

**HOBE SOUND**  
**ENVIRONMENTAL CONSULTANTS, INC.**  
**9512 S. E. DUNCAN STREET**  
**HOBE SOUND, FLORIDA 33455**  
**PHONE: (772) 545-3676 CELL (772) 260-0857**  
**E-MAIL: [bobhsenv@gmail.com](mailto:bobhsenv@gmail.com)**

5 December 2024

Stefan K. Matthes, P.E.  
Senior Vice President  
Culpepper and Terpening, Inc.  
2980 South 25th Street  
Fort Pierce, FL 34981

Via Email: [smatthes@ct-eng.com](mailto:smatthes@ct-eng.com)

Ref: Proposed SFWMD Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) and possible hazardous wildlife attractants (avian) influences on the Okeechobee County Airport (OBE) and Runway 5-23 Okeechobee County, Florida.

Dear Mr. Matthes;

HSE has reviewed the information provided by Culpepper and Terpening, Inc. regarding wildlife attractants in the proximity of the Okeechobee County Airport (see Attachments) and has the following comments:

HSE staff has over 30 years of experience with stormwater treatment area (STA) design, permitting construction management and monitoring, water farming, wetland mitigation, and marsh restoration. It is the professional opinion of HSE, based on our experience, that the proposed Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) will attract wildlife, especially wading and migratory avian species. In the past, STA's have provided important feeding, breeding and nursery habitat for avian species. Many STA's are used for bird watching and duck hunting by the general public due to the proliferation of avian species within these areas. HSE was involved in the design, permitting and monitoring of the McCarty Ranch STA operated by the City of Port St. Lucie. This STA has attracted numerous avian species, including (but not limited to): wood stork (*Mycteria americana*), American bald eagle (*Haliaeetus leucocephalus*), sandhill crane (*Grus canadensis*), turkey vulture (*Cathartes aura*), black vulture (*Cathartes aura*), osprey (*Pandion haliaetus*), crested caracara (*Caracara cheriway*), red-tail hawk (*Buteo jamaicensis*), cattle egret (*Bubulcus ibis*), barn owl (*Tyto alba*), American crow (*Corvus brachyrhynchos*), mallard duck (*Anas platyrhynchos*), Egyptian geese (*Alopochen aegyptiaca*), Everglades snail kite (*Rostrhamus sociabilis*), American robin (*Turdus migratorius*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), mottled duck (*Anas fulvigula*), roseate spoonbill (*Platalea ajaja*), blue-winged teal (*Anas discors*), green-winged teal (*Anas crecca*), black-bellied whistling duck (*Dendrocygna autumnalis*), fulvous whistling-duck, (*Dendrocygna bicolor*), American black duck (*Anas rubripes*), purple gallinule (*Porphyrio*

*martinicus*), boat-tail grackle (*Quiscalus major*), great blue heron (*Egretta caerulea*), black-crowned night-heron (*Nycticorax nycticorax*), white ibis (*Eudocimus albus*), glossy ibis (*Plegadis falcinellus*) American swallow-tail kite (*Elanoides forficatus*), black-necked stilt (*Himantopus mexicanus*), among others.

The FAA Advisory Circular (AC) 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports*, provides guidance on hazardous wildlife which can threaten aviation safety. The FAA recommends a distance of five (5) miles between the closest point of airports aircraft operations area and the hazardous wildlife attractant.

STA's contain a fascinating kingdom of diurnal birds of prey, waterfowl, storks, herons and vultures, cranes and rails, perching birds, owls, pelicans, turkey, falcons, kingfishers, etc.. STA's are also utilized by numerous migratory species during the fall and winter migration and provide attractive habitat during the dry season. These unique habitats also provide birds with a variety of food sources such as fish, macro invertebrates and vegetation, especially during nursery periods and migrations. Incidental plane impacts of avian species may impact endangered and threatened bird species within the designated 5 mile zone mentioned above.

The proposed location of the LKBSTA is within a 5 mile radius of Okeechobee County Airport, and will attract potentially hazardous wildlife. The proposed project is too close to three (3) airstrips, including the Okeechobee County Airport, which could potentially be hazardous to aircraft and threaten aviation safety.

It is HSE's opinion that the proposed LKBSTA is within the five (5) mile radius of Okeechobee County Airport and the extended centerline of runway 5-23, the airports primary runway, and may cause an increase in airplane navigation hazards. This wildlife hazard area within the 5 mile zone of OBE may result in the loss of grants under the Federal Grant assistance programs.

If HSE can be of any further assistance to the Okeechobee County Airport, please contact me or call our office.

Sincerely

Robert L.  
Weigt

Digitally signed by Robert L. Weigt  
DN: cn=Robert L. Weigt, o=HSE,  
ou=President,  
email=bobhsenv@gmail.com, c=US  
Date: 2023.12.06 08:56:32 -05'00'

Attachments

---

**FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport**

3 messages

---

**Stef Matthes** <smatthes@ct-eng.com>  
To: Bob Weigt <bobhsenv@gmail.com>  
Cc: Freda Posin <fredahsenv@gmail.com>

Fri, Dec 1, 2023 at 1:41 PM

Bob, please give me a call about this. This would be work for Okeechobee County who is in opposition to a STA site located south side of SR 70 adjacent to the Kissimmee River

Stef

**From:** Richard Reade <rreade@okeechobeecountyfl.gov>  
**Sent:** Friday, December 1, 2023 12:51 PM  
**To:** Stef Matthes <smatthes@ct-eng.com>  
**Cc:** Deborah Manzo <dmanzo@okeechobeecountyfl.gov>; david c21okee.com <david@c21okee.com>  
**Subject:** FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Hey Stef,

Hope all is well...

Just wanted to check in to see if you may have had any luck with finding someone who can review the District's and EIP's Wildlife Hazard Report and provide comments related to the proposed LKBSTA in advance of the upcoming December 14<sup>th</sup> meeting...

Thank you.

Have a great day.

**Please consider assisting Okeechobee County in developing a new five (5) year Strategic Plan by completing the County's Community Survey - <https://www.surveymonkey.com/r/B76NJHS>**

Richard J. Reade

Deputy County Administrator

Okeechobee Board of County Commissioners

Tel: 863.763.6441 Ext. 2

E-mail: [rreade@okeechobeecountyfl.gov](mailto:rreade@okeechobeecountyfl.gov)

**NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from “@co.okeechobee.fl.us” to “@okeechobeecountyfl.gov.” Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails.**

**From:** John Hurst <jhurst@okeechobeecountyfl.gov>  
**Sent:** Thursday, November 30, 2023 6:32 PM  
**To:** Richard Reade <rreade@okeechobeecountyfl.gov>  
**Cc:** Deborah Manzo <dmanzo@okeechobeecountyfl.gov>  
**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Richard,

Attached is the report from the wildlife biologist hired by EIP. Scott Hunt marked it up indicating “LSR” on the types of birds found at Lakeside Ranch, many of which are not on the report. A video documenting these birds can be found here:  
<https://youtu.be/TYrdSdCsatQ?si=q-1h-wwHRcGpYvE8>

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@okeechobeecountyfl.gov](mailto:jhurst@okeechobeecountyfl.gov)



NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from “@co.okeechobee.fl.us” to “@okeechobeecountyfl.gov.” Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails. Thank you.

**From:** John Hurst  
**Sent:** Monday, October 16, 2023 2:54 PM  
**To:** Richard Reade <rreade@co.okeechobee.fl.us>  
**Cc:** Deborah Manzo <dmanzo@co.okeechobee.fl.us>  
**Subject:** FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Richard,

Scott Hunt, an airport tenant attended the October 12 SFWMD in West Palm Beach. He informed me that he spoke with Jenifer Reynolds who told him that EIP/DEP has been speaking with FAA regarding the letter we received. She told him that EIP/DEP has engaged an FAA-approved biologist to determine what hazards exist, and what mitigation procedures, if any, are required.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)

**From:** Hatim, Abdul <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>

**Sent:** Monday, October 16, 2023 2:00 PM

**To:** John Hurst <[jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>

**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Scott Brady <[sbrady@eg-solutionsinc.com](mailto:sbrady@eg-solutionsinc.com)>; Deborah Manzo <[dmanzo@co.okeechobee.fl.us](mailto:dmanzo@co.okeechobee.fl.us)>; Richard Reade <[rreade@co.okeechobee.fl.us](mailto:rreade@co.okeechobee.fl.us)>

**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

John,

We have reviewed the Lower Kissimmee Basin Stormwater Treatment Area project information and some supplemental information available to us. The letter from the ADO outlines the FAA information and comments and should, of course, be submitted to SFWMD and possibly Ecosystem Investment Partners (EIP). Some of the additional documentation we have reviewed indicates that the phosphorus removal will be an absolute priority. At least one conservation group has reported that current phosphorus levels entering Lake Okeechobee are five times higher than its assimilative capacity. That said, we believe there may be an option to remove the same or greater amounts of phosphorus with designs that are less attractive to wildlife if the project footprint cannot be shifted outside the zones that concern the FAA.

The documents provided from the EIP presentations indicate the construction will be shallow marsh with treatment water pumped in from either of two canals. Some of the marsh is located under the final approach fix (CORDI) for Runway 5 where jet or piston traffic will be as low as 1500 feet and descending on the instrument approaches and possibly lower on visuals. In lieu of the shallow marsh, it may be possible to construct a series of parallel, deep, steep-sided canals less attractive to birds and very efficient at phosphorus removal by sedimentation and sequestration. The demonstration project for an FAA pond at Naples Airport provided monitoring data and verified methodologies that can be directly used to design and construct such a system.

Our suggestion is a joint meeting with SFWMD, EIP, Okeechobee Airport, FAA (if available), FDOT, and our water management consultants to discuss options that can both reduce the phosphorus loads significantly and minimize wildlife hazards to landing and departing aircraft.

Sincerely,

**Abdul Hatim, Ph.D.**

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: [abdul.hatim@dot.state.fl.us](mailto:abdul.hatim@dot.state.fl.us)



**From:** John Hurst <[jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)>

**Sent:** Monday, October 9, 2023 5:47 PM

**To:** Hatim, Abdul <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>

**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Scott Brady <[sbrady@eg-solutionsinc.com](mailto:sbrady@eg-solutionsinc.com)>; Deborah Manzo <[dmanzo@co.okeechobee.fl.us](mailto:dmanzo@co.okeechobee.fl.us)>; Richard Reade <[rreade@co.okeechobee.fl.us](mailto:rreade@co.okeechobee.fl.us)>

**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Abdul,

I wanted to clarify the Stormwater Treatment Area project so you have the correct information. EIP purchased the property and proposed a Stormwater Treatment Area project to SFWMD that would reduce phosphorus. EIP has provided a cost to SFWMD for the project, however, they are not paid by how much phosphorus they remove, they submit the cost of their project and estimate the amount of phosphorus that would be reduced.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)

**From:** John Hurst

**Sent:** Friday, October 6, 2023 3:55 PM

**To:** 'Hatim, Abdul' <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>

**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Scott Brady <[sbrady@eg-solutionsinc.com](mailto:sbrady@eg-solutionsinc.com)>; Deborah Manzo <[dmanzo@co.okeechobee.fl.us](mailto:dmanzo@co.okeechobee.fl.us)>; Richard Reade <[rreade@co.okeechobee.fl.us](mailto:rreade@co.okeechobee.fl.us)>

**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Hi Abdul,

Ecosystem Investment Partners (EIP) purchased the land and is doing the project working with SFWMD. DEP is also helping to fund the project. I understand that EIP is paid for how much phosphorus they remove.

Per your request, I have attached a number of documents with plans and details about the project.

Please let us know if you have any additional questions, and what assistance you can provide.

Best Regards,

John L. Hurst

Airport & Commerce Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)

**From:** Hatim, Abdul <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>

**Sent:** Friday, October 6, 2023 11:19 AM

**To:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>; John Hurst <[jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)>

**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Scott Brady <[sbrady@eg-solutionsinc.com](mailto:sbrady@eg-solutionsinc.com)>

**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn/John,

Some additional information is needed to offer some alternatives to meet both the cleanup targets for phosphorus and maintain the maximum aircraft safety practicable. Is the project design and construction strictly DEP or is SFWMD also participating? Depending on the design specifics and the amount of encroachment into the approach and departure areas, information in the latest (March 2023) update of the Statewide Airport Stormwater Best Management Practices Manual may provide equally or more effective phosphorus removal in systems less attractive to wildlife. It may also offer some options for a smaller footprint that could take the portion of the project inside the recommended exclusion limits out of those limits. If we can get the information on exactly who is doing the project (DEP, SFWMD, or other) and project plans, we can provide more specific assistance.

Sincerely,

**Abdul Hatim, Ph.D.**

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: [abdul.hatim@dot.state.fl.us](mailto:abdul.hatim@dot.state.fl.us)



**From:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>  
**Sent:** Thursday, October 5, 2023 1:48 PM  
**To:** Hatim, Abdul <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>  
**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>  
**Subject:** FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, Abdul:

Can you please help John Hurst, Airport Director for Okeechobee County Airport communicate FAA's concern to FDEP?

I appreciate it .

Thank you.

*Dawn M. Gallon, CPM, FCCM*

Aviation/Intermodal Project Manager

Modal Development Office

Florida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

[dawn.gallon@dot.state.fl.us](mailto:dawn.gallon@dot.state.fl.us)



**From:** John Hurst <[jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)>  
**Sent:** Wednesday, October 4, 2023 9:25 PM  
**To:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>  
**Cc:** Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Deborah Manzo <[dmanzo@co.okeechobee.fl.us](mailto:dmanzo@co.okeechobee.fl.us)>; Richard Reade <[rreade@co.okeechobee.fl.us](mailto:rreade@co.okeechobee.fl.us)>; Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>  
**Subject:** Re: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Dawn,

Thank you for the referral. Please see the attached letter from Peter Green.



The proposed project is partially located within 5 miles of the OBE aircraft operations area; however, FAA recommends that the proposed water treatment facility be located outside the 5-mile separation distance from OBE.

We understand that FDEP will be funding this project through SWFMD.

To help us comply with FAA Advisory Circular 150/5200-33C as required by our FAA grant obligations, can FDOT help us communicate FAA's concern to FDEP?

Best Regards,

John L. Hurst

Airport & Industrial Park Director

Okeechobee County Airport & Commerce Park • 2800 NW 20th Trail • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)

---

**From:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>

**Sent:** Monday, August 28, 2023 2:57:51 PM

**To:** John Hurst

**Cc:** Smith, Kristi; Deborah Manzo; Gallon, Dawn

**Subject:** FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good afternoon, John:

Please reference the email below from Abdul Hatim on contacting the Environmental Specialist at FAA Orlando ADO, which is Peter Green, 407-487-7296 or [peter.green@faa.gov](mailto:peter.green@faa.gov).

Thank you.

*Dawn M. Gallon, CPM, FCCM*

Aviation/Intermodal Project Manager

Modal Development Office

Florida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

[dawn.gallon@dot.state.fl.us](mailto:dawn.gallon@dot.state.fl.us)



**AVIATION**

**From:** Hatim, Abdul <[Abdul.Hatim@dot.state.fl.us](mailto:Abdul.Hatim@dot.state.fl.us)>  
**Sent:** Monday, August 28, 2023 10:03 AM  
**To:** Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>; Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Smith, David P <[DavidP.Smith@dot.state.fl.us](mailto:DavidP.Smith@dot.state.fl.us)>  
**Cc:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>  
**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good Morning Dawn,

Please advise OBE to contact Environmental Specialist at FAA Orlando ADO regarding the proposed water retention pond by SFWMD.

Sincerely,

**Abdul Hatim, Ph.D.**

Airport Engineering Manager

FDOT Aviation Office

605 Suwannee Street, MS 46

Tallahassee, FL 32399-0450

Phone: (850) 414-4504

Fax: (850) 414-4508

Email: [abdul.hatim@dot.state.fl.us](mailto:abdul.hatim@dot.state.fl.us)



**From:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>  
**Sent:** Thursday, August 24, 2023 8:02 AM  
**To:** Roberts, David <[david.roberts@dot.state.fl.us](mailto:david.roberts@dot.state.fl.us)>; Keith, Andy <[Andy.Keith@dot.state.fl.us](mailto:Andy.Keith@dot.state.fl.us)>  
**Cc:** Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>  
**Subject:** FW: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Good morning,

Seeking your assistance on the email below from John Hurst, Okeechobee County Airport Director.

I appreciate you both.

Thank you.

**Dawn M. Gallon, CPM, FCCM**

Aviation/Intermodal Project Manager

Modal Development Office

Florida Department of Transportation – District One

Office: 863-519-2675

Cell: 863-608-3350

[dawn.gallon@dot.state.fl.us](mailto:dawn.gallon@dot.state.fl.us)



**From:** John Hurst <[jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)>

**Sent:** Tuesday, August 22, 2023 3:29 PM

**To:** Gallon, Dawn <[Dawn.Gallon@dot.state.fl.us](mailto:Dawn.Gallon@dot.state.fl.us)>

**Cc:** Smith, Kristi <[Kristi.Smith@dot.state.fl.us](mailto:Kristi.Smith@dot.state.fl.us)>; Deborah Manzo <[dmanzo@co.okeechobee.fl.us](mailto:dmanzo@co.okeechobee.fl.us)>

**Subject:** Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

**EXTERNAL SENDER:** Use caution with links and attachments.

Dawn,

We are concerned about a potentially hazardous wildlife attractant that the South Florida Water Management District is interested in building within 5 statute miles of Okeechobee County Airport's Aircraft Operations area. They are planning to build water retention that they state will attract birds which may be a hazard.

Also, CORDI, the final approach fix for the RNAV approach to runway 5 will be well within the boundaries of the proposed site. Aircraft will be descending through 1,500' over this fix during their approach. Please see the attached drawing.

Specifically, compliance with **FAA Advisory Circular 150/5200-33C Subject: Hazardous Wildlife Attractants on or near Airports** is required per this checklist.

AC No: 150/5200-33C States:

#### **1.4 Protection of Approach, Departure, and Circling Airspace.**

For all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's *aircraft operations area* and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace. Figure 1 depicts an example of the 5-mile separation distance measured from the nearest aircraft operations area.

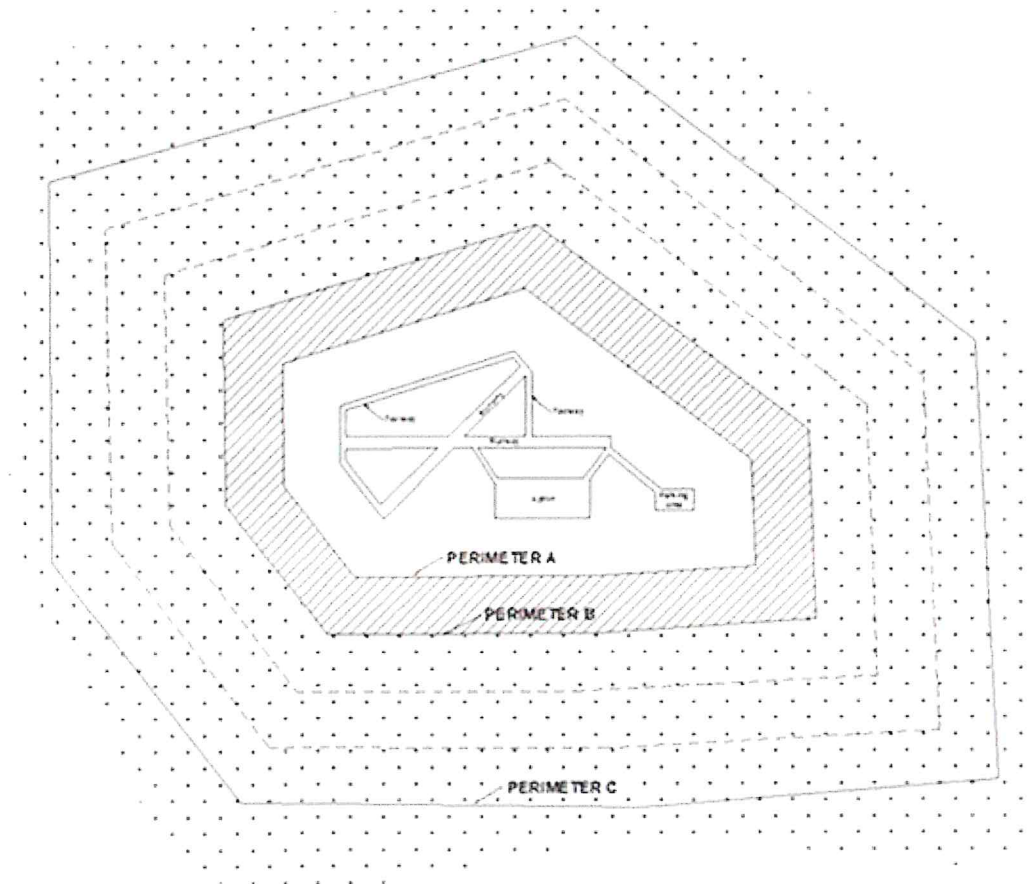
## APPENDIX A. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR

### A.1 General.

This appendix provides definitions of terms used throughout this AC.

1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

**Figure 1. Example of recommended separation distances described in Chapter 1 within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.**



*We are concerned with "Perimeter C" at Okeechobee County Airport*

**PERIMETER C: Recommended for all airports, 5-mile range to protect approach, departure and circling airspace.**

#### 4.3.4 Airports that have Received Federal Assistance.

Airports that have received Federal assistance are required under their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. See Grant Assurance 21. *The FAA recommends that airport operators oppose off-airport land-use changes or practices, to the extent practicable, within the separations identified in Paragraphs 1.2 through 1.4, which may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances.* The FAA will not approve the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for preventing, eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for airport development projects.

Per our obligations, the county is using all its means to prevent this. Is there anything that FDOT can also do to help? If not, who should we talk to?

Please let me know if you have any questions, or if you would like to meet and discuss.

Best Regards,

John L. Hurst

Airport & Industrial Park Director

Okeechobee County Airport & Industrial Park • [2800 NW 20th Trail](#) • Okeechobee, FL 34972

Office: 863-467-5505 • Cell: 863-634-1474

Email: [jhurst@co.okeechobee.fl.us](mailto:jhurst@co.okeechobee.fl.us)

NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from "[@co.okeechobee.fl.us](mailto:@co.okeechobee.fl.us)" to "[@okeechobeecountyfl.gov](mailto:@okeechobeecountyfl.gov)." Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails. Thank you.

NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from "[@co.okeechobee.fl.us](mailto:@co.okeechobee.fl.us)" to "[@okeechobeecountyfl.gov](mailto:@okeechobeecountyfl.gov)." Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails. Thank you.

---

 **FILE\_5450.pdf**  
1951K

---

**Stef Matthes** <[smatthes@ct-eng.com](mailto:smatthes@ct-eng.com)>  
To: Bob Weigt <[bobhsenv@gmail.com](mailto:bobhsenv@gmail.com)>

Mon, Dec 4, 2023 at 7:44 AM

Bob, here's our draft presentation for your use in the bird review

Stef

**From:** Richard Reade <[rreade@okeechobeecountyfl.gov](mailto:rreade@okeechobeecountyfl.gov)>  
**Sent:** Monday, December 4, 2023 6:30 AM  
**To:** Stef Matthes <[smatthes@ct-eng.com](mailto:smatthes@ct-eng.com)>  
**Cc:** Deborah Manzo <[dmanzo@okeechobeecountyfl.gov](mailto:dmanzo@okeechobeecountyfl.gov)>; david [c21okee.com](http://c21okee.com) <[david@c21okee.com](mailto:david@c21okee.com)>  
**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Here you go Stef.

Hope you had a great weekend.

Thank you.

Have a great day.

*NOTE: Okeechobee County Board of County Commissioners has a new domain address that has changed from "@co.okeechobee.fl.us" to "@okeechobeecountyfl.gov." Please update your contact information to our new domain email address in order to prevent any delays in our office receiving your emails. Thank you.*

Rich Reade

Deputy County Administrator

Okeechobee County

Tel: 863.763.6441

**From:** Stef Matthes [mailto:smatthes@ct-eng.com]

**Sent:** Sunday, December 3, 2023 9:55 AM

**To:** Richard Reade <rreade@okeechobeecountyfl.gov>

**Cc:** Deborah Manzo <dmanzo@okeechobeecountyfl.gov>; david c21okee.com <david@c21okee.com>

**Subject:** RE: Looking for help preventing a potentially hazardous wildlife attractant near Okeechobee County Airport

Rich,

I did,

HSE (Hobe Sound Environmental) will be reviewing the reports and providing me with their insight on birds and wetland/STA/lakes..... usage

Can you please send me the draft power point so that I can share the big picture with them?

Thanks

Stef



**Stefan K. Matthes, P.E.**

Senior Vice President

Culpepper and Terpening, Inc.

2980 South 25th Street

Fort Pierce, FL 34981


Telephone 772.464.3537 Ext \*114

Facsimile 772.464.9497

smatthes@ct-eng.com

[Quoted text hidden]

---

 **Presentation - SFWMD Meeting (Final) - December 14, 2023.pdf**  
3201K

---

**Bob Weigt** <bobhsenv@gmail.com>  
To: Stef Matthes <smatthes@ct-eng.com>

Mon, Dec 4, 2023 at 9:35 AM

The SFWMD LKBSTA project is too close to three (3) airstrips, including the Okeechobee County Airport, which is one of the most significant economic development tools to attract jobs & resources. Do you have copies of the maps on this page of the powerpoint? I can not read them. five mile boundary exhibit

[Quoted text hidden]

--

**Robert Weigt**  
**Hobe Sound Environmental Consultants, Inc**  
**9512 SE Duncan Street**  
**Hobe Sound, Fl. 33455**  
**(772) 545-3676 Cell (772) 260-0857**  
**E-mail: [bobhsenv@gmail.com](mailto:bobhsenv@gmail.com)**

# Memorandum

**DATE:** October 30, 2023

**TO:** Jeremy McBryan, PE, CFM, ENV SP – Ecosystem Investment Partners

**FROM:** Julie Sullivan, FAA Qualified Wildlife Biologist  
 Brendon Quinton, FAA Qualified Wildlife Biologist

**PROJECT:** Wildlife Hazard Review – Proposed Lower Kissimmee Basin Stormwater Treatment Area

ESA was retained to provide an independent review of a proposed project identified as the Lower Kissimmee Basin Stormwater Treatment Area (LKBSTA) in Okeechobee County. The project includes the development of a regional STA which entails creation of several interconnected herbaceous freshwater wetlands designed to reduce nutrients, specifically phosphorus, from stormwater runoff and help achieve the State of Florida’s Total Phosphorus Total Maximum Daily Load for Lake Okeechobee. It is understood that the proposed project will be constructed in two phases with the western phase (LKBSTA-W) being constructed first.



*LKBSTA Proposed Development Area*





5401 S. Kirkman Road  
Suite 475  
Orlando, FL 32819  
407-748-2729 [phone](tel:407-748-2729)

[www.esassoc.com](http://www.esassoc.com)

Federal Aviation Administration (FAA) Advisory Circular (AC) No. 150/5200-33C *Hazardous Wildlife Attractants on or near Airports* provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. There is one public-use airport (Okeechobee County Airport - OBE) located in the vicinity of the proposed project, and comments from Okeechobee County led to the applicant's request for this independent review.

OBE is a general aviation facility located approximately 4.5 miles from the proposed project site. As a facility serving piston-powered aircraft, this is within the recommended separation distance (5 miles) for specified land uses. ESA reviewed the proposed STA in the context of the existing landscape and the relevant FAA guidance (ACs, manuals, publications and other guidance). Further, a review of the likely species use of the proposed facility and the hazardous ranking and status of those species (or guilds) is included in this memorandum.

#### Existing Conditions:

In addition to thorough review of online information and site-specific studies, on Wednesday, October 18, 2023, one of ESA's FAA qualified wildlife biologists conducted a site visit of the proposed project and surrounding areas. The purpose of the site visit was to review the proposed project site and to also review similarly situated existing STA(s) to identify existing conditions and to gauge potential wildlife usage and changes expected to occur with the development of the proposed project.

#### *LKBSTA Site and Vicinity:*

The proposed STA site is primarily improved pasture with evidence of cattle use. A thorough review of the existing land cover classifications and wildlife observations was completed by Common Ground Ecology and detailed in the *Lower Kissimmee Basin Stormwater Treatment Area – West Listed Species Assessment* (June 2023). This study identified ~195 acres of wetlands within the proposed project area and documented the occurrence of listed wildlife and their habitats within the site. While that study focused on listed species, additional studies of similar projects led to the development of a list of likely avian species that would be expected in the STA. In addition to the wading birds, cranes, bald eagles, Audubon's Crested Caracara and other species documented in the Listed Species Assessment, common species utilizing the existing land cover include vultures, cattle egrets, and raptors. Vultures are a species of concern for aircraft because they take advantage of rising columns of warm air (thermals) soaring high in the sky searching for food. This hunting technique puts vultