



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (:2020-2021 Breeding Season)**

①	A	812	adult returned <del>to</del> from nest & picked @ carrion & ate
①	A	831 <del>812</del>	adult picked up piece of carrion & flew west back to Site 11
④	A	929	2 adult caracaras sitting on power pole autopruning
①	A	929	1 flew east & landed on road & picked up some carrion 2nd adult flew in & both flew east then to into field & lost sight
			Pair flew into an area previously suspected of possibly having a nest but unable to confirm this area far due to difficulty seeing into private lands across trees along road



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/27/23	705	1005	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	67	NNW 4	10	stratus	light fog
Finish:	80	S 9	2	scattered	no fog

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR70  
sugar cane S of SR70

**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
(1)	A	838	1 adult flying N, carried in a cabbage palm briefly then continued N (noisy while in the CP)

Other seen

BLVU ACIB COYE SNKE GRCA  
TUVU EAME LIMA MODU NOCA TRHE  
AMOR BTAR RUBL ACFL BCCO  
MODU

moderately



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

Caracara Survey Form (updated 12/9/2016)

Project Name: SR70

Location/Observation Block/Lat-Long: 19°27'13"23"N 81°05'40"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3-27-23	7:10		Chuck

weather					
Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:10	68	56	20		
Finish: 9:40	72	58	10		

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Basic traffic - 1 fledgling observed flying & eating

Observations

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

Observer	Age	Time	Description of behavior, flight path, etc.
19	A	7:20	A Feeding on RK along 721 N of road, other A on pole
19	A	7:30	Moved RK off road, A's flew off, 1 A returned on pole
19	A	7:34	A on pole flew WNW out of view
19	A	7:36	A on pole, dropped down to RK



19	A/F	7:40	A & fledgling both feeding on RK
19	A/F	7:44	A & F both flew N, A carrying food
19	A	7:55	A back on RK, another (F) flew into field east of 721
19	A/F	8:00	A carried food to east pasture with F, A then returns to RK
19	A	8:02	A flew W w/food into palm N of 70
19	A	8:04	A not 70 flew w/food to pasture E of 721 w/fledgling
19	A	8:20	A on pole near RK, on <del>to</del> RK @ 8:30



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

**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 Station 9 27.20848° N  
**Location/Observation Block/Lat-Long:** Block/Station 9 81.21819° W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.20.23	06:41 am	09:41 am	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0641	63°F	NE 6mph	20%	cirrostratus	0
Finish: 0941	73°F	NE 6mph	0	NONE	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

130 Marcia Grove Rd + SR 70. Active cattle pasture in NW, NE + SW quadrants. SR 70 going East-West. Marcia Grove Rd. goes south. Active Citrus Grove in SE quad.

**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
9		0941	No caracara observed

Crow  
RWBB  
M Dove  
Bullfrog

TV  
Bobwhite Quail  
Greenback Heron  
Cattle egret  
Jbis

Am Egret  
Mottled Ducks  
Marsh rabbit  
Palm Warbler

Purple gallinule  
Blk Crown Night Heron  
Anhinga  
Tree Swallow  
Cardinal  
Meadow lark



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

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**Caracara Survey Form (updated 12/9/2016)**

**Project Name:** SR 70 **ESA**

**Location/Observation Block/Lat- Long:** Station 11: 27.20964°N, 81.18535°W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.19.23	0642	0942	Alan Althouse Qualified

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0642	61°F	NE 6mph	80%	Altostratus	0
Finish: 0942	71°F	NE 7mph	50%	Altostratus + Cumuli	0

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

SR70 East & West. Harney Pond Canal on south side.  
NW Quadrant is active cattle pasture, NE Quadrant active cattle pasture  
SE & SW Quadrants active cattle pasture.

**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
11	A 1	0729	Flying West to east over SR70 looking for roadkill, landed on fence post on south side of Canal
11	5-A 9-Jul 2	0800 - 0942	Walking & feeding in recent mowed pasture. Not bothered by cattle. Flipping cattle chips and pecking on cattle
			laying down. Adults acting as sentinels while fledgling feed. Some adults assisting with scratching for food
			with fledglings. Occasionally vocalizing. Relocated to (P) at 0800

Red shoulder HK  
Catbird

RWB

8+ tailed Grackle

Crow  
Am Egret  
M King Bird

Bobwhite Quail

TU

Red Bellied Wd Pkr  
m Doves

8  
mottled Duck  
Grd Dove

Red tail hawk  
Grd Dove



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

Page 2 of 2

11	3-A #3	0925	Flying from #2 to #3 location and back several times until end of survey period. Landing in pasture to forage
		0942	End of Survey



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

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Caracara Survey Form (updated 12/9/2016)

Project Name: **SR 70** **ESA**

Location/Observation Block/Lat- Long: **Station 12: 27.20929°N, 81.16972°W**

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4.18.23	0643	0943	Alan Althouse Qualified

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 0643	59°	N 7mph	0	0	0
Finish: 0943	72°	N 9mph	0	0	0

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

SR70 E + West. Harney Pond Canal on south side of SR70. Fallow pasture north side of SR70. Active cattle pastures on south side of SR70.

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
12	A #1	0716	Flying west to east over SR70 then circled back to the west and landed on levy.
12	A #2	0845	standing on canal bank then flew down into canal inlet. Same location as #1.
12	A #3	0855	Flew south to perch on fence post. Red wing black bird chasing behind CC.
12	A #4	0900	Another CC flew in to perch 4 fence post south of #3.

Turkey Vulture  
BT Grackle  
Cattle Egret  
SHC

Bluewing Teal  
MDove  
Bobwhite Quail  
Redbelly WPKR

Pigeon  
Crow  
8  
Tree Swallow  
Ibis

Am Egret  
Crested Gnatcatcher  
Greenback Heron  
RWBB



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

12	A #5	0920	Flew south and landed in pasture.
12	A #6	0920	Flew south and perched on fence post
12	A #7	0925	Flew to fence post on south side of canal
12	A #8	0931	Flew west over SR 70 until out of sight.
		0943	END Survey



USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2022-2023 Breeding Season)

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** ED07 District 1 SR70

**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/11/23	650	950	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	64	NE 10	40	stratus	N/A
Finish:	74	NE 15	70	stratocumulus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR70  
sugar cane & pasture S of SR70  
6-40 canal running SE

**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
①	A	650	1 adult flying east along road then N
①	A	710	1 adult perched on power pole near Site 14
①	A	714	1 adult flew in from east, perched adult joined a hawk flew west along road
①	A	881	adult caracara perched to west on power pole

Other Species A 940 adult perched on power pole @ canal then flew SE

BLWS TLVV CSPR WEUT RSHH 1 SPKE WTDAR  
GREG BLWS GREG HOWR CASH ARHI  
BLVV AMCR EAME RWBL GLIB BTGR  
feeding under bridge (colony)



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/13/23	650	950	J. Kohn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	72	SSE4	100	stratus?	light fog
Finish:	77	SSE9	98	stratocumulus	some fog haze

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR70  
sugar cane S of SR70

**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
①	A	737	caracara sitting on power pole N of road, placed sparrow rostell in row & perched near it
①	A	748	flew N down into field, could not follow through row vegetation
4	A	801	adult flew in from N, passed over sparrow then circled back & landed in tree near truck
①	A	806	flew over roadkill & landed in pepper close to it

Other species

BLVK COYE TRSW WEVI CAEG 1  
TUVU NACA OSPR AMER BHWI  
WHIB GIREG BRCA GRIE  
BGRR CAGR SINKI

marsh relative



USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)

①	A	810	flew down & started feeding on opossum
①	A	816	flew NW, <del>but</del> then circled back & resumed eating BLUE flew near & caracara vocalized & threw head back
①	A	825	flew N then west, <del>possibly</del> toward Site 16 fledgling? tried to follow but lost through vegetation
①	A	829	resumed to feed
①	A	832	flew <del>over</del> west to food followed but lost behind trees
①	A	838	returned from west to feed, crows harassing while it feeds
②	A	845	flew west to Site 16 (was able to follow)
①	A, Im	900	returned from west to Site 16 juvenile & both landed & started feeding, purple crows still harassing
			thus is pretty good indication there isn't likely a nest in Site 17 area no other caracara seen today, only Site 16 adult & juvenile

① A 915 adult flew west, multi up, vultures & crows descended on the caracara & began feeding



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Side 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/12/23	800	1100	J. Klein

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	68	ENE15	100	Altostratus	light rain
Finish:	75	ENE10	11	11	light rain

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

<p>Pasture N of SR70</p> <p>Sugar cane S of SR70</p>
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**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
①	Im	815	1st yr <sup>immature</sup> <del>juvenile</del> flew across road from S where <del>left</del> second bird (unable to tell if adult or juv) flew same direction then <del>turned</del>
①	Im	824	1st year perched on power pole then moved to next pole east
①	Im	842	1st yr bird flew from perch & went west, followed until it appeared to drop down appeared to fly low to W near Site 17
①	A	935	1 adult flying NW over 2nd flight

Other species

BCVU MBO SNKE MBO  
TUVU BBWD WHTB RWR  
AMCA GLTB MBO  
BTRR DCO



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

②	A	1014	adult caracara perched on pine pole to east. Moved rapidly <del>cat</del> to side of road away from road being harassed by BTGR
②	A	1025	adult flew east + landed on pole in Lykes Brighton pasture Bird is likely from nest located South of intersection by observer e Site 19 Pruned
②	A	1047	Adult still perched, leaning to return to Site 18



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

**Caracara Survey Form** (updated 12/9/2016)

Project Name: SR 70

Location/Observation Block/Lat-Long: 19°27'13"06"N 81°05'40"W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4-18-23	6:55		Church

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 6:55	68	NNE 7	60		
Finish: 9:55	73	NE 12	35		

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Basic traffic - 1 fledgling observed in  
pasture 800' N of nest

**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
19	A	6:55	A on pole near nest
19	A	6:59	A flew S along 721
19	A	7:16	A on pole N of nest, flew off to NW
19	A	8:26	A observed carrying food into field NW of nest

19 A 8:33 A flew in from west, w/food into field east of 721 - fledgling in field calling for food







**USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR70  
**Location/Observation Block/Lat-Long:** Site 15

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/25/23	6:50	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70	E6	95	stratus	N/A
Finish:	75	E7	25	stratus + stratocumulus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR70  
 pasture & sugar cane S of SR70  
 C-40 canal

Update  
 Site 14  
 to have  
 fledged  
 3 young

**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
①	A	808	adult caracara flying N toward Site 14 nest area
①	<del>A</del> Im	840	juvenile caracara perched on South side of canal (likely Site 14 young)
①	<del>A</del> Im	841	juvenile flew SW into field
①	A	854	adult caracara on side of road eating carrion

Other Species

BASW (chattering under bridge) ABHE 1 WT Deer  
 BLVU ANCR RSNA SNKI ANHS SNEG  
 TUVU DCCO BTGR SACL  
 GLIB EAME CASW (chattering under bridge) GREG



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2020-2021 Breeding Season)**

①	Imm <del>Sub</del> A	858	adult flew to power pole 3 juveniles on beam of canal N of road
			Site 14 apparently fledged 3 young not 1? one adult nearby unbothered by the juveniles (like they were underlings) - another adult flew N toward nest
②	Imm A	906	
②	Imm A	907	adult flew onto dirt pile to the juveniles
②	Imm A	911	adult brought piece of food to one of the juveniles. Seems to confirm there are Site 14 young or they fledged 3 total



USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2022-2023 Breeding Season)

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 17

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/26/23	640	940	J. Koon

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	66	NWES	0	N/A	light fog/smoke
Finish:	79	N4	15	Stratus Stratocumulus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture NW of SR70  
sugar cane S of SR70

**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
①	Im	715	1 juvenile on fallen tree opp side of road
①	Im	728	juvenile picked up piece of food from ground & flew a few feet <del>away</del> & landed & started eating. This is area that adult & juvenile from site 16 came to eat carrion on last survey, so this is likely the site 16 young
①	Im	822	juvenile had been eating for past hour, now walking <del>around</del> around when I laid down in the grass

Other species

BZUU	NOCA	ANHI	GRCA		
LBHE	COYE	BTGR	COGR	CAEG	NUHA
WEVI	AMCR	BBWD	RBWD	GREY	SNKE
			SACR	MORO	OSPR



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

①	Im	830	juvenile flew & perched in tree near where was eating
①	A	835	1 adult perched on power pole to NE of juvenile
①	A	842	adult flew S & lost it across field
			drove down to Site 16 or did not readily see 1st adult on juvenile, so it is possible they is the Site 16 juvenile being observed today
①	Im	858	juvenile still sitting in tree S of road
①	Im	859	juvenile flew across road & perched on power pole then flew NE out of sight
②	A	902	adult on power pole to NE near Site 18
②	A	908	adult flew S across field then arched back & flew NW

② A 916 adult flew to perch on power pole, then flew down low into field

No nest confirmed at Site 17 but 2 it is possible there was one to the south as indicated on railroad survey. Unable to confirm because of poor visibility through the vegetation along canal

\*see map for potential nest area but not confirmed



USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

Project Name: SR70

Location/Observation Block/Lat-Long: Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/27/23	640	1000	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70	ENES	40	stratus	N/A
Finish:	80	E7	10	stratus	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

Posture N to SR70  
Sugar cane S of SR70  
\* Nest confirmed, coordinates approximate, difficult to tell @ distance exactly which tree

approx. Nest  
489094 3009635

**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
①	A	650	adult perched on power pole near Site 17
②	A	727	harvesting gonyz or south of Site 18, heavy equipment drawing in birds. adult caracara flew west across field then N toward road & landed in large pine just S of road
②	A	752	adult flew S then west to south denser field then landed in cabbage patch then down to ground

Other species

Amur CAEG COYE Marsh Wablar  
BLUU WHITE ABITE cricket frog GLIB MIDU  
TUVU BTAR WRA  
ADHA RWB L SUKI GREAT BOWN GRITE



**USFWS Crested Caracara Draft Survey Protocol –  
Additional Guidance (2021-2022 Breeding Season)**

②	A	804	adult caracara sitting on pole N of road (not same one that just flew SW)
①	A	813	perched adult flew SW & landed in same cabbage palm & sat on edge looking around
②	A	8128	another adult flew in from west, adult life tree 2nd adult came from unknown location, territorial display flying back west. One adult stayed back & flew east & landed on ground
②	A	834	2 caracaras perched on pole N of road to the west then flew unknown direction
②	A	844	adult flew west across field & landed in CP, appeared to be feeding very small young (can't see them). 2nd adult landed in tree & first adult flew out & went N. 2nd adult appeared to be feeding small young or may be egg, laying & about incubating?
		851	1st adult perched on pole N of road
		851	1st adult that was perched flew unknown direction

900 adult flying east, 2nd adult  
following

918 2 adults flying SW in territorial display

920 1 adult entered nest tree, followed  
by 2nd adult, both stayed in there  
flew out & circled field together  
heading N  
possibly nest building?



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

②	A	935	adult pair one S of road going to diff CP's then circling equipment clearing fields then flying by nest site. Haven't seen any obvious signs of carrying food or nesting material, but behavior seems most like end of nest building when about to start incubating. Pair likely had nest fail in area where I could not see well & did not confirm before. This is likely a re-nest attempt. Would need additional survey to confirm status of this new nest (building, incubating, or feeding)
②	A	912	adult flying S
			Approximate nest tree 489094 3009635



**USFWS Crested Caracara Survey Protocol  
(2022-2023 Breeding Season)**

**Caracara Survey Form (updated 1/23/2019)**

**Project Name:** SR 70

**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
5/11/23	7:15	8:45	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	75	NNE4	0	N/A	N/A
Finish:	76	NNE4	0	N/A	N/A

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture N of SR 70  
sugar cane S of SR 70

**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
			No caracara observed unable to determine if new nest active. may be incubating but is why no caracara seen. will attempt 1 more survey to determine status

Other species

GRATE BTGR GIBHE BBWD Cuckoo Aug NOBDO  
RWBL BLVU LIMP KILL UT Deer NOCT  
LATEL MODU RBMP ANTE OSIR  
AMK GLIB



USFWS Crested Caracara Survey Protocol  
(2021-2022 Breeding Season)

**Caracara Survey Form** (updated 1/23/2019)

**Project Name:** SR70

**Location/Observation Block/Lat-Long:** Site 18

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
5/26/23	700	920	J. Korn

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70	N6	1	stratus	N/A
Finish:	77	N5	5	stratus	11

**Observation Point Information**

**General Site and Habitat Conditions; Other Activities in the Area**

pasture on N side of SR70  
sugar cane on S side of SR70

**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
①	A	839	1 adult flew SE from N 7 road, late suggested nest tree then looped back & went west out to sight
①	A	910	1 adult flying SE, 2nd adult came up from trees & both flew S together
			No caracara observed by new nest tree, so likely was unsuccessful. Does not appear this pair was successful this season, but there is an active territory here.

Other species

GREY WHB GLIA BLU SNKE LBITE 1 chick frog  
BBND RBW MUDU PSHT BNST AMCR RWBL  
EUCD GBTE CREG BENH BTMR SMITE



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

**Caracara Survey Form** (updated 12/9/2016)

**Project Name:** SR78

**Location/Observation Block/Lat-Long:** 19°27'13"07"N 81°05'40" W

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4-21-23	7	9:30	Chanel

**Weather**

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7	66	NE 3	10		
Finish: 9:30	73	11	5		

**Observation Point Information**

General Site and Habitat Conditions; Other Activities in the Area
Basic traffic

**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
19	A	7:40	A observed flying SE along 721, east into pasture out of view
19	A	7:42	2nd A flew in from N perched on pole along 721
19	A	7:50	A on pole flew W out of view
19	A	8:10	Drove S on 721, A on pole 2,000' S of nest



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

19	A	8:35	A flew in from W side land past the end of view
19	A	8:52	A on pole N of nest
19	A	9:00	A flew NW end of view



**Appendix B**

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Summary of Crested Caracara Survey Data



Bi-Weekly Survey Period	Survey Station	Survey Date	Time	Number of Caracaras Observed	Activity Observed
Event 1 January 2, 2023 to January 10, 2023	Survey Station 9	January 8, 2023	7:38 AM	1	One adult caracara flew from SunRay entrance, west to east toward Station 9, flew over vehicle and landed on south side of SR 70 approximately 50 feet east of vehicle. Pulled fresh roadkill on edge of road into ROW approximately 10 feet from edge of pavement. Not affected by high speed traffic. Flew southwest with piece of carrion.
			7:55 AM	1	One adult caracara returned un-noticed and was feeding on a different piece of carrion. Caracara was approximately 50 feet southeast of vehicle in mowed grove. Flew southwest towards oak grove, flew under canopy, chased by two crows. Crows and caracara landed under canopy of oak grove.
			8:05 AM	2	Two adult caracaras flying acrobatically approximately 600 feet south of Station 9 along edge of mowed grove and mature citrus grove. #1 adult caracara perched on top of mature citrus tree as sentinel. #2 adult caracara went to south side of SR 70 ROW to feed on carrion mentioned in first sighting. Observed #2 caracara feeding then flew into mowed grove with carrion. While #2 caracara was feeding, #1 caracara flew to #2 and assumed the breeding posture on top of #2. #1 caracara dismounted and fed with #2. Both caracaras flew towards station within 100 feet and fed on carrion. Departed flying to the southwest.
			8:48 AM	3	Three adult caracara flew from the southwest. #1 caracara continued to fly east toward SunRay entrance. #2 caracara flew and perched a top citrus tree. #3 caracara flew to carrion in ROW of SR 70. #3 flew west along SR 70 until out of sight. #2, a few minutes later also flew west along SR 70 until out of sight.
	Survey Station 10	January 9, 2023	7:23 AM	1	A juvenile caracara (#1) atop power pole south of station approximately 100 feet, preening. Stayed for 1 hour 35 minutes. Flew southeast over canal into pasture.
			7:30 AM	2	An adult caracara (#2) flying high, arrived from the south. Flew over juvenile caracara on power pole, across SR 70 and departed in a northeast direction until out of sight.
			8:20 AM	3	A juvenile caracara (#3) arrived from the east, flew around #1 caracara sitting on power pole. Continued to fly high in a northwest direction over SR 70 until out of sight.
			8:37 AM	1	A caracara (#4) flying high in northeast direction.
	Survey Station 11	January 10, 2023	9:47 AM	1	A juvenile caracara (#5) perched on power pole unnoticed. Flew north until out of sight.
			7:18 AM	3	A caracara (#1) perched on telephone pole south side of SR 70. Another caracara (#2)flew by #1 and #1 vocalized. #2 flew over SR 70 in northeast direction, #2 followed and another caracara #3 followed #2. The caracaras flew between the observer and the rising sun, so could not identify if adults of juveniles.
	Survey Station 12	January 9, 2023	N/A	N/A	No caracara observations.
	Survey Station 13	January 9, 2023	8:31 AM	1	One adult caracara (A1) flew from northwest headed northeast along SR 70 tree line then north out of sight.
			8:52 AM	1	One adult caracara (A2) flew across CR 721 from road kill several times, would perch on fence post.
			9:03 AM	1	A2 flew across CR 721 and into cabbage palm group, lost sight of A2.
			9:46 AM	1	One adult caracara (A3) perched on utility pole near cabbage palm group, flew south stirred some crows then back with crows, perched.
	Survey Station 14	January 7, 2023	7:16 AM	1	One adult caracara flew in from northeast and perched on power pole. Red-shouldered hawk flew up and took perch at 7:18 am and caracara flew west to perch on next power pole.
			7:23 AM	1	One adult caracara flew east along roadway scanning for carrion until out of sight.
			7:52 AM	2	A first year young adult flew east along road then perched on power pole next to an adult. Adult threw head back then started preening itself. Note: Caracara observed on same power pole from Station 15 survey on 1/6/2023.
			8:05 AM	2	The first year young adult flew east and north away from adult that stayed perched on power pole.
			8:39 AM	1	Adult caracara flew from perch on power pole and landed on next power pole to the east.
			8:41 AM	1	Adult caracara flew from north down from pole out of sight. Note : Observer did not see any activity by possible nest tree marked near Station 15 on 1/6/2023, but does appear that there is an active territory overlapping Stations 14 and 15.
			9:29 AM	1	Adult caracara is back perched on eastern power pole where flew to at 8:39 am then flew northeast.
	Survey Station 15	January 6, 2023	7:50 AM	1	One adult caracara flew north from behind observer and went northwest out of sight toward clump of cabbage palms. May have had small bit of food on beak.
			8:08 AM	1	One adult caracara flew from behind observer north across SR 70 to perch on power pole. An adult was observed on this pole on 1/5/2023 while observer was leaving Station 16. May be sentinel perch and nest nearby.
			8:32 AM	1	One adult caracara on pole flew north-northwest down low from pole. Could not see where it went past vegetation along road.
			8:44 AM	1	Located suspected nest at Lat: 26.216343, Long: -81.154887. Approximately 1/3 mile north of SR 70 and inside private property. One adult (at least) can be seen moving around in tree.
			9:04 AM	1	One adult caracara eating carrion, walking catfish, black vulture and turkey vulture looking on.
			9:10 AM	1	Same adult flew southwest across canal and landed by black vulture looking for food.
			9:13 AM	1	Same adult flew back across canal and took food from black vulture.
			9:35 AM	2	Same adult flew southeast along canal, then showed territorial display. Second adult flying from north, then one flew east and landed and other flew southwest out of sight.
	Survey Station 16	January 5, 2023	9:39 AM	1	One caracara that landed flew across canal and landed by vultures then walked up to berm.
			9:33 AM	2	One adult caracara flew in low from north and landed on oak on north side of road where mate already sitting. Spent ten minutes allopreening and mated/copulated.
			9:45 AM	1	Male caracara flew west and landed on pole then flew low south but not across SR 70.
			9:48 AM	1	Female caracara flew low and north, lost sight.
	Survey Station 17	January 4, 2023	N/A	N/A	Checked cabbage palms in area and one seems possible for nest. Note: There is likely a territory and nest tree in vicinity to Station 16.
	Survey Station 18	January 3, 2023	N/A	N/A	No caracara observations.
	Survey Station 19	January 3, 2023	7:12 AM	1	One adult caracara flying southwest (north of SR 70), may have landed in patch of cabbage palms but could not view directly.
			7:10 AM	1	One caracara, possible adult (A1), observed at SR 70/CR 721. Flying east along SR 70.
			7:26 AM	1	One adult caracara (A2) perched on pole north of SR 70/CR 721.
			7:27 AM	1	A2 dropped to ground out of view.
			8:51 AM	1	One adult caracara (A3) flew around north of SR 70/CR 721, flew east along SR 70.
			7:10 AM	1	One adult caracara flew from perch on oak (approximately 50 yards to the west) next to SR 70 and flew north and out of sight.
			7:20 AM	1	One adult caracara approaching from south approximately 300 yards southwest. Then paired up and continued west out of sight.
Event 2 January 16, 2023 to January 27, 2023	Survey Station 9	January 24, 2023	7:22 AM	1	One adult caracara flew overhead from east and continuing west parallel to SR 70 and out of sight.
			7:38 AM	1	One adult caracara flew from north heading south across SR 70 and flew south out of sight parallel to the groves.
			8:44 AM	1	One adult caracara flew from tree line approximately one mile west towards station on the north side of SR 70, circled and dropped to the pasture, foraging.
	Survey Station 10	January 24, 2023	7:05 AM	2	One caracara (A#1) flew from the east over cabbage palms lined along south bank of east-west canal to live oak tree on east bank of north-south canal. Flew low into pasture to the east near immature caracara (I#2)
			7:09 AM	1	One immature caracara (I#2) perched in large Brazilian pepper. Flew to power pole on south side of east-west canal.
			7:12 AM	1	One immature caracara (I#2) perched on power pole. Tree obstructing view somewhat but still visible. Preening. Flew away in unknown direction.
			8:05 AM	1	One immature caracara (I#3) flying high north to south then flew over tops of cabbage palms on south side of east-west canal.
	Survey Station 11	January 25, 2023	8:55 AM	1	One immature (I#1) caracara flew to roadkill opossum on SR 70 approximately 20 yards from station. Crows buzzing caracara. Flew south with mouthful of carrion.
			9:03 AM	1	One immature (I#2) feeding on carrion in SR 70. Possibly same bird as above. Flying up and down as traffic approaches and leaves. Flew southwest.
			9:20 AM	1	One caracara perched on telephone pole. Sun glare prohibiting age determination. Flew west out of sight.
	Survey Station 12	January 26, 2023	9:42 AM	1	One immature caracara flew from south over canal and SR 70 then flew south over canal and perched in oak tree for three minutes, then flew south and landed in pasture ditch. Row of hay bales or silage bag, blocked view.
	Survey Station 13	January 27, 2023	7:07 AM	1	One immature caracara (I#1) flew from the south along CR 721 and landed 10 yards from observer's post, next to the road with a crow.
			7:08 AM	2	One immature caracara (I#2) flew from the south and joined I#1 along road then flew and perched on fence post. Both flew south.
			7:09 AM	3	I#1 and I#2 flew south along CR 721 and met up with a third caracara (A#3). All three caracaras perched on top of power poles on east side of CR 721. One of the caracaras mounted another caracara in breeding posture, both flew away together east over hammock then back to power pole. One of the caracaras flew back down into the hammock while the other two remained on top of power poles. The remaining two caracaras flew towards SR 70/CR 721 intersection then west what appeared to be along SR 70 until out of sight. Observer moved to a closer position in front of block building.
			7:40 AM	2	One caracara (A#4) feeding on carrion in love oak tree, south side of driveway. Flew to top of power pole. Second caracara (A#5) walking on ground in hammock and cabbage palm head.
			8:05 AM	1	One immature caracara (I#6) perched on power pole looking.
			8:09 AM	1	I#6 moved to next power pole to the south.
			8:17 AM	1	I#6 flew north to power pole near intersection.
			8:19 AM	1	I#6 flew west out of sight.
			8:35 AM	1	One immature caracara (I#7) flew up from oak/cabbage palms on east side of CR 721 to top of power pole next to driveway. Looking.
			8:40 AM	2	One adult caracara (A#8) bringing food in beak, flew for oak/cabbage palms. I#7 followed.
			8:42 AM	2	I#7 and A#8 flew back to power pole. A#8 had no food.
			8:45 AM	2	I#7 and A#8 flew out of sight.
			9:15 AM	1	One adult caracara (A#9) flew west to east with food.
			9:20 AM	2	Immature and adult caracara flew from oak/cabbage palm head to power pole tops at driveway entrance.
			9:25 AM	2	Immature and adult caracara flew for fence post along driveway.
	Survey Station 14	January 20, 2023	9:35 AM	3	Two adult and one immature caracaras fly together acrobatically over house/horse barn area.
			7:00 AM	1	One adult caracara perched on same power pole as on 1/19/2023 survey.
			7:10 AM	1	One adult caracara flew to north to dead opossum and fed on carrion. Opossum moved to grass on south of road to prevent caracara collision.
			7:15 AM	1	One adult caracara took piece of carrion and flew north but could not follow through trees along road. But a nest suspected in that area.
			7:20 AM	1	One adult caracara returned to roadkill and ate.
			7:45 AM	1	One adult caracara flew north of road with food and entered suspected nest tree.
			7:50 AM	1	One adult caracara left suspected nest tree with food and entered tree to west to cache, then flew to nearby tree and perched. Nest confirmed. Incubating since second adult caracara not seen.
			7:55 AM	1	One adult caracara left and flew west-southwest.
			8:51 AM	1	One adult caracara sitting on edge of nest tree preening then entered nest. Note: Based on activity estimated hatching somewhere between 1/30 - 2/6/2023.
	Survey Station 15	January 19, 2023	7:06 AM	1	One adult caracara sitting on power pole.
			7:15 AM	1	One adult caracara flew north into fog and could not follow.
			7:27 AM	1	One adult caracara returned to perch on power pole (to the east) from unknown direction, preening.
			9:00 AM	1	One adult caracara from power pole flew southeast and landed along canal then flew east down road, observer tried to follow but lost bird because of traffic.
	Survey Station 16	January 18, 2023	9:58 AM	1	Adult caracara did not return but behavior resembled a sentinel perch then leaving for food.
			6:58 AM	1	Adult caracara perched on top of power pole then flew south across road through fog.
			7:59 AM	1	One adult caracara flew from west and landed on top of oak.
			8:01 AM	1	One adult caracara flew south across road and landed in another oak and preening.
			8:09 AM	1	One adult caracara flew east low, difficult tell if along road or into cabbage palm due to fog.
			8:15 AM	1	Observed adult caracara further along road to east sitting on power line.
			8:17 AM	1	One adult caracara then flew east and lost in fog.
			8:21 AM	1	Observer located adult caracara again on another power pole, preening.
			8:55 AM	1	Perched adult flew south toward area where suspected nest is located near Station 17, could not follow to see destination.
			9:32 AM	2	One adult caracara flew with food to northwest and landed on low power pole, second adult caracara flew from nest tree and went east and landed. Then went somewhere unknown. Adult with food entered suspected nest tree then flew west.
			9:40 AM	2	One adult caracara returned and landed on low power pole near suspected nest. Nest structure visible in tree but no young seen or heard. Nest located at 48.7230/30.09709. Because pair were observed together and copulated on 1/17/2023, the nest stage is most likely egg laying or very start of incubation, earliest hatching estimated week of 2/15/2023, but probably week of 2/22/2023.
			9:54 AM	1	One adult caracara perched in sentinel pole, flew east.



Bi-Weekly Survey Period	Survey Station	Survey Date	Time	Number of Caracaras Observed	Activity Observed
	Survey Station 17	January 17, 2023	7:15 AM	1	One adult flew from west and along south of road. Crossed then landed on power pole.
			7:19 AM	1	Second adult flew east along road then south across field out of sight.
			7:25 AM	1	One adult flew south to tree on far side of sugar cane and perched with other adult. Lost them while repositioning.
			8:51 AM	1	One adult caracara that flew south is perched in oak that previously perched in at 7:25 am, possible nest area or sentinel tree.
			9:06 AM	1	One adult caracara perched, then flew down into tree unable to see from this distance.
			9:25 AM	2	One adult caracara and one subadult caracara flew west along road then adult went north and subadult circled east.
			9:31 AM	3	Two adult caracaras landed in tree and vocalized, third adult caracara flew from west and one perched adult flew to it and had territorial display. Third adult continued east. Second adult landed back to mate and copulated then both flew low north. Note: Same area two adults observed copulating at Station 16 survey two weeks before.
			9:38 AM	2	One adult caracara that continued east went to sentinel tree from 8:51 am and met mate and copulated. Observed then one adult caracara flew low to tree, unable to see which one.
			9:48 AM	2	Second adult caracara back in tree with mate and allopreened.
	Survey Station 18	January 16, 2023	9:57 AM	1	One adult caracara flew east-southeast and entered a cabbage palm at approximately 48.8436/30.09400.
			7:16 AM	1	One adult caracara flew east.
			7:41 AM	1	One adult caracara flew from south circled around dead otter then flew north and west.
	Survey Station 19	January 16, 2023	9:40 AM	1	One adult caracara flew east along road then southeast out of sight over trees. Probably landed nearby.
			7:13 AM	1	Possible adult flying east on SR 70, then flew south.
			7:45 AM	1	Possible adult flying west, north of SR 70, then south along CR 721 out of view.
			7:55 AM	2	Two possible adults observed 2,000' south of CR 721/SR 70.
			8:10 AM	3	Two adult caracaras chasing another caracara (2,000' south of CR 721/SR 70).
			8:13 AM	1	Adult perched briefly on power pole, flew east hear defensive calls.
			8:23 AM	3	Two adults chasing/fighting with another caracara, one adult returned to power pole.
			8:28 AM	1	Adult on pole flew NE into pasture out of view.
			8:45 AM	1	Adult observed on pole along CR 721.
			8:50 AM	1	Adult on pole flew NE out of view.
			9:50 AM	1	Possible adult observed north of SR 70, flew south along CR 721 to pole.
			7:11 AM	1	One adult caracara was observed flying from the north to SR 70, then turning east, following the road, out of sight.
			7:21 AM	1	One adult caracara flew from the east over the truck and landed on a telephone pole west of observer.
			7:22 AM	1	One adult caracara flew from east and continued west out of sight.
			7:26 AM	1	The adult caracara from 7:21 observation flew from perch west out of sight.
Event 3 January 30, 2023 to February 10, 2023	Survey Station 9	February 8, 2023	7:47 AM	1	One adult caracara flying west on the north ROW of SR 70. The caracara crosses the road flying east then turned and meandered back west out of sight.
	Survey Station 10	February 7, 2023	7:10 AM	1	One adult caracara (A#1) flying west over SR 70. Appear to have landed in ROW.
			7:15 AM	2	One caracara (C#2) flew from pasture south of SR 70. Met with another caracara (C#3) at SR 70 ROW. Then flew to top of power pole.
			7:15 AM	2	One caracara (C#3) flying over SR 70, landed in ROW met with C#2. Observer looking into sunrise, hard to tell age of caracaras #2 and #3.
			7:50 AM	1	One immature caracara (I#4) flew west along SR 70 then landed in top of citrus trees. Flew down into rows of citrus trees.
			8:00 AM	1	One immature caracara (I#4) flew from pasture south to land a top of high voltage power pole. Flew down into SR 70 ROW.
			8:26 AM	1	One immature caracara (I#6) flew from grove to power pole top. Preening.
			8:38 AM	1	I#6 flew west to edge of citrus grove.
			9:42 AM	1	One immature caracara (I#7) flew across SR 70 flying north into pasture. Landed in pasture near heavily vegetated ditch/canal west side of HP canal.
			9:43 AM	2	One adult caracara (A#8) at the location where I#7 landed.
			9:48 AM	2	Both birds feeding on carrion. I#8 flew with food south across SR 70.
			9:52 AM	1	One adult caracara (A#9) returning from location A#8 flew to, suspect A#9 is same bird as A#8. Returning with no food in beak.
			9:55 AM	1	One adult caracara (A#10) flew from carrion in pasture site with large piece of carrion across canal and dropped carrion on bank. Returned to carrion site.
			10:00 AM	1	One adult caracara (A#11) flew across SR 70 with food in beak to same location as A#8 and A#9. Flying low. Seems to land north of big oak tree on east side of levee berm.
	Survey Station 11	February 8, 2023	7:08 AM	1	One caracara (C#1) flying east along SR 70.
	Survey Station 12	February 9, 2023	7:28 AM	1	One adult caracara (A#2) flying over SR 70 then NE over pasture until out of sight.
	Survey Station 13	February 10, 2023	7:50 AM	1	One immature caracara (I#1) flew north along ranch road to SR 70 then flew west over SR 70 until out of sight.
			6:49 AM	1	One adult caracara (A#1) flew from hammock, circled low over road (CR 721), then back into hammock.
			6:53 AM	1	One adult caracara (A#2) perched on top of power pole in front of hammock (potential nest site).
			6:57 AM	1	One adult caracara (A#3) flew north over CR 721 and then west along SR 70.
			6:59 AM	1	A#3 returned flying south on CR 721 and perched on power pole.
			7:10 AM	1	One adult caracara (A#4) flew north along CR 721 and west over SR 70.
			7:56 AM	1	One adult caracara (A#5) flew from southwest to power pole in front of potential nest site.
			7:57 AM	1	One adult caracara (A#6) flew low out of potential nest site and then right back in.
			8:00 AM	1	One adult caracara (A#7) flew off power pole south along CR 721 then veered to the southwest.
			8:05 AM	1	One adult caracara (A#8) perched on top of power pole near potential nest site, looking around.
			8:15 AM	1	One adult caracara (A#9) flew off pole low over ROW and into potential nest site.
			8:19 AM	1	One immature caracara (I#10) flew out of potential nest site to top of power pole.
			8:48 AM	1	One adult caracara (A#11) flew out from potential nest site and perched two poles south of immature bird.
			8:49 AM	1	A#11 flew southeast out of sight towards cabbage field.
			8:59 AM	1	I#10 flew south along CR 721 until out of sight.
	Survey Station 14	February 3, 2023	9:08 AM	1	One adult caracara (A#12) flew from nest site to power pole closest to driveway.
			9:12 AM	1	A#12 flew north over CR 721, Lykes work center, until out of sight.
			9:55 AM	1	One adult caracara (A#13) drove by nest site and adult perched in cabbage palm on the south side of hammock. The third bird.
			8:20 AM	1	One adult caracara perched on power pole by highway.
			8:53 AM	1	One adult caracara that was perched, flew down to road.
			9:02 AM	1	One adult caracara flying east along power line, landed and perched on pole.
			9:31 AM	1	One adult caracara that was perched, flew west along power line then landed and perched on pole farther west.
			9:39 AM	1	One adult caracara that was perched, flew east to perch on first power pole.
			9:43 AM	1	One adult caracara that was perched, flew east then north towards nest then landed behind cabbage palms and perched in a cabbage palm to east of nest.
			9:55 AM	N/A	Note: Pair of caracaras are possibly at end of incubation, or possibly have very small hatchlings, though were not observed taking food to nest today.
	Survey Station 15	February 2, 2023	9:30 AM	1	One adult caracara perched in tree by road, flew northwest toward Station 14 nest.
	Survey Station 16	February 1, 2023	7:04 AM	1	One adult caracara flying east along road.
			7:30 AM	2	One adult caracara flew in from east, with food and entered nest. One adult caracara perched in tree slightly east by gate. Fed young, could hear chicks sounds.
			9:30 AM	1	One adult caracara returned from east and perched on power pole, occasionally preening or scratching.
			10:35 AM	1	One adult caracara still perched on same pole.
	Survey Station 17	January 31, 2023	7:04 AM	1	One adult caracara perched on dead tree by canal then flew northeast along road.
			7:18 AM	1	One adult caracara perched on oak near suspect nest area but then fog thickened and observer could no longer see.
			7:40 AM	1	One adult caracara flew from northwest along road then landed in tree from 7:04 am observation then flew low out of sight.
			8:47 AM	1	One adult caracara perched on power pole.
			8:48 AM	2	A second adult caracara flew and joined the first on power pole and allopreened.
			9:02 AM	1	One adult caracara flew northeast along road then looped south and west, lost in distance.
			9:05 AM	1	One adult caracara perched on power pole, likely the same bird from 9:02 am observation.
			9:10 AM	3	Observer followed one adult caracara with food (other two caracaras still on poles), west along road to Station 16 nest, adult entered then exited with dead caracara chick (possibly) in beak. This pair then observed feeding young on 2/1/2023 (from Station 16).
			9:14 AM	1	One adult caracara flew southeast without anything in beak.
			9:51 AM	1	One adult caracara sitting on same power pole as 9:05 am observation.
	Survey Station 18	January 30, 2023	9:11 AM	1	One adult caracara perched on power pole. Preening and sitting with one leg up under chest.
			9:27 AM	1	One adult caracara flew south then west and back to power pole west from previous pole.
			9:30 AM	1	A second adult caracara flew from south of tree island and to the north to land on power pole.
			9:34 AM	1	The second adult caracara flew, did not see direction.
			9:45 AM	1	The perched adult caracara flew east across tree line out of sight then flew south and landed directly in front of truck, perched at road then flew south and east, crossed road and flew east behind tree line.
			10:05 AM	1	One adult caracara on power pole, west of previous perches.
			10:10 AM	1	One adult caracara flew northeast and landed on previous perch near Site 18.
			10:30 AM	1	Red-shouldered hawk flew and landed on pole as adult caracara flew south over sugar cane and looped north and west to land on next pole. Red-shouldered hawk flew north to pole and adult caracara flew north out of sight. Then south and west to preen on next power pole.
	Survey Station 19	January 30, 2023	10:35 AM	1	One adult caracara flew to ground behind tree line.
			7:08 AM	1	Adult flew south along SR 70.
			7:16 AM	1	Adult perched on pole with food.
			7:18 AM	1	Adult flew into palm with food.
			7:23 AM	1	Adult back on pole.
			7:36 AM	1	Adult flew northwest out of view.
			7:50 AM	1	Adult on pole.
			8:00 AM	1	Adult flew west out of view.
			8:10 AM	1	Adult on pole near roadkill.
			8:17 AM	1	Adult has brief interaction with black vulture north of palm with potential nest.
			8:27 AM	2	Two adults near roadkill.
			8:29 AM	1	Adult flew into nest tree with food.
	Survey Station 9	February 23, 2023	8:20 AM	1	One adult caracara feeding on carrion on eastbound ROW of SR 70 to the east of Station 9. Spotted on the ground. Running south away from road as cars passed. Could not located where it went at 8:28 am.
	Survey Station 10	February 21, 2023	8:37 AM	1	One adult caracara feeding on carrion on eastbound ROW of SR 70 to the east of Station 9. Spotted on the ground. Running south away from road as cars passed. Potentially same caracara as 8:20 am observation. Feeding activity continued until 9:15 am.
			8:58 AM	1	One caracara (C#1) flying over SR 70.
			9:10 AM	1	One immature caracara (I#2) flying then perched on top of power line pole.
			9:12 AM	1	One adult caracara (A#3) flying with food in beak. Flew behind cabbage palm out of sight.
			9:18 AM	1	One adult caracara (A#4) flying until out of sight.
			9:32 AM	1	One adult caracara (A#5) flew to top of power pole, preening.
			9:35 AM	1	A#5 flew into cabbage palms.
			9:37 AM	3	One immature caracara (I#6) flew to oak tree with carrion. Throwing head back vocalizing with food in mouth. Other vocalizing could be heard. I#6 was constantly looking north-northeast. Two adult caracaras (A#7 and A#8) flew from where I#6 was looking, crossed, flying around I#6.
			9:44 AM	3	Both adults (A#7 and A#8) flew northeast. I#6 flew east out of sight a short distance behind palms.
			10:15 AM	2	One adult caracara (A#9) flew to power pole. Adult was preening immature caracara around neck. Immature caracara was tossing head back vocalizing.
			10:25 AM	1	A#9 flew north over canal.
	Survey Station 11	February 22, 2023	8:43 AM	1	One adult caracara (A#1) flying to burned pasture. Northwest quadrant.
			8:45 AM	2	Two adult caracaras (A#2) flew low over lime rock road, landed and were out of sight.
			9:00 AM	2	Two adult caracaras flying, one high and one low, landed in pasture.
			9:07 AM	1	One adult caracara (A#4) flying high (50-75 ft.).



Bi-Weekly Survey Period	Survey Station	Survey Date	Time	Number of Caracaras Observed	Activity Observed
Event 4 February 13, 2023 to February 24, 2023	Survey Station 12	February 23, 2023	8:45 AM	1	One adult caracara (A#1) flying and soaring.
	Survey Station 13	February 20, 2023	6:44 AM	1	One adult caracara (A#1) flew to power pole from suspected nest site. Looking.
			6:48 AM	1	One adult caracara (A#2) flew down to road (CR 721), looking for food. Would fly to adjacent fence post as cars drove by then back to road.
			6:55 AM	1	One adult caracara (A#3) flew back to pole. Note - A#1-A#3 is same caracara. Flew within 20 yards of observation vehicle. Seemed unaffected by observer presence.
			7:33 AM	2	One caracara (C#4) observed three poles south of A#3. C#4 was on top of power pole feeding.
			7:34 AM	1	One adult caracara (A#5) flew off power pole in northerly direction. (Perched for 39 minutes).
			7:50 AM	N/A	Vehicles leaving residence, SE 4th St, caracara seemed unaffected by resident's activities.
			7:55 AM	1	One adult caracara (A#6) feeding on fresh kill in road, approximately 20 yards behind (north of) observation vehicle. Fighting off crows trying to steal food.
			8:00 AM	1	One adult caracara (A#7) flew in northeast direction and returned flying south over CR 721 then perched on telephone pole.
			8:15 AM	1	One adult caracara (A#8) perched on telephone pole south of driveway.
			8:35 AM	2	One immature caracara (I#9) perched on top of power pole with A#8. Immature was preening.
			8:55 AM	1	I#9 flew down into suspect nest location.
			8:59 AM	1	One adult caracara flew from suspect nest location to power pole. Looking.
			9:37 AM	1	One adult caracara remained on top of power pole.
			9:45 AM	2	Post survey note - Observer drove by nest location on CR 721 and immature caracara was on power pole, two poles south of where adult caracara remained.
	Survey Station 14	February 17, 2023	7:00 AM	0	One adult caracara perched on power pole.
			7:45 AM	1	One adult caracara that was perched, flew west along road.
			8:10 AM	1	One adult caracara, possibly second, exited nest tree and perched to the west in tree, unable to see. Likely feeding young based on timing.
			9:50 AM	1	One adult caracara returned to perch on power pole.
			10:00 AM	1	One adult caracara that was perched, flew to nest and perched nearby. Did not observe feeding but difficult to see at this distance. If not, then will certainly be hatched by next survey.
	Survey Station 15	February 16, 2023	7:45 AM	1	One adult caracara perched on power pole. Almost certainly one of the pair from the nest north of Station 14.
			8:00 AM	1	One adult caracara flew low and to north behind trees.
	Survey Station 16	February 15, 2023	7:52 AM	1	One adult caracara flying from north over road and to the south out of sight.
			8:30 AM	1	One adult caracara returned from west and entered nest with food, then flew out and perched on sentinel post (old power pole and pecked at remaining food). Can hear chick(s) crying, potentially sounds like more than one, but need to confirm as they get older and are visible.
			9:00 AM	1	One adult caracara flew east.
			10:00 AM	1	One adult caracara returned from east and entered nest with food and fed young. Large prescribed fire started just west of Station 14 at approximately 10:15 am.
	Survey Station 17	February 14, 2023	N/A	N/A	No caracara observations. No activity seen in this area to the south where previously suspected there may have been a nest.
	Survey Station 18	February 13, 2023	7:00 AM	1	One adult caracara perched on power pole along road (where seen perched on previous survey).
			7:11 AM	1	One adult caracara that was perched, flew north low behind trees, where unable to see where landed.
			7:15 AM	1	One adult caracara appeared and perched on power pole, slightly west of previous pole.
			7:18 AM	1	One adult caracara flew west along road, followed, but lost whether it entered a tree along road or flew south across field.
			7:28 AM	1	One adult caracara returned to perch on power pole a little further west off map then flew out of sight.
	Survey Station 19	February 13, 2023	7:43 AM	1	One adult caracara fly into nest (near Station 13).
			8:01 AM	1	One adult caracara leaves nest (near Station 13) and perches on pole.
			8:04 AM	1	One adult caracara flies north along CR 721 to another pole.
			8:10 AM	1	One adult caracara flies east-northeast out of view.
			12:00 AM	1	One adult caracara returned to nest (near Station 13), not sure if carrying food.
			8:32 AM	2	A second adult caracara on pole by nest (near Station 13).
			8:38 AM	1	The adult caracara on pole drops into a field to the east out of view.
			8:39 AM	1	One adult caracara observed taking food into the nest (near Station 13).
Event 5 February 26, 2023 to March 11, 2023	Survey Station 9	March 10, 2023	N/A	N/A	No caracara observations.
	Survey Station 10	March 7, 2023	6:48 AM	1	One adult caracara (A#1) flying over SR 70, landed where a crow was feeding in the road, continued to fly west over SR 70.
			7:00 AM	1	One immature caracara (I#2) perched on top of power pole, preening.
			7:17 AM	1	I#2 flew off power pole, pick up carrion in road, flew to nest area.
			7:20 AM	1	One immature caracara (I#3) flew from nest area to power pole.
			7:23 AM	1	One adult caracara (A#4) perched in small oak with food. Flew in to cabbage palms east of small oak.
			7:27 AM	1	One immature caracara (I#5) - observer did not see fly off power pole but flew to nest area (cabbage palms east of small oak) with food.
			7:30 AM	1	One adult caracara (A#6) flew out of nest area, circled low and flew back to nest area.
			9:28 AM	N/A	End of survey - No activity since 7:30 am (A#6 observation). A range finder was used to triangulate nest site. 214 yards to large oak on fence line, 186 yards to small oak.
	Survey Station 11	March 8, 2023	8:15 AM	1	One adult caracara (A#1) flying west to east over SR 70.
	Survey Station 12	March 9, 2023	7:43 AM	1	One adult caracara flying east to west over SR 70. Landed on highway briefly and then continued flying west over SR 70.
			6:30 AM	1	One adult caracara (A#1) flew from nest site to top of power pole.
	Survey Station 13	March 10, 2023	6:44 AM	1	One adult caracara (A#2) flew over CR 721 then over sugar cane field towards SR 70.
			6:49 AM	1	One caracara (C#3) flew from nest site across pasture (flying low). Flew towards SR 70/CR 721 intersection then headed east.
			6:52 AM	1	One immature caracara (I#4) flew in from east and landed in road feeding on carrion.
			6:59 AM	1	One adult caracara (A#4) flew from north side of nest site, circled low and flew back in nest site.
			7:06 AM	1	One immature caracara (I#5) flying with large piece of carrion and cached it in lone cabbage palm in pasture north of nest site. Then flew high towards SR 70.
			7:35 AM	1	One immature caracara (I#6) sitting on top of power pole.
			8:04 AM	1	One immature caracara (I#7) flew to power pole in front of nest site.
			8:12 AM	1	One immature caracara (I#8) flew from power pole to pasture and landed on ground.
			8:15 AM	1	One immature caracara (I#9) appeared on top of power pole to the north of driveway.
			8:17 AM	1	One immature caracara (I#10) flew low from pasture to fence post north side of driveway.
			8:24 AM	1	One immature caracara (I#11) flew to power pole in front of nest site.
			8:29 AM	2	One adult caracara (A#12) flew into pasture on ground to the location where I#8 landed. Picked up carrion and flew to driveway and fed a fledgling.
			8:35 AM	3	An SUV pulled into driveway. One juvenile caracara flew to the other juvenile and adult (A#13) to the north side of the driveway. Observer watched the adult and two juveniles walk and hop-fly across pasture to the north, foraging and looking around. They eventually met up with the immature in the pasture. Observed in pasture until 9:15 am, where they made their way back to the nest site south of the driveway by walking and hop-flying.
	Survey Station 14	March 2, 2023	7:36 AM	1	One adult caracara flying west-southwest.
			8:23 AM	1	One adult caracara flew in from west and landed on power pole.
			8:29 AM	1	Perched adult flew south and landed in tree in pasture next to equipment working in field.
			8:30 AM	2	Second adult caracara joined the other in tree then flew to ground then second adult flew to ground.
			8:48 AM	1	One adult caracara flew from field with food and returned to nest and entered.
			8:50 AM	1	One adult caracara flew north.
	Survey Station 15	March 3, 2023	9:15 AM	1	One adult caracara returned with food and entered nest. Feeding young, appears to just be one approximately two weeks old. Earliest possible fledgling would be by or on next survey date but most likely around 3/31/23.
			8:20 AM	1	One adult caracara flying to the west headed north, likely Station 14 adult.
			7:15 AM	1	One adult caracara flew east out of sight.
	Survey Station 16	March 1, 2023	8:20 AM	2	One adult caracara returned from east carrying food, entered nest and fed immature, exited and flew to berm slightly north and landed, then flew east.
			9:23 AM	2	One adult caracara returned from east carrying food and landed on sentinel pole, immature crying in nest, adult entered nest, then exited and flew east.
	Survey Station 17	February 28, 2023	8:20 AM	1	One adult caracara flew in from west and landed on power pole.
			8:37 AM	1	One adult caracara that was perched flew northeast and landed on road and picked up piece of carrion, took to shoulder, and began eating.
			8:44 AM	2	One adult caracara took carrion and flew southwest then west and took it to Station 16 nest and fed immature then flew to sentinel pole, then flew east, only one immature seen in nest.
	Survey Station 18	February 27, 2023	8:52 AM	1	One adult caracara flew in from west and landed in road and grabbed remnants of roadkill and took it to side of road.
			8:59 AM	2	One adult caracara flew west carrying food, followed caracara to Station 16 nest where it landed on sentinel pole. One large immature caracara could be seen in Station 16 nest, close to fledgling. No other caracara seen at Station 18.
	Survey Station 19	February 27, 2023	6:58 AM	2	Two adult caracaras near nest on poles along SR 70.
			7:44 AM	2	One adult caracara flew north, other moved to north to another pole.
			7:55 AM	1	Other adult caracara flew north, still foggy.
			8:40 AM	2	One adult caracara returns to near nest (near Station 13) with food, feeds fledgling on ground.
			8:55 AM	2	Adult caracara still feeding fledgling.
			9:00 AM	2	Adult caracara on pole, fledgling on ground.
			9:25 AM	3	Both adult caracaras on poles near nest (near Station 13), fledgling on ground.
	Survey Station 9	March 23, 2023	N/A	N/A	No caracara observations.
	Survey Station 10	March 21, 2023	7:20 AM	2	One adult caracara (A#1) flew to power pole from nest site. An immature caracara (I#1) followed and perched on same power pole. Preening. Power pole west of nest site.
			7:22 AM	2	One adult caracara (A#2) flew west over SR 70 until out of sight. Immature (I#1) remained. Standing on one leg. Holding up right leg.
			7:30 AM	1	One adult caracara (A#3) flew from west to east over SR 70 until out of site, flying to the east.
			7:32 AM	1	One caracara (C#4) perched on power pole east of nest site.
			7:40 AM	1	I#1 flew off power pole west over SR 70, then citrus offices, then landed on power pole by citrus office, then flew over citrus grove landed on top of citrus trees in grove.
			7:42 AM	1	One caracara (C#6) flew past from power pole over SR 70 until out of site.
			7:57 AM	2	Immature caracara (I#7) and adult caracara (A#7) flying over citrus grove and grove office. Landed and perched together on power pole by office.
			8:20 AM	1	One adult caracara (A#8) flew to power pole north of SR 70 along canal.
			8:48 AM	1	One adult caracara (A#9) flew from power pole to citrus grove landed on top of citrus trees.
			8:50 AM	1	One immature caracara (I#10) a top power pole along canal.
			9:15 AM	1	I#10 flew southwest to citrus grove.
			9:35 AM	1	I#10 flew to power pole. Crow hazing caracara.
			9:45 AM	1	One adult caracara (A#11) flew from citrus grove to power pole with food.
			9:49 AM	1	A#11 flew from power pole to nest site.
			9:55 AM	1	A#11 emerged from back side (south) of nest site and then flew to power pole.
			9:57 AM	1	A#11 flew to citrus grove.
			10:13 AM	N/A	End of survey.
	Survey Station 11	March 22, 2023	N/A	N/A	No caracara observations.
	Survey Station 12	March 23, 2023	7:23 AM	1	One adult caracara flying from west to east over SR 70 then turned around and flew back west over SR 70 until out of site.
	Survey Station 13	March 24, 2023	7:41 AM	1	One adult caracara flew out from nest site to power pole on east side of CR 721. Activity occurred when vehicles started up and was leaving residence on the east side of nest site.
			7:49 AM	1	One adult caracara flew northwest towards SR 70.
			8:15 AM	1	One juvenile/fledgling walking around in pasture, exploring, pecking at the ground. Unaffected by the cattle egrets on the ground with it, the horse nearby, and the traffic on the highway. Mingling with crow on the ground. Fly up to fence post and preen.
			9:40 AM	1	One juvenile caracara flew from pasture towards nest site.



Bi-Weekly Survey Period	Survey Station	Survey Date	Time	Number of Caracaras Observed	Activity Observed
Event 6 March 12, 2023 to March 25, 2023	Survey Station 14	March 17, 2023	7:41 AM	1	One adult caracara sitting on tall power pole by highway southeast of nest.
			7:44 AM	2	Second adult caracara flew east along road then landed on pole next to mate and copulated.
			7:46 AM	2	Both adult caracaras then flew east along road out of sight.
			7:57 AM	1	One adult caracara perched on power pole east of nest area.
			8:02 AM	2	Second adult returned from low behind trees and perched on power pole to west of mate.
			8:04 AM	2	First adult caracara left perch and flew down to road out of view (likely foraging for roadkill). Second adult caracara then followed.
			8:40 AM	2	One adult caracara perched on tall power pole to west and one adult caracara flying slow to east just north of road (foraging) then landed on tall power pole.
			8:48 AM	2	One adult caracara perched to west flew towards nest to north then east and south back towards road, other adult caracara still perched.
			8:59 AM	1	Perched adult caracara flew southwest into pasture.
			9:30 AM	2	One adult caracara flew into nest with food then exited and flew into adjacent cabbage palm. Saw individual fly down and back up to adjacent tree (possible fledged).
	Survey Station 15	March 16, 2023	7:52 AM	1	Station 14 adult caracara sitting on power pole then flew northwest towards nest.
			8:01 AM	2	One adult caracara flew in from west and continued east down road and out of view (Station 14 adult caracara foraging on road).
			8:11 AM	2	One adult caracara perched on power pole (Station 14 adult caracara foraging along road).
			9:21 AM	1	One adult caracara flying to south into pasture.
	Survey Station 16	March 15, 2023	7:20 AM	1	One juvenile caracara sitting on low pole by nest. Young has fledged (sentinel post).
			7:30 AM	1	One juvenile caracara flew west over trees by road and probably landed nearby but lost over the trees.
			8:32 AM	2	One juvenile caracara flew west and was followed by adult caracara, adult caracara being more aggressive than would seem usual if it was parent and young.
			8:37 AM	1	One juvenile caracara circled back and landed to perch on small power pole to east of nest.
			9:03 AM	1	One juvenile caracara flew west over by nest and landed on sentinel pole.
			9:10 AM	1	One juvenile caracara flying back and forth between each pole.
			9:57 AM	2	One adult caracara returned from east and landed in area by tree, then flew near nest and juvenile caracara joined and begged for food.
			10:07 AM	2	One adult caracara flew to tree south of road and perched and remained there until end of survey. Immature caracara flew to low pole to east of nest and perched there until end of survey.
	Survey Station 17	March 14, 2023	9:49 AM	1	One adult caracara flew from east and went nearby into pasture then west to Station 16 and landed in the south of road. Mower operating in area south of road, likely attracting the Station 16 adult. No other caracara observations.
	Survey Station 18	March 13, 2023	7:37 AM	1	One adult caracara flying east along road, turned around and started back west, harassed by American crow.
			7:39 AM	1	One adult caracara landed in road and picked at piece of carrion then flew west followed and returned to Station 16 nest and fed young.
			9:00 AM	1	One adult caracara placed dead baby raccoon off side of road (bait).
			9:54 AM	2	Two adult caracaras to the west flying northeast and interacting possible territorial display. Observer could not follow where they went behind trees.
	Survey Station 19	March 13, 2023	7:20 AM	2	Two adults fly north from nest area.
			7:36 AM	1	Adult flew south along 70, perched on pole, flew north to another pole.
			8:20 AM	2	Two adults perched on poles along CR 721.
			8:40 AM	5	Both adults flew east into pasture, one with food, 300' north of nest (near Station 13), two fledglings observed in pasture.
			8:55 AM	2	Both adults flew north.
			9:20 AM	3	Adult flew in from west, perched on pole by fledglings.
			9:35 AM	1	Adult flew north, on pole near SR 70/CR 721.
			7:41 AM	1	Flew from west to east down ROW before U-turning and flying back west and out of sight.
Event 7 March 26, 2023 to April 8, 2023	Survey Station 9	April 6, 2023	7:42 AM	1	Adult spotted perched in dead cabbage palm in eastbound ROW of SR 70.
	Survey Station 10	April 7, 2023	7:52 AM	1	Flew from perch headed south out of sight.
			6:54 AM	1	One adult caracara (A#1) on top of power pole when observer arrived at station.
			7:04 AM	2	One adult caracara (A#2) flew from group of cabbage palm to power pole with A#1. Preening.
			7:09 AM	3	A#1 and A#2 flew off power pole together. A third adult caracara (A#3) flew south over SR 70. A#3 flew north along Harney Pond Canal.
			7:21 AM	1	One adult caracara (A#4) flying west over SR 70 and landed on power pole.
			7:22 AM	2	One adult caracara (A#5) flew from citrus grove to power pole.
			7:26 AM	2	Two juvenile caracaras (I#6, I#7) making short hop flyovers and walking in pasture.
			7:30 AM	2	One adult caracara (A#7) flew to power pole with A#5.
			8:10 AM	1	One adult caracara (A#8) flew to power pole.
			8:45 AM	3	One adult caracara (A#9) flew south. I#6 and I#7 continue to walk on the ground.
			8:49 AM	1	One adult caracara (A#10) returned to power pole.
			8:51 AM	2	One adult caracara (A#11) returned to power pole with other adult. Looking and preening.
			9:00 AM	3	One adult caracara (A#12) flew southwest to confront third caracara. Lots of diving and chasing. Then returned to power pole.
			9:15 AM	2	One adult caracara (A#13) flew west over SR 70 while other remained on power pole.
			9:29 AM	4	One adult caracara (A#14) returned to location of immature caracaras (I#6 and I#7) with food. Immatures/fledglings feeding on ground with food from adult. Vocalization by fledglings and adult. Fledglings sound like red-tailed hawk shrills. Adult with a chattering clacking voice. Adult remained with fledglings and second adult on power pole until end of survey.
	Survey Station 11	April 6, 2023	7:19 AM	1	One adult caracara (A#1) flying over SR 70 east to west then north and northwest over pasture until out of sight.
			7:20 AM	2	When A#1 was almost out of sight, one adult caracara (A#2) followed behind flying in same direction.
			9:40 AM	1	One adult caracara (A#3) flying south along cabbage palm tree line.
	Survey Station 12	April 5, 2023	7:56 AM	1	One adult caracara (A#1) flying from SR 70, southeast, then low into a line of cabbage palms and live oak on the north-south ranch road.
			8:16 AM	1	One immature caracara (I#2) flying over SR 70 and Harney Pond Canal west to east, then turned around and flew west over SR 70 and Harney Pond Canal until out of sight.
			9:05 AM	3	I#2 Landed in SR 70. Unknown which direction arrived One adult caracara (A#3A) flew into tree location in first observation. One adult caracara (A#3B) flew to canal bank to feed on something, then flew to large oak tree.
			9:26 AM	1	A#3B flew east at ground level to tree location. Used range finder to approximate distance of location where caracaras were flying into line of trees. Approximately 400 yards/1200 feet.
	Survey Station 13	N/A	N/A	N/A	Last survey 3/24/2023, confirmed fledged two young.
	Survey Station 14	N/A	N/A	N/A	Last survey 3/17/2023 when observed fledged. Confirmed three young fledged from nest on 4/25/2023.
	Survey Station 15	March 29, 2023	7:35 AM	1	One caracara attempting to fly into roadkill moved over from near Station 14, flew south chased by crows.
			7:39 AM	1	One caracara landed on site of canal eying the roadkill but being harassed by crows.
			7:44 AM	1	The adult flew to the roadkill and began eating; two crows walking around following the caracara.
			7:47 AM	1	The adult flew north with a piece of food and went to the Station 14 nest and fed young which appeared fledged.
			7:52 AM	1	An adult returned to roadkill and ate then removed a piece and flew south mobbed by crows, then flew north to Station 14 nest.
			7:57 AM	1	An adult returned to the roadkill and ate.
			8:01 AM	1	The adult picked up piece of carrion and flew north.
			8:06 AM	1	An adult returned and ate carrion.
			8:08 AM	1	The adult took piece of carrion and flew southwest across canal, possibly cached food, then flew to an oak and perched, then returned to roadkill.
			8:13 AM	1	The adult took food and flew north to Station 14 and fed fledgling(s).
			8:17 AM	2	Adult returned to roadkill; second adult flew southeast toward canal. Both adults then flew north back to nest.
			8:22 AM	1	One adult sitting on power pole to the east.
			8:34 AM	1	One adult flew west from power pole and landed at roadkill, then flew north.
			9:59 AM	1	One adult sitting on power pole to the east.
	Survey Station 16	N/A	N/A	N/A	Last survey 3/15/2023, confirmed fledged one young
	Survey Station 17	March 28, 2023	7:49 AM	1	One adult on side of road eating carrion.
			7:52 AM	2	Adult picked up piece of carrion and flew west, took food to Station 16 and shared with fledgling.
			7:56 AM	1	One adult returned from northwest to the carrion and chased off a few American crows.
			7:59 AM	2	The adult picked up piece of carrion and flew west to Station 16 and fed young.
			8:12 AM	1	One adult returned from west to the carrion and ate.
			8:31 AM	2	The adult picked up piece of carrion and flew west to Station 16 and fed young.
			9:29 AM	2	Two adults sitting on power pole allopreening.
			9:29 AM	2	One of perched adults flew east and landed on road and picked up some carrion. Second of perched adults flew in and both flew east then north into field and lost sight. The pair flew toward an area previously suspected to possibly have a nest but unable to confirm due to low visibility through vegetation along side of road.
	Survey Station 18	March 27, 2023	8:38 AM	1	One adult flying north, landed in a cabbage palm briefly, then continued north (nothing visible in the cabbage palm).
	Survey Station 19	March 27, 2023	7:20 AM	2	One adult caracara feeding on roadkill along CR 721, north of nest. Other adult caracara on pole.
			7:30 AM	2	Adult caracara moved roadkill off road, adult caracara flew off, one adult caracara returned on pole.
			7:34 AM	1	Adult caracara on pole flew west-northwest out of view.
			7:36 AM	1	Adult caracara on pole, dropped down to the roadkill.
			7:40 AM	2	Adult caracara and fledgling both feeding on roadkill.
			7:44 AM	2	Adult caracara and fledgling both flew north, adult carrying food.
			7:55 AM	2	Adult caracara back on roadkill, another caracara (fledgling), flew into field east of CR 721.
			8:00 AM	2	Adult caracara carried food to east pasture with fledgling. Adult caracara then returns to the roadkill.
			8:02 AM	1	Adult caracara flew north with food into palm north of SR 70.
			8:04 AM	2	Adult caracara north of SR 70 flew with food to pasture east of CR 721 with fledgling.
			8:20 AM	1	Adult caracara on pole near roadkill, on roadkill at 8:30 am.
	Survey Station 9	April 20, 2023	N/A	N/A	No caracara observations.
	Survey Station 10	N/A	N/A	N/A	Last survey 4/7/2023. Confirmed successful nest with two fledglings.
	Survey Station 11	April 19, 2023	7:29 AM	1	One adult caracara flying west to east over SR 70 looking for roadkill. Landed on fence post on south side of canal.
			8:00 AM	14	Five adult caracaras and nine juvenile caracaras walking and feeding in recent mowed pasture. Not bothered by cattle. Flipping cattle chips and pecking on cattle laying down. Adults acting as sentinels while fledglings feed. Some adults assisting with scratching for food with fledglings. Occasionally vocalizing.
			9:25 AM	1	One adult caracara flying from two different locations back and forth several times until end of survey period. Landing in pasture to forage.
			9:42 AM	14	End of survey. Five adult caracaras and nine juvenile caracaras still in pasture.
	Survey Station 12	April 18, 2023	7:16 AM	1	One adult caracara (A#1) flying west to east over SR 70 then circled back to the west and landed on levy.
			8:45 AM	1	One adult caracara (A#2) standing on canal bank then flew down bank into canal inlet. Same location as observation 1.
			8:55 AM	1	One adult caracara (A#3) flew south to perch on fence post. Red wing blackbird chasing behind caracara.
			9:00 AM	2	One adult caracara (A#4) flew in to perch four fence posts south of A#3.
			9:20 AM	2	One adult caracara (A#5) flew south and landed in pasture. One adult caracara (A#6) flew south and landed on fence post.
			9:25 AM	1	One adult caracara (A#7) flew to fence post on south side of canal.
			9:31 AM	1	One adult caracara (A#8) flew west over SR 70 until out of sight.
	Survey Station 13	N/A	N/A	N/A	Last survey 3/24/2023, confirmed fledged two young.
	Survey Station 14	N/A	N/A	N/A	Last survey 3/17/2023 when observed fledged. Confirmed three young fledged from nest on 4/25/2023.
	Survey Station 15	April 11, 2023	6:50 AM	1	One adult flying east along road then north.
			7:10 AM	1	One adult perched on power pole near Station 14.
			7:14 AM	2	One adult flew in from east, perched adult the new adult, and both flew west along road.
			8:51 AM	1	One adult perched to the west on power pole.
			9:40 AM	1	One adult perched on power pole at canal then flew southeast.
	Survey Station 16	N/A	N/A	N/A	Last survey 3/15/2023, confirmed fledged one young.



Bi-Weekly Survey Period	Survey Station	Survey Date	Time	Number of Caracaras Observed	Activity Observed
Event 8 April 9, 2023 to April 22, 2023	Survey Station 17	April 11, 2023	7:33 AM	1	One adult perched on power pole on road. Placed opossum roadkill nearby in ROW.
			7:48 AM	1	Perched adult flew north down into field and lost sight.
			8:01 AM	1	One adult flew in from north, went over opossum, landed in tree near truck.
			8:06 AM	1	The adult flew over near the roadkill and landed in a pepper tree.
			8:10 AM	1	The adult flew down and started feeding on the roadkill.
			8:16 AM	1	The adult flew northwest, circled back and returned to carcass to eat. Black vulture flew near, caracara vocalized and threw head back.
			8:25 AM	1	The adult flew north then to the west out of sight.
			8:29 AM	1	One adult returned to carcass to feed.
			8:32 AM	1	The adult flew west with food, lost sight of behind trees.
			8:38 AM	1	One adult returned from west to feed. American crows harassing it while it fed.
			8:45 AM	1	One adult flew west to Station 16 (was able to follow and confirm).
			9:00 AM	2	One adult returned from west with the Station 16 fledged juvenile. Both landed and started feeding. Couple of American crows still harassing. This seems like good indication that there isn't an active territory or nest near this area since Station 16 pair and juvenile unbothered using the area.
	Survey Station 18	April 12, 2023	9:15 AM	1	The adult flew west, juvenile wandered into trees/brush along canal to south. Black vulture and American crow descend on carcass and start feeding.
			8:15 AM	2	A first year immature flew across road from south then went east. A second bird (unable to determine age) flew same direction then to north.
			8:24 AM	1	The first year perched on power pole then flew to next pole to the east.
			8:42 AM	1	First year flew from perch and went west, followed until traffic wouldn't allow. It appeared to fly low into area near Station 17.
			9:35 AM	1	One adult flying northwest out of sight.
			10:14 AM	1	One adult perched on power pole to the east. Moved a roadkill cat to the side of road nearby, caracara being harassed by boat-tailed grackle.
	Survey Station 19	April 10, 2023	10:25 AM	1	Perched adult flew east and landed on pole in middle of Lykes Brighton pasture on north of road and preened. Bird is likely from nest in Station 13/Station 19 to the south.
			10:47 AM	1	Adult still perched.
			6:55 AM	1	One adult caracara on pole near nest (near Staion 13).
			6:59 AM	1	One adult caracara flew south along CR 721.
			7:16 AM	1	One adult caracara on pole north of nest (near Station 13), flew off to northwest.
			8:20 AM	1	One adult caracara observed carrying food into field northwest of nest.
Event 9 April 23, 2023 to May 6, 2023	Survey Station 9	N/A	N/A	N/A	One adult caracara flew in from west, with food, into field east of CR 721 - fledgling in field calling for food.
			9:18 AM	1	One adult caracara flew northwest out of view.
			N/A	N/A	One adult caracara flew northwest out of view.
			N/A	N/A	Last survey 4/20/2023.
			N/A	N/A	Last survey 4/7/2023. Confirmed successful nest with two fledglings.
			N/A	N/A	Last survey 4/19/2023.
	Survey Station 10	N/A	N/A	N/A	Last survey 4/18/2023.
			N/A	N/A	Last survey 3/24/2023, confirmed fledged two young.
			N/A	N/A	Last survey 3/17/2023 when observed fledged. Confirmed three young fledged from nest on 4/25/2023.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 11	N/A	N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 12	N/A	N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 13	N/A	N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 14	N/A	N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 15	April 25, 2023	8:08 AM	1	One adult flying north toward Station 14 nest area.
			8:40 AM	1	One juvenile perched on south side of road and canal (likely Station 14 young).
			8:41 AM	1	The juvenile flew southwest into pasture.
			8:54 AM	1	One adult on side of road eating carrion.
			8:58 AM	4	One adult flew from power pole; three juveniles on berm of canal north of road on Lykes property. These are likely the Station 14 fledglings, which confirms they had three young fledge.
			9:06 AM	5	One adult and three juveniles still around berm. Second adult flew north toward Station 14 nest.
	Survey Station 16	N/A	9:07 AM	4	The first adult flew onto dirt pile with the three juveniles.
			9:11 AM	4	The adult brought a piece of food to one of the juveniles which further confirms these must be Station 14 adult and their fledged young.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
			N/A	N/A	One adult flying north toward Station 14 nest area.
	Survey Station 17	April 26, 2023	7:15 AM	1	One adult flying north toward Station 14 nest area.
			7:28 AM	1	One adult flying north toward Station 14 nest area.
			8:22 AM	1	One adult flying north toward Station 14 nest area.
			8:30 AM	1	One adult flying north toward Station 14 nest area.
			8:35 AM	1	One adult flying north toward Station 14 nest area.
			8:42 AM	1	One adult flying north toward Station 14 nest area.
	Survey Station 18	April 27, 2023	8:42 AM	1	One adult flying north toward Station 14 nest area.
			8:58 AM	1	One adult flying north toward Station 14 nest area.
			8:59 AM	1	One adult flying north toward Station 14 nest area.
			9:02 AM	1	One adult flying north toward Station 14 nest area.
			9:08 AM	1	One adult flying north toward Station 14 nest area.
			9:16 AM	1	One adult flying north toward Station 14 nest area.
	Survey Station 19	April 21, 2023	6:50 AM	1	One adult flying north toward Station 14 nest area.
			7:27 AM	1	One adult flying north toward Station 14 nest area.
			7:52 AM	1	One adult flying north toward Station 14 nest area.
			8:04 AM	1	One adult flying north toward Station 14 nest area.
			8:13 AM	1	One adult flying north toward Station 14 nest area.
			8:28 AM	3	One adult flying north toward Station 14 nest area.
Event 10 May 7, 2023 to May 20, 2023	Station 18	May 11, 2023	8:45 AM	N/A	One adult flying north toward Station 14 nest area.
			8:45 AM	N/A	One adult flying north toward Station 14 nest area.
Event 11 May 21, 2023 to June 3, 2023	Station 18	May 26, 2023	8:39 AM	1	One adult flying north toward Station 14 nest area.
			9:10 AM	2	One adult flying north toward Station 14 nest area.



## **Appendix C**

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Representative Field of View Photographs for Survey Stations





Survey Station No. 9 – Facing North



Survey Station No. 9 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 9 – Facing South



Survey Station No. 9 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 10 – Facing North



Survey Station No. 10 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 10 – Facing South



Survey Station No. 10 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 11 – Facing North



Survey Station No. 11 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 11 – Facing South



Survey Station No. 11 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 12 – Facing North



Survey Station No. 12 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 12 – Facing South



Survey Station No. 12 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix D

Representative Field of View at Survey Stations





Survey Station No. 13 – Facing North



Survey Station No. 13 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 13 – Facing South



Survey Station No. 13 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 14 – Facing North



Survey Station No. 14 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 14 – Facing South



Survey Station No. 14 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 15 – Facing North



Survey Station No. 15 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 15 – Facing South



Survey Station No. 15 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 16 – Facing North



Survey Station No. 16 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 16 – Facing South



Survey Station No. 16 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 17 – Facing North



Survey Station No. 17 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 17 – Facing South



Survey Station No. 17 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 18 – Facing North



Survey Station No. 18 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 18 – Facing South



Survey Station No. 18 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 19 – Facing North



Survey Station No. 19 – Facing East



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations





Survey Station No. 19 – Facing South



Survey Station No. 19 – Facing West



SR 70 from Lonesome Island Rd. to  
CR 721 South  
FPID No.: 449851-1

## Appendix C

Representative Field of View at Survey Stations



## Appendix D

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### Wildlife Species Observed During Caracara Surveys

# Appendix D. Wildlife Species Observed During Caracara Surveys

Scientific Name	Common Name	FWC Status	USFWS Status
<b>AMPHIBIANS</b>			
<i>Acris</i> sp.	Cricket frog	--	--
<i>Rana catesbeiana</i>	American bullfrog	--	--
<b>REPTILES</b>			
<i>Alligator mississippiensis</i>	American alligator	FT(S/A)	FT(S/A)
<b>BIRDS</b>			
<i>Accipter cooperii</i>	Cooper's hawk	--	--
<i>Agelaius phoeniceus</i>	Red-winged blackbird	--	--
<i>Anas fulvigula</i>	Mottled duck	--	--
<i>Anhinga anhinga</i>	Anhinga	--	--
<i>Antigone canadensis pratensis</i>	Florida sandhill crane	ST	--
<i>Aramus guarauna</i>	Limpkin	--	--
<i>Ardea alba</i>	Great egret	--	--
<i>Ardea herodias</i>	Great blue heron	--	--
<i>Bubulcus ibis</i>	Cattle egret	--	--
<i>Buteo brachyurus</i>	Short-tailed hawk	--	--
<i>Buteo jamaicensis</i>	Red-tailed hawk	--	--
<i>Buteo lineatus</i>	Red-shouldered hawk	--	--
<i>Cardinalis cardinalis</i>	Northern cardinal	--	--
<i>Cathartes aura</i>	Turkey vulture	--	--
<i>Charadrius vociferus</i>	Killdeer	--	--
<i>Circus hudsonius</i>	Northern harrier	--	--
<i>Colinus virginianus</i>	Northern bobwhite	--	--
<i>Columba livia</i>	Rock dove	--	--
<i>Columbina passerina</i>	Common ground dove	--	--
<i>Coragyps atratus</i>	Black vulture	--	--
<i>Corvus brachyrhynchos</i>	American crow	--	--
<i>Corvus ossicragus</i>	Fish crow	--	--
<i>Dendrocygna autumnalis</i>	Black-bellied whistling duck	--	--
<i>Dryobates pubescens</i>	Downy woodpecker	--	--
<i>Dryocopus pileatus</i>	Pileated woodpecker	--	--
<i>Dumetella carolinensis</i>	Gray catbird	--	--
<i>Egretta caerulea</i>	Little blue heron	ST	--
<i>Egretta thula</i>	Snowy egret	--	--
<i>Egretta tricolor</i>	Tricolored heron	ST	--
<i>Elanoides forficatus</i>	Swallow-tailed kite	--	--
<i>Eudocimus albus</i>	American white ibis	--	--
<i>Falco peregrinus</i>	Peregrine falcon	--	--
<i>Falco sparverius</i>	Southeastern American kestrel	ST	--
<i>Gallinula galeata</i>	Common gallinule	--	--
<i>Geothlypis trichas</i>	Common yellowthroat	--	--
<i>Haliaeetus leucocephalus</i>	Bald eagle	--	*
<i>Himantopus mexicanus</i>	Black-necked stilt	--	--
<i>Lanius ludovicianus</i>	Loggerhead shrike	--	--
<i>Megaceryle alcyon</i>	Belted kingfisher	--	--
<i>Melanerpes carolinus</i>	Red-bellied woodpecker	--	--
<i>Meleagris gallopavo</i>	Wild turkey	--	--



## Appendix D. Wildlife Species Observed During Caracara Surveys

Scientific Name	Common Name	FWC Status	USFWS Status
<i>Mimus polyglottos</i>	Northern mockingbird	--	--
<i>Mycteria americana</i>	Wood stork	FT	FT
<i>Nycticorax nycticorax</i>	Black-crowned night heron	--	--
<i>Opornornis agilis</i>	Connecticut warbler	--	--
<i>Pandion haliaetus</i>	Osprey	--	--
<i>Passer montanus</i>	Tree sparrow	--	--
<i>Passerina ciris</i>	Painted bunting	--	--
<i>Patagioenas leucocephala</i>	White-crowned pigeon	--	--
<i>Petrochelidon fulva</i>	Cave swallow	--	--
<i>Phalacrocorax auritus</i>	Double-crested cormorant	--	--
<i>Platalea ajaja</i>	Roseate spoonbill	ST	--
<i>Plegadis falcinellus</i>	Glossy ibis	--	--
<i>Poliophtila caerulea</i>	Blue-gray gnatcatcher	--	--
<i>Polyborus plancus audubonii</i>	Audubon's crested caracara	FT	FT
<i>Porphyrio martinica</i>	American purple gallinule	--	--
<i>Quiscalus major</i>	Boat-tailed grackle	--	--
<i>Quiscalus quiscula</i>	Common grackle	--	--
<i>Sayornis phoebe</i>	Eastern phoebe	--	--
<i>Setophaga americana</i>	Northern parula	--	--
<i>Setophaga coronata</i>	Yellow-rumped warbler	--	--
<i>Setophaga palmarum</i>	Palm warbler	--	--
<i>Setophaga pinus</i>	Pine warbler	--	--
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	--	--
<i>Streptopelia decaocto</i>	Eurasian collared dove	--	--
<i>Sturnella magna</i>	Eastern meadowlark	--	--
<i>Sturnus vulgaris</i>	European starling	--	--
<i>Tachycineta bicolor</i>	Tree swallow	--	--
<i>Thryothorus ludovicianus</i>	Carolina wren	--	--
<i>Troglodytes aedon</i>	House wren	--	--
<i>Turdus migratorius</i>	American robin	--	--
<i>Tyrannus forficatus</i>	Scissor-tailed Flycatcher	--	--
<i>Tyrannus tyrannus</i>	Eastern kingbird	--	--
<i>Vanellus vanellus</i>	Northern lapwing	--	--
<i>Zenaida macroura</i>	Mourning dove	--	--
<b>MAMMALS</b>			
<i>Canis latrans</i>	Coyote	--	--
<i>Odocoileus virginianus</i>	White-tailed deer	--	--
<i>Sylvilagus palustris</i>	Marsh rabbit	--	--

### Notes:

FE: Federally-designated Endangered

FT: Federally-designated Threatened

FT(S/A): Federally-designated Threatened due to Similarity of Appearance

ST: State-designated Threatened

\*Protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712)

USFWS: U.S. Fish and Wildlife Service

FWC: Florida Fish and Wildlife Conservation Commission

## ***APPENDIX J***

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### **Wood Stork Foraging Habitat Assessment**



# **Wood Stork Foraging Habitat Assessment**

**State Road (SR) 70  
from Lonesome Island Road to  
County Road (CR) 721 South  
Highlands County, Florida**

**Florida Department of Transportation (FDOT) District 1**

**FPID No. 449851-1-22-01**

**ETDM Project No. 14490**

**February 2025**

## ***1.0 Introduction***

The Florida Department of Transportation (FDOT) is completing a Project Development & Environment (PD&E) study for proposed improvements to the State Road (SR) 70 corridor in Highlands County. The intent is to enhance safety along the SR 70 corridor, a major east-west roadway spanning the state. SR 70 is a designated hurricane evacuation route and part of Florida's Strategic Intermodal System (SIS). The objective of the study is to assist the FDOT's Office of Environmental Management (OEM) in reaching a decision on the type, location, and conceptual design of the proposed improvements for the widening of SR 70. This study documents the need for improvements as well as the procedures utilized to develop and evaluate various improvements, including elements such as proposed typical sections, preliminary horizontal alignments, stormwater management facility (SMF) and floodplain compensation (FPC) sites, and intersection enhancements.

The purpose of this project is to address traffic safety conditions on the SR 70 roadway and to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area. The project is needed to improve traffic safety conditions, emergency evacuation, and incident response times.

## ***2.0 Wood Stork Nesting and Suitable Foraging Habitat***

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located in swamps or on islands surrounded by relatively broad expanses of open water. Successful breeding sites are those that have limited human disturbance and low exposure to land-based predators. Nesting sites protected from land-based predators are characterized as areas surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle.

In addition to limited human disturbance and low land-based predation, successful nesting depends on the availability of suitable foraging habitat. Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamps, sloughs, managed impoundments, stock ponds, shallow seasonally-flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Suitable foraging habitat is described as wetland or open water areas that are relatively calm, uncluttered by dense thickets of aquatic vegetation and have a water depth between five and 15 inches. Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydraulic regimes that exhibit short and long hydroperiods. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow open-water areas provide sites for concentration of the prey during daily or seasonal low water periods. In Highlands County, suitable wetland and open water habitats within 18.6 miles of a wood stork nesting colony are considered Core Foraging Areas (CFA) by the U.S. Fish and Wildlife Service (USFWS).

The loss of wetland habitats, or wetland function, has been the primary cause of the wood stork population decline in the United States. The alteration of wetlands and the manipulation of wetland hydroperiods to



suit human needs have also reduced the amount of available habitat to wood storks and affected prey base availability. The altered hydrology of these systems has also enhanced the invasion of these systems by exotic plant species. These exotic plants can produce a dense understory and closed canopy, limiting suitability of these wetland systems to foraging by wood storks, although a sufficient prey base may be present in the wetlands.

Four variables are indicative of the necessities and functions of optimal or suitable foraging habitat required by the wood stork:

1. Vegetation Density: the density of vegetation within habitats suitable for wood stork foraging.
2. Wetland Hydroperiods: the hydroperiod of the wetland, which includes two (2) subcomponents; (1) the fish density per hydroperiod; and (2) the fish biomass per hydroperiod.
3. Prey Size Suitability: the suitability of prey size for the wood stork, which provides an adjustment to the fish biomass per hydroperiod and is referenced hereafter as the “wood stork suitability prey base”.
4. Competition with other wading bird species: the likelihood that the wood stork is the wading bird species that actually consumes the concentrated prey.

### ***3.0 Suitable Foraging Habitats within the Project Action Area***

Wood stork foraging habitat within the project action area was analyzed using the *USFWS Wood Stork Foraging Habitat Assessment Methodology*. The project action area contains wood stork foraging habitat and is located within the 18.6-mile CFA of two active wood stork nesting colonies: Gator Farm and Lemkin Creek and is approximately 1.88 miles away from the Moonshine Bay CFA. There are 200.58 acres of wetlands and other surface waters that could be utilized by the wood stork for foraging within the project action area. These wetlands and other surface waters were grouped by similar habitat types utilizing the Florida Department of Transportation’s (FDOT) *Florida Land Use, Cover and forms Classification System* (FLUCFCS). The 200.58 acres of potential suitable work stork foraging habitat consists of 123.41 acres of streams and waterways (FLUCFCS 510), 68.85 acres of freshwater marshes (FLUCFCS 641), and 8.32 acres of wet prairies (FLUCFCS 643). All were evaluated relative to exotic species density and hydroperiod. Channelized waterways, canals, within the project study area have a water depth that exceeds 15 inches, and steep banks; therefore, canals were not considered suitable wood stork foraging habitat.

#### **Exotic Vegetation Density**

Wood stork habitat quality can be adversely affected by the level of exotic species infestation within wetlands and other surface waters. The availability of the prey base for wood storks and other foraging wading birds is reduced by the restriction of access caused from dense and thick exotic vegetation. **Table 1** provides the exotic vegetation percentage coverages used to determine the Foraging Suitability Value for each wetland and other surface water habitat.

Within the project study area, exotic plant species coverage is low within freshwater marshes and wet prairies, between 0 and 10%. Streams and waterways range from low to dense (approximately 90%). A Foraging Suitability Value of 100 was assigned to freshwater marshes and wet prairies due to the low exotic

plant species coverage. Because streams and waterways vary based on location from low to dense exotic species plant coverage, an average percentage (51-75%) resulted in a Foraging Suitability Value of 37.

**Table 1 Exotic Vegetation Cover Percentage Foraging Suitability**

Percentage of Exotic Vegetation	Foraging Suitability Value (Percent)
Between 0 to 25 Percent Exotics	100
Between 26 and 50 Percent Exotics	64
Between 51 and 75 Percent Exotics	37
Between 76 and 100 Percent Exotics	3

### **Hydroperiod**

Hydroperiod of the wetlands potentially affected by a project is an important consideration in determining effects on wood stork foraging habitat due to the dependability of potential biomass of forage (fish and crayfish) on hydroperiod. **Table 2** provides the number of days of inundation used to determine the hydroperiod class for each wetland and other surface water habitat.

**Table 2 Hydroperiod Class**

Hydroperiod Class	Number of Days Inundated	Total Crayfish & Fish Biomass
1	0-60	0.31 gram/m <sup>2</sup>
2	60-120	0.62 gram/m <sup>2</sup>
3	120-180	1.32 grams/m <sup>2</sup>
4	180-240	2.34 grams/m <sup>2</sup>
5	240-300	2.93 grams/m <sup>2</sup>
6	300-330	3.36 grams/m <sup>2</sup>
7	330-365	3.63 grams/m <sup>2</sup>

Freshwater marshes and wet prairies within the project study area were assigned a hydroperiod class of 6 and 4 respectively. Because streams and waterways vary in the number of days of inundation depending on location, an average hydroperiod class of 5 was assigned to this habitat type. No wetlands or other surface waters were identified in Classes 1, 2, 3, or 7.

## ***4.0 Impacts to Suitable Foraging Habitat***

The proposed project increases the capacity of the existing SR 70 roadway by widening to a four-lane divided rural roadway with 40-foot medians. There will be two 12-foot travel lanes in each direction, with outside shoulders that are approximately 10 feet wide (5 feet paved) throughout the corridor, a 12-foot shared use path is proposed along the south side of the road. The proposed right-of-way (ROW) varies along the corridor but is a minimum of an additional 60 feet. The project also includes the evaluation of SMF and FPC sites. Additional ROW will be required along SR 70 and for SMF and FPC sites.



For assessment purposes, the wood stork biomass analysis addresses the loss of wetland habitat within the Preferred Alternative, which includes the proposed ROW limits for the mainline corridor and the proposed ponds, to assess the maximum amount of wood stork foraging habitat impacts associated with the project. For the assessment of the project, 10.21 acres of wetlands (7.15 acres of freshwater marshes and 3.06 acres of wet prairies) and 70.77 acres of other surface waters (streams and waterways) were analyzed as potential impacts.

The analysis determined that the project will result in the net loss of 141.93 kg of total biomass (fish and crayfish). Of the 141.93 kg, there is no loss of total biomass from short hydroperiod wetlands and all loss if from long hydroperiod wetlands. **Table 3** presents the analysis of the impacts to wood stork foraging habitat resulting from the project.

## **5.0 Mitigation**

Mitigation for the project will provide adequate compensatory credits for encroachment into U.S. Army Corps of Engineers (USACE) regulated wetlands and other surface waters. All impacts to wetlands will be mitigated within the CFA of the affected rookeries or at a regional mitigation bank that has been approved by the USFWS, in accordance with 33 U.S.C. §1344, and pursuant to *Section 373.4137, F.S.* These mitigation measures will include compensation for the loss of wood stork foraging habitat resulting from construction of the project. Compensation for the loss of wetlands, as well as wood stork foraging habitat, will be provided at a state and federal approved mitigation bank. Mitigation for the loss of foraging habitat will be of the same hydroperiod.

## **6.0 Summary**

Construction of the project will result in the direct loss of 80.98 acres of suitable wood stork foraging areas. Wood stork foraging biomass productivity is calculated based on the hydroperiods class of affected wetlands. A total 80.98 acres of long hydroperiod wetlands will be impacted that are considered suitable wood stork foraging habitat (**Table 3**). This analysis concluded that the preferred alternative would result in the net loss of 141.93 kg total biomass (fish and crayfish). Impact acreages and biomass calculations are preliminary and many of the streams and waterways (roadside ditches) will be replaced in kind during construction to maintain roadway run off treatment. As such, these values are subject to change during the design and permitting phase of the project.

Loss of potential wood stork foraging habitat attributable to the project will be offset by providing the equivalent credits at a USFWS-approved mitigation bank, pursuant to *Section 373.4137, F.S.*

**Table 3 Analysis Summary - Project Impacts to Wood Stork Foraging Habitats**

<b>Wood Stork Foraging Analysis Summary - Total Biomass (including Crayfish and Fish)</b>									
<b>Based on Project Action Area Impacts</b>									
<b>Hydroperiods</b>	<b>Acres of Direct Impact</b>	<b>% Exotics</b>	<b>Foraging Suitability Value (%)</b>	<b>m<sup>2</sup></b>	<b>m<sup>2</sup> Suitable</b>	<b>Crayfish &amp; Fish g/m<sup>2</sup></b>	<b>Available Biomass</b>	<b>32.5% Competition Factor</b>	<b>Biomass (kg)</b>
Class 4 (180-240 days)	3.06	0-25	100	12,383.43	12,383.43	2.34	28,977.23	9,417.60	9.42
Class 5 (240-300 days)	70.77	50-75	0.37	286,397.20	105,966.96	2.93	310,483.21	100,907.04	100.91
Class 6 (300-330 days)	7.15	0-25	100	28,935.14	28,935.14	3.36	97,222.08	31,597.18	31.60
<b>Total Short Hydroperiod (Classes 1, 2, &amp; 3)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Long Hydroperiod (Classes 4, 5, 6, &amp; 7)</b>	<b>80.98</b>	<b>N/A</b>	<b>N/A</b>	<b>327,715.77</b>	<b>147,285.53</b>	<b>N/A</b>	<b>436,682.52</b>	<b>141,921.82</b>	<b>141.93</b>
<b>Total</b>	<b>80.98</b>	<b>N/A</b>	<b>N/A</b>	<b>327,715.77</b>	<b>147,285.53</b>	<b>N/A</b>	<b>436,682.52</b>	<b>141,921.82</b>	<b>141.93</b>



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## ***APPENDIX K***

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### **Florida Bonneted Bat Acoustic Survey Technical Memorandum**



# **Florida Bonneted Bat Acoustic Survey**

## **Technical Memorandum**

**State Road (SR) 70  
from Lonesome Island Road to  
County Road (CR) 721 South  
Highlands County, Florida**

**Florida Department of Transportation (FDOT) District 1**

**FPID No. 449851-1-22-01**

**ETDM Project No. 14490**

**January 2025**

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Attachment 1	USFWS Coordination
Attachment 2	Florida Bonneted Bat Survey Acoustic Detector Location Map
Attachment 3	Deployed Acoustic Detector Photographs
Attachment 4	Nightly Weather Data
Attachment 5	Florida Bonneted Bat Recording Inventory Table and Representative Spectrograms
Attachment 6	Florida Bonneted Bat Consultation Key

# 1.0 Introduction

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## 1.1 Project Information

The Florida Department of Transportation (FDOT) is completing a Project Development & Environment (PD&E) study for proposed improvements to the State Road (SR) 70 corridor in Highlands County. The intent is to provide additional roadway capacity and enhance safety along the SR 70 corridor, a major east-west roadway spanning the state. SR 70 is a designated hurricane evacuation route and part of the Florida's Strategic Intermodal System (SIS). The objective of the study is to assist the FDOT's Office of Environmental Management (OEM) in reaching a decision on the type, location, and conceptual design of the proposed improvements for the widening of SR 70. This study documents the need for the improvements as well as the procedures utilized to develop and evaluate various improvements, including elements such as proposed typical sections, preliminary horizontal alignments, stormwater management facility (SMF) and floodplain compensation (FPC) sites, and intersection enhancements.

The purpose of this project is to address traffic safety conditions on the SR 70 roadway and to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area. The project is needed to improve traffic safety conditions, emergency evacuation, and incident response times.

The total project acreage is 1267.50 acres; **Table 1-1** provides the Florida Land Use, Cover and Forms Classification System (FLUCFCS) classification, United States Fish and Wildlife Service (USFWS) classification (where applicable), and the total acreage and percent coverage of each land use type within the project action area. For the purposes of this memorandum, the project action area is defined as the existing and proposed right-of-way (ROW) from west of Lonesome Island Road to east of County Road (CR) 721S in Lake Placid, a distance of approximately 8.50 miles, with a buffer that averages 500 feet from the existing ROW (**Figure 1-1**).

## 1.2 Florida Bonneted Bat

The Florida bonneted bat (*Eumops floridanus* [FBB]) is designated by the USFWS as federally endangered under the *Endangered Species Act of 1973*, as amended (*ESA*). The FBB was previously known as the Florida mastiff bat, Wagner's mastiff bat, and mastiff bat. However, genetic research confirmed the FBB is a distinct species. The FBB is the largest bat in Florida and is distinguished from other Florida bats by its larger size and the large ears being joined at the midline of the head.

Knowledge of the long-term habitat requirements of the FBB is limited and developing. Foraging habitat for the FBB is diverse and includes open fresh water, permanent or seasonal freshwater wetlands, wetland and upland forests, wetland and upland shrub, and agricultural lands. In urban and residential areas drinking water, prey base, and open habitat for foraging can be found in relatively small patches of natural or semi-natural habitat. The FBB roosts in live or dead trees and tree snags. Potential suitable roosting habitat includes:

- Trees of any species that are at least 33 feet (10 meters) in height with a diameter at breast high (DBH) of at least 7.4 inches (20.3 centimeters)
- Snags that are at least 28 feet (8.5 meters) in height with a DBH of at least 7.4 inches
- Artificial structures over 15 feet (4.5 meters) in height that may mimic natural roost conditions (e.g., bat houses, utility poles, buildings over one story high) that are situated in natural or semi-natural habitats



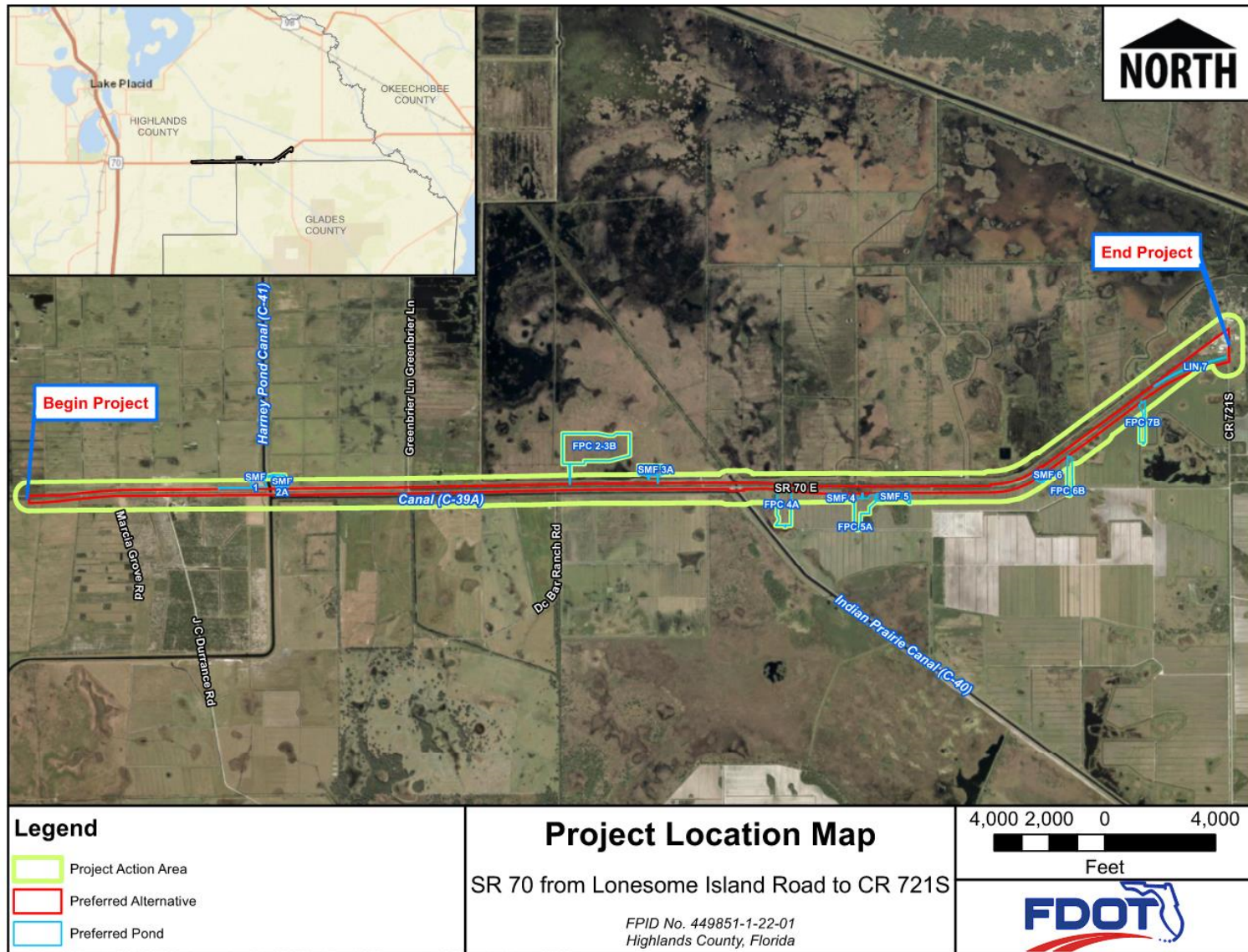
- Cavities, crevices, or structural gaps located at least 16 feet (4.9 meters) off the ground with an outward entrance of at least 1 inch (2.5 centimeters)
- Bridges and culverts with potential crevices at least 15 feet high

**Table 1-1 Land Use/Cover within Project Action Area**

<b>FLUCFCS Classification</b>	<b>FLUCFCS Description</b>	<b>USFWS Classification</b>	<b>Acreage within Project Action Area</b>	<b>Percent of Project Action Area</b>
110	Low Density Residential, <2 dwelling units/acre	N/A	0.73	0.06%
140	Commercial and Services	N/A	25.84	2.04%
211	Improved Pastures	N/A	241.00	19.02%
212	Unimproved Pastures	N/A	381.45	30.09%
215	Sugar Cane	N/A	194.72	15.36%
224	Abandoned Groves	N/A	76.02	6.00%
310	Herbaceous (Dry Prairie)	N/A	1.54	0.12%
320	Upland Shrub and Brushland	N/A	2.65	0.21%
428	Cabbage Palm	N/A	14.10	1.11%
810	Roads and Highways	N/A	67.17	5.30%
<b>Total Uplands</b>			<b>1005.22</b>	<b>79.31%</b>
510	Streams and Waterways	PEM1E	125.10	9.87%
512	Channelized Waterways, Canals	PUB2Hx	60.01	4.73%
641	Freshwater Marshes	PEM1E	68.85	5.43%
643	Wet Prairie	PEM1E	8.32	0.66%
<b>Total Wetlands and Other Surface Waters</b>			<b>262.28</b>	<b>20.69%</b>
<b>Total</b>			<b>1267.50</b>	<b>100.00%</b>

The USFWS established a consultation area for the FBB based on presence data, key habitat features, reasonable flight distances, and home range sizes. The project area is located in the USFWS FBB Consultation Area and potential FBB roosting and foraging habitat will be impacted by the project. As a result, according to the *USFWS Florida Bonneted Bat Consultation Guidelines (2024 Guidelines)*, an acoustic survey is required to determine presence or absence of the FBB.

Figure 1-1 Project Location Map





## 2.0 Survey Methodology

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### 2.1 Acoustic Survey Methodology

The *2024 Guidelines* and coordination with the USFWS (**Attachment 1**), were utilized to establish a standard FBB survey protocol specific to this project to determine presence/absence, identify potential roosts, and identify potential foraging activities. Environmental scientists conducted an acoustic survey to determine the presence/absence of the FBB from May 3, 2024, through May 30, 2024, in accordance with the *2024 Guidelines*. Environmental scientists have attended multiple seminars and trainings by a variety of organizations and industry leaders to obtain expertise that was used to collect and analyze acoustic data during the FBB surveys.

Optimal acoustic detector locations were chosen based on the *2024 Guidelines* criteria for linear projects (a minimum of 1 detector per 0.6 mile [1 kilometer]), approval from USFWS (**Attachment 1**), desktop analysis, existing land use, and targeted areas with potential roosting habitat to be impacted by the proposed project. Additionally, based on the *2024 Guidelines*, nine (9) detector nights are required for every 0.6 mile (1 kilometer) of suitable habitat within the project area and weather conditions must meet specific criteria. Therefore, a total of 17 acoustic monitoring locations were established. Acoustic surveys took place over two (2) separate survey efforts. Survey Effort 1 occurred from May 3, 2024, through May 22, 2024, and included Stations 1 through 8. Survey Effort 2 occurred from May 15, 2024, through May 30, 2024, and included Stations 9 through 17. Survey Effort 1 included a total of 19 nights of acoustic recording survey, of which ten (10) nights met suitable weather requirements while Survey Effort 2 included a total of 15 nights of acoustic recording survey, of which 13 nights met suitable weather requirements. A map depicting acoustic detector locations and the survey area are provided in **Attachment 2**. Photographic documentation of each deployed detector and location within the survey area is provided in **Attachment 3**.

Wildlife Acoustics Song Meter SM4 BAT full spectrum acoustic recorders equipped with SMM U2 Ultrasonic Microphones were utilized to record bat calls. Prior to deployment, all microphones and recorders were calibrated with the Wildlife Acoustics Ultrasonic Calibrator for Ultrasonic Microphones. All microphones were mounted on metal conduit to elevate the microphones at least 20 feet above the ground and as high above the shrub and canopy stratus as possible. Passive sample was conducted from approximately 30 minutes before sunset to approximately 30 minutes after sunrise at each deployment location for at least 15 consecutive nights. Suitable weather conditions consist of:

- Temperatures above 65° F during the first five (5) hours of survey
- No precipitation, including rain and/or fog, exceeding 30 minutes, or continuing intermittently during the first five (5) hours of survey
- Sustained winds  $\leq$  9 miles/hour (4 meters/second; 3 on Beaufort scale) for 30 minutes or more during the first five (5) hours of survey

The National Oceanic and Atmospheric Administration (NOAA) National Weather Service station Sebring Regional Airport [Station ID KSEF] was utilized for Survey Effort 1 and Okeechobee County Airport [Station ID KOBE] was utilized for Survey Effort 2 to ensure survey nights met suitable weather requirements.

### 2.2 Acoustic Data Analysis

Calls were recorded using the full spectrum WAV file format in accordance with recommendations by the equipment manufacturer and *2024 Guidelines*.

Following data collection, all call sequences and recordings were processed and subsequently analyzed using Kaleidoscope Pro™ ([KPro] *version 5.6.6 & 5.6.8*) software. The bottom call frequency range of the FBB is unique to this species and lies between 10 – 17 kilohertz (kHz). This unique frequency range is a valuable aid in identifying the presence of FBBs. Full spectrum WAV format data files were recorded on 132 gigabyte (GB) SanDisk (SD) memory cards, downloaded, and original WAV files were retained on an external hard drive.

Data files were then processed to WAV format Outputs using KPro. KPro Outputs were set to isolate “Noise” files containing only uninteresting signals such as ambient background noise, rain and wind, vehicular traffic noises such as braking and music, or unwanted biological signals such as insects. The remaining call sequences were analyzed with AutoID to compare to call sequences of known bat species found in south Florida. The *Florida Bonneted Bat Regulatory Survey Data Submission Protocol* was used to determine the species that should be included in the KPro AutoID analysis. Based on the project location in Highlands County, a species list was developed that included ten (10) species with the potential to occur within the project area, including the FBB (**Table 2-1**).

**Table 2-1 USFWS Bat Species List for Highlands County, Florida**

Scientific Name	Common Name	USFWS Abbreviation	KPro AutoID Abbreviation
<i>Corynorhinus rafinesquii</i> <sup>1</sup>	Rafinesque's big-eared bat	CORA	CORTOW
<i>Eptesicus fuscus</i>	big brown bat	EPFU	EPTFUS
<i>Eumops floridanus</i>	Florida bonneted bat	EUFL	EUMFLO
<i>Lasiurus borealis</i> / <i>Lasiurus seminolus</i> <sup>2</sup>	eastern red bat/Seminole bat	LABOLASE	LASBOR
<i>Lasiurus intermedius</i>	northern yellow bat	LAIN	LASINT
<i>Myotis austroriparius</i>	southeastern myotis	MYAU	MYO AUS
<i>Nycticeius humeralis</i>	evening bat	NYHU	NYCHUM
<i>Perimyotis subflavus</i>	tricolored bat	PESU	PERSUB
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat	TABR	TADBRA

<sup>1</sup>Rafinesque's big-eared bat is not an option to check in KPro, because Rafinesque's big-eared bat is acoustically indistinguishable from Townsend's big-eared bat (*Corynorhinus townsendii*) and Townsend's big-eared bat does not occur in Florida. This species was used to identify potential Rafinesque's big-eared bat calls with KPro AutoID.

<sup>2</sup>Files that KPro AutoID as LASBOR represent calls that could be either the eastern red bat or Seminole bat as they are considered acoustically indistinguishable.

All calls with a frequency at 20 kHz and below, including minimum frequency, maximum frequency, and mean frequency, were manually vetted to confirm or refute the species identified by AutoID. Additionally, all calls AutoID as FBB (EUMFLO), including Alternate AutoID 1 and 2, were also manually vetted. Manual vetting included a comparison of call recordings to the built-in reference files of KPro and known unique characteristics of each species acoustic calls.



## 3.0 Results

### 3.1 Acoustic Processing Results

The deployment schedule for the acoustic survey is provided in **Table 3-1**. Passive sampling for at least 15 consecutive nights resulted in a total of at least ten (10) nights with suitable weather conditions. **Attachment 4** provides nightly weather data, which identifies the nights that met suitable weather requirements.

**Table 3-1 Acoustic Detector Deployment Schedule**

Detector	Date Deployed	Date Retrieved	Detector Type	Serial Number	Microphone Type	Serial Number	Nights Meeting Suitable Weather Conditions
1	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U10688	SMM-U2 <sup>1</sup>	MU209879	10
2	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U10605	SMM-U2 <sup>1</sup>	MU222679	10
3	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U10657	SMM-U2 <sup>1</sup>	MU222943	10
4	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U20140	SMM-U2 <sup>1</sup>	MU222670	10
5	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U21785	SMM-U2 <sup>1</sup>	MU225228	10
6	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U21786	SMM-U2 <sup>1</sup>	MU225263	10
7	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U21787	SMM-U2 <sup>1</sup>	MU225264	10
8	5/3/2024	5/21/2024	SM4BAT-FS <sup>1</sup>	S4U21788	SMM-U2 <sup>1</sup>	MU225693	10
9	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U18770	SMM-U2 <sup>1</sup>	-	13
10	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U18768	SMM-U2 <sup>1</sup>	-	13
11	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U05538	SMM-U2 <sup>1</sup>	-	13
12	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U13545	SMM-U2 <sup>1</sup>	-	13
13	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U11515	SMM-U2 <sup>1</sup>	-	13
14	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U05604	SMM-U2 <sup>1</sup>	-	13
15	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U13397	SMM-U2 <sup>1</sup>	-	13
16	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U10076	SMM-U2 <sup>1</sup>	-	13
17	5/15/2024	5/30/2024	SM4BAT-FS <sup>1</sup>	S4U11609	SMM-U2 <sup>1</sup>	-	13

<sup>1</sup>Wildlife Acoustics

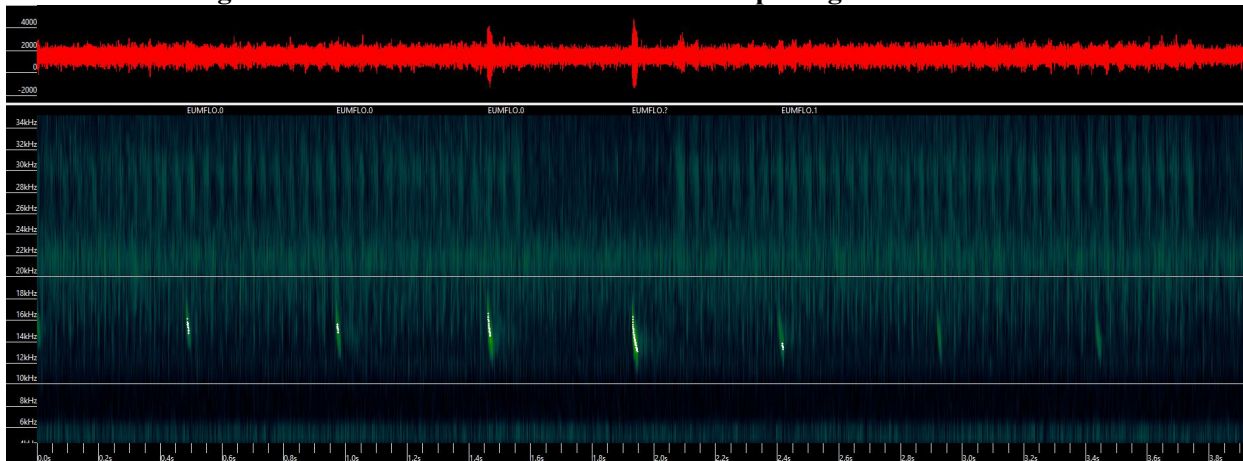
\*Note: Detectors were deployed for at least 15 consecutive nights; however, only ten (10) nights for Survey Effort 1 and 13 nights for Survey Effort 2 met the requirements for suitable survey conditions based on the *2024 Guidelines*. A minimum of nine (9) suitable detector nights is required.

\*\*\*Because data was collected prior to the official *2024 Guidelines* updates, Stations 9 through 17 do not have a serial number recorded.

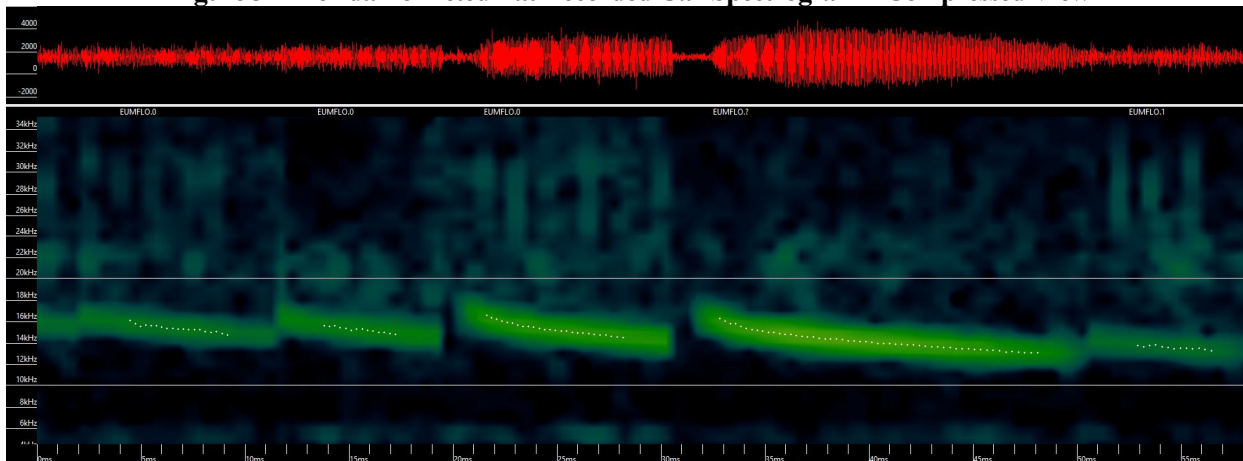
After manual vetting, there was one (1) call classified as a FBB call (**Figure 3-1** and **3-2**). The one (1) call was recorded at 12:20 am on May 5, 2024. There were no other positive recorded calls of the FBB. A total of 127,272 recordings were collected from the 17 acoustic monitoring locations. The KPro software and manual vetting resulted in classifying 71,356 of those recordings as noise. A summary of the acoustic survey results is provided in **Table 3-2** for all nights of survey, at least ten (10) of which were during suitable weather conditions. The remaining 121,107 recordings represent ten (10) different bat species commonly found in south Florida: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), big brown bat (*Eptesicus fuscus*), Florida bonneted bat, eastern red bat (*Lasiurus borealis*), Seminole bat (*Lasiurus seminolus*),

northern yellow bat (*Lasiurus intermedius*), southeastern myotis (*Myotis austroriparius*), evening bat (*Nycticeius humeralis*), tricolored bat (*Perimyotis subflavus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*) (**Table 3-3**). There were 71,356 recordings that were classified with no identification (No ID) by the AutoID software as there was not enough data available to make a positive ID. It is important to note that all recordings at or below 20 kHz, including No IDs, were manually vetted.

**Figure 3-1 Florida Bonneted Bat Recorded Call Spectrogram – Normal View**



**Figure 3-2 Florida Bonneted Bat Recorded Call Spectrogram – Compressed View**





**Table 3-2 Acoustic Survey Summary**

<b>Detector</b>	<b>Latitude (°N)</b>	<b>Longitude (°W)</b>	<b>Total Recordings</b>	<b>Noise</b>	<b>Total Recorded Potential Bat Calls</b>	<b>Total FBB Calls</b>
1	27.208611	-81.222265	7,545	3,348	4,197	0
2	27.208333	-81.212859	9,384	1,038	8,346	1
3	27.208976	-81.205205	6,931	4,170	2,761	0
4	27.208960	-81.195429	7,456	4,217	3,239	0
5	27.209363	-81.186423	11,202	4,711	6,491	0
6	27.209303	-81.177987	6,978	3,000	3,978	0
7	27.209359	-81.169392	5,825	2,266	3,559	0
8	27.209590	-81.159630	70,747	4,874	65,873	0
9	27.209696	-81.150270	2,890	1,034	1,856	0
10	27.209762	-81.140420	9,858	6,943	2,915	0
11	27.209802	-81.132588	7,638	5,073	2,565	0
12	27.209883	-81.121683	5,907	2,006	3,901	0
13	27.212623	-81.113971	4,280	939	3,341	0
14	27.217743	-81.106423	5,373	2,293	3,080	0
15	27.223402	-81.097801	4,188	2,231	1,957	0
16	27.222989	-81.094764	11,778	10,485	1,293	0
17	27.227899	-81.090819	14,483	12,728	1,755	0
<b>Total</b>			<b>192,463</b>	<b>71,356</b>	<b>121,107</b>	<b>1</b>

**Table 3-3 Summary of Recordings by Species**

<b>Detector</b>	<b>CORTOW Calls*</b>	<b>EPTFUS Calls*</b>	<b>FBB Calls (AutoID)</b>	<b>FBB Calls (Manual)</b>	<b>LASBOR Calls*</b>	<b>LASINT Calls*</b>	<b>MYOAUS Calls*</b>	<b>NYCHUM Calls*</b>	<b>PERSUB Calls*</b>	<b>TADBRA Calls*</b>	<b>No ID*</b>	<b>Noise*</b>	<b>Total Recordings</b>
1	3	197	54	0	49	1,056	2	39	102	2,135	560	3,348	7,545
2	2	138	43	1	40	816	2	20	70	6,384	831	1,038	9,384
3	4	177	37	0	45	488	0	63	106	1,380	461	4,170	6,931
4	1	160	18	0	56	752	1	21	490	1,255	485	4,217	7,456
5	10	1,061	17	0	21	1,520	2	44	102	2,579	1,135	4,711	11,202
6	5	252	12	0	111	524	3	210	147	2,029	685	3,000	6,978
7	10	176	25	0	42	343	14	42	564	1,939	404	2,266	5,825
8	0	145	6	0	30	274	4	18	9	1,398	316	4,874	7,074
9	0	55	3	0	10	152	0	5	93	965	385	1,034	2,702
10	0	184	0	0	4	313	0	19	39	1,414	710	6,943	9,626
11	0	250	1	0	3	226	0	36	52	1,170	622	5,073	7,433
12	0	395	1	0	3	560	0	2	25	1,889	864	2,006	5,745
13	0	354	6	0	4	507	0	4	31	1,583	672	939	4,100
14	0	68	4	0	7	400	0	11	48	1,694	705	2,293	5,230
15	0	17	5	0	1	103	0	6	158	1,185	315	2,231	4,021
16	0	12	12	0	1	27	0	2	48	791	268	10,485	11,646
17	0	5	0	0	1	42	0	17	541	759	281	12,728	14,374
<b>Total</b>	<b>35</b>	<b>3,646</b>	<b>244</b>	<b>1</b>	<b>428</b>	<b>8,103</b>	<b>28</b>	<b>559</b>	<b>2,625</b>	<b>30,549</b>	<b>9,699</b>	<b>71,356</b>	<b>127,272</b>

\*Note: The number of recordings by species was determined through KPro AutoID analysis. The abbreviations used for each species are those used in the KPro AutoID software.



There were 244 calls AutoID as FBB (**Table 3-4**). During manual vetting, the majority of calls below 20 kHz that were identified as FBB by AutoID software were determined to be recordings produced by an organism that is not a bat (157 recordings; **Table 3-4**). 47 recordings AutoID as FBB were determined to be noise, two (2) did not have enough data to confirm a species (No ID), and 37 recordings were determined to be Brazilian free-tailed bats. The full inventory of recordings AutoID as FBB and representative spectrograms of some of those recordings are provided in **Attachment 5**.

**Table 3-4 Inventory Table Summary of Florida Bonneted Bat Recording Files**

<b>Detector</b>	<b>Confirmed FBB Calls</b>	<b>Noise</b>	<b>Not Bat</b>	<b>No ID</b>	<b>TADBRA</b>	<b>Total FBB Calls by AutoID</b>
1	0	2	50	0	2	54
2	1	6	30	1	5	43
3	0	3	33	0	1	37
4	0	4	9	0	5	18
5	0	3	9	0	5	17
6	0	0	5	1	6	12
7	0	8	7	0	10	25
8	0	0	4	0	2	6
9	0	3	0	0	0	3
10	0	0	0	0	0	0
11	0	0	1	0	0	1
12	0	0	0	0	1	1
13	0	1	5	0	0	6
14	0	2	2	0	0	4
15	0	3	2	0	0	5
16	0	12	0	0	0	12
17	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>47</b>	<b>157</b>	<b>2</b>	<b>37</b>	<b>244</b>

## 4.0 Conclusions/Effect Determination

---

### 4.1 Acoustic Survey Conclusions

As a result of manual vetting, one (1) FBB call was detected during acoustic surveys and is assumed to be utilizing the project action area for foraging. Of greatest interest to USFWS in searching for a roost site is the time of emergence from the roost, shortly after sunset, and returning to the same roost, before sunrise. Calls recorded within 90 minutes after sunset or 90 minutes before sunrise may suggest possible FBB roosting in an area. Additionally, USFWS defines “High FBB Activity/Use” to include any of the following: (a) multiple feeding buzzes are detected; (b) FBB social calls are recorded; (c) large numbers of FBB calls (9 or more) are recorded throughout one night.

Based on the date, time, and only one (1) positively identified FBB call, the results do not show FBB roosting is likely, nor do they show high FBB activity/use.

### 4.2 Effect Determination

The USFWS developed a *Florida Bonneted Bat Consultation Key* (Key) in 2019 to assist regulatory agencies in making effect determinations for projects located in the FBB Consultation Area. **Attachment 6** provides the path taken through the Key based on the acoustic survey results (1a > 2a > 3b Conduct Full Acoustic/Roost Surveys > 6a > 7b > 10b > 12b > MANLAA-P. Based on the Key, it has been determined that the proposed project *may affect, not likely to adversely affect-Programmatic* (MANLAA-P) if best management practices (BMPs) are used and survey reports are submitted.

The 2019 *Guidelines* include BMPs for development, construction, and other general activities, which incorporate what is known about the FBB and include recommendations that are beneficial to all bat species in Florida. These BMPs provide recommendations for improving conditions for use by FBB, and to help conserve FBB foraging or roosting habitat.

The FDOT will incorporate the following BMPs to support the MANLAA-P determination:

- BMP No. 1: If potential roost trees or structures need to be removed, check cavities for bats within 30 days prior to removal of trees, snags, or structures. When possible, remove structure outside of breeding season (*e.g.*, January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.
- BMP No. 5: Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.
- BMP No. 7: Avoid or limit widespread application of insecticides (*e.g.*, mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage and roost.
- BMP No. 11: Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly (*i.e.*, downward facing, and lowest lumens possible). Avoid permanent night-time lighting to the greatest extent practicable.



## 5.0 References

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- Belwood, J.J. 1992. Florida mastiff bat *Eumops glaucinus floridanus*. Pages 216-223 in S.R. Humphrey (ed.) Rare and Endangered Biota of Florida, Vol. I Mammals. University Press of Florida. Gainesville, Florida.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services. Technical Publication FWS/OBS-79/31. 131 pp.
- Florida Department of Transportation (FDOT). 1999. *Florida Land Use, Cover and Forms Classification System: Handbook* (3rd edition). Florida Department of Transportation Surveying and Mapping Office, Geographic Mapping Section. Tallahassee, Florida: 91 pp.
- FDOT. 2023. ETDM Summary Report Project #14490 – SR 70: Programming Screening Published on 6/30/2023. Tallahassee, Florida: 72 pp.
- U.S. Fish and Wildlife Service (USFWS). 2013. Endangered and Threatened Wildlife and Plants; Endangered Species status for the Florida Bonneted Bat; Final Rule. 78 Fed. Reg. § 61004 (Final Rule October 2, 2013) (to be codified at 50 C.F.R. Part 17).
- USFWS. 2019. Florida Bonneted Bat Consultation Guidelines. October 2019. U.S. Fish and Wildlife Service, Florida Ecological Services Office. Vero Beach, Florida. 34 pp.
- USFWS. 2023. Florida Bonneted Bat Regulatory Survey Data Submission Protocol: Using Kaleidoscope Pro. U.S. Fish and Wildlife Service, Florida Ecological Services Office. Vero Beach, Florida: 23 pp.
- USFWS. 2024. Florida Bonneted Bat Consultation Guidelines. U.S. Fish and Wildlife Service, Florida Ecological Services Office. Vero Beach, Florida. 35 pp.

**Attachment 1**  
**USFWS Coordination**



**To: John Wrublik, USFWS**  
**From: David Turley, PE, FDOT**  
**CC: Jeffrey James, FDOT**  
**Brooke Feagle, Atkins – FDOT Consultant**  
**Martin Horwitz, KCA**  
**Catie Neal, KCA**  
**Date: April 23, 2024**

**RE: SR 70 from Lonesome Island Road to CR 721 South**  
**Financial Project No.: 449851-1-22-01**  
**ETDM Project No.: 14490**  
**Florida Bonneted Bat Acoustic Survey Plan**

## **1.0 Introduction**

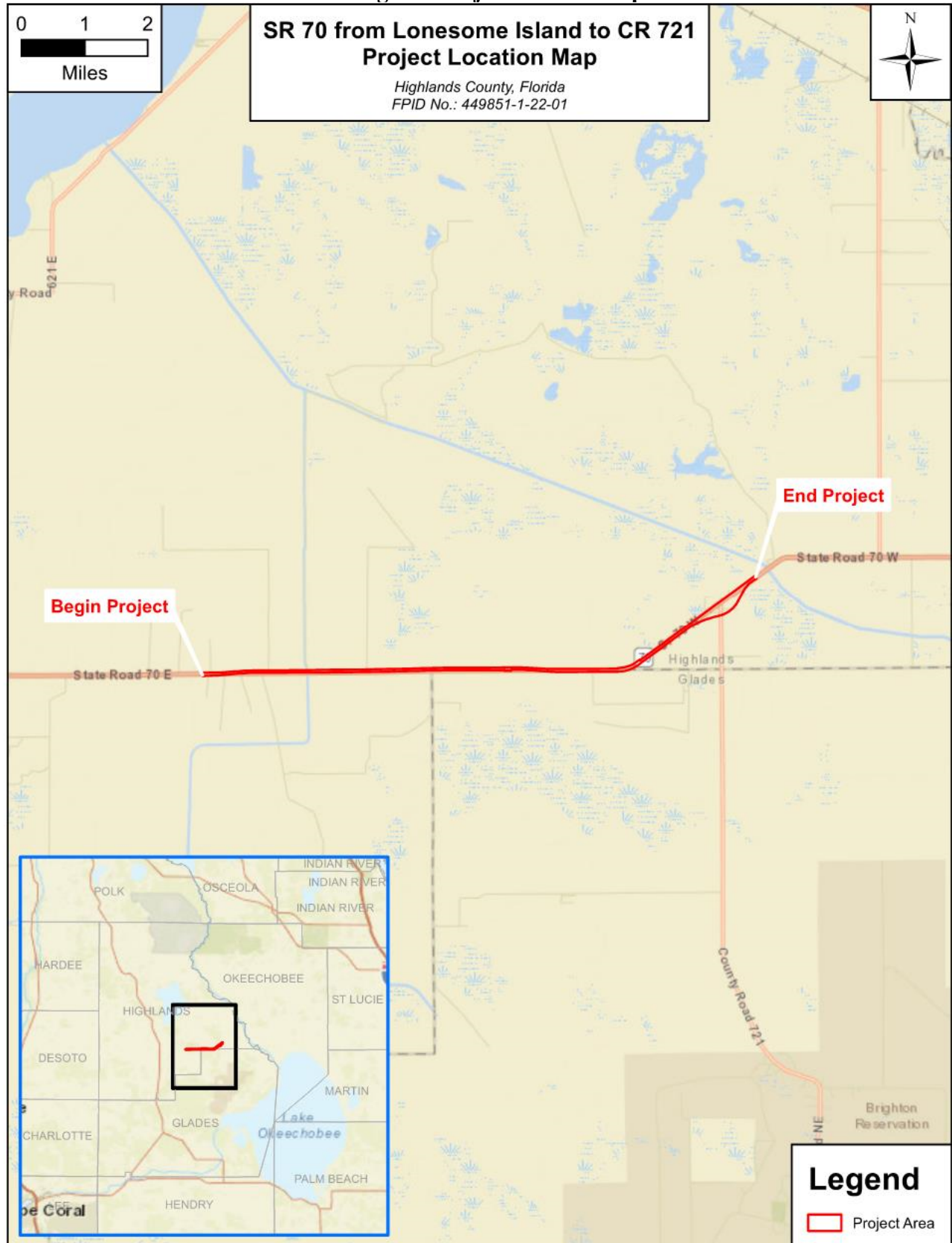
The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) study for proposed improvements to the State Road (SR) 70 corridor in Highlands County. The intent is to provide additional roadway capacity and enhance safety along the SR 70 corridor, a major east-west roadway spanning the state. The project limits extend approximately 7.6 miles from Lonesome Island Road to the south leg of County Road (CR) 721 in Highlands County (**Figure 1**). SR 70 is a designated hurricane evacuation route and part of Florida’s Strategic Intermodal System (SIS). Facilities on the SIS are subject to special standards and criteria for design speed, level of service and other requirements. The existing SR 70 does not meet SIS facility criteria.

The study focuses on improving capacity and safety of this section of SR 70 to a four-lane divided roadway. Alternatives to be evaluated shall include an additional through lane in each direction, adding a median, and widening travel lanes from 10 feet to 12 feet. As part of the project Multimodal facilities (i.e., a shared use path) will also be considered along the project segment. Each alternative will be evaluated to determine social and environmental impacts, safety enhancements, additional right-of-way needs, and traffic performance.

The Florida bonneted bat (*Eumops floridanus* [FBB]) is thought to utilize habitats such as hardwood forests, pinelands, and mangrove swamps, as well as man-dominated land uses such as golf courses and neighborhoods. They are known to roost in both natural and artificial structures. According to the *Florida Bonneted Bat Consultation Guidelines* (USFWS 2019), FBBs have been confirmed to roost in the following structures:

- Trees greater than 33 feet in height, greater than 8 inches in diameter at breast height (DBH), with cavity elevations higher than 16 feet above ground level.
- Areas with high incidence of large or mature live trees with various deformities.
- Rock crevices.

**Figure 1 Project Location Map**





- Artificial structures mimicking natural roosting conditions such as buildings, utility poles, and bat houses.

## 2.0 Methodology

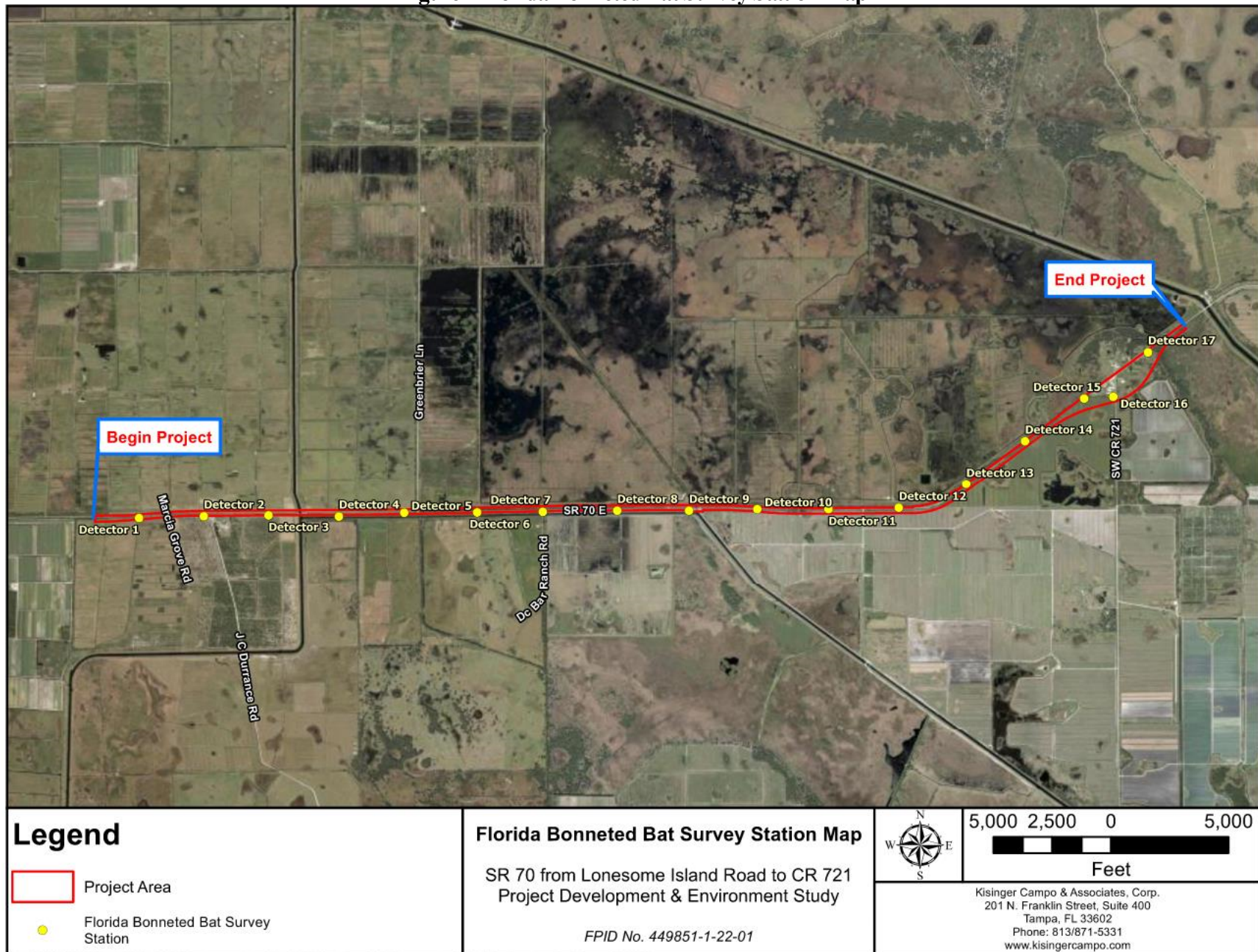
The project study area is located within the United States Fish and Wildlife Service (USFWS) Consultation Area for the FBB and will impact potential roosting habitat. To assess the presence or absence of roosting FBBs, FDOT will conduct full acoustic surveys pursuant to the *Florida Bonneted Bat Consultation Guidelines* (USFWS 2019). The path followed through the *Consultation Key for the Florida Bonneted Bat* (USFWS 2019) for the proposed project is 1a > 2a > 3b > Conduct Full Acoustic/Roost Surveys (**Attachment A**).

Based on the guidelines for a linear corridor, the project will require FBB acoustic surveys for a minimum of 5 detector nights per 0.6 miles. A total of 17 acoustic monitoring locations will be required for the project based on the guidelines, project length, and evaluation of habitat within the project area. The approximate locations for proposed detector placement along the project corridor are depicted in **Figure 2**. A second figure with more details on proposed survey locations is provided in **Attachment B**. **Table 1** provides the distances between each detector location.

**Table 1 Distance between Detector Locations**

Detectors	Distance between detectors (miles)
Project Start to 1	0.35
1 to 2	0.52
2 to 3	0.52
3 to 4	0.57
4 to 5	0.53
5 to 6	0.59
6 to 7	0.53
7 to 8	0.60
8 to 9	0.58
9 to 10	0.55
10 to 11	0.57
11 to 12	0.57
12 to 13	0.58
13 to 14	0.59
14 to 15	0.59
15 to 16	0.24
16 to 17	0.45
17 to Project End	0.36

Figure 2 Florida Bonneted Bat Survey Station Map





Passive sampling will be conducted from approximately 30 minutes before sunset to approximately 30 minutes after sunrise at each monitoring location for 5 nights during acceptable weather conditions: temperatures above 65° F during the first 5 hours of survey; no precipitation, including rain and/or fog, exceeding 30 minutes or continuing intermittently during the first 5 hours of survey; and sustained winds no greater than 9 miles/hour during the first 5 hours of survey (4 meters/second; 3 on Beaufort scale). The nearest NOAA National Weather Service Station (Sebring Regional Airport [Station ID KSEF]) will be utilized to ensure survey nights meet survey requirements.

Calls will be recorded using wildlife Acoustics Song Meter SM4 Bat full spectrum acoustic recorders and the full spectrum WAV file format in accordance with recommendations by the equipment manufacturer. Full spectrum WAV format data files will be recorded on 132 gigabyte (GB) SanDisk (SD) memory cards, downloaded and original WAV files retained. Data files will then be processed to WAV and Zero Crossing (ZC) format using Kaleidoscope Pro™ software provided by Wildlife Acoustics. All call sequences will be processed and subsequently analyzed using Kaleidoscope Pro™ software.

The bottom call frequency range of the FBB is unique to this species and lies between 10 – 17 kilohertz (kHz). This unique frequency range is a valuable aid in identifying the presence of FBBs. All low frequency calls at or below 20 kHz will be verified manually through visual comparison with a known library of bat calls.

## **2.1    *Roost Surveys***

If the results of the acoustic surveys show high FBB activity, then roosting surveys will be conducted following the *Florida Bonneted Bat Consultation Guidelines* (USFWS 2019) during acceptable weather conditions: temperatures above 65° F; no precipitation including rain and/or fog exceeding 30 minutes or continuing intermittently; and sustained winds no greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale). Otherwise, potential natural and artificial roost structures within the project area will be visually inspected for signs of bat utilization (i.e., guano, staining, etc.). If signs of bat utilization are observed, visual inspections will be performed using a GoPro video camera or wireless cavity inspection camera (built by David Luneau, Ivory-billed Woodpecker Organization) on a telescoping pole during daylight hours.

## **2.2    *Emergence Surveys***

If high FBB acoustic activity or roosting activity is present, then emergency surveys will be conducted following the *Florida Bonneted Bat Consultation Guidelines* (USFWS 2019) during acceptable weather conditions: temperatures above 65° F; no precipitation including rain and/or fog exceeding 30 minutes or continuing intermittently; and sustained winds no greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale). Observers will be stationed quietly at potential roosts 30 minutes prior to sunset through 1 ½ hours after sunset to identify and count emerging FBBs.

## **3.0    *Conclusions***

The FDOT requests your review of the project's FBB survey plan. If you agree with the FBB survey plan, please provide concurrence via email. If you have any questions or would like to discuss this project, please contact me at 863-519-2255 or david.turley@dot.state.fl.us

*Attachment A*

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*Consultation Key for the Florida Bonneted Bat*



## Florida Bonneted Bat Consultation Key<sup>#</sup>

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

- 1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1).....**Go to 2**
- 1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1).....**No Effect**
- 2a. Potential FBB roosting habitat exists within the project area.....**Go to 3**
- 2b. No potential FBB roosting habitat exists within the project area.....**Go to 13**
- 3a. Project size/footprint\*  $\leq$  5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C) then Go to 4**
- 3b. Project size/footprint\*  $>$  5 acres (2 hectares).....**Conduct Full Acoustic/Roost Surveys (Appendix B) then Go to 6**
- 4a. Results show FBB roosting is likely .....**Go to 5**
- 4b. Results do not show FBB roosting is likely.....**MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**
- 5a. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 6a. Results show some FBB activity.....**Go to 7**
- 6b. Results show no FBB activity.....**No Effect**
- 7a. Results show FBB roosting is likely.....**Go to 8**
- 7b. Results do not show FBB roosting is likely.....**Go to 10**
- 8a. Project will not affect roosting habitat.....**Go to 9**
- 8b. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 10a. Results show high FBB activity/use.....**Go to 11**
- 10b. Results do not show high FBB activity/use.....**Go to 12**
- 11a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 11b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 12a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 12b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

- 13a. FBB foraging habitat exists within the project area and foraging habitat will be affected.....**Go to 14**
- 13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected **OR** no FBB foraging habitat exists within the project area.....**No Effect**
- 14a. Project size\* > 50 acres (20 hectares) (wetlands and uplands) .....**Go to 15**
- 14b. Project size\* ≤ 50 acres (20 hectares) (wetlands and uplands) ..... **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^.....**Conduct Full Acoustic Survey (Appendix B) and Go to 16**
- 15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^.....**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 16a. Results show some FBB activity.....**Go to 17**
- 16b. Results show no FBB activity.....**No Effect**
- 17a. Results show high FBB activity/use.....**LAA+ Further consultation with the Service required.**
- 17b. Results do not show high FBB activity/use..... **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

# If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

\*Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

+Project modifications could change the LAA determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations.

^Determining if **high quality potential roosting areas** are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.



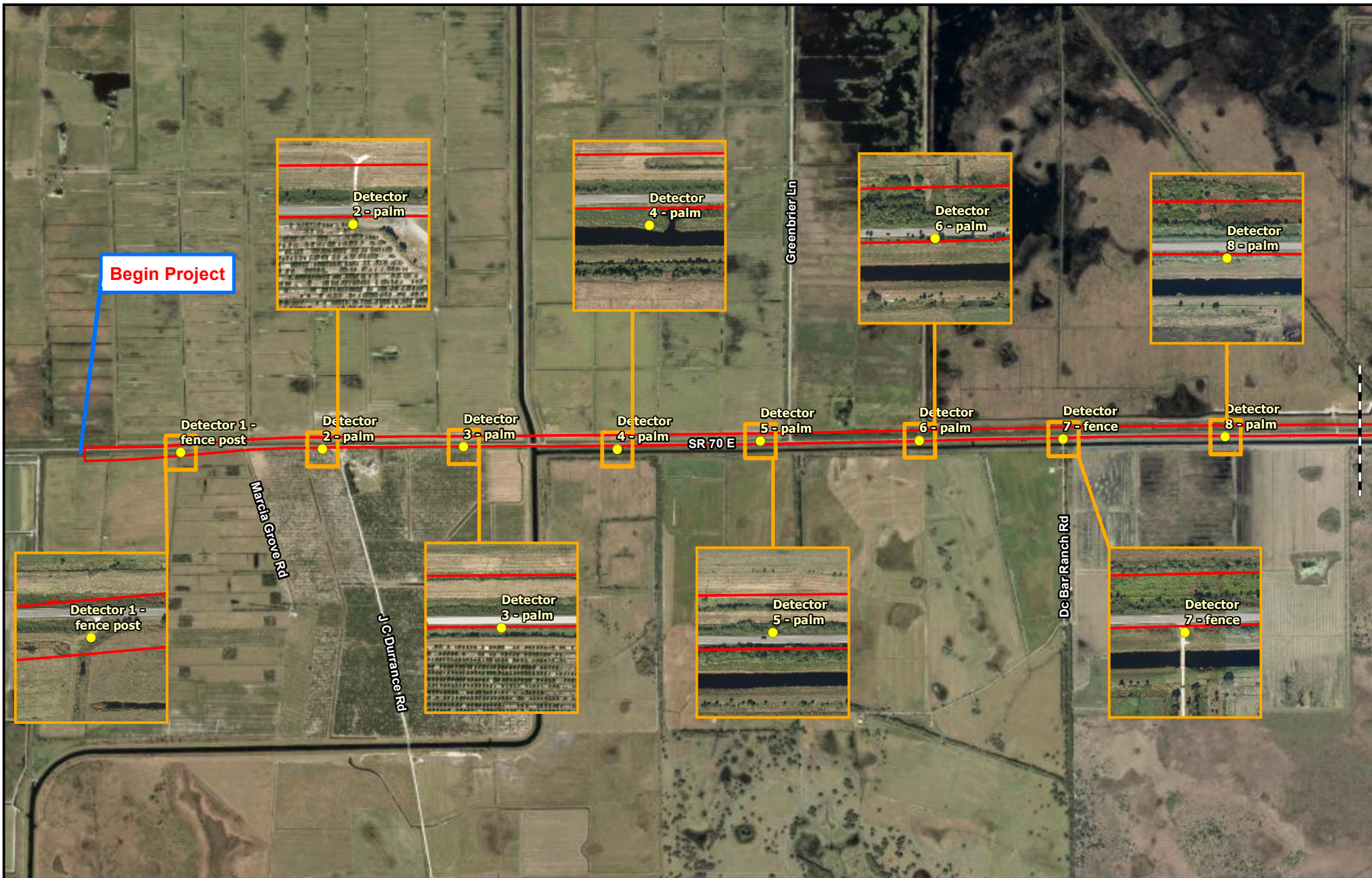


*Attachment B*

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*Florida Bonneted Bat Acoustic Detector Location  
Map*





## Legend



Project Area

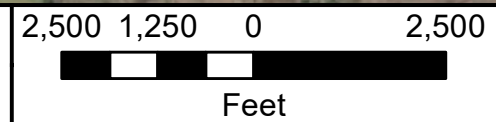


Florida Bonneted Bat Survey  
Station

## Florida Bonneted Bat Survey Acoustic Detector Location Map

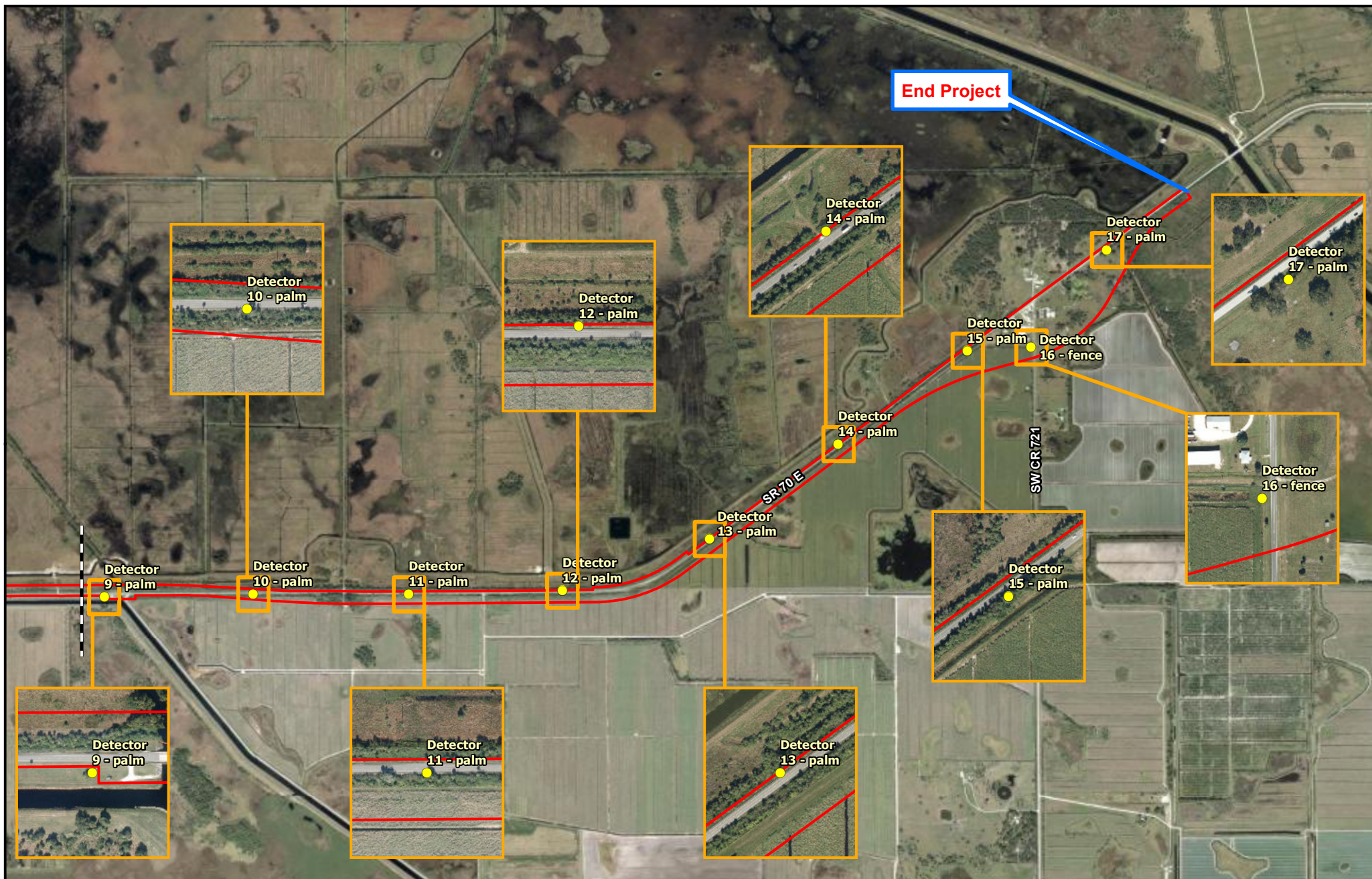
SR 70 from Lonesome Island Road to CR 721  
Project Development & Environment Study

FPID No. 449851-1-22-01



Kisinger Campo & Associates, Corp.  
201 N. Franklin Street, Suite 400  
Tampa, FL 33602  
Phone: 813/871-5331  
[www.kisingercampo.com](http://www.kisingercampo.com)





## Legend



Project Area

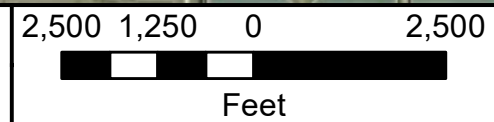
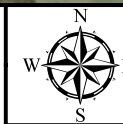


Florida Bonneted Bat Survey  
Station

## Florida Bonneted Bat Survey Acoustic Detector Location Map

SR 70 from Lonesome Island Road to CR 721  
Project Development & Environment Study

FPID No. 449851-1-22-01



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Tampa, FL 33602  
Phone: 813/871-5331  
[www.kisingercampo.com](http://www.kisingercampo.com)



## Martin Horwitz

---

**From:** Wrublik, John <john\_wrublik@fws.gov>  
**Sent:** Tuesday, April 23, 2024 9:52 AM  
**To:** Jeffrey.James  
**Cc:** Turley, David; Feagle, Autumn "Brooke"; Martin Horwitz  
**Subject:** Re: [EXTERNAL] REVIEW: Survey Methodology for Bonneted Bat, FPID 449851-1 SR 70 from Lonesome Island Road to CR 721S

**Caution:** External email.

Jeffrey,

I have reviewed the Florida bonneted bat survey methodology proposed for the project and it is acceptable to the Service.

Sincerely,

**John M. Wrublik**  
U.S. Fish and Wildlife Service  
777 37<sup>th</sup> Street, Suite D-101  
Vero Beach, Florida 32960  
Office: (772) 226-8130  
email: [John\\_Wrublik@fws.gov](mailto:John_Wrublik@fws.gov)

*NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.*

---

**From:** James, Jeffrey W <Jeffrey.James@dot.state.fl.us>  
**Sent:** Tuesday, April 23, 2024 8:40 AM  
**To:** Wrublik, John <john\_wrublik@fws.gov>  
**Cc:** Turley, David <David.Turley@dot.state.fl.us>; Feagle, Autumn "Brooke" <Brooke.Feagle@dot.state.fl.us>; Martin Horwitz <MHorwitz@kcaeng.com>  
**Subject:** [EXTERNAL] REVIEW: Survey Methodology for Bonneted Bat, FPID 449851-1 SR 70 from Lonesome Island Road to CR 721S

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

John – please see the attached Survey Methodology for Bonneted Bat for review.

Thank you in advance for your review. If you have any questions or require additional information, please contact me.

**Jeffrey W. James**  
Environmental Manager

**Florida Department of Transportation, District 1**

801 North Broadway Avenue

P.O. Box 1249

Bartow, FL 33831-1249

(863) 519-2625

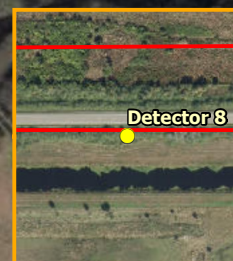
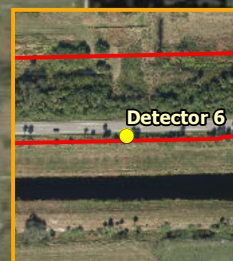
[Jeffrey.James@dot.state.fl.us](mailto:Jeffrey.James@dot.state.fl.us)





**Attachment 2**

**Florida Bonneted Bat Survey Acoustic Detector  
Location Map**



Begin Project

FPC 2-3B

SMF 3A

Detector 1

Detector 2

Detector 3

Detector 4

Detector 5

Detector 6

Detector 7

Detector 8

SR 70 E

SMF 1

SMF 2A

FPC 1B

Detector 1

Detector 3

Detector 5





Detector 7

Marcia Grove Rd

J C Duran Rd

De Bar Ranch Rd

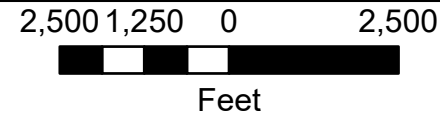
## Legend

-  Project Study Area
-  Project Action Area
-  Preferred Pond
-  Florida Bonneted Bat Survey Station

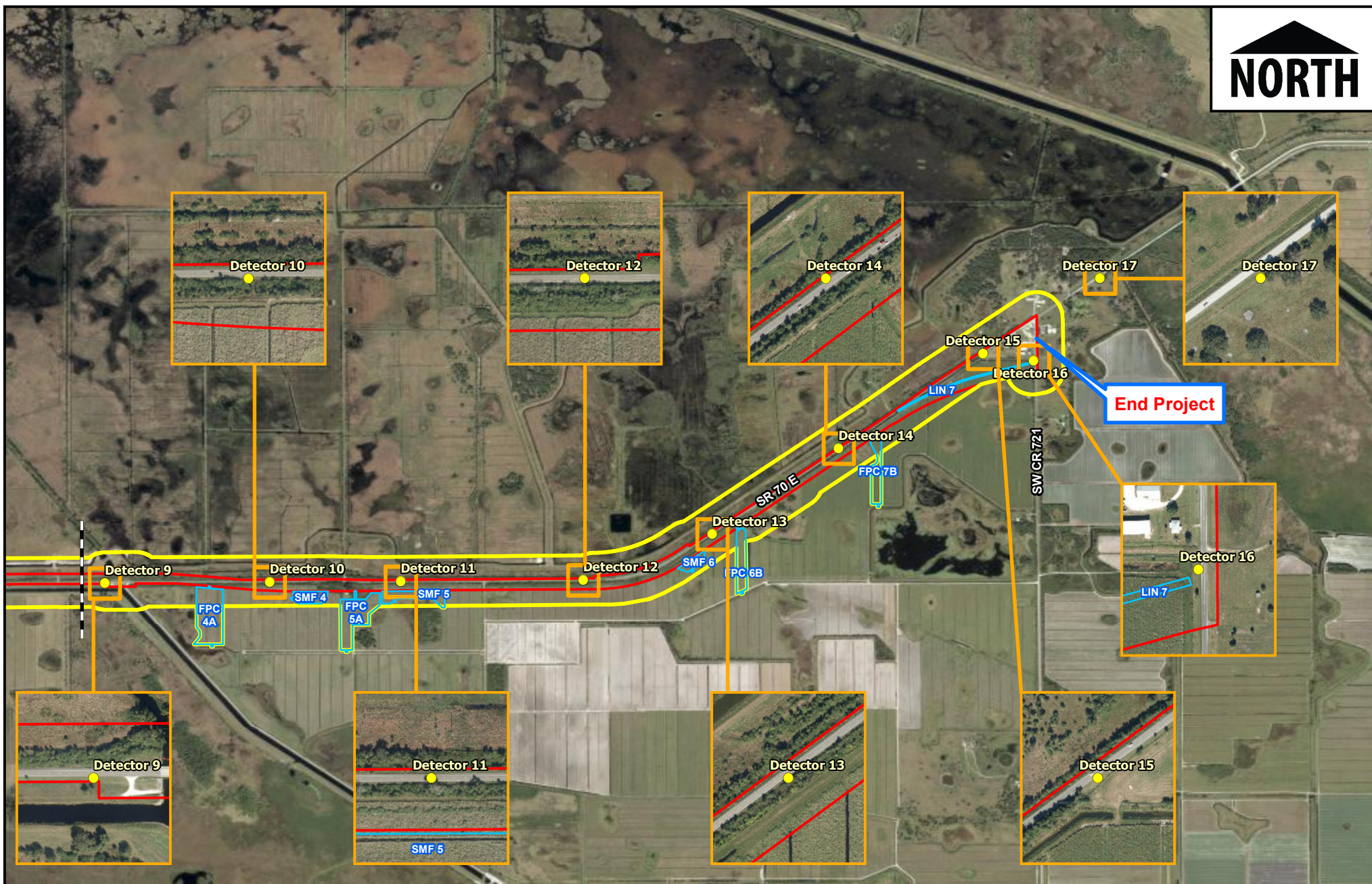
# Florida Bonneted Bat Survey Acoustic Detector Location Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida







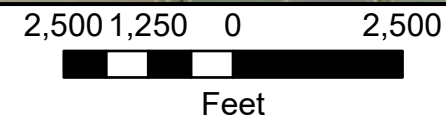
## Legend

- Project Study Area
- Project Action Area
- Preferred Pond
- Florida Bonneted Bat Survey Station

## Florida Bonneted Bat Survey Acoustic Detector Location Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida



**Attachment 3**  
**Deployed Acoustic Detector Photographs**





**Photograph 1.** Photograph looking south at Detector 1 with microphone deployment height of 5.94 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 2.** Photograph looking south at Detector 2 with microphone deployment height of 5.33 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 3.** Photograph looking south at Detector 3 with microphone deployment height of 5.94 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 4.** Photograph looking south at Detector 4 with microphone deployment height of 6.86 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 5.** Photograph looking south at Detector 5 with microphone deployment height of 5.67 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 6.** Photograph looking south at Detector 6 with microphone deployment height of 5.49 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 7.** Photograph looking south at Detector 7 with microphone deployment height of 5.94 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 8.** Photograph looking south at Detector 8 with microphone deployment height of 5.94 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 9.** Photograph looking east at Detector 9 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.



**Photograph 10.** Photograph looking south at Detector 10 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 11.** Photograph looking north at Detector 11 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.



**Photograph 12.** Photograph looking north at Detector 12 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 13.** Photograph looking southeast at Detector 13 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 14.** Photograph looking northeast at Detector 14 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 15.** Photograph looking southeast at Detector 15 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 16.** Photograph looking west at Detector 16 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.





**Photograph 17.** Photograph looking southeast at Detector 17 with microphone deployment height of 3.04 meters – Wildlife Acoustics Song Meter SM4BAT FS Ultrasonic Recorder with SMM U2 Ultrasonic Mic.

**Attachment 4**  
**Nightly Weather Data**



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
Sunset	20:00					No - high winds during first 5 hours of survey window
5/3/2024	19:15	83	0.00	16 E	Fair	
5/3/2024	20:15	79	0.00	13 E	Fair	
5/3/2024	21:15	76	0.00	9 E	Fair	
5/3/2024	22:15	73	0.00	7 E	Fair	
5/3/2024	23:15	71	0.00	6 E	Fair	
5/4/2024	0:15	69	0.00	6 E	Fair	
5/4/2024	1:15	68	0.00	Calm	Fair	
5/4/2024	2:15	67	0.00	3 NE	Fair	
5/4/2024	3:15	66	0.00	Calm	Fair	
5/4/2024	4:15	66	0.00	Calm	Fair	
5/4/2024	5:15	65	0.00	5 NE	Fair	
5/4/2024	6:15	64	0.00	3 NE	Fair	
5/4/2024	7:15	64	0.00	Calm	Fair	
Sunrise	6:43					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:00					No - high winds during first 5 hours of survey window
5/4/2024	19:15	76	0.00	13 E	Overcast	
5/4/2024	20:15	77	0.00	12 E	Overcast	
5/4/2024	21:15	76	0.00	10 E	Partly Cloudy	
5/4/2024	22:15	76	0.00	10 E	Overcast	
5/4/2024	23:15	75	0.00	7 E	Partly Cloudy	
5/5/2024	0:15	75	0.00	7 SE	Partly Cloudy	
5/5/2024	1:15	71	0.00	6 E	Fair	
5/5/2024	2:15	70	0.00	5 E	Fair	
5/5/2024	3:15	71	0.00	3 E	Overcast	
5/5/2024	4:15	69	0.00	5 E	Partly Cloudy	
5/5/2024	5:15	69	0.00	Calm	Fair	
5/5/2024	6:15	67	0.00	5 E	Fair	
5/5/2024	7:15	68	0.00	3 E	Fair	
Sunrise	6:42					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:01					No - high winds during first 5 hours of survey window/light rain at start of survey window
5/5/2024	19:15	75	0.03	14 E	Light Rain	
5/5/2024	20:15	75	0.00	8 E	Overcast	
5/5/2024	21:15	74	0.00	6 E	Overcast	
5/5/2024	22:15	75	0.00	8 E	Fair	
5/5/2024	23:15	75	0.00	10 E	Fair	
5/6/2024	0:15	73	0.00	6 SE	Mostly Cloudy	
5/6/2024	1:15	73	0.00	7 SE	Mostly Cloudy	
5/6/2024	2:15	69	0.00	Calm	Partly Cloudy	
5/6/2024	3:15	68	0.00	Calm	Partly Cloudy	
5/6/2024	4:15	67	0.00	Calm	Fair	
5/6/2024	5:15	66	0.00	Calm	Fair	
5/6/2024	6:15	65	0.00	3 E	Fair	

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/6/2024	7:15	66	0.00	Calm	Fog/Mist	
Sunrise	6:42					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:01					Yes - wind gusts present during first 30 minutes of survey window but within weather parameters for the remainder of the night
5/6/2024	19:15	83	0.00	14 E	Fair	
5/6/2024	20:15	81	0.00	9 E	Fair	
5/6/2024	21:15	76	0.00	7 E	Fair	
5/6/2024	22:15	76	0.00	8 E	Fair	
5/6/2024	23:15	75	0.00	9 E	Fair	
5/7/2024	0:15	74	0.00	8 SE	Fair	
5/7/2024	1:15	74	0.00	8 SE	Fair	
5/7/2024	2:15	74	0.00	7 SE	Fair	
5/7/2024	3:15	73	0.00	6 S	Partly Cloudy	
5/7/2024	4:15	71	0.00	6 S	Fair	
5/7/2024	5:15	72	0.00	3 S	Fair	
5/7/2024	6:15	69	0.00	3 E	Fair	
5/7/2024	7:35	69	0.00	Calm	Fog/Mist	
Sunrise	6:41					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:02					Yes - wind guts present during 4th hour of survey but within weather parameters for the remainder of the night
5/7/2024	19:15	89	0.00	6 S	Fair	
5/7/2024	20:15	84	0.00	9 E	Fair	
5/7/2024	21:15	82	0.00	9 SE	Fair	
5/7/2024	22:15	80	0.00	12 SE	Fair	
5/7/2024	23:15	78	0.00	6 S	Fair	
5/7/2024	23:55	77	0.00	7 S	Fair	
5/8/2024	1:35	75	0.00	6 S	Fair	
5/8/2024	2:15	75	0.00	7 S	Fair	
5/8/2024	3:15	76	0.00	7 S	Mostly Cloudy	
5/8/2024	4:15	74	0.00	8 S	Fair	
5/8/2024	5:15	74	0.00	9 S	Fair	
5/8/2024	6:35	73	0.00	6 S	Fair	
5/8/2024	7:15	74	0.00	7 S	Fair	
Sunrise	6:40					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:03					No - high winds during first 5 hours of survey window
5/8/2024	19:15	91	0.00	9 SE	Fair	
5/8/2024	20:15	86	0.00	8 SE	Fair	
5/8/2024	21:15	84	0.00	13 SE	Fair	
5/8/2024	22:15	81	0.00	10 S	Fair	
5/8/2024	23:15	80	0.00	10 S	Fair	
5/9/2024	0:15	79	0.00	13 S	Fair	
5/9/2024	1:15	77	0.00	8 S	Partly Cloudy	
5/9/2024	2:15	77	0.00	14 S	Overcast	
5/9/2024	3:15	75	0.00	8 S	Fair	
5/9/2024	4:15	75	0.00	10 S	Fair	



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/9/2024	5:15	74	0.00	8 S	Fair	
5/9/2024	6:15	73	0.00	8 S	Fair	
5/9/2024	7:15	72	0.00	5 S	Fair	
Sunrise	6:40					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:03					Yes - wind gusts present during 2nd hour of survey window but within weather parameters for the remainder of the night
5/9/2024	19:15	92	0.00	9 SW	Fair	
5/9/2024	20:15	88	0.00	10 SW	Fair	
5/9/2024	21:15	84	0.00	9 W	Fair	
5/9/2024	22:15	82	0.00	7 W	Fair	
5/9/2024	23:15	80	0.00	6 W	Fair	
5/10/2024	0:15	77	0.00	6 W	Fair	
5/10/2024	1:15	76	0.00	6 W	Fair	
5/10/2024	2:15	74	0.00	8 S	Fair	
5/10/2024	3:15	75	0.00	7 SW	Overcast	
5/10/2024	4:15	74	0.00	6 SW	Partly Cloudy	
5/10/2024	5:15	74	0.00	8 SW	Fair	
5/10/2024	6:15	74	0.00	6 S	Mostly Cloudy	
5/10/2024	7:15	74	0.00	5 SW	Fog/Mist	
Sunrise	6:39					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:04					Yes - wind gusts present during 1st 20 minutes of survey window, and in early morning hours, but within weather parameters for the remainder of the night
5/10/2024	19:15	90	0.00	13 W	Fair	
5/10/2024	20:15	87	0.00	8 W	Fair	
5/10/2024	21:15	83	0.00	8 W	Fair	
5/10/2024	22:15	81	0.00	7 W	Fair	
5/10/2024	23:15	80	0.00	8 W	Fair	
5/11/2024	0:15	78	0.00	5 W	Fair	
5/11/2024	1:15	77	0.00	6 W	Fair	
5/11/2024	2:15	76	0.00	5 W	Fair	
5/11/2024	3:15	76	0.00	3 W	Partly Cloudy	
5/11/2024	4:15	74	0.00	6 S	Fog/Mist	
5/11/2024	5:15	76	0.00	8 SW	Partly Cloudy	
5/11/2024	6:15	76	0.00	10 SW	Overcast	
5/11/2024	7:15	77	0.00	6 W	Mostly Cloudy	
Sunrise	6:38					
*Data retrieved from NOAA Weather Station ID KSEF						

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
Sunset	20:04					Yes - wind gusts present during 1st hour of survey window but within wind parameters for the remainder of the night. Temperatures drop below 65°F in early morning hours but not within first 5 hours of survey window
5/11/2024	19:15	90	0.00	14 W	Fair	
5/11/2024	20:15	86	0.00	7 W	Fair	
5/11/2024	21:15	83	0.00	9 W	Fair	
5/11/2024	22:15	80	0.00	8 NW	Fair	
5/11/2024	23:15	78	0.00	7 NW	Fair	
5/12/2024	0:15	73	0.00	5 N	Fair	
5/12/2024	1:15	73	0.00	5 NW	Fair	
5/12/2024	2:15	69	0.00	5 N	Fair	
5/12/2024	3:15	69	0.00	5 W	Fair	
5/12/2024	3:35	69	0.00	5 NW	Fair	
5/12/2024	4:35	69	0.00	7 NW	Fair	
5/12/2024	5:15	68	0.00	6 NW	Fair	
5/12/2024	6:15	64	0.00	3 N	Fair	
5/12/2024	7:15	65	0.00	5 N	Fair	
Sunrise	6:38					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:05					No - high winds during first 5 hours of survey window
5/12/2024	19:15	86	0.00	13 E	Partly Cloudy	
5/12/2024	20:15	83	0.00	10 E	Fair	
5/12/2024	21:15	80	0.00	9 E	Fair	
5/12/2024	22:15	76	0.00	8 E	Fair	
5/12/2024	23:15	74	0.00	7 E	Partly Cloudy	
5/13/2024	0:15	73	0.00	6 E	Overcast	
5/13/2024	1:15	73	0.00	7 E	Mostly Cloudy	
5/13/2024	2:15	71	0.00	7 E	Partly Cloudy	
5/13/2024	3:15	71	0.00	6 E	Fair	
5/13/2024	4:15	72	0.00	7 E	Partly Cloudy	
5/13/2024	5:15	74	0.00	7 E	Fair	
5/13/2024	6:15	71	0.00	5 E	Partly Cloudy	
5/13/2024	7:15	72	0.00	6 E	Fair	
Sunrise	6:37					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:05					No - high winds during first 5 hours of survey window
5/13/2024	19:15	74	0.01	15 SE	Overcast	
5/13/2024	20:15	77	0.00	13 E	Overcast	
5/13/2024	21:15	75	0.00	8 SE	Overcast	
5/13/2024	22:15	75	0.00	9 SE	Fair	
5/13/2024	23:15	76	0.00	7 SE	Partly Cloudy	
5/14/2024	0:15	77	0.00	9 SE	Overcast	
5/14/2024	1:15	77	0.00	15 SE	Fair	
5/14/2024	2:15	77	0.00	12 SE	Fair	
5/14/2024	3:15	77	0.00	7 S	Mostly Cloudy	
5/14/2024	4:15	78	0.00	10 S	Overcast	
5/14/2024	5:15	77	0.00	8 S	Partly Cloudy	



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/14/2024	6:15	77	0.00	10 S	Partly Cloudy	
5/14/2024	7:15	78	0.00	12 SE	Partly Cloudy	
Sunrise	6:37					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:06					No - high winds during first 5 hours of survey window
5/14/2024	19:15	92	0.00	17 SW	Partly Cloudy	
5/14/2024	20:15	88	0.00	15 SW	Fair	
5/14/2024	21:15	85	0.00	9 SW	Fair	
5/14/2024	22:15	83	0.00	7 S	Fair	
5/14/2024	23:15	80	0.00	8 S	Fair	
5/15/2024	0:15	79	0.00	Calm	Fair	
5/15/2024	1:15	79	0.00	7 S	Fair	
5/15/2024	2:15	78	0.00	5 SW	Fair	
5/15/2024	3:15	77	0.00	6 S	Overcast	
5/15/2024	4:15	76	0.00	7 S	Partly Cloudy	
5/15/2024	5:15	77	0.00	6 S	Partly Cloudy	
5/15/2024	6:15	77	0.00	Calm	Overcast	
5/15/2024	7:15	78	0.00	5 S	Fog/Mist	
Sunrise	6:36					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:07					Yes
5/15/2024	19:15	82	0.00	8 SW	Partly Cloudy with Haze	
5/15/2024	20:15	81	0.00	7 S	Fair	
5/15/2024	21:15	80	0.00	6 S	Fair	
5/15/2024	22:15	78	0.00	3 S	Fair	
5/15/2024	23:15	78	0.00	Calm	Mostly Cloudy	
5/16/2024	0:15	78	0.00	Calm	Overcast	
5/16/2024	1:15	77	0.00	3 NE	Overcast	
5/16/2024	2:15	78	0.00	3 NW	Overcast	
5/16/2024	3:15	76	0.00	Calm	Mostly Cloudy	
5/16/2024	4:15	76	0.00	Calm	Overcast	
5/16/2024	5:15	76	0.00	Calm	Overcast	
5/16/2024	6:15	76	0.00	Calm	Mostly Cloudy	
5/16/2024	7:15	76	0.00	Calm	Fair	
Sunrise	6:36					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:07					Yes
5/15/2024	19:15	81	0.00	7 SW	Fair	
5/15/2024	20:15	79	0.00	5 SW	Fair	
5/15/2024	21:15	79	0.00	6 S	Fair	
5/15/2024	22:15	81	0.00	7 SSW	Fair	
5/15/2024	23:15	79	0.00	5 SW	Fair	
5/16/2024	0:15	77	0.00	Calm	Mostly Cloudy	
5/16/2024	1:15	77	0.00	3 SW	Mostly Cloudy	
5/16/2024	2:15	77	0.00	3 SW	Fair	
5/16/2024	3:15	75	0.00	5 SW	Fair	

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/16/2024	4:15	73	0.00	Calm	Partly Cloudy	
5/16/2024	5:15	75	0.00	3 NW	Cloudy	
5/16/2024	6:15	75	0.00	Calm	Mostly Cloudy	
5/16/2024	7:15	77	0.00	5 W	Cloudy	
Sunrise	6:36					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:07					Yes - wind gusts present during 1st 20 minutes of survey window, and at 20:15 for 20 minutes, but within weather parameters for the remainder of the night
5/16/2024	19:15	91	0.00	10 W	Fair	
5/16/2024	20:15	87	0.00	10 NW	Partly Cloudy	
5/16/2024	21:15	84	0.00	6 W	Partly Cloudy	
5/16/2024	22:15	82	0.00	8 W	Fair	
5/16/2024	23:15	80	0.00	8 W	Fair	
5/17/2024	0:15	78	0.00	6 W	Fair	
5/17/2024	1:15	75	0.00	6 NE	Fair	
5/17/2024	2:15	75	0.00	5 N	Fair	
5/17/2024	3:15	73	0.00	6 S	NA	
5/17/2024	4:15	74	0.00	3 SW	Partly Cloudy	
5/17/2024	5:15	74	0.00	Calm	Partly Cloudy	
5/17/2024	6:15	74	0.00	Calm	Fog/Mist	
5/17/2024	7:15	75	0.00	Calm	Mostly Cloudy	
Sunrise	6:35					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:07					No - high winds during first 5 hours of survey window
5/16/2024	19:15	84	0.00	12 WSW	Mostly Cloudy	
5/16/2024	20:15	84	0.00	10 W	Fair	
5/16/2024	21:15	81	0.00	9 W	Fair	
5/16/2024	22:15	79	0.00	5 NW	Fair	
5/16/2024	23:15	77	0.00	6 N	Fair	
5/17/2024	0:15	77	0.00	Calm	Fair	
5/17/2024	1:15	75	0.00	Calm	Fair	
5/17/2024	2:15	75	0.00	5 SW	Fair	
5/17/2024	3:15	75	0.00	Calm	Cloudy	
5/17/2024	4:15	73	0.00	Calm	Cloudy	
5/17/2024	5:15	73	0.00	Calm	Cloudy	
5/17/2024	6:15	75	0.00	Calm	Partly Cloudy	
5/17/2024	7:15	79	0.00	Calm	Fair	
Sunrise	6:35					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:08					
5/17/2024	19:15	92	0.00	14 W	Mostly Cloudy	
5/17/2024	20:15	88	0.00	NA	Fair	
5/17/2024	21:15	85	0.00	8 W	Fair	
5/17/2024	21:55	84	0.00	7 W	Fair	
5/17/2024	22:35	83	0.00	6 W	Fair	
5/17/2024	23:15	82	0.00	3 NW	Fair	



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/18/2024	0:15	79	0.00	3 NW	Fair	No - high winds during first 5 hours of survey window
5/18/2024	1:15	78	0.00	Calm	Fair	
5/18/2024	2:15	75	0.00	6 E	Fair	
5/18/2024	3:15	74	0.00	Calm	Fair	
5/18/2024	4:15	73	0.00	3 S	Fair	
5/18/2024	5:15	74	0.00	Calm	Fair	
5/18/2024	6:15	72	0.00	Calm	Fog/Mist	
5/18/2024	7:15	74	0.00	7 S	Fair	
Sunrise	6:35					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:08					Yes
5/17/2024	19:15	86	0.00	3 S	Fair	
5/17/2024	20:15	86	0.00	9 S	Partly Cloudy	
5/17/2024	21:15	86	0.00	9 SW	Cloudy	
5/17/2024	22:15	82	0.00	5 NW	Fair	
5/17/2024	23:15	79	0.00	Calm	Fair	
5/18/2024	0:15	75	0.00	Calm	Fair	
5/18/2024	1:15	75	0.00	Calm	Fair	
5/18/2024	2:15	75	0.00	Calm	Fair	
5/18/2024	3:15	75	0.00	3 SW	Fair	
5/18/2024	4:15	73	0.00	Calm	Fair	
5/18/2024	5:15	73	0.00	3 S	Fair	
5/18/2024	6:15	77	0.00	5 SW	Fair	
5/18/2024	7:15	82	0.00	7 SW	Fair	
Sunrise	6:35					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:08					Yes - wind gusts present during 1st 15 minutes of survey window, and from 6:15 to 7:15, but not for more than 30 minutes in the first 5 hours of survey window
5/18/2024	19:15	93	0.00	12 W	Fair	
5/18/2024	20:15	89	0.00	5 W	Fair	
5/18/2024	21:15	83	0.00	7 E	Overcast	
5/18/2024	22:15	80	0.00	3 NE	Partly Cloudy	
5/18/2024	23:15	79	0.00	3 SE	Fair	
5/19/2024	0:15	77	0.00	3 E	Fair	
5/19/2024	1:15	76	0.00	3 E	Fair	
5/19/2024	2:15	76	0.00	5 S	Fair	
5/19/2024	3:15	78	0.00	7 SW	Fair	
5/19/2024	4:15	78	0.00	9 SW	Fair	
5/19/2024	5:15	78	0.00	9 SW	Fair	
5/19/2024	6:15	78	0.00	10 SW	Fair	
5/19/2024	7:15	79	0.00	12 SW	Fog/Mist	
Sunrise	6:34					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:08					
5/18/2024	19:15	88	0.00	6 NW	Partly Cloudy	
5/18/2024	20:15	81	0.00	6 NE	Cloudy	
5/18/2024	21:15	79	0.00	Calm	Cloudy	

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/18/2024	22:15	77	0.00	3 SE	Mostly Cloudy	Yes
5/18/2024	23:15	79	0.00	3 S	Fair	
5/19/2024	0:15	77	0.00	Calm	Fair	
5/19/2024	1:15	77	0.00	5 SW	Fair	
5/19/2024	2:15	79	0.00	7 S	Fair	
5/19/2024	3:15	79	0.00	6 SW	Partly Cloudy	
5/19/2024	4:15	79	0.00	7 SW	Fair	
5/19/2024	5:15	79	0.00	6 W	Fair	
5/19/2024	6:15	77	0.00	6 SW	Fair	
5/19/2024	7:15	82	0.00	9 SW	Far	
Sunrise	6:35					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:09					Yes
5/19/2024	19:15	87	0.00	8 W	Mostly Cloudy	
5/19/2024	20:15	84	0.00	6 NW	Fair	
5/19/2024	21:15	83	0.00	5 W	Fair	
5/19/2024	22:15	80	0.00	5 W	Fair	
5/19/2024	23:15	78	0.00	Calm	Fair	
5/20/2024	0:15	77	0.00	Calm	Fair	
5/20/2024	1:15	77	0.00	5 W	Fair	
5/20/2024	2:15	76	0.00	6 W	Mostly Cloudy	
5/20/2024	3:15	74	0.00	5 W	Partly Cloudy	
5/20/2024	4:15	74	0.00	5 W	Fair	
5/20/2024	5:15	73	0.00	6 W	Fair	
5/20/2024	6:15	72	0.00	Calm	Fair	
5/20/2024	7:15	74	0.00	6 NW	Fair	
Sunrise	6:34					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:09					Yes
5/19/2024	19:15	79	0.00	5 VAR	Mostly Cloudy	
5/19/2024	20:15	73	0.00	Calm	Cloudy	
5/19/2024	21:15	77	0.00	Calm	Fair	
5/19/2024	22:15	75	0.00	Calm	Fair	
5/19/2024	23:15	73	0.00	5 SE	Fair	
5/20/2024	0:15	72	0.00	Calm	Fair	
5/20/2024	1:15	72	0.00	Calm	Fair	
5/20/2024	2:15	73	0.00	Calm	Fair	
5/20/2024	3:15	72	0.00	Calm	Fair	
5/20/2024	4:15	70	0.00	Calm	Fair	
5/20/2024	5:15	70	0.00	Calm	Fair	
5/20/2024	6:15	70	0.00	Calm	Fair	
5/20/2024	7:15	75	0.00	3 NW	Fair	
Sunrise	6:34					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:09					



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/20/2024	19:15	86	0.00	8 N	Fair	No - high winds during first 5 hours of survey window
5/20/2024	20:15	82	0.00	13 E	Overcast	
5/20/2024	21:15	79	0.00	12 E	Mostly Cloudy	
5/20/2024	22:15	76	0.00	12 NE	Partly Cloudy	
5/20/2024	23:15	73	0.00	5 N	Fair	
5/21/2024	0:15	72	0.00	NA	Fair	
5/21/2024	1:15	70	0.00	5 N	Fair	
5/21/2024	2:15	69	0.00	3 NE	Fair	
5/21/2024	3:15	68	0.00	3 N	Fair	
5/21/2024	4:15	68	0.00	3 N	Partly Cloudy	
5/21/2024	5:15	67	0.00	5 N	Partly Cloudy	
5/21/2024	6:15	67	0.00	6 N	Fair	
5/21/2024	7:15	67	0.00	3 N	Fair	
Sunrise	6:33					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:09					Yes - high winds present for 2nd hour of survey window, but not for more than 30 minutes in the first 5 hours of survey window
5/20/2024	19:15	75	0.00	7 NE	Fair	
5/20/2024	20:15	73	0.00	10 NE	Fair	
5/20/2024	21:15	73	0.00	5 NE	Fair	
5/20/2024	22:15	72	0.00	5 NE	Fair	
5/20/2024	23:15	72	0.00	Calm	Partly Cloudy	
5/21/2024	0:15	70	0.00	7 NE	Cloudy	
5/21/2024	1:15	68	0.00	6 NW	Fair	
5/21/2024	2:15	68	0.00	Calm	Cloudy	
5/21/2024	3:15	68	0.00	5 NW	Fair	
5/21/2024	4:15	66	0.00	3 NW	Fair	
5/21/2024	5:15	66	0.00	3 NW	Fair	
5/21/2024	6:15	66	0.00	3 VAR	Fair	
5/21/2024	7:15	72	0.00	5 N	Fair	
Sunrise	6:34					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:10					Yes
5/21/2024	19:15	83	0.00	8.2 SSE	-	
5/21/2024	20:15	78	0.00	4.1 S	-	
5/21/2024	21:15	77	0.00	3 S	-	
5/21/2024	22:15	75	0.00	2.8 SSE	-	
5/21/2024	23:15	75	0.00	2 SSE	-	
5/22/2024	0:15	74	0.00	1.4 SSW	-	
5/22/2024	1:15	73	0.00	1.3 S	-	
5/22/2024	2:15	72	0.00	1.8 SSE	-	
5/22/2024	3:15	71	0.00	2.5 SSE	-	
5/22/2024	4:15	70	0.00	4.1 SE	-	
5/22/2024	5:15	70	0.00	4.1 SE	-	
5/22/2024	6:15	70	0.00	3.7 SSE	-	
5/22/2024	7:15	71	0.00	5.4 SE	-	

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
Sunrise	6:33					
*Data retrieved from NOAA Weather Station ID KSEF						
Sunset	20:10					Yes
5/21/2024	19:15	79	0.00	7 NE	Partly Cloudy	
5/21/2024	20:15	77	0.00	5 VAR	Fair	
5/21/2024	21:15	75	0.00	Calm	Partly Cloudy	
5/21/2024	22:15	73	0.00	3 NE	Cloudy	
5/21/2024	23:15	73	0.00	Calm	Cloudy	
5/22/2024	0:15	72	0.00	Calm	Cloudy	
5/22/2024	1:15	72	0.00	5 NE	Cloudy	
5/22/2024	2:15	72	0.00	Calm	Cloudy	
5/22/2024	3:15	72	0.00	6 NE	Cloudy	
5/22/2024	4:15	70	0.00	Calm	Cloudy	
5/22/2024	5:15	70	0.00	5 NE	Partly Cloudy	
5/22/2024	6:15	72	0.00	7 NE	Fair	
5/22/2024	7:15	77	0.00	Calm	Fair	
Sunrise	6:33					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:15					Yes - light rain present at end of survey window, but not for more than 30 minutes in the first 5 hours of survey window
5/22/2024	19:15	81	0.00	5 VAR	Fair	
5/22/2024	20:15	77	0.00	5 NE	Fair	
5/22/2024	21:15	73	0.00	Calm	Fair	
5/22/2024	22:15	72	0.00	Calm	Fair	
5/22/2024	23:15	70	0.00	Calm	Partly Cloudy	
5/23/2024	0:15	70	0.00	Calm	Mostly Cloudy	
5/23/2024	1:15	70	0.00	Calm	Mostly Cloudy	
5/23/2024	2:15	68	0.00	Calm	Fair	
5/23/2024	3:15	68	0.00	Calm	Fair	
5/23/2024	4:15	68	0.00	3 NE	Fair	
5/23/2024	5:15	66	0.00	Calm	Fair	
5/23/2024	6:15	68	0.10	Calm	Light Rain	
5/23/2024	7:15	75	0.00	5 VAR	Fair	
Sunrise	6:31					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:11					Yes - light rain and temperature drops below 65°F in early morning hours but not within first 5 hours of survey window
5/23/2024	19:15	68	0.00	5 VAR	Fair	
5/23/2024	20:15	68	0.00	5 VAR	Fair	
5/23/2024	21:15	68	0.00	Calm	Fair	
5/23/2024	22:15	68	0.00	Calm	Fair	
5/23/2024	23:15	70	0.00	Calm	Partly Cloudy	
5/24/2024	0:15	68	0.00	Calm	Fair	
5/24/2024	1:15	68	0.00	Calm	Fair	
5/24/2024	2:15	68	0.00	Calm	Fair	
5/24/2024	3:15	66	0.00	Calm	Fair	
5/24/2024	4:15	64	0.00	Calm	Fair	
5/24/2024	5:15	64	0.00	Calm	Fair	



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/24/2024	6:15	66	0.00	Calm	Light Rain	
5/24/2024	7:15	75	0.00	5 VAR	Fair	
Sunrise	6:33					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:11					Yes
5/24/2024	19:15	63	0.00	6 VAR	Fair	
5/24/2024	20:15	66	0.00	5 VAR	Fair	
5/24/2024	21:15	66	0.00	5 SE	Mostly Cloudy	
5/24/2024	22:15	68	0.00	5 SE	Cloudy	
5/24/2024	23:15	68	0.00	5 VAR	Cloudy	
5/25/2024	0:15	75	0.00	Calm	Mostly Cloudy	
5/25/2024	1:15	73	0.00	Calm	Partly Cloudy	
5/25/2024	2:15	73	0.00	Calm	Partly Cloudy	
5/25/2024	3:15	70	0.00	Calm	Fair	
5/25/2024	4:15	70	0.00	Calm	Fair	
5/25/2024	5:15	70	0.00	Calm	Fair	
5/25/2024	6:15	70	0.00	Calm	Fair	
5/25/2024	7:15	81	0.00	6 SW	Fair	
Sunrise	6:32					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:12					Yes
5/25/2024	19:15	79	0.00	5 VAT	Mostly Cloudy	
5/25/2024	20:15	79	0.00	12 S	Cloudy	
5/25/2024	21:15	79	0.00	5 SE	Mostly Cloudy	
5/25/2024	22:15	75	0.00	5 E	Partly Cloudy	
5/25/2024	23:15	73	0.00	Calm	Fair	
5/26/2024	0:15	73	0.00	Calm	Fair	
5/26/2024	1:15	72	0.00	Calm	Fair	
5/26/2024	2:15	72	0.00	Calm	Fair	
5/26/2024	3:15	70	0.00	Calm	Fair	
5/26/2024	4:15	72	0.00	5 NE	Fair	
5/26/2024	5:15	70	0.00	Calm	Fair	
5/26/2024	6:15	72	0.00	3 NW	Fair	
5/26/2024	7:15	75	0.00	5 N	Fair	
Sunrise	6:32					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:13					Yes
5/26/2024	19:15	88	0.00	Calm	Mostly Cloudy	
5/26/2024	20:15	88	0.00	Calm	Cloudy	
5/26/2024	21:15	84	0.00	Calm	Fair	
5/26/2024	22:15	79	0.00	6 S	Fair	
5/26/2024	23:15	77	0.00	Calm	Fair	
5/27/2024	0:15	72	0.00	Calm	Fair	
5/27/2024	1:15	73	0.00	Calm	Fair	
5/27/2024	2:15	73	0.00	Calm	Fair	
5/27/2024	3:15	72	0.00	Calm	Fair	

Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/27/2024	4:15	72	0.00	Calm	Partly Cloudy	
5/27/2024	5:15	70	0.00	Calm	Fair	
5/27/2024	6:15	70	0.00	Calm	Fair	
5/27/2024	7:15	77	0.00	Calm	Fair	
Sunrise	6:31					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:14					Yes
5/27/2024	19:15	90	0.00	3 S	Fair	
5/27/2024	20:15	88	0.00	6 SW	Mostly Cloudy	
5/27/2024	21:15	86	0.00	5 SE	Fair	
5/27/2024	22:15	84	0.00	6 SE	Fair	
5/27/2024	23:15	84	0.00	6 S	Fair	
5/28/2024	0:15	81	0.00	5 SW	Mostly Cloudy	
5/28/2024	1:15	79	0.00	3 W	Fair	
5/28/2024	2:15	77	0.00	5 NW	Fair	
5/28/2024	3:15	77	0.00	Calm	Mostly Cloudy	
5/28/2024	4:15	73	0.00	Calm	Cloudy	
5/28/2024	5:15	72	0.00	Calm	Mostly Cloudy	
5/28/2024	6:15	73	0.00	Calm	Fair	
5/28/2024	7:15	79	0.00	6 NW	Fair	
Sunrise	6:31					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:15					No - high winds and thunderstorm during first 5 hours of survey window
5/28/2024	19:15	79	0.00	9 SW	Mostly Cloudy	
5/28/2024	20:15	75	0.10	12 SW	Thunderstorm	
5/28/2024	21:15	75	0.00	Calm	Fair	
5/28/2024	22:15	75	0.00	Calm	Fair	
5/28/2024	23:15	73	0.00	Calm	Fair	
5/29/2024	0:15	73	0.00	Calm	Fair	
5/29/2024	1:15	73	0.00	Calm	Fair	
5/29/2024	2:15	73	0.00	Calm	Fair	
5/29/2024	3:15	73	0.00	Calm	Fair	
5/29/2024	4:15	73	0.00	Calm	Fair	
5/29/2024	5:15	72	0.00	Calm	Mist	
5/29/2024	6:15	72	0.00	Calm	Mist	
5/29/2024	7:15	77	0.00	7 NW	Fair	
Sunrise	6:31					
*Data retrieved from NOAA Weather Station ID KOBE						
Sunset	20:15					
5/29/2024	19:15	84	0.00	5 E	Fair	
5/29/2024	20:15	81	0.00	3 SE	Fair	
5/29/2024	21:15	77	0.00	Calm	Fair	
5/29/2024	22:15	77	0.00	5 SE	Fair	
5/29/2024	23:15	77	0.00	3 E	Fair	
5/30/2024	0:15	73	0.00	Calm	Fair	
5/30/2024	1:15	73	0.00	Calm	Fair	



Date	Time (EDT)	Temperature (°F)	Precipitation (inches)	Wind (mph)	Weather Condition	Within FBB Parameters
5/30/2024	2:15	72	0.00	Calm	Fair	
5/30/2024	3:15	70	0.00	Calm	Fair	
5/30/2024	4:15	70	0.00	Calm	Fair	
5/30/2024	5:15	70	0.00	Calm	Fair	
5/30/2024	6:15	72	0.00	5 NE	Mist	
5/30/2024	7:15	77	0.00	5 NE	Fair	
Sunrise	6:31					
*Data retrieved from NOAA Weather Station ID KOBE						

## **Attachment 5**

# **Florida Bonneted Bat Recording Inventory Table and Representative Spectrograms**



Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
4	EUMFLO	Noise	5/3/2024	7:56:02	6:43:00	20:00:00
2	EUMFLO	NOTBAT	5/3/2024	12:30:36	6:43:00	20:00:00
2	EUMFLO	NOTBAT	5/3/2024	12:32:32	6:43:00	20:00:00
2	EUMFLO	TADBRA	5/3/2024	14:38:57	6:43:00	20:00:00
1	EUMFLO	TADBRA	5/3/2024	15:22:26	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/3/2024	18:16:58	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/3/2024	18:17:50	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/3/2024	18:21:19	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/3/2024	18:21:42	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/3/2024	18:24:07	6:43:00	20:00:00
4	EUMFLO	NOTBAT	5/3/2024	18:31:47	6:43:00	20:00:00
4	EUMFLO	NOTBAT	5/3/2024	18:33:25	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/3/2024	18:36:38	6:43:00	20:00:00
8	EUMFLO	NOTBAT	5/3/2024	18:43:03	6:43:00	20:00:00
8	EUMFLO	NOTBAT	5/3/2024	18:44:13	6:43:00	20:00:00
2	EUMFLO	Noise	5/4/2024	10:54:05	6:43:00	20:00:00
5	EUMFLO	TADBRA	5/4/2024	11:58:52	6:43:00	20:00:00
2	EUMFLO	NOTBAT	5/4/2024	11:59:25	6:43:00	20:00:00
2	EUMFLO	EUMFLO	5/4/2024	12:20:36	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:18:43	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:24:23	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:24:40	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:28:51	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:29:00	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:29:40	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:29:58	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:30:03	6:43:00	20:00:00
3	EUMFLO	NOTBAT	5/4/2024	18:30:12	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:32:31	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:34:22	6:43:00	20:00:00
1	EUMFLO	NOTBAT	5/4/2024	18:34:56	6:43:00	20:00:00
5	EUMFLO	Noise	5/5/2024	8:27:24	6:42:00	20:01:00
6	EUMFLO	NOTBAT	5/5/2024	11:49:48	6:42:00	20:01:00
2	EUMFLO	NOTBAT	5/5/2024	13:35:00	6:42:00	20:01:00
2	EUMFLO	TADBRA	5/5/2024	13:46:11	6:42:00	20:01:00
2	EUMFLO	TADBRA	5/5/2024	13:46:18	6:42:00	20:01:00
7	EUMFLO	NOTBAT	5/5/2024	14:03:18	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:17:26	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:17:44	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:18:00	6:42:00	20:01:00
3	EUMFLO	NOTBAT	5/5/2024	18:25:46	6:42:00	20:01:00

Confirmed  
FBB

Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
2	EUMFLO	NOTBAT	5/5/2024	18:28:18	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:30:48	6:42:00	20:01:00
3	EUMFLO	NOTBAT	5/5/2024	18:32:42	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:35:42	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:40:51	6:42:00	20:01:00
2	EUMFLO	NOTBAT	5/5/2024	18:51:46	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	18:53:36	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/5/2024	19:00:36	6:42:00	20:01:00
5	EUMFLO	NOTBAT	5/6/2024	10:05:51	6:42:00	20:01:00
5	EUMFLO	NOTBAT	5/6/2024	10:05:55	6:42:00	20:01:00
7	EUMFLO	TADBRA	5/6/2024	13:02:28	6:42:00	20:01:00
3	EUMFLO	TADBRA	5/6/2024	13:33:34	6:42:00	20:01:00
6	EUMFLO	NoID	5/6/2024	13:50:16	6:42:00	20:01:00
7	EUMFLO	TADBRA	5/6/2024	15:58:15	6:42:00	20:01:00
3	EUMFLO	Noise	5/6/2024	17:16:09	6:42:00	20:01:00
3	EUMFLO	NOTBAT	5/6/2024	18:32:32	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:33:07	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:39:10	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:45:01	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:45:22	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:46:38	6:42:00	20:01:00
1	EUMFLO	NOTBAT	5/6/2024	18:48:08	6:42:00	20:01:00
7	EUMFLO	Noise	5/7/2024	9:31:01	6:41:00	20:02:02
1	EUMFLO	Noise	5/7/2024	9:35:04	6:41:00	20:02:02
6	EUMFLO	TADBRA	5/7/2024	10:02:33	6:41:00	20:02:02
7	EUMFLO	NOTBAT	5/7/2024	12:12:00	6:41:00	20:02:02
8	EUMFLO	TADBRA	5/7/2024	13:09:06	6:41:00	20:02:02
7	EUMFLO	TADBRA	5/7/2024	13:42:25	6:41:00	20:02:02
7	EUMFLO	TADBRA	5/7/2024	13:42:34	6:41:00	20:02:02
2	EUMFLO	NOTBAT	5/7/2024	14:42:15	6:41:00	20:02:02
6	EUMFLO	TADBRA	5/7/2024	15:59:34	6:41:00	20:02:02
1	EUMFLO	NOTBAT	5/7/2024	18:19:53	6:41:00	20:02:02
1	EUMFLO	NOTBAT	5/7/2024	18:23:02	6:41:00	20:02:02
1	EUMFLO	NOTBAT	5/7/2024	18:23:33	6:41:00	20:02:02
1	EUMFLO	NOTBAT	5/7/2024	18:30:53	6:41:00	20:02:02
3	EUMFLO	NOTBAT	5/7/2024	18:49:36	6:41:00	20:02:02
3	EUMFLO	NOTBAT	5/7/2024	18:49:42	6:41:00	20:02:02
3	EUMFLO	NOTBAT	5/7/2024	18:50:27	6:41:00	20:02:02
2	EUMFLO	NOTBAT	5/7/2024	18:59:27	6:41:00	20:02:02
4	EUMFLO	TADBRA	5/8/2024	15:52:58	6:40:00	20:03:00
4	EUMFLO	TADBRA	5/8/2024	17:02:12	6:40:00	20:03:00



Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
5	EUMFLO	Noise	5/8/2024	18:06:01	6:40:00	20:03:00
4	EUMFLO	Noise	5/8/2024	18:06:08	6:40:00	20:03:00
2	EUMFLO	Noise	5/8/2024	18:59:21	6:40:00	20:03:00
2	EUMFLO	NOTBAT	5/9/2024	7:57:57	6:40:00	20:03:00
2	EUMFLO	NOTBAT	5/9/2024	8:01:51	6:40:00	20:03:00
7	EUMFLO	NOTBAT	5/9/2024	11:16:13	6:40:00	20:03:00
2	EUMFLO	NOTBAT	5/9/2024	13:01:12	6:40:00	20:03:00
4	EUMFLO	TADBRA	5/9/2024	14:27:36	6:40:00	20:03:00
4	EUMFLO	TADBRA	5/9/2024	14:27:41	6:40:00	20:03:00
2	EUMFLO	NOTBAT	5/9/2024	18:23:32	6:40:00	20:03:00
5	EUMFLO	NOTBAT	5/9/2024	18:55:02	6:40:00	20:03:00
5	EUMFLO	NOTBAT	5/9/2024	18:55:32	6:40:00	20:03:00
5	EUMFLO	NOTBAT	5/9/2024	18:56:08	6:40:00	20:03:00
5	EUMFLO	NOTBAT	5/9/2024	18:56:30	6:40:00	20:03:00
7	EUMFLO	Noise	5/9/2024	19:04:26	6:40:00	20:03:00
5	EUMFLO	NOTBAT	5/10/2024	11:54:20	6:39:00	20:04:00
7	EUMFLO	Noise	5/10/2024	11:55:57	6:39:00	20:04:00
1	EUMFLO	Noise	5/10/2024	11:59:31	6:39:00	20:04:00
1	EUMFLO	NOTBAT	5/10/2024	12:15:21	6:39:00	20:04:00
5	EUMFLO	TADBRA	5/10/2024	12:51:40	6:39:00	20:04:00
5	EUMFLO	NOTBAT	5/10/2024	13:35:05	6:39:00	20:04:00
2	EUMFLO	NOTBAT	5/10/2024	14:50:20	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:25:23	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:30:23	6:39:00	20:04:00
1	EUMFLO	NOTBAT	5/10/2024	18:30:30	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:30:35	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:30:45	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:31:05	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:31:18	6:39:00	20:04:00
3	EUMFLO	NOTBAT	5/10/2024	18:31:32	6:39:00	20:04:00
2	EUMFLO	TADBRA	5/11/2024	12:52:36	6:38:00	20:04:00
4	EUMFLO	NOTBAT	5/11/2024	13:13:55	6:38:00	20:04:00
5	EUMFLO	NOTBAT	5/11/2024	15:24:18	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:19:47	6:38:00	20:04:00
2	EUMFLO	NOTBAT	5/11/2024	18:20:36	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:21:55	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:22:13	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:22:26	6:38:00	20:04:00
1	EUMFLO	NOTBAT	5/11/2024	18:33:18	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:33:55	6:38:00	20:04:00
1	EUMFLO	NOTBAT	5/11/2024	18:34:04	6:38:00	20:04:00

Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
1	EUMFLO	NOTBAT	5/11/2024	18:37:08	6:38:00	20:04:00
1	EUMFLO	NOTBAT	5/11/2024	18:38:43	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:41:26	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:41:49	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:42:31	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:42:46	6:38:00	20:04:00
3	EUMFLO	NOTBAT	5/11/2024	18:43:09	6:38:00	20:04:00
5	EUMFLO	TADBRA	5/12/2024	11:34:10	6:38:00	20:05:00
4	EUMFLO	NOTBAT	5/12/2024	12:43:26	6:38:00	20:05:00
5	EUMFLO	Noise	5/12/2024	13:12:34	6:38:00	20:05:00
4	EUMFLO	Noise	5/12/2024	14:27:40	6:38:00	20:05:00
7	EUMFLO	TADBRA	5/12/2024	15:44:25	6:38:00	20:05:00
7	EUMFLO	Noise	5/13/2024	10:44:07	6:37:00	20:05:00
7	EUMFLO	Noise	5/13/2024	17:48:51	6:37:00	20:05:00
2	EUMFLO	Noise	5/13/2024	17:52:42	6:37:00	20:05:00
2	EUMFLO	Noise	5/13/2024	17:59:11	6:37:00	20:05:00
1	EUMFLO	NOTBAT	5/13/2024	18:38:39	6:37:00	20:05:00
1	EUMFLO	NOTBAT	5/13/2024	18:46:58	6:37:00	20:05:00
1	EUMFLO	NOTBAT	5/13/2024	18:49:27	6:37:00	20:05:00
1	EUMFLO	NOTBAT	5/13/2024	19:02:01	6:37:00	20:05:00
6	EUMFLO	NOTBAT	5/14/2024	9:41:36	6:37:00	20:06:00
4	EUMFLO	Noise	5/14/2024	10:45:34	6:37:00	20:06:00
4	EUMFLO	NOTBAT	5/14/2024	13:31:39	6:37:00	20:06:00
2	EUMFLO	Noise	5/14/2024	17:50:36	6:37:00	20:06:00
2	EUMFLO	Noise	5/14/2024	18:10:27	6:37:00	20:06:00
2	EUMFLO	NOTBAT	5/15/2024	7:44:22	6:36:00	20:07:00
2	EUMFLO	NOTBAT	5/15/2024	7:47:33	6:36:00	20:07:00
2	EUMFLO	NOTBAT	5/15/2024	10:19:16	6:36:00	20:07:00
7	EUMFLO	NOTBAT	5/15/2024	11:08:13	6:36:00	20:07:00
2	EUMFLO	NOTBAT	5/15/2024	11:23:40	6:36:00	20:07:00
7	EUMFLO	TADBRA	5/15/2024	14:51:53	6:36:00	20:07:00
1	EUMFLO	NOTBAT	5/16/2024	11:11:42	6:36:00	20:07:00
4	EUMFLO	NOTBAT	5/16/2024	11:29:56	6:36:00	20:07:00
4	EUMFLO	NOTBAT	5/16/2024	12:20:04	6:36:00	20:07:00
4	EUMFLO	NOTBAT	5/16/2024	14:51:52	6:36:00	20:07:00
1	EUMFLO	TADBRA	5/16/2024	16:47:43	6:36:00	20:07:00
3	EUMFLO	Noise	5/16/2024	17:47:00	6:36:00	20:07:00
2	EUMFLO	NOTBAT	5/16/2024	18:19:00	6:36:00	20:07:00
2	EUMFLO	NOTBAT	5/17/2024	9:19:09	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	9:45:03	6:35:00	20:08:00
6	EUMFLO	TADBRA	5/17/2024	12:20:16	6:35:00	20:08:00

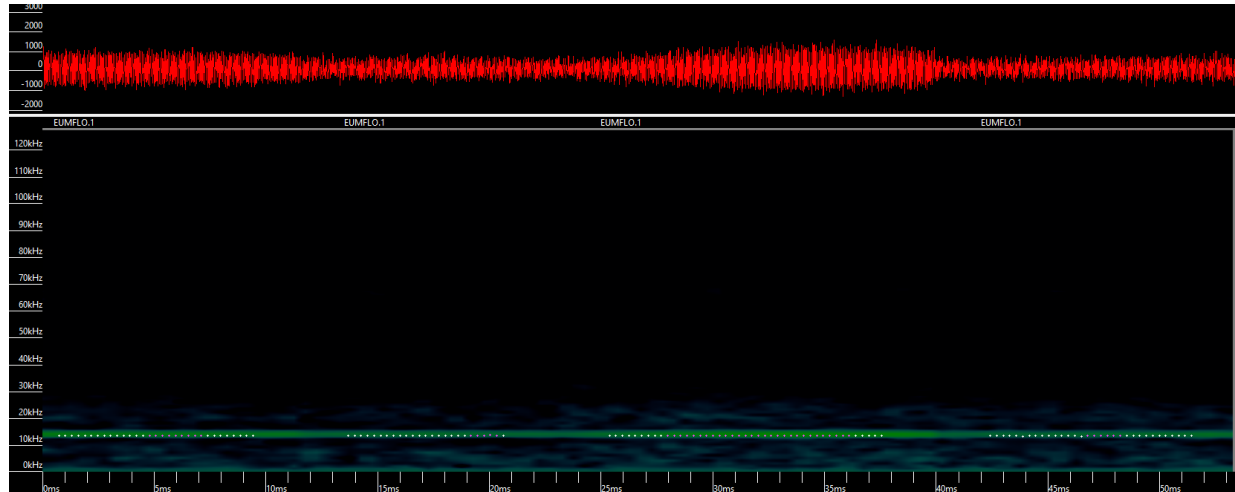


Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
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6	EUMFLO	NOTBAT	5/17/2024	13:19:11	6:35:00	20:08:00
5	EUMFLO	TADBRA	5/17/2024	14:09:12	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	14:38:13	6:35:00	20:08:00
4	EUMFLO	NOTBAT	5/17/2024	16:17:24	6:35:00	20:08:00
2	EUMFLO	NoID	5/17/2024	16:17:27	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	18:13:04	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	18:14:11	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	18:22:02	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/17/2024	18:29:54	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/17/2024	18:35:08	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/17/2024	18:42:28	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/17/2024	18:47:32	6:35:00	20:08:00
1	EUMFLO	NOTBAT	5/17/2024	18:51:44	6:35:00	20:08:00
16	EUMFLO	Noise	5/17/2024	23:33:04	6:35:00	20:08:00
16	EUMFLO	Noise	5/17/2024	23:33:10	6:35:00	20:08:00
15	EUMFLO	Noise	5/18/2024	1:17:13	6:35:00	20:08:00
7	EUMFLO	Noise	5/18/2024	9:33:14	6:35:00	20:08:00
7	EUMFLO	Noise	5/18/2024	10:33:42	6:35:00	20:08:00
8	EUMFLO	TADBRA	5/18/2024	12:19:59	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/18/2024	15:21:25	6:35:00	20:08:00
6	EUMFLO	NOTBAT	5/18/2024	15:27:41	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/18/2024	18:26:12	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/18/2024	18:32:40	6:35:00	20:08:00
2	EUMFLO	NOTBAT	5/18/2024	18:53:04	6:35:00	20:08:00
13	EUMFLO	Noise	5/18/2024	20:00:02	6:35:00	20:08:00
16	EUMFLO	Noise	5/18/2024	20:04:37	6:35:00	20:08:00
14	EUMFLO	Noise	5/18/2024	20:21:54	6:35:00	20:08:00
15	EUMFLO	Noise	5/19/2024	1:44:44	6:34:00	20:09:00
16	EUMFLO	Noise	5/19/2024	6:52:55	6:34:00	20:09:00
16	EUMFLO	Noise	5/19/2024	6:57:10	6:34:00	20:09:00
9	EUMFLO	NOTBAT	5/19/2024	6:57:50	6:34:00	20:09:00
9	EUMFLO	Noise	5/19/2024	6:57:57	6:34:00	20:09:00
9	EUMFLO	Noise	5/19/2024	6:58:10	6:34:00	20:09:00
16	EUMFLO	Noise	5/19/2024	6:59:23	6:34:00	20:09:00
6	EUMFLO	TADBRA	5/19/2024	11:54:17	6:34:00	20:09:00
6	EUMFLO	TADBRA	5/19/2024	12:08:30	6:34:00	20:09:00
5	EUMFLO	TADBRA	5/19/2024	13:07:55	6:34:00	20:09:00
6	EUMFLO	TADBRA	5/19/2024	13:08:48	6:34:00	20:09:00
7	EUMFLO	TADBRA	5/19/2024	13:46:53	6:34:00	20:09:00
7	EUMFLO	TADBRA	5/19/2024	13:47:51	6:34:00	20:09:00

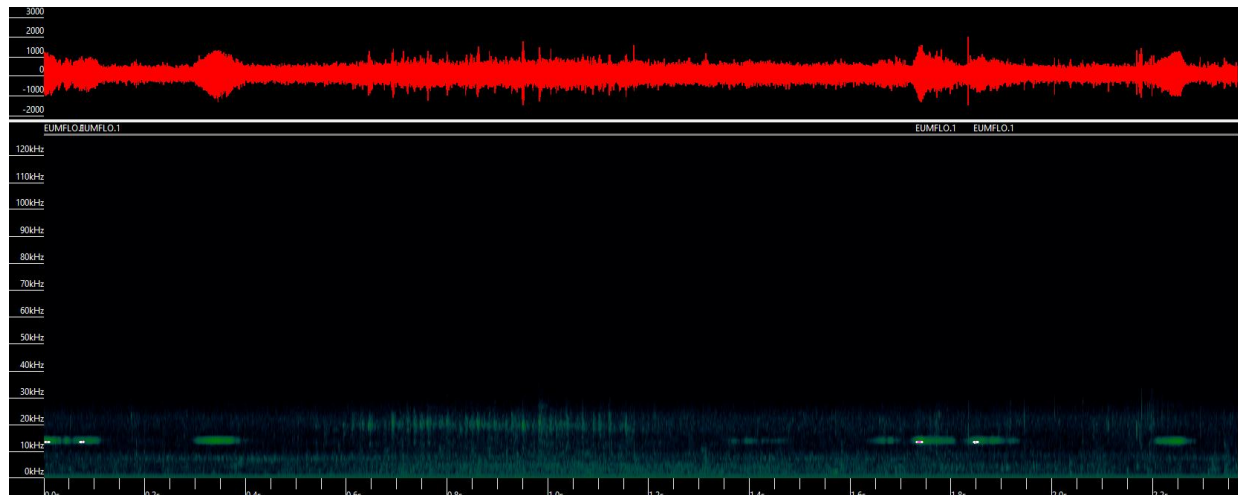
Florida Bonneted Bat AutoID Inventory						
Detector	AUTOID	Manual ID	Recording Date	Recording Time	Sunrise	Sunset
7	EUMFLO	TADBRA	5/19/2024	13:47:57	6:34:00	20:09:00
2	EUMFLO	TADBRA	5/19/2024	14:07:39	6:34:00	20:09:00
7	EUMFLO	TADBRA	5/19/2024	15:34:09	6:34:00	20:09:00
7	EUMFLO	NOTBAT	5/19/2024	18:41:38	6:34:00	20:09:00
14	EUMFLO	NOTBAT	5/20/2024	5:50:25	6:34:00	20:09:00
3	EUMFLO	Noise	5/20/2024	12:42:14	6:34:00	20:09:00
4	EUMFLO	TADBRA	5/20/2024	15:50:38	6:34:00	20:09:00
7	EUMFLO	Noise	5/20/2024	17:51:50	6:34:00	20:09:00
1	EUMFLO	NOTBAT	5/20/2024	18:12:17	6:34:00	20:09:00
1	EUMFLO	NOTBAT	5/20/2024	18:12:33	6:34:00	20:09:00
1	EUMFLO	NOTBAT	5/20/2024	18:13:07	6:34:00	20:09:00
1	EUMFLO	NOTBAT	5/20/2024	18:13:37	6:34:00	20:09:00
7	EUMFLO	NOTBAT	5/20/2024	18:48:26	6:34:00	20:09:00
2	EUMFLO	NOTBAT	5/20/2024	18:54:07	6:34:00	20:09:00
12	EUMFLO	TADBRA	5/20/2024	22:12:05	6:34:00	20:09:00
15	EUMFLO	Noise	5/21/2024	0:18:06	6:33:00	20:10:00
3	EUMFLO	NOTBAT	5/21/2024	13:54:49	6:33:00	20:10:00
8	EUMFLO	NOTBAT	5/21/2024	17:56:10	6:33:00	20:10:00
8	EUMFLO	NOTBAT	5/21/2024	18:06:31	6:33:00	20:10:00
7	EUMFLO	NOTBAT	5/21/2024	18:22:41	6:33:00	20:10:00
2	EUMFLO	NOTBAT	5/21/2024	18:50:11	6:33:00	20:10:00
3	EUMFLO	NOTBAT	5/21/2024	18:55:29	6:33:00	20:10:00
3	EUMFLO	NOTBAT	5/21/2024	18:55:45	6:33:00	20:10:00
15	EUMFLO	NOTBAT	5/21/2024	22:55:30	6:33:00	20:10:00
15	EUMFLO	NOTBAT	5/22/2024	6:29:53	6:31:00	20:15:00
16	EUMFLO	Noise	5/22/2024	20:21:38	6:31:00	20:15:00
14	EUMFLO	NOTBAT	5/23/2024	6:14:29	6:33:00	20:11:00
13	EUMFLO	NOTBAT	5/23/2024	7:00:24	6:33:00	20:11:00
13	EUMFLO	NOTBAT	5/23/2024	7:01:40	6:33:00	20:11:00
13	EUMFLO	NOTBAT	5/23/2024	7:01:49	6:33:00	20:11:00
16	EUMFLO	Noise	5/24/2024	23:48:50	6:32:00	20:11:00
13	EUMFLO	NOTBAT	5/25/2024	20:16:11	6:32:00	20:12:00
13	EUMFLO	NOTBAT	5/25/2024	20:16:17	6:32:00	20:12:00
11	EUMFLO	NOTBAT	5/28/2024	2:03:19	6:31:00	20:15:00
16	EUMFLO	Noise	5/28/2024	2:47:26	6:31:00	20:15:00
16	EUMFLO	Noise	5/28/2024	3:00:41	6:31:00	20:15:00
16	EUMFLO	Noise	5/28/2024	3:29:40	6:31:00	20:15:00
14	EUMFLO	Noise	5/28/2024	23:42:05	6:31:00	20:14:00
16	EUMFLO	Noise	5/30/2024	2:11:33	6:31:00	20:15:00



**AutoID FBB Call. Detector 9 File ID: ST-9WSR-70B\_20240519\_065757.wav**  
**05-19-2024 06:57:57 (EDT)**  
**Example of Noise from Detector 9**

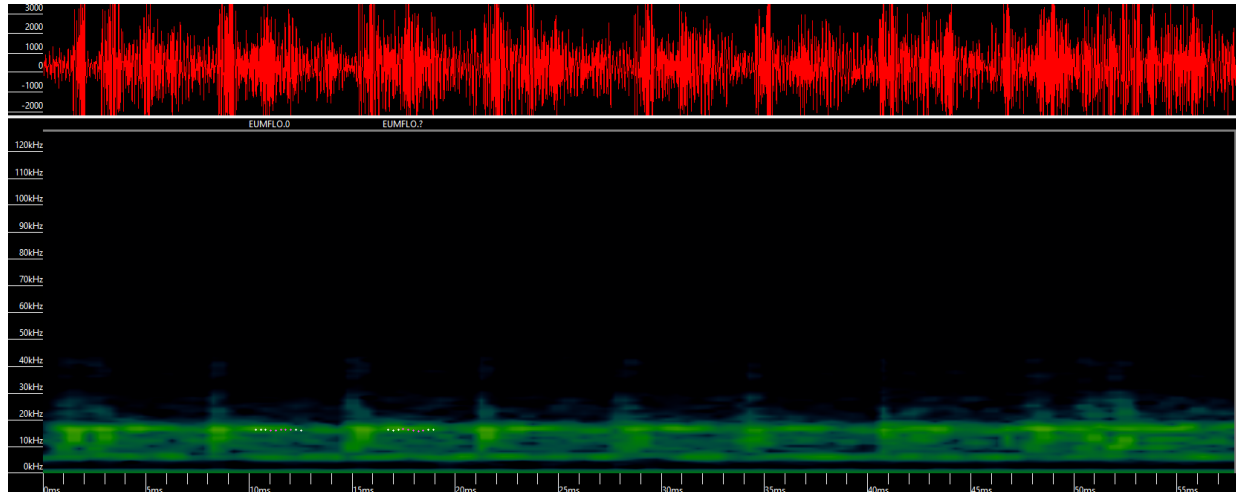


Compressed view

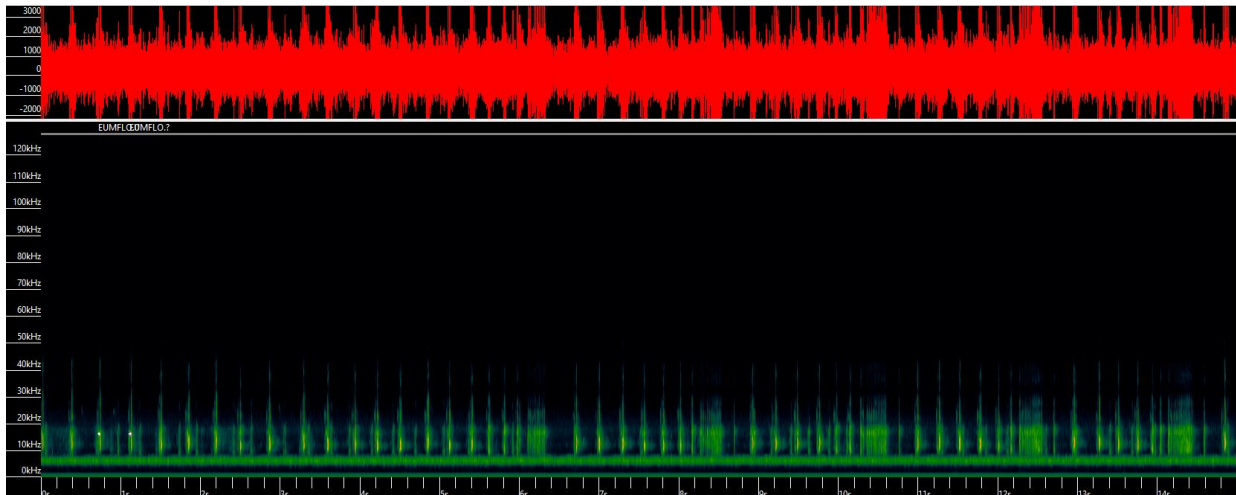


Normal time view

**AutolD FBB Call. Detector 11 File ID: ST-11WSR-70B \_20240528\_020319.wav**  
**05-28-2024 02:03:19 (EDT)**  
**Example of Insects from Detector 11**



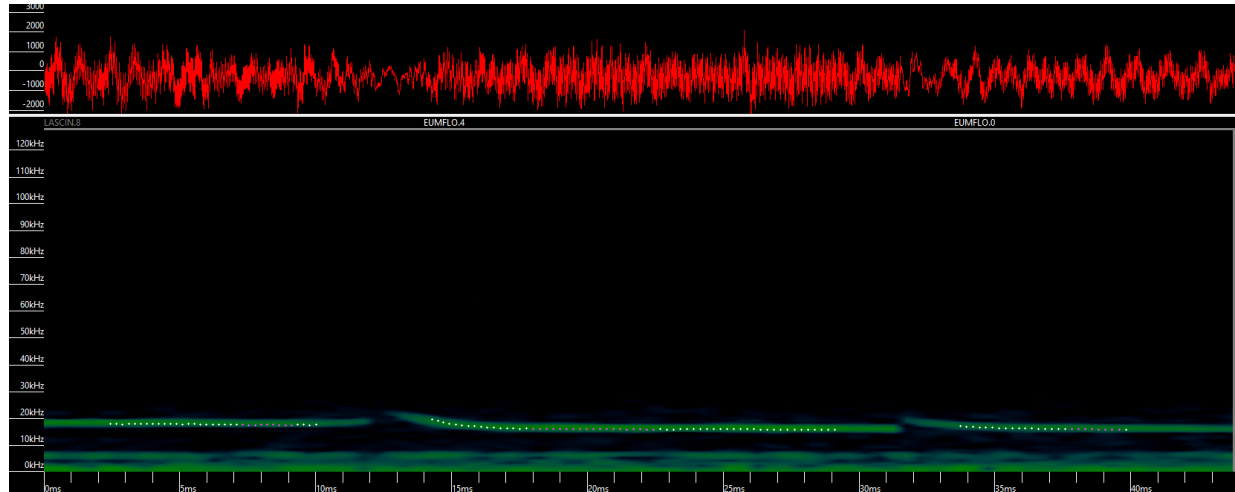
Compressed view



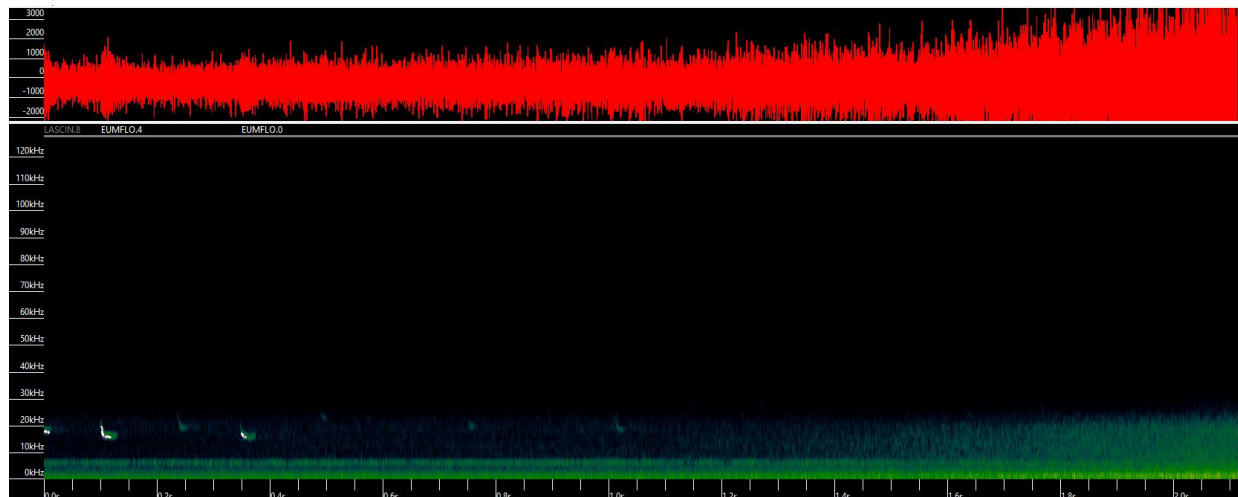
Normal time view



**AutodD FBB Call. Detector 12 File ID: ST-12WSR-70B \_20240520\_221205.wav**  
**05-20-2024 22:12:05 (EDT)**  
**Example of Social Call from other Species from Detector 12**

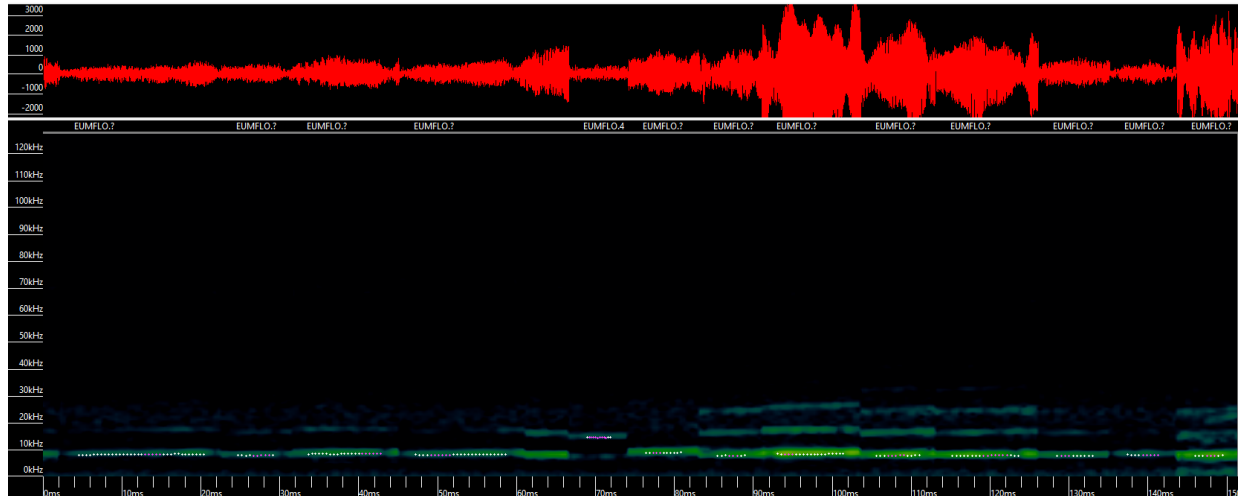


Compressed view

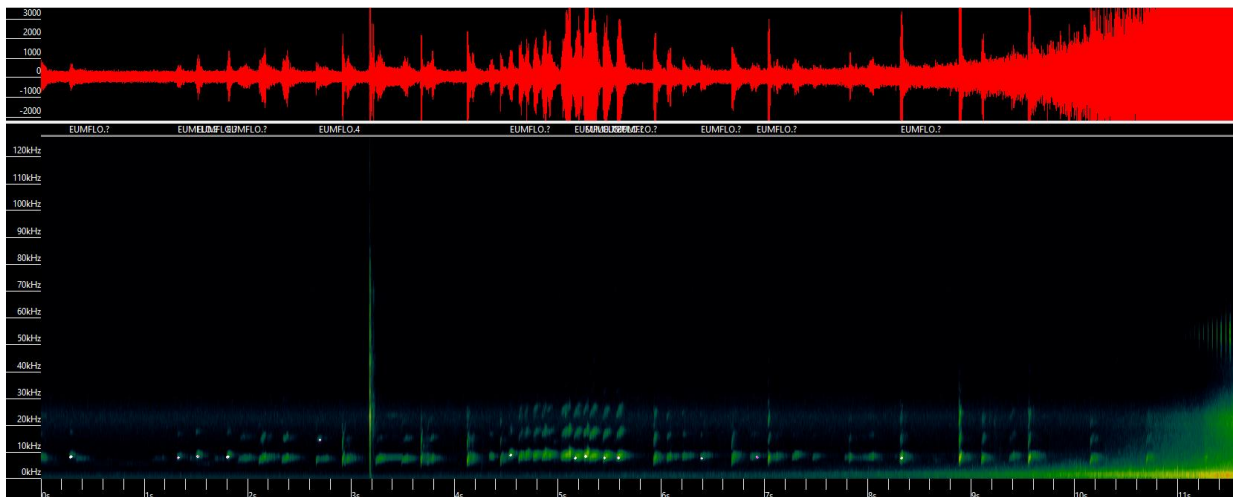


Normal time view

AutolD FBB Call. Detector 13 File ID: ST-13WSR-70B \_20240525\_201617.wav  
05-25-2024 20:16:17 (EDT)  
Example of Bird from Detector 13



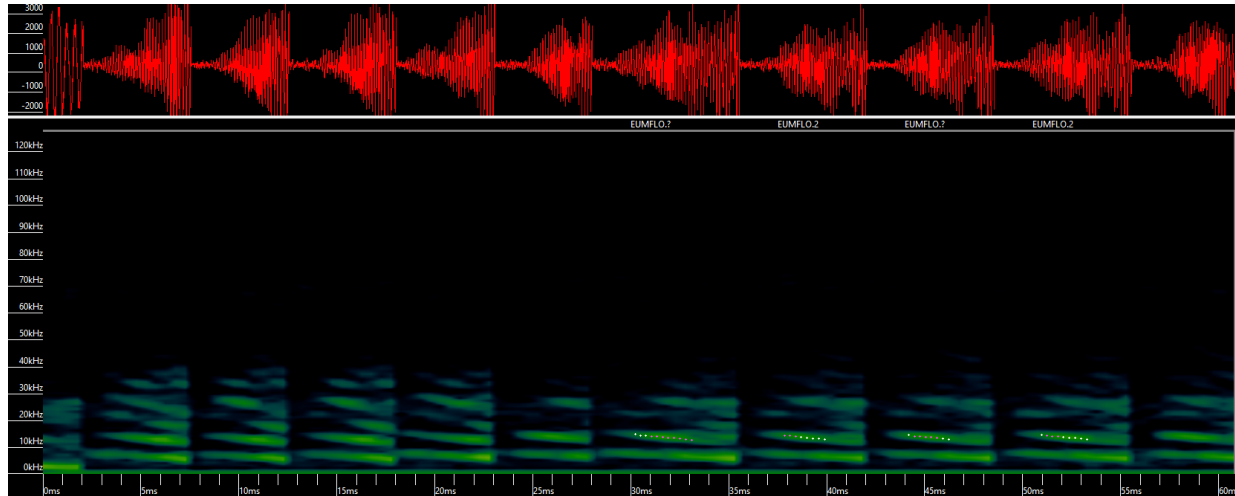
Compressed view



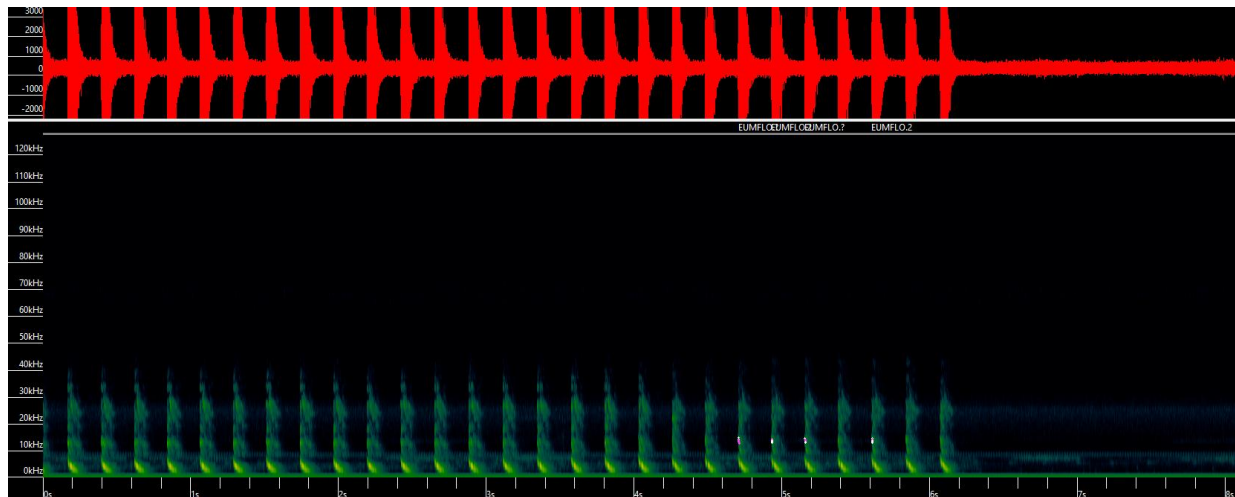
Normal time view



**Autold FBB Call. Detector 14 File ID: ST-14WSR-70B \_20240520\_055025.wav**  
**05-20-2024 05:50:25 (EDT)**  
**Example of Noise from Detector 14**

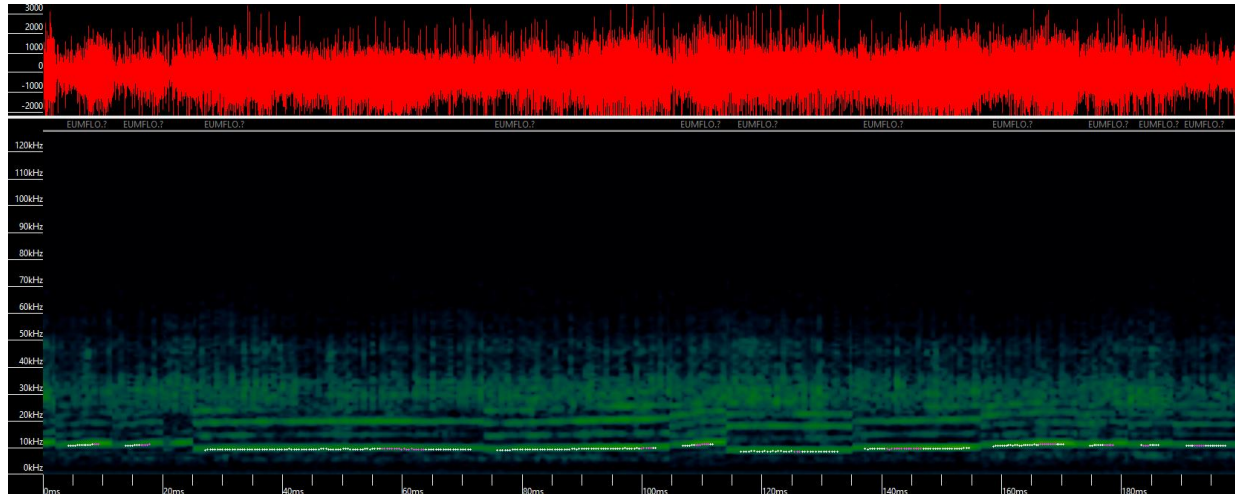


Compressed view

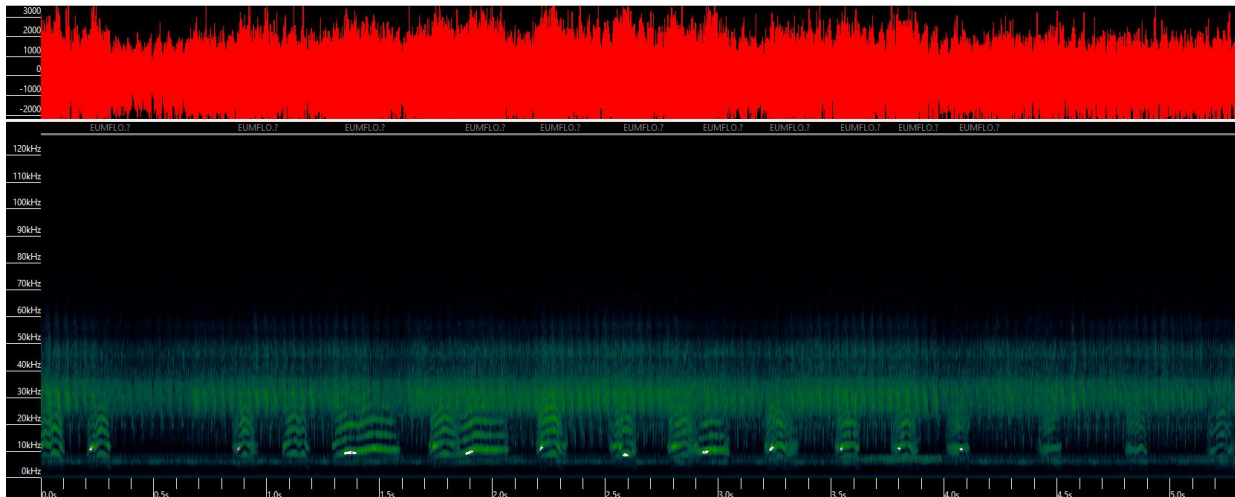


Normal time view

**AutolD FBB Call. Detector 15 File ID: ST-15WSR-70B \_20240521\_225530.wav**  
**05-21-2024 22:55:30 (EDT)**  
**Example of Insects from Detector 15**



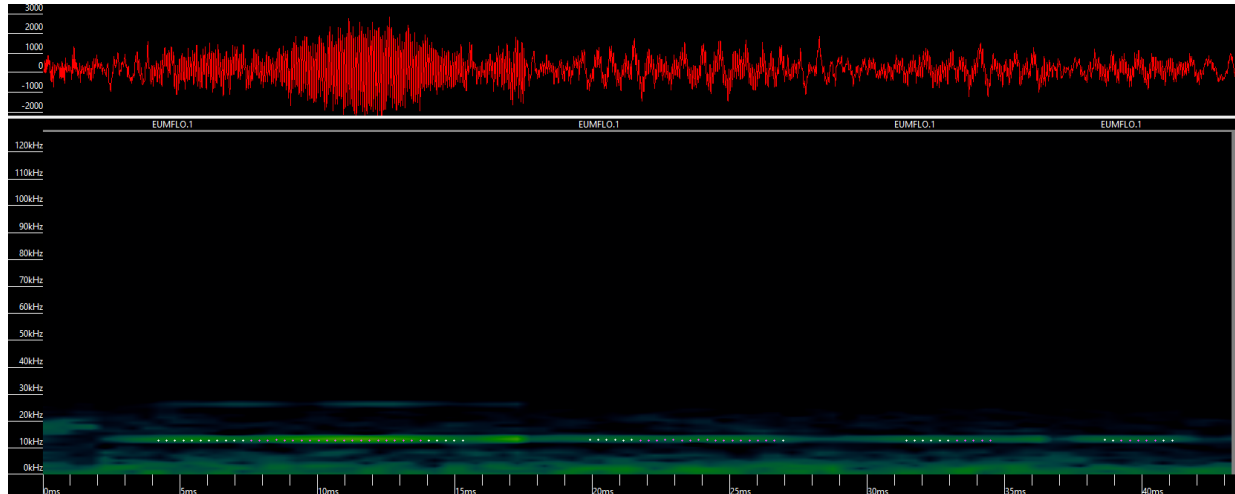
Compressed view



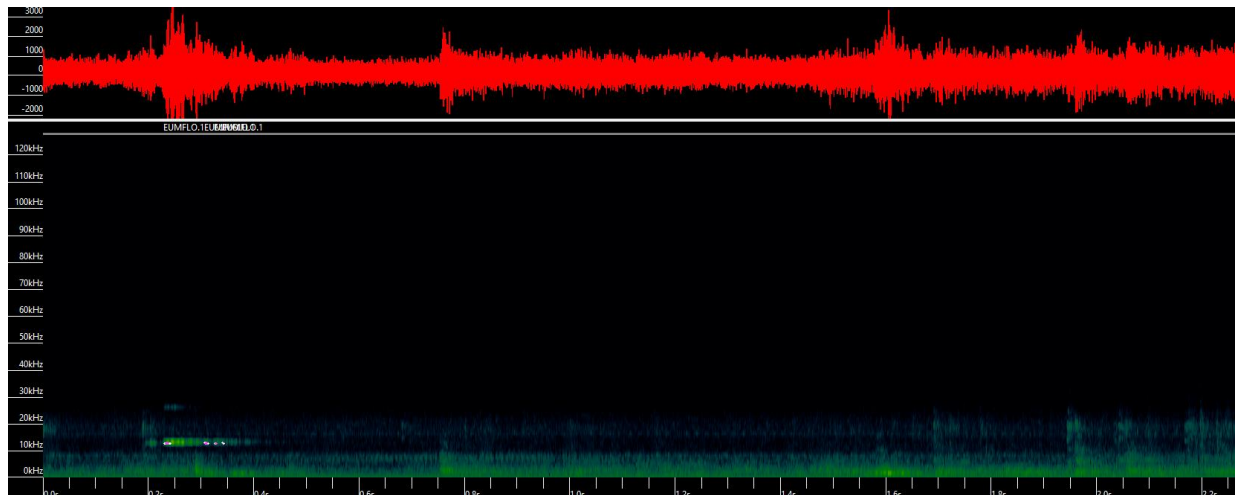
Normal time view



**Autold FBB Call. Detector 16 File ID: ST-16WSR-70B \_20240519\_065710.wav**  
**05-19-2024 06:57:10 (EDT)**  
**Example of Noise from Detector 16**



Compressed view



Normal time view

**Attachment 6**  
**Florida Bonneted Bat Consultation Key**



## Florida Bonneted Bat Consultation Key<sup>#</sup>

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

- 1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1).....**Go to 2**
- 1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1).....**No Effect**
- 2a. Potential FBB roosting habitat exists within the project area.....**Go to 3**
- 2b. No potential FBB roosting habitat exists within the project area.....**Go to 13**
- 3a. Project size/footprint\*  $\leq$  5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C)**  
then **Go to 4**
- 3b. Project size/footprint\*  $>$  5 acres (2 hectares).....**Conduct Full Acoustic/Roost Surveys (Appendix B)** then  
**Go to 6**
- 4a. Results show FBB roosting is likely .....**Go to 5**
- 4b. Results do not show FBB roosting is likely.....**MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**
- 5a. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 6a. Results show some FBB activity.....**Go to 7**
- 6b. Results show no FBB activity.....**No Effect**
- 7a. Results show FBB roosting is likely.....**Go to 8**
- 7b. Results do not show FBB roosting is likely.....**Go to 10**
- 8a. Project will not affect roosting habitat.....**Go to 9**
- 8b. Project will affect roosting habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat.....**LAA<sup>+</sup> Further consultation with the Service required.**
- 9b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 10a. Results show high FBB activity/use.....**Go to 11**
- 10b. Results do not show high FBB activity/use.....**Go to 12**
- 11a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 11b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 12a. Project will affect\*  $>$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA<sup>+</sup> Further consultation with the Service required.**
- 12b. Project will affect\*  $\leq$  50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

- 13a. FBB foraging habitat exists within the project area and foraging habitat will be affected.....**Go to 14**
- 13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected **OR** no FBB foraging habitat exists within the project area.....**No Effect**
- 14a. Project size\* > 50 acres (20 hectares) (wetlands and uplands) .....**Go to 15**
- 14b. Project size\* ≤ 50 acres (20 hectares) (wetlands and uplands) ..... **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^.....**Conduct Full Acoustic Survey (Appendix B) and Go to 16**
- 15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^.....**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 16a. Results show some FBB activity.....**Go to 17**
- 16b. Results show no FBB activity.....**No Effect**
- 17a. Results show high FBB activity/use.....**LAA+ Further consultation with the Service required.**
- 17b. Results do not show high FBB activity/use..... **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

# If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

\*Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

+Project modifications could change the LAA determinations in numbers 5, 8, 9, 11, 12, and 17 to MANLAA determinations.

^Determining if **high quality potential roosting areas** are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.



Figure 3. Florida bonneted bat Consultation Flowchart. “No effect” determinations do not need Service concurrence. “May affect, but not likely to adversely affect”, **MANLAA-P**, in blue have programmatic concurrence through the transmittal letter of these Guidelines, and therefore no further consultation with the Service is necessary unless assistance is needed in interpreting survey results. **MANLAA-C** determinations in black require further consultation with the Service. Applicants are expected to incorporate the appropriate **BMPs** to reach a **MANLAA** determination. “May affect, and is likely to adversely affect”, **LAA**, (also in black) determinations require consultation with the Service. Further consultation with the Service may identify project modifications that could change the **LAA** determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations. The Service requests Florida bonneted bat survey reports for all determinations.

## Appendix D: Best Management Practices (BMPs) for Development Projects

Ongoing research and monitoring will continue to increase the understanding of the Florida bonneted bat and its habitat needs and will continue to inform habitat and species management recommendations. These BMPs incorporate what is known about the species and also include recommendations that are beneficial to all bat species in Florida. These BMPs are intended to provide recommendations for improving conditions for use by Florida bonneted bats, and to help conserve Florida bonneted bats that may be foraging or roosting in an area.

The BMPs required to reach a “may affect, but is not likely to adversely affect” (MANLAA) determination vary depending on the couplet from the Consultation Key used to reach that particular MANLAA. The requirements for each couplet are provided below followed by the list of BMPs. If the applicant is unable or does not want to do the required BMPs, then the Corps (or other Action Agency) will not be able to use this Guidance and formal consultation with the Service is required.

Couplet Number for MANLAA from Consultation Key	Required BMPs
4b	BMP number 1 if more than 3 months has occurred between the survey and start of the project, and any 3 BMPs out of BMPs 4 through 13
5b	BMP number 2, and any 3 BMPs out of BMPs 3 through 13
9b	BMPs number 2 and 3, and any 4 BMPs out of BMPs 5 through 13
11b	BMPs number 1 and 4, and any 4 BMPs out of BMPs 5 through 13
12b	BMP number 1, and any 3 BMPs out of BMPs 3 through 13
14b	Any 2 BMPs out of BMPs 3 through 13
15b	Any 3 BMPs out of BMPs 3 through 13
17b	Any 4 BMPs out of BMPs 3 through 13

### BMPs for development, construction, and other general activities:

1. If potential roost trees or structures need to be removed, check cavities for bats within 30 days prior to removal of trees, snags, or structures. When possible, remove structure outside of breeding season (*e.g.*, January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.
2. When using heavy equipment, establish a 250 foot (76 m) buffer around known or suspected roosts to limit disturbance to roosting bats.
3. For every 5 acres of impact, retain a minimum of 1.0 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained.
4. For every 5 acres of impact, retain a minimum of 0.25 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained..
5. Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.



6. Conserve and/or enhance riparian habitat. A 50-ft (15.2 m) buffer is recommended around water bodies and stream edges. In cases where artificial water bodies (*i.e.*, stormwater ponds) are created, enhance edges with native plantings especially in cases in which wetland habitat was affected.
7. Avoid or limit widespread application of insecticides (*e.g.*, mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage or roost.
8. Conserve natural vegetation to promote insect diversity, availability, and abundance. For example, retain or restore 25% of the parcel in native contiguous vegetation.
9. Retain mature trees and snags that could provide roosting habitat. These may include live trees of various sizes and dead or dying trees with cavities, hollows, crevices, and loose bark. See “Roosting Habitat” in “Background” above.
10. Protect known Florida bonneted bat roost trees, snags or structures and trees or snags that have been historically used by Florida bonneted bats for roosting, even if not currently occupied, by retaining a 250 foot (76 m) disturbance buffer around the roost tree, snag, or structure to ensure that roost sites remain suitable for use in the future.
11. Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly lighting (*i.e.*, downward facing and lowest lumens possible). Avoid permanent night-time lighting to the greatest extent practicable.
12. Incorporate engineering designs that discourage bats from using buildings or structures. If Florida bonneted bats take residence within a structure, contact the Service and Florida Fish and Wildlife Conservation Commission prior to attempting removal or when conducting maintenance activities on the structure.
13. Use or allow prescribed fire to promote foraging habitat.

## ***APPENDIX L***

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### **Florida Panther Tool Worksheet**





# PANTHER COMPENSATION CALCULATOR

About

Development size (hectares)		
primary/d	secondary	other

Compensation (hectares)		
primary/d	secondary	other

(PHUs)	Suggested Required	Comp. Proposed
primary/d		
secondary		
other		

Acreage Comp. Ratio	
Primary Equiv. Comp Ratio	

Primary/d impacts fully compensated?	
--------------------------------------	--

Secondary impacts fully compensated?	
--------------------------------------	--

"Other" impacts fully compensated?	
------------------------------------	--

No. of Panthers: 90

Base Ratio: 1.98

Relative values	
primary/d	1.000
secondary	0.690
other	0.333

DEVELOPMENT
Habitat Value before Project
Habitat Value after Project
Habitat Value Lost
Base Ratio
Suggested Compensation

Select Units

☐ Acres
   
☒ Hectares

New Project

Clear All

COMPENSATION
Habitat Value of Compensation
Habitat Value after Restoration
Restoration Lift Factor* 0.5
Final Value of Compensation
Additional Compensation Needed

\*When converting Ag lands to non-forested native systems applicant gets full credit of lift

## PROJECT PLANNING INFO FOR PANTHER TABLE

Habitat Impact Acreage and Panther Units						Compensation Acreage and Panther Units.					
primary/d		secondary		other		primary/d		secondary		other	
Acres	PHU	Acres	PHU	Acres	PHU	Acres	PHU	Acres	PHU	Acres	PHU
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## PROJECT WORKSHEET

<i>Habitat Type</i>	<i>Assigned value</i>
Pine forest	9.5
Hardwood-Pine	9.3
Cypress swamp	9.2
Hardwood swamp	9.2
Hardwood Forest	9
Dry prairie	6.3
Unimproved pasture	5.7
Shrub swamp/brush	5.5
Improved pasture	5.2
Cropland	4.8
Orchards/groves	4.7
Marsh/ wet prairie	4.7
Xeric scrub	4.5
Exotic/Nuisance plants	3
Coastal wetlands	3
Barren/Disturbed lands	3
Water	0
Urban	0
Reservoirs*	
STA*	

TOTAL

Habitat types of land to be developed (hectares)			
Primary/d Zone	Secondary Zone	Other Zone	Primary Equivalent Habitat Units
0			0
0			0
0			0
0			0
0.77			7
0			0
46.3			264
0			0
2.48			13
36.88			177
0			0
4.13			19
0			0
0			0
0			0
0			0
0.04			0
16.52			0
			0
107.12	0.00	0.00	480.17

[illegible]

CONTINUE

CLEAR SHEET

COMPENSATION  
TO OFF-SET  
**951**  
Habitat Units

\*NOTE: The assigned value for Reservoirs and STAs varies by size, proposed future management, and their position in the landscape. See the associated methodology document for guidance on starting values and considerations.



## ***APPENDIX M***

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### **Wetland and Other Surface Water Impact Map & Impact Table**

## Individual Wetland and Other Surface Water Impacts

WL ID	FLUCFCS Classification	FLUCFCS Description	USFWS Classification	Acreage within Project Action Area	Direct Impact (acres)	Secondary Impact (acres)
OSW 1	510	Streams and Waterways	PEM1E	2.90	2.31	N/A
OSW 2	510	Streams and Waterways	PEM1E	0.80	0.42	N/A
OSW 3	510	Streams and Waterways	PEM1E	0.12	0.00	N/A
OSW 4	510	Streams and Waterways	R5UBFx	1.65	1.34	N/A
OSW 5	510	Streams and Waterways	R5UBFx	0.79	0.42	N/A
OSW 6	510	Streams and Waterways	R5UBFx	0.63	0.31	N/A
OSW 7	510	Streams and Waterways	PEM1E	1.04	0.00	N/A
OSW 9	510	Streams and Waterways	PEM1E	0.37	0.00	N/A
OSW 10	510	Streams and Waterways	PEM1E	0.48	0.00	N/A
OSW 11	510	Streams and Waterways	PEM1E	1.70	0.00	N/A
OSW 12	510	Streams and Waterways	PEM1E	0.37	0.00	N/A
OSW 13	512	Channelized Waterways, Canals	R2UBHx	31.89	0.80	N/A
OSW 14	510	Streams and Waterways	PEM1E	3.40	3.40	N/A
OSW 15	510	Streams and Waterways	PEM1E	0.26	0.00	N/A
OSW 16	510	Streams and Waterways	PEM1E	4.35	0.00	N/A
OSW 17	510	Streams and Waterways	PEM1E	0.12	0.00	N/A
OSW 18	510	Streams and Waterways	PEM1E	0.07	0.07	N/A
OSW 19	510	Streams and Waterways	PEM1E	0.17	0.17	N/A
OSW 21	510	Streams and Waterways	PEM1E	0.27	0.00	N/A
OSW 22	510	Streams and Waterways	PEM1E	1.27	0.00	N/A
OSW 23	510	Streams and Waterways	PEM1E	1.59	1.59	N/A
OSW 24	510	Streams and Waterways	PEM1E	5.9	4.25	N/A
OSW 24a	510	Streams and Waterways	PEM1E	0.18	0.00	N/A
OSW 24b	510	Streams and Waterways	PEM1E	0.06	0.06	N/A
OSW 24c	510	Streams and Waterways	PEM1E	0.24	0.24	N/A
OSW 24d	510	Streams and Waterways	PEM1E	0.22	0.21	N/A
OSW 24e	510	Streams and Waterways	PEM1E	0.12	0.12	N/A
OSW 24f	510	Streams and Waterways	PEM1E	0.02	0.02	N/A
OSW 24g	510	Streams and Waterways	PEM1E	0.38	0.20	N/A
OSW 24h	510	Streams and Waterways	PEM1E	0.11	0.00	N/A
OSW 24i	510	Streams and Waterways	PEM1E	0.07	0.00	N/A
OSW 24j	510	Streams and Waterways	PEM1E	0.09	0.00	N/A
OSW 24k	510	Streams and Waterways	PEM1E	0.11	0.00	N/A
OSW 24l	510	Streams and Waterways	PEM1E	0.12	0.01	N/A
OSW 24m	510	Streams and Waterways	PEM1E	0.13	0.07	N/A
OSW 24n	510	Streams and Waterways	PEM1E	0.12	0.10	N/A
OSW 24o	510	Streams and Waterways	PEM1E	0.11	0.09	N/A
OSW 24q	510	Streams and Waterways	PEM1E	0.09	0.00	N/A
OSW 24r	510	Streams and Waterways	PEM1E	0.41	0.41	N/A
OSW 24s	510	Streams and Waterways	PEM1E	0.01	0.01	N/A
OSW 25	510	Streams and Waterways	PEM1E	2.22	2.18	N/A
OSW 25a	510	Streams and Waterways	PEM1E	0.14	0.14	N/A
OSW 25b	510	Streams and Waterways	PEM1E	0.22	0.15	N/A
OSW 25c	510	Streams and Waterways	PEM1E	0.1	0.10	N/A
OSW 25d	510	Streams and Waterways	PEM1E	<0.01	0.00	N/A
OSW 25e	510	Streams and Waterways	PEM1E	0.53	0.48	N/A
OSW 25f	510	Streams and Waterways	PEM1E	0.11	0.03	N/A
OSW 25g	510	Streams and Waterways	PEM1E	0.13	0.04	N/A
OSW 25h	510	Streams and Waterways	PEM1E	0.14	0.03	N/A
OSW 25i	510	Streams and Waterways	PEM1E	0.07	0.02	N/A
OSW 26	510	Streams and Waterways	PEM1E	0.25	0.00	N/A
OSW 27	510	Streams and Waterways	PEM1E	14.72	12.96	N/A
OSW 27a	510	Streams and Waterways	PEM1E	0.13	0.02	N/A



## Individual Wetland and Other Surface Water Impacts

WL ID	FLUCFCS Classification	FLUCFCS Description	USFWS Classification	Acreage within Project Action Area	Direct Impact (acres)	Secondary Impact (acres)
OSW 27b	510	Streams and Waterways	PEM1E	0.13	0.03	N/A
OSW 27c	510	Streams and Waterways	PEM1E	0.11	0.02	N/A
OSW 27d	510	Streams and Waterways	PEM1E	0.14	0.03	N/A
OSW 27e	510	Streams and Waterways	PEM1E	0.16	0.02	N/A
OSW 27f	510	Streams and Waterways	PEM1E	0.14	0.02	N/A
OSW 27g	510	Streams and Waterways	PEM1E	0.14	0.02	N/A
OSW 27h	510	Streams and Waterways	PEM1E	0.2	0.05	N/A
OSW 27i	510	Streams and Waterways	PEM1E	0.14	0.03	N/A
OSW 27j	510	Streams and Waterways	PEM1E	0.16	0.03	N/A
OSW 27k	510	Streams and Waterways	PEM1E	0.12	0.00	N/A
OSW 27l	510	Streams and Waterways	PEM1E	0.18	0.01	N/A
OSW 27m	510	Streams and Waterways	PEM1E	0.14	0.02	N/A
OSW 28	510	Streams and Waterways	PEM1E	0.42	0.42	N/A
OSW 28a	510	Streams and Waterways	PEM1E	0.16	0.02	N/A
OSW 28b	510	Streams and Waterways	PEM1E	0.15	0.04	N/A
OSW 28c	510	Streams and Waterways	PEM1E	0.14	0.12	N/A
OSW 28d	510	Streams and Waterways	PEM1E	0.16	0.11	N/A
OSW 28e	510	Streams and Waterways	PEM1E	0.14	0.02	N/A
OSW 28f	510	Streams and Waterways	PEM1E	0.15	0.02	N/A
OSW 28g	510	Streams and Waterways	PEM1E	0.11	0.00	N/A
OSW 29	510	Streams and Waterways	PEM1E	0.09	0.00	N/A
OSW 29a	510	Streams and Waterways	PEM1E	0.18	0.03	N/A
OSW 29b	510	Streams and Waterways	PEM1E	0.2	0.04	N/A
OSW 29c	510	Streams and Waterways	PEM1E	0.14	0.03	N/A
OSW 29d	510	Streams and Waterways	PEM1E	0.21	0.04	N/A
OSW 29e	510	Streams and Waterways	PEM1E	0.16	0.02	N/A
OSW 29f	510	Streams and Waterways	PEM1E	0.04	0.00	N/A
OSW 29h	510	Streams and Waterways	PEM1E	0.24	0.09	N/A
OSW 29i	510	Streams and Waterways	PEM1E	0.23	0.04	N/A
OSW 29j	510	Streams and Waterways	PEM1E	0.19	0.06	N/A
OSW 29k	510	Streams and Waterways	PEM1E	0.18	0.06	N/A
OSW 30	510	Streams and Waterways	PEM1E	0.34	0.09	N/A
OSW 30a	510	Streams and Waterways	PEM1E	0.02	0.02	N/A
OSW 31	510	Streams and Waterways	PEM1E	0.96	0.16	N/A
OSW 31a	510	Streams and Waterways	PEM1E	0.16	0.06	N/A
OSW 31b	510	Streams and Waterways	PEM1E	0.17	0.08	N/A
OSW 31c	510	Streams and Waterways	PEM1E	0.12	0.06	N/A
OSW 31d	510	Streams and Waterways	PEM1E	0.14	0.07	N/A
OSW 31e	510	Streams and Waterways	PEM1E	0.13	0.04	N/A
OSW 31f	510	Streams and Waterways	PEM1E	0.14	0.08	N/A
OSW 31g	510	Streams and Waterways	PEM1E	0.14	0.09	N/A
OSW 31h	510	Streams and Waterways	PEM1E	0.2	0.08	N/A
OSW 31i	510	Streams and Waterways	PEM1E	0.24	0.07	N/A
OSW 32	510	Streams and Waterways	PEM1E	0.66	0.00	N/A
OSW 33	510	Streams and Waterways	PEM1E	0.01	0.01	N/A
OSW 34	510	Streams and Waterways	PEM1E	0.01	0.01	N/A
OSW 35	510	Streams and Waterways	PEM1E	0.02	0.02	N/A
OSW 36	510	Streams and Waterways	PEM1E	0.03	0.02	N/A
OSW 37	510	Streams and Waterways	PEM1E	0.18	0.08	N/A
OSW 38	510	Streams and Waterways	PEM1E	0.12	0.00	N/A
OSW 39	510	Streams and Waterways	PEM1E	0.32	0.08	N/A
OSW 40	510	Streams and Waterways	PEM1E	1.81	0.03	N/A
OSW 41	510	Streams and Waterways	PEM1E	0.77	0.25	N/A

### Individual Wetland and Other Surface Water Impacts

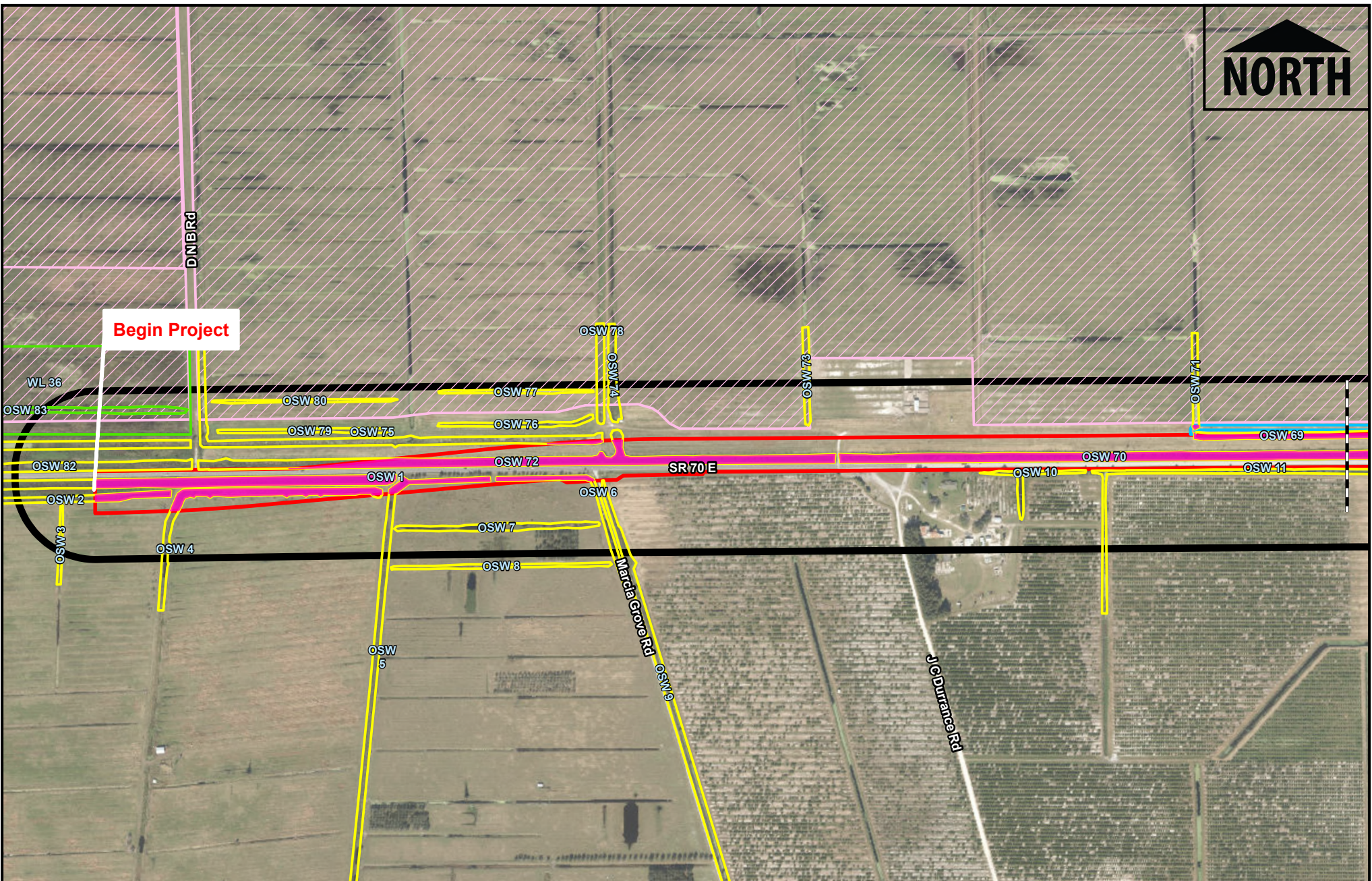
WL ID	FLUCFCS Classification	FLUCFCS Description	USFWS Classification	Acreage within Project Action Area	Direct Impact (acres)	Secondary Impact (acres)
OSW 42	512	Channelized Waterways, Canals	R2UBHx	1.02	0.00	N/A
OSW 43	510	Streams and Waterways	PEM1E	0.05	0.00	N/A
OSW 44	510	Streams and Waterways	PEM1E	0.69	0.00	N/A
OSW 45	510	Streams and Waterways	PEM1E	1.82	0.21	N/A
OSW 46	512	Channelized Waterways, Canals	R2UBHx	9.4	0.00	N/A
OSW 47	510	Streams and Waterways	PEM1E	3.39	1.71	N/A
OSW 48	510	Streams and Waterways	PEM1E	2.12	0.45	N/A
OSW 49	510	Streams and Waterways	PEM1E	0.82	0.00	N/A
OSW 50	512	Channelized Waterways, Canals	R2UBHx	3.19	0.00	N/A
OSW 51	510	Streams and Waterways	PEM1E	0.4	0.00	N/A
OSW 52	510	Streams and Waterways	PEM1E	0.29	0.00	N/A
OSW 53	510	Streams and Waterways	PEM1E	2.77	0.07	N/A
OSW 54	510	Streams and Waterways	PEM1E	5.14	3.46	N/A
OSW 55	510	Streams and Waterways	PEM1E	1.27	0.00	N/A
OSW 56	510	Streams and Waterways	PEM1E	1.27	1.27	N/A
OSW 56a	512	Channelized Waterways, Canals	R2UBHx	7.16	0.53	N/A
OSW 57	510	Streams and Waterways	PEM1E	11.53	11.53	N/A
OSW 58	512	Channelized Waterways, Canals	R2UBHx	7.35	0.09	N/A
OSW 58a	510	Streams and Waterways	PEM1E	0.06	0.01	N/A
OSW 59	510	Streams and Waterways	PEM1E	0.35	0.00	N/A
OSW 60	510	Streams and Waterways	PEM1E	0.35	0.00	N/A
OSW 61	510	Streams and Waterways	PEM1E	4.3	4.30	N/A
OSW 62	510	Streams and Waterways	PEM1E	0.89	0.20	N/A
OSW 63	510	Streams and Waterways	PEM1E	2.07	2.07	N/A
OSW 64	510	Streams and Waterways	PEM1E	0.2	0.00	N/A
OSW 65	510	Streams and Waterways	PEM1E	0.04	0.04	N/A
OSW 66	510	Streams and Waterways	PEM1E	0.21	0.00	N/A
OSW 67	510	Streams and Waterways	PEM1E	0.76	0.76	N/A
OSW 68	510	Streams and Waterways	PEM1E	0.35	0.03	N/A
OSW 68a	510	Streams and Waterways	PEM1E	0.28	0.28	N/A
OSW 69	510	Streams and Waterways	PEM1E	2.04	1.41	N/A
OSW 70	510	Streams and Waterways	PEM1E	4.51	4.51	N/A
OSW 71	510	Streams and Waterways	PEM1E	0.24	0.02	N/A
OSW 72	510	Streams and Waterways	PEM1E	4.87	3.59	N/A
OSW 73	510	Streams and Waterways	PEM1E	0.2	0.00	N/A
OSW 74	510	Streams and Waterways	PEM1E	0.34	0.00	N/A
OSW 75	510	Streams and Waterways	PEM1E	2.93	0.08	N/A
OSW 76	510	Streams and Waterways	PEM1E	0.54	0.00	N/A
OSW 77	510	Streams and Waterways	PEM1E	0.4	0.00	N/A
OSW 78	510	Streams and Waterways	PEM1E	0.25	0.00	N/A
OSW 79	510	Streams and Waterways	PEM1E	0.57	0.00	N/A
OSW 80	510	Streams and Waterways	PEM1E	0.42	0.00	N/A
OSW 81	510	Streams and Waterways	PEM1E	1.2	0.00	N/A
OSW 82	510	Streams and Waterways	PEM1E	1.4	0.00	N/A
OSW 83	510	Streams and Waterways	PEM1E	0.74	0.00	N/A
<b>Total Other Surface Waters</b>				<b>183.42</b>	<b>72.20</b>	<b>N/A</b>
WL 1	641	Freshwater Marshes	PEM1E	2.89	0.00	0.00
WL 3	641	Freshwater Marshes	PEM1E	0.17	0.00	0.00
WL 4	641	Freshwater Marshes	PEM1E	5.35	0.02	0.10
WL 5	641	Freshwater Marshes	PEM1E	0.46	0.46	0.00
WL 5a	641	Freshwater Marshes	PEM1E	0.48	0.48	0.00
WL 6	641	Freshwater Marshes	PEM1E	0.17	0.00	0.00
WL 7	641	Freshwater Marshes	PEM1E	1.03	0.01	0.05



### Individual Wetland and Other Surface Water Impacts

WL ID	FLUCFCS Classification	FLUCFCS Description	USFWS Classification	Acreage within Project Action Area	Direct Impact (acres)	Secondary Impact (acres)
WL 8	641	Freshwater Marshes	PEM1E	1.30	0.58	0.27
WL 10	641	Freshwater Marshes	PEM1E	0.56	0.00	0.02
WL 11	641	Freshwater Marshes	PEM1E	0.82	0.00	0.00
WL 12	643	Wet Prairie	PEM1E	2.03	0.84	0.24
WL 13	641	Freshwater Marshes	PEM1E	0.17	0.00	0.00
WL 14	641	Freshwater Marshes	PEM1E	10.16	1.97	0.50
WL 15	641	Freshwater Marshes	PEM1E	3.39	0.90	0.24
WL 16	641	Freshwater Marshes	PEM1E	4.05	1.10	0.30
WL 17	641	Freshwater Marshes	PEM1E	0.46	0.46	0.17
WL 18	643	Wet Prairie	PEM1E	0.68	0.00	0.03
WL 19	641	Freshwater Marshes	PEM1E	1.22	0.00	0.00
WL 20	641	Freshwater Marshes	PEM1E	7.76	0.00	0.00
WL 21	641	Freshwater Marshes	PEM1E	1.25	0.00	0.00
WL 22	641	Freshwater Marshes	PEM1E	2.54	0.00	0.27
WL 22a	643	Wet Prairie	PEM1E	0.22	0.00	0.00
WL 23	641	Freshwater Marshes	PEM1E	10.22	0.00	0.00
WL 23a	643	Wet Prairie	PEM1E	1.62	0.00	0.00
WL 24	641	Freshwater Marshes	PEM1E	0.34	0.00	0.15
WL 27	641	Freshwater Marshes	PEM1E	1.04	0.00	0.00
WL 29	641	Freshwater Marshes	PEM1E	0.14	0.00	0.00
WL 30	641	Freshwater Marshes	PEM1Cd	1.11	0.20	0.19
WL 31	641	Freshwater Marshes	PEM1Fd	3.42	0.00	0.00
WL 32a	643	Wet Prairie	PEM1Fd	2.65	1.61	0.39
WL 32b	641	Freshwater Marshes	PEM1Fd	1.75	0.97	0.25
WL 32c	643	Wet Prairie	PEM1Fd	1.11	0.62	0.15
WL 33	641	Freshwater Marshes	PEM1E	1.08	0.00	0.00
WL 34	641	Freshwater Marshes	PEM1E	0.55	0.00	0.00
WL 35	643	Wet Prairie	PEM1E	0.01	0.00	0.00
WL 36	641	Freshwater Marshes	PEM1E	4.97	0.00	0.00
<b>Total Wetlands</b>				<b>77.17</b>	<b>10.21</b>	<b>3.30</b>
<b>Total Wetlands and Other Surface Waters</b>				<b>260.59</b>	<b>82.41</b>	<b>3.30</b>



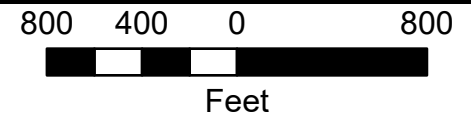


- |                                   |   |
|-----------------------------------|---|
| Preferred Alternative             | Wetland Direct Impact                                       |
| Project Action Area               | Wetland Secondary Impact                                    |
| Preferred Pond                    | BUCK ISLAND RANCH AGRICULTURAL AND CONSERVATION EASEMENT #2 |
| Other Surface Water               | SOLARIS CLEAR Conservation Easement                         |
| Wetland                           |   |
| Other Surface Water Direct Impact |   |

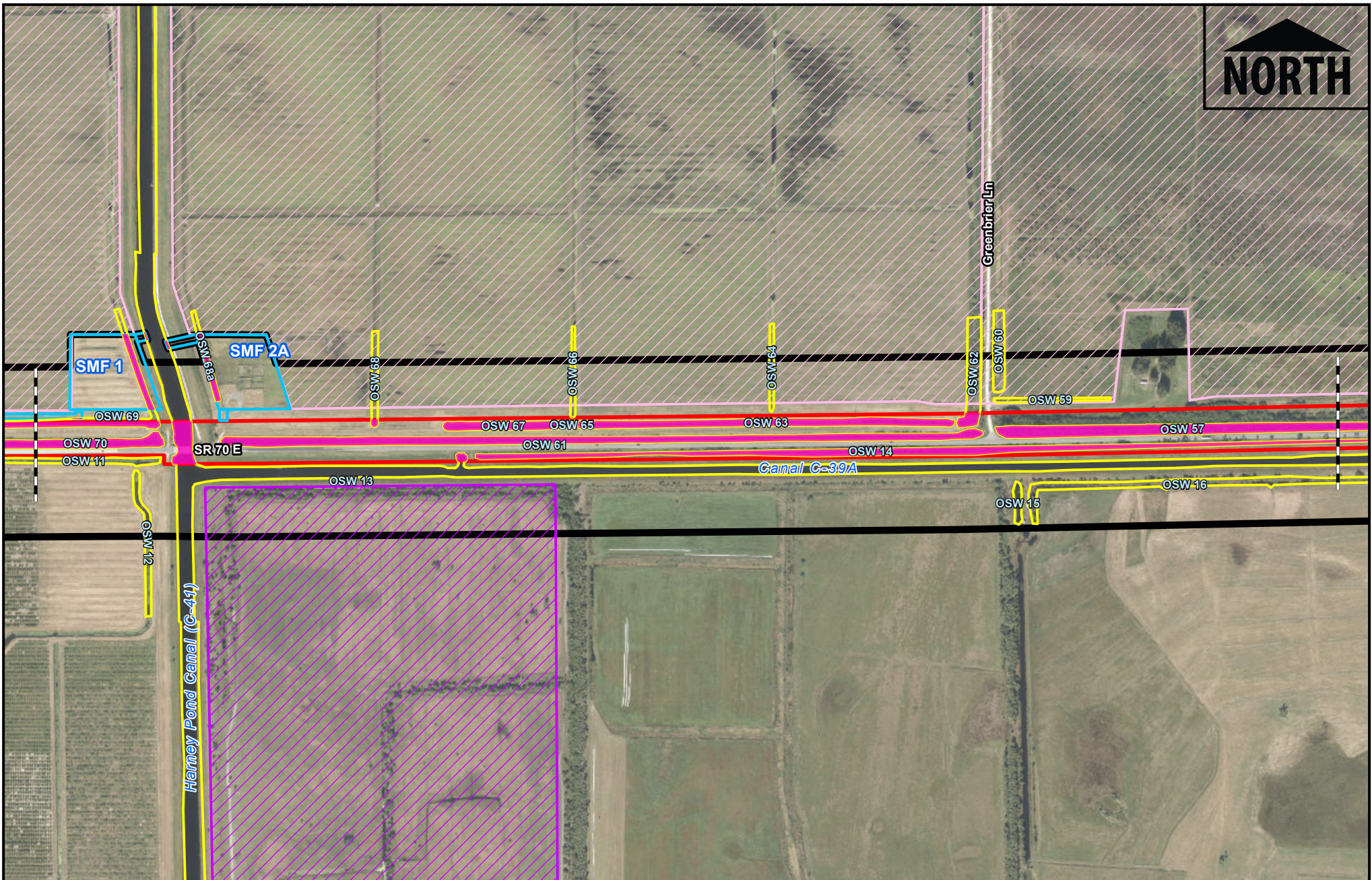
## Wetlands and Other Surface Waters Impact Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida







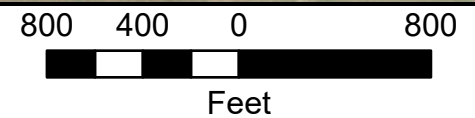
- Preferred Alternative
- Project Action Area
- Preferred Pond
- Other Surface Water
- Wetland
- Other Surface Water Direct Impact

- Wetland Direct Impact
- Wetland Secondary Impact
- BUCK ISLAND RANCH AGRICULTURAL AND CONSERVATION EASEMENT #2
- SOLARIS CLEAR Conservation Easement

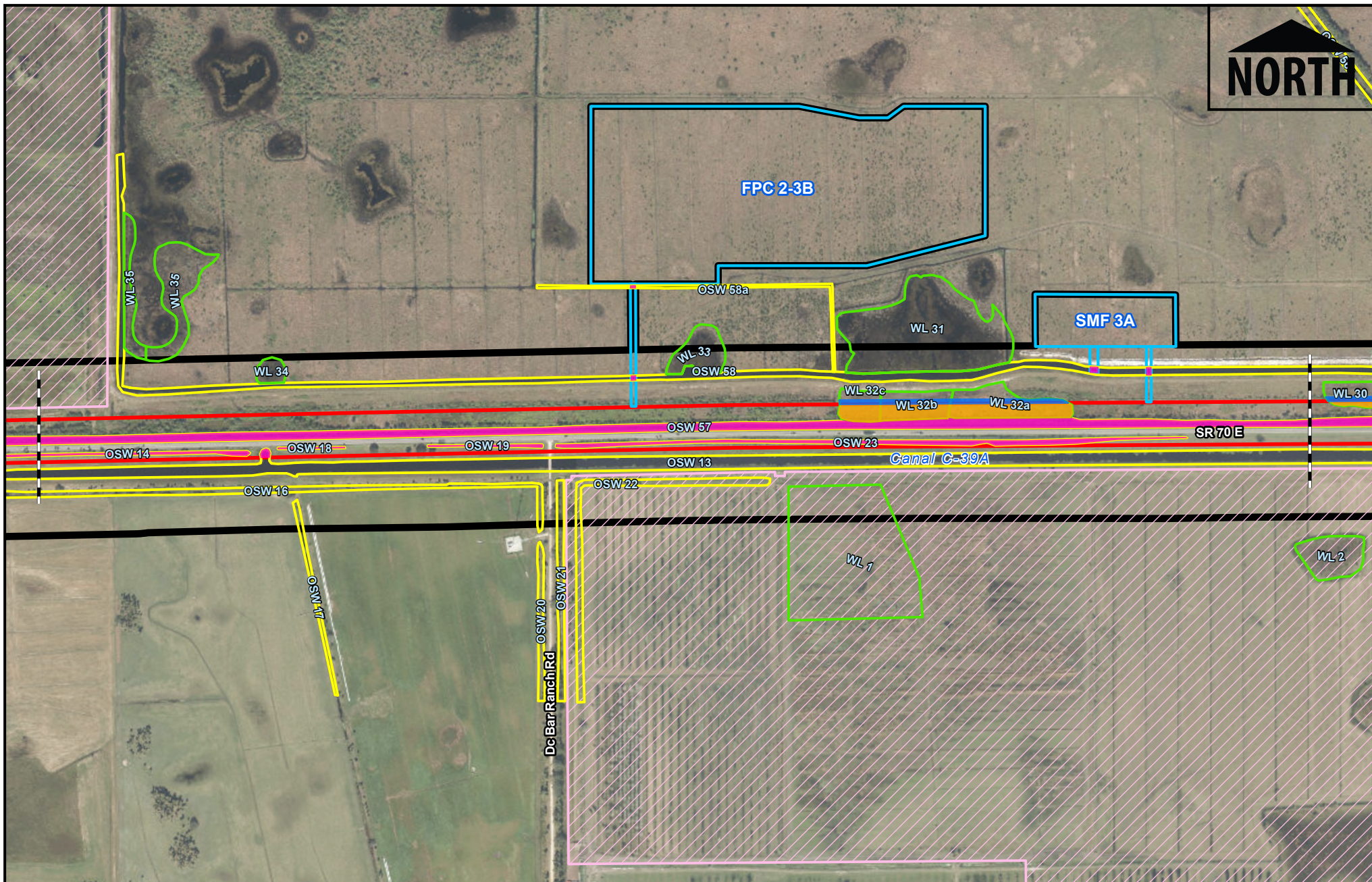
## Wetlands and Other Surface Waters Impact Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida







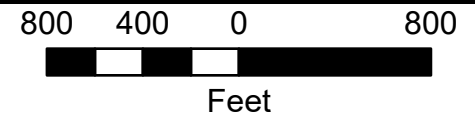
- |                                   |   |
|-----------------------------------|---|
| Preferred Alternative             | Wetland Direct Impact                                       |
| Project Action Area               | Wetland Secondary Impact                                    |
| Preferred Pond                    | BUCK ISLAND RANCH AGRICULTURAL AND CONSERVATION EASEMENT #2 |
| Other Surface Water               | SOLARIS CLEAR Conservation Easement                         |
| Wetland                           |   |
| Other Surface Water Direct Impact |   |

Page 3 of 6

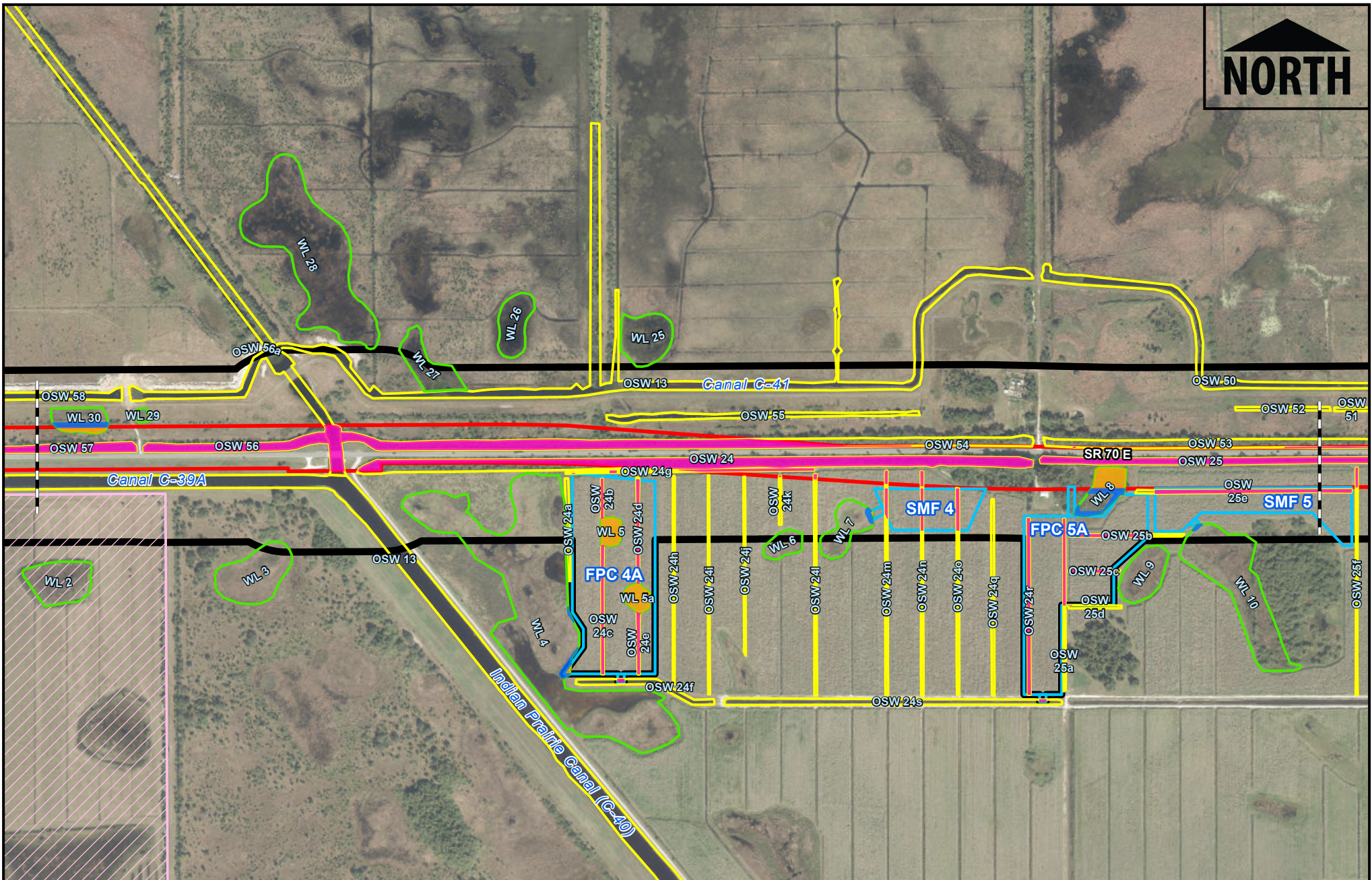
## Wetlands and Other Surface Waters Impact Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida







- |                                   |   |
|-----------------------------------|---|
| Preferred Alternative             | Wetland Direct Impact                                       |
| Project Action Area               | Wetland Secondary Impact                                    |
| Preferred Pond                    | BUCK ISLAND RANCH AGRICULTURAL AND CONSERVATION EASEMENT #2 |
| Other Surface Water               | SOLARIS CLEAR Conservation Easement                         |
| Wetland                           |   |
| Other Surface Water Direct Impact |   |

**Wetlands and Other Surface Waters Impact Map**

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida

800 400 0 800

Feet





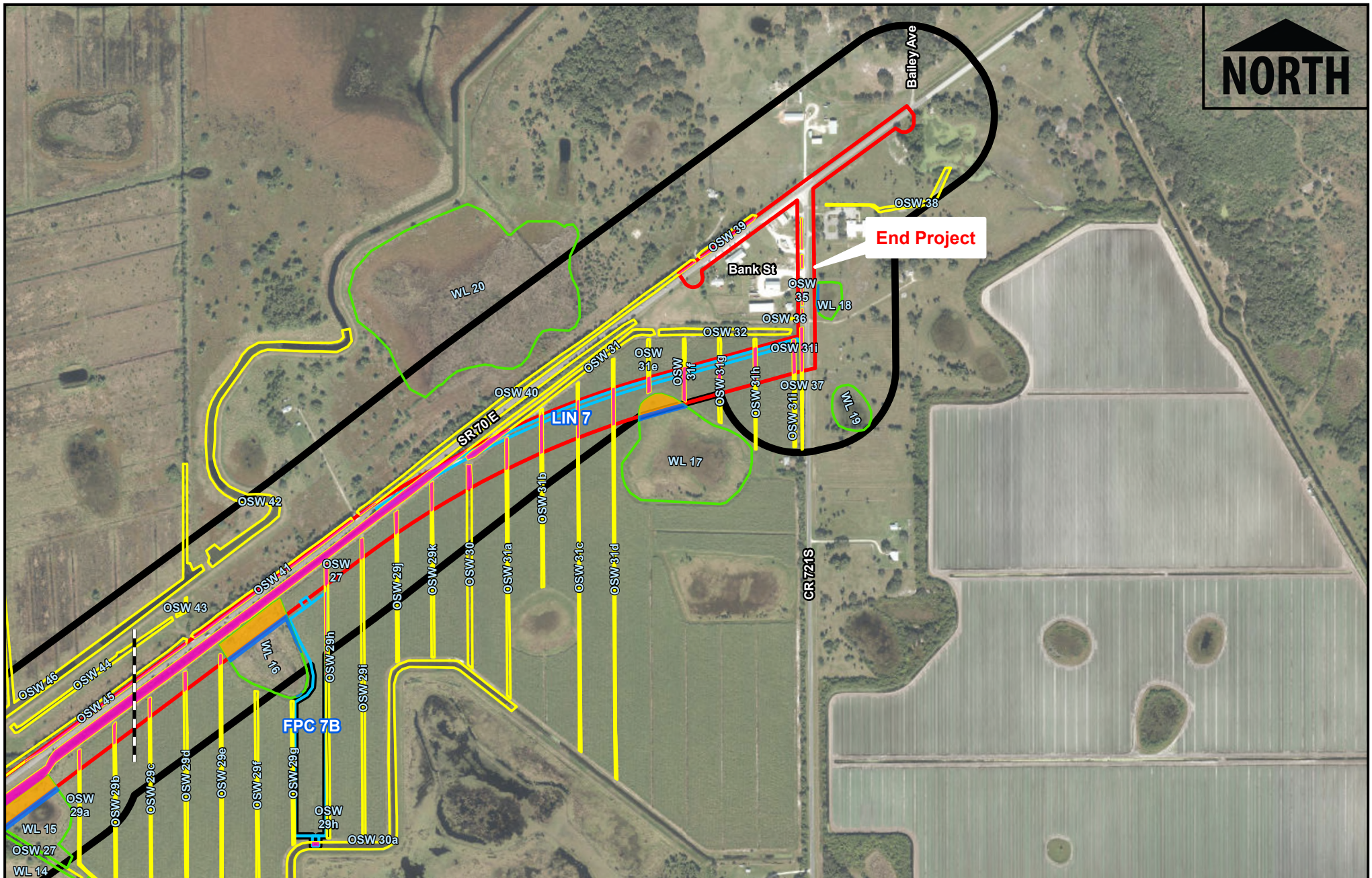
- ## Wetlands and Other Surface Waters Impact Map

A horizontal number line is shown with tick marks at 800, 400, 0, and 800. Below the line, there is a black bar from 0 to 400 and a white bar from 400 to 800. The word "Feet" is written below the number line.



Path: C:\Data\GIS Projects\449851-1 SR 70 from Lonesome Island Rd to CR 721\ArcGIS Pro\Project\SR70 from Lonesome Island Rd to CR 721\SR70 from Lonesome Island Rd to CR 721.aprx 7/21/2025



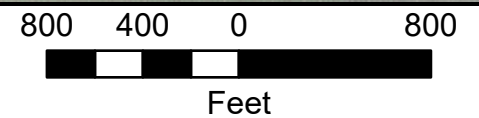


- |                                   |   |
|-----------------------------------|---|
| Preferred Alternative             | Wetland Direct Impact                                       |
| Project Action Area               | Wetland Secondary Impact                                    |
| Preferred Pond                    | BUCK ISLAND RANCH AGRICULTURAL AND CONSERVATION EASEMENT #2 |
| Other Surface Water               | SOLARIS CLEAR Conservation Easement                         |
| Wetland                           |   |
| Other Surface Water Direct Impact |   |

## Wetlands and Other Surface Waters Impact Map

SR 70 from Lonesome Island Road to CR 721S

FPID No. 449851-1-22-01  
Highlands County, Florida



## ***APPENDIX N***

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### **Uniform Mitigation Assessment Method Forms**



**PART I – Qualitative Description**  
**(See Section 62-345.400, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S		Application Number PD&E Study ETDM Project No. 14490		Assessment Area Name or Number FLUCFCS 641	
FLUCCs code 641 - Freshwater Marsh		Further classification (optional) PEM1E / PEM1Cd / PEM1Fd		Impact or Mitigation Site? Direct and Secondary	
				Assessment Area Size Direct: 7.15 acres Secondary: 2.50 acres	
Basin/Watershed Name/Number South Kissimmee		Affected Waterbody (Class) Class III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Assessment Area (AA) includes all freshwater marshes located within the Project Action Area. The project area is approximately 18 miles northwest of Lake Okeechobee and has ditches running west to east that connect to canals that ultimately outfall to Lake Okeechobee. The AA is surrounded by transportation and agricultural lands.</p>					
<p>Assessment area description</p> <p>AA is characterized by herbaceous and emergent vegetation including nutsedges (<i>Cyperus spp.</i> ), soft rushes (<i>Juncus spp.</i> ), beak rushes (<i>Rhynchospora spp.</i> ), smartweed (<i>Persicaria spp.</i> ), broadleaf arrowhead (<i>Sagittaria latifolia</i> ), maidencane (<i>Panicum hemitomon</i> ), pickerelweed (<i>Pontederia cordata</i> ), cattail (<i>Typha spp.</i> ), and sporadic Peruvian primrose willow (<i>Ludwigia peruviana</i> ) and Carolina willow (<i>Salix caroliniana</i> ). Freshwater marshes located within improved and unimproved pastures have cattle grazing within them and marshes located within sugarcane fields may receive runoff from irrigation activities.</p>					
<p>Significant nearby features</p> <p>State Road 70 immediately adjacent City of Lake Placid is approximately 7.5 miles northeast Lake Istokpoga is approximately 7 miles north Solaris and Buck Island Conservation Easements</p>				<p>Uniqueness (considering the relative rarity in relation to the regional landscape.)</p> <p>The system is not unique to the regional landscape.</p>	
<p>Functions</p> <p>Wildlife habitat, foraging habitat, flood attenuation, water quality, nutrient assimilation</p>				<p>Mitigation for previous permit/other historic use</p> <p>N/A</p>	
<p>Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )</p> <p>Based on field observations wildlife utilization can be reasonably expected by various amphibians, small fish, invertebrates, freshwater turtles, snakes, birds, and small mammals seasonally.</p>				<p>Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)</p> <p>Federally listed: Wood stork (T) State listed: little blue heron (T), tricolored heron (T), reddish egret (T), &amp; Roseate spoonbill (T)</p>	
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):</p> <p>No wildlife observed during field reviews.</p>					
<p>Additional relevant factors:</p> <p>FLUCFCS 641 includes WL 1 - WL 11, WL 13 - WL 17, WL 19 - WL 22, WL 23, WL 24 - WL 31, WL 32b, WL 33 - WL 34, and WL 36</p>					
<p>Assessment conducted by:</p> <p>M. Horwitz</p>				<p>Assessment date(s):</p> <p>February &amp; May 2024</p>	

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S	Application Number PD&E Study ETDM Project No. 14490	Assessment Area Name or Number FLUCFCS 641
Impact or Mitigation Direct Impact: 7.15 acres	Assessment conducted by: M. Horwitz	Assessment date: February & May 2024

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
--	---	--	--	---

.500(6)(a) Location and Landscape Support  w/o pres or current 7 with 0	The AA is directly north and south of SR 70, located on agricultural lands, primarily improved pastures, unimproved pastures, and sugarcane fields. SR 70 and property fencing acts as a barrier to wildlife movement. Large areas of undeveloped lands surround the AA, providing wildlife habitat. Cover of invasive/exotic species is minimal to moderate. The AA is partially drained/ditched from agricultural ditches and the large roadside canal (C-40 Canal & C-41 Canal) to the north and south. SR 70 and the canals may affect hydrological connectivity to downstream areas. The AA areas provide downstream benefit through nutrient assimilation. Because the AA flows to the canals, which provide benefits downstream, discharges from the AA itself provide minimal benefits to downstream areas.
.500(6)(b) Water Environment (n/a for uplands)  w/o pres or current 6 with 0	The herbaceous freshwater wetlands within the project study area have good hydrology as indicated by soils saturated to the surface. These wetlands appear to be supported hydrologically by surface runoff. Adjacent land uses may contribute chemicals and/or excess nutrients into the system, affecting water quality. There is evidence of erosion and deposition in some of the agricultural areas indicating alteration. Fire history indicates a strongly atypical fire frequency considering the surrounding land use and development. The drainage ditches within agricultural fields and adjacent to the SR 70 roadway likely cause some increased subsurface drainage (no direct connections or culverts observed). SR 70 may interrupt any hydrological connections there may have been historically to habitat in the north. In addition, the tilling, ditching, and utilization by cattle of the surrounding areas may be affecting hydrology due to excess drainage from ditches and paction of soils by cattle. The vegetative community is composed of herbaceous vegetation on the interior with a higher prevalence of shrubby stratum with invasive and exotic species on the edges indicating alterations from the surrounding land uses. Vegetation present is characterized by species tolerant of and associated with moderate water quality degradation/alterations.
.500(6)(c) Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or current 7 with 0	AA is characterized by herbaceous vegetation including nutsedges ( <i>Cyperus spp.</i> ), soft rushes ( <i>Juncus spp.</i> ), beak rushes ( <i>Rhynchospora spp.</i> ), smartweed ( <i>Persicaria spp.</i> ), broadleaf arrowhead ( <i>Sagittaria latifolia</i> ), maidencane ( <i>Panicum hemitomon</i> ), pickerelweed ( <i>Pontederia cordata</i> ), cattail ( <i>Typha spp.</i> ), and sporadic Peruvian primrose willow ( <i>Ludwigia peruviana</i> ) and Carolina willow ( <i>Salix caroliniana</i> ). Invasive/exotic species compose approximately 5-10% of cover primarily around the edges of the wetlands. Vegetation appears healthy with appropriate size and distribution. Surrounding land management is not optimal for wildlife support. Cattle heavily graze the improved and unimproved pastures where many marshes are located. Structural habitat shows little diversity but that is expected for freshwater marshes; human activities including drainage via groundwater withdrawal and conveyance canals and construction of permanent structures have permanently impacted the AA. Land management activities have significantly altered natural conditions and reduced topographic features in the surrounding areas with the surrounding transportation and agricultural land uses. Existing plant community within the AA provides a moderate level of habitat and life history support for fish & wildlife.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.67	0.00

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.67 x 7.15 = <b>4.80</b>

Delta = [with-current]
-0.67

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =



**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S	Application Number PD&E Study ETDM Project No. 14490	Assessment Area Name or Number FLUCFCS 641
Impact or Mitigation Secondary Impact: 2.50 acres	Assessment conducted by: M. Horwitz	Assessment date: February & May 2024

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current	with	<p>The AA is directly north and south of SR 70, located on agricultural lands, primarily improved pastures, unimproved pastures, and sugarcane fields. SR 70 and property fencing acts as a barrier to wildlife movement. Large areas of undeveloped lands surround the AA, providing wildlife habitat. Cover of invasive/exotic species is minimal to moderate. The AA is partially drained/ditched from agricultural ditches and the large roadside canal (C-40 Canal &amp; C-41 Canal) to the north and south. SR 70 and the canals may affect hydrological connectivity to downstream areas. The AA areas provide downstream benefit through nutrient assimilation. Because the AA flows to the canals, which provide benefits downstream, discharges from the AA itself provide minimal benefits to downstream areas.</p> <p><b>With Condition:</b> Because the AA is already affected by the surrounding transportation and agricultural land uses and because the C-40 &amp; C-41 Canals provides more downstream benefits than the AA, the with conditions are not expected to significantly alter the location and landscape support functional values of the AA.</p>
	7	6	
.500(6)(b) Water Environment (n/a for uplands)	w/o pres or current	with	<p>The herbaceous freshwater wetlands within the project study area have good hydrology as indicated by soils saturated to the surface. These wetlands appear to be supported hydrologically by surface runoff. Adjacent land uses may contribute chemicals and/or excess nutrients into the system, affecting water quality. There is evidence of erosion and deposition in some of the agricultural areas indicating alteration. Fire history indicates a strongly atypical fire frequency considering the surrounding land use and development. The drainage ditches within agricultural fields and adjacent to the SR 70 roadway likely cause some increased subsurface drainage (no direct connections or culverts observed). SR 70 may interrupt any hydrological connections there may have been historically to habitat in the north. In addition, the tilling, ditching, and utilization by cattle of the surrounding areas may be affecting hydrology due to excess drainage from ditches and paction of soils by cattle. The vegetative community is composed of herbaceous vegetation on the interior with a higher prevalence of shrubby stratum with invasive and exotic species on the edges indicating alterations from the surrounding land uses. Vegetation present is characterized by species tolerant of and associated with moderate water quality degradation/alterations.</p> <p><b>With Condition:</b> Because the AA is already impacted by the surrounding land uses, the with conditions are not expected to significantly alter the water environmental functional values of the AA. While transportation will slightly increase roadway runoff, stormwater treatment will be provided for the increased impervious area.</p>
	6	5	
.500(6)(c) Community structure  1. Vegetation and/or 2. Benthic Community	w/o pres or current	with	<p>AA is characterized by herbaceous vegetation including nutsedges (<i>Cyperus spp.</i>), soft rushes (<i>Juncus spp.</i>), beak rushes (<i>Rhynchospora spp.</i>), smartweed (<i>Persicaria spp.</i>), broadleaf arrowhead (<i>Sagittaria latifolia</i>), maidencane (<i>Panicum hemitomon</i>), pickerelweed (<i>Pontederia cordata</i>), cattail (<i>Typha spp.</i>), and sporadic Peruvian primrose willow (<i>Ludwigia peruviana</i>) and Carolina willow (<i>Salix caroliniana</i>). Invasive/exotic species compose approximately 5-10% of cover primarily around the edges of the wetlands. Vegetation appears healthy with appropriate size and distribution. Surrounding land management is not optimal for wildlife support. Cattle heavily graze the improved and unimproved pastures where many marshes are located. Structural habitat shows little diversity but that is expected for freshwater marshes; human activities including drainage via groundwater withdrawal and conveyance canals and construction of permanent structures have permanently impacted the AA. Land management activities have significantly altered natural conditions and reduced topographic features in the surrounding areas with the surrounding transportation and agricultural land uses. Existing plant community within the AA provides a moderate level of habitat and life history support for fish &amp; wildlife.</p> <p><b>With Condition:</b> Because the AA is already affected by surrounding land use, with conditions are not expected to significantly alter the community structure functional values of the AA. While transportation use may increase, the existing barriers preventing wildlife movement of the surrounding agricultural land uses will remain. Additionally, the more naturalized land uses surrounding agriculture will not be impacted.</p>
	7	6	

Score = sum of above scores/30 (if uplands, divide by 20)		
current	w/o pres	with
0.67		0.57

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.10 x 2.50 = <b>0.25</b>

Delta = [with-current]
-0.10

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

**PART I – Qualitative Description**  
**(See Section 62-345.400, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S		Application Number PD&E Study ETDM Project No. 14490		Assessment Area Name or Number FLUCFCS 643	
FLUCCs code 643 - Wet Prairie		Further classification (optional) PEM1E and PEM1Fd		Impact or Mitigation Site? Direct and Secondary	
				Assessment Area Size Direct: 3.06 acres Secondary: 0.80 acres	
Basin/Watershed Name/Number South Kissimmee		Affected Waterbody (Class) Class III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Assessment Area (AA) includes all wet prairies located within the Project Action Area. The project area is approximately 18 miles northwest of Lake Okeechobee and has ditches running west to east that connect to canals that ultimately outfall to Lake Okeechobee. The AA is surrounded by transportation and agricultural lands.</p>					
<p>Assessment area description</p> <p>AA is characterized by herbaceous and emergent vegetation including soft rushes (<i>Juncus spp.</i>), beak rushes (<i>Rhynchospora spp.</i>), torpedo grass (<i>Panicum repens</i>), maidencane (<i>Panicum hemitomon</i>), and Carolina willow (<i>Salix caroliniana</i>). Wet prairies located within improved and unimproved pastures have cattle grazing within them and wet prairies located within sugarcane fields may receive runoff from irrigation activities.</p>					
<p>Significant nearby features</p> <p>State Road 70 immediately adjacent City of Lake Placid is approximately 7.5 miles northeast Lake Istokpoga is approximately 7 miles north Solaris and Buck Island Conservation Easements</p>				<p>Uniqueness (considering the relative rarity in relation to the regional landscape.)</p> <p>The system is not unique to the regional landscape.</p>	
<p>Functions</p> <p>Wildlife habitat, foraging habitat, flood attenuation, water quality, nutrient assimilation</p>				<p>Mitigation for previous permit/other historic use</p> <p>N/A</p>	
<p>Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )</p> <p>Based on field observations wildlife utilization can be reasonably expected by various amphibians, small fish, invertebrates, freshwater turtles, snakes, birds, and small mammals seasonally.</p>				<p>Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)</p> <p>Federally listed: Wood stork (T) State listed: little blue heron (T), tricolored heron (T), reddish egret (T), &amp; Roseate spoonbill (T)</p>	
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):</p> <p>No wildlife observed during field reviews.</p>					
<p>Additional relevant factors:</p> <p>FLUCFCS 643 includes WL-12, WL-18, WL-22a, WL-23a, WL-32a, WL-32c, and WL-35</p>					
<p>Assessment conducted by:</p> <p>M. Horwitz</p>				<p>Assessment date(s):</p> <p>February &amp; May 2024</p>	



**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S	Application Number PD&E Study ETDM Project No. 14490	Assessment Area Name or Number FLUCFCS 643
Impact or Mitigation Direct Impact: 3.06 acres	Assessment conducted by: M. Horwitz	Assessment date: February & May 2024

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current	with	<p>The AA is directly north and south of SR 70, located on agricultural lands, primarily improved pastures, unimproved pastures, and sugarcane fields. SR 70 and property fencing acts as a barrier to wildlife movement. Large areas of undeveloped lands surround the AA, providing wildlife habitat. Cover of invasive/exotic species is minimal to moderate. The AA is partially drained/ditched from agricultural ditches and the large roadside canal (C-40 Canal &amp; C-41 Canal) to the north and south. SR 70 and the canals may affect hydrological connectivity to downstream areas. The AA areas provide downstream benefit through nutrient assimilation. Because the AA flows to the canals, which provide benefits downstream, discharges from the AA itself provide minimal benefits to downstream areas.</p>
	7	0	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current	with	<p>The wet prairies within the project study area have good hydrology, but are only saturated to the surface seasonally, during wet periods or heavy rainfall. These wetlands appear to be supported hydrologically by surface runoff. Adjacent land uses may contribute chemicals and/or excess nutrients into the system, affecting water quality. There is evidence of erosion and deposition in some of the agricultural areas indicating alteration. Fire history indicates a strongly atypical fire frequency considering the surrounding land use and development. The drainage ditches within agricultural fields and adjacent to the SR 70 roadway likely cause some increased subsurface drainage (no direct connections or culverts observed). SR 70 may interrupt any hydrological connections there may have been historically to habitat in the north. In addition, the tilling, ditching, and utilization by cattle of the surrounding areas may be affecting hydrology due to excess drainage from ditches and paction of soils by cattle. The vegetative community is composed of herbaceous vegetation on the interior with a higher prevalence of shrubby stratum with invasive and exotic species on the edges indicating alterations from the surrounding land uses. Vegetation present is characterized by species tolerant of and associated with moderate water quality degradation/alterations.</p>
	6	0	
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community	w/o pres or current	with	<p>AA is characterized by herbaceous vegetation including soft rushes (<i>Juncus spp.</i>), beak rushes (<i>Rhynchospora spp.</i>), torpedo grass (<i>Panicum repens</i>), maidencane (<i>Panicum hemitomon</i>), and Carolina willow (<i>Salix caroliniana</i>). Invasive/exotic species compose approximately 5-10% of cover primarily around the edges of the wetlands. Vegetation appears healthy with appropriate size and distribution. Surrounding land management is not optimal for wildlife support. Cattle heavily graze the improved and unimproved pastures where many marshes are located. Structural habitat shows little diversity but is expected for wet prairies; however, hydrologic functions are more limited in wet prairies as they only provide significant hydrologic benefit seasonally, during wet periods or heavy rainfall. Human activities including drainage via groundwater withdrawal and conveyance canals and construction of permanent structures have permanently impacted the AA. Land management activities have significantly altered natural conditions and reduced topographic features in the surrounding areas with the surrounding transportation and agricultural land uses. Existing plant community within the AA provides a moderate level of habitat and life history support for fish &amp; wildlife.</p>
	6	0	

Score = sum of above scores/30 (if uplands, divide by 20)	
current	with
0.63	0.00

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.63 x 3.06 = <b>1.93</b>

Delta = [with-current]
-0.63

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 70 from Lonesome Island Rd to CR 721 S	Application Number PD&E Study ETDM Project No. 14490	Assessment Area Name or Number FLUCFCS 643
Impact or Mitigation Secondary Impact: 0.80 acres	Assessment conducted by: M. Horwitz	Assessment date: February & May 2024

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current	with	<p>The AA is directly north and south of SR 70, located on agricultural lands, primarily improved pastures, unimproved pastures, and sugarcane fields. SR 70 and property fencing acts as a barrier to wildlife movement. Large areas of undeveloped lands surround the AA, providing wildlife habitat. Cover of invasive/exotic species is minimal to moderate. The AA is partially drained/ditched from agricultural ditches and the large roadside canal (C-40 Canal &amp; C-41 Canal) to the north and south. SR 70 and the canals may affect hydrological connectivity to downstream areas. The AA areas provide downstream benefit through nutrient assimilation. Because the AA flows to the canals, which provide benefits downstream, discharges from the AA itself provide minimal benefits to downstream areas.</p> <p><b>With Condition:</b> Because the AA is already impacted by the surrounding land uses, the with conditions are not expected to significantly alter the water environmental functional values of the AA. While transportation will slightly increase roadway runoff, stormwater treatment will be provided for the increased impervious area.</p>
	7	6	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current	with	<p>The wet prairies within the project study area have good hydrology, but are only saturated to the surface seasonally, during wet periods or heavy rainfall. These wetlands appear to be supported hydrologically by surface runoff. Adjacent land uses may contribute chemicals and/or excess nutrients into the system, affecting water quality. There is evidence of erosion and deposition in some of the agricultural areas indicating alteration. Fire history indicates a strongly atypical fire frequency considering the surrounding land use and development. The drainage ditches within agricultural fields and adjacent to the SR 70 roadway likely cause some increased subsurface drainage (no direct connections or culverts observed). SR 70 may interrupt any hydrological connections there may have been historically to habitat in the north. In addition, the tilling, ditching, and utilization by cattle of the surrounding areas may be affecting hydrology due to excess drainage from ditches and paction of soils by cattle. The vegetative community is composed of herbaceous vegetation on the interior with a higher prevalence of shrubby stratum with invasive and exotic species on the edges indicating alterations from the surrounding land uses. Vegetation present is characterized by species tolerant of and associated with moderate water quality degradation/alterations.</p> <p><b>With Condition:</b> Because the AA is already affected by surrounding land use, with conditions are not expected to significantly alter the community structure functional values of the AA. While transportation use may increase, the existing barriers preventing wildlife movement of the surrounding agricultural land uses will remain. Additionally, the more naturalized land uses surrounding agriculture will not be impacted.</p>
	6	5	
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community	w/o pres or current	with	<p>AA is characterized by herbaceous vegetation including soft rushes (<i>Juncus spp.</i>), beak rushes (<i>Rhynchospora spp.</i>), torpedo grass (<i>Panicum repens</i>), maidencane (<i>Panicum hemitomon</i>), and Carolina willow (<i>Salix caroliniana</i>). Invasive/exotic species compose approximately 5-10% of cover primarily around the edges of the wetlands. Vegetation appears healthy with appropriate size and distribution. Surrounding land management is not optimal for wildlife support. Cattle heavily graze the improved and unimproved pastures where many marshes are located. Structural habitat shows little diversity but is expected for wet prairies; however, hydrologic functions are more limited in wet prairies as they only provide significant hydrologic benefit seasonally, during wet periods or heavy rainfall. Human activities including drainage via groundwater withdrawal and conveyance canals and construction of permanent structures have permanently impacted the AA. Land management activities have significantly altered natural conditions and reduced topographic features in the surrounding areas with the surrounding transportation and agricultural land uses. Existing plant community within the AA provides a moderate level of habitat and life history support for fish &amp; wildlife.</p> <p><b>With Condition:</b> Because the AA is already affected by surrounding land use, with conditions are not expected to significantly alter the community structure functional values of the AA. While transportation use may increase, the existing barriers preventing wildlife movement of the surrounding agricultural land uses will remain. Additionally, the more naturalized land uses surrounding agriculture will not be impacted.</p>
	6	5	

Score = sum of above scores/30 (if uplands, divide by 20)	
current	with
0.63	0.53

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.10 x 0.80 = <b>0.08</b>

Delta = [with-current]
-0.10

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =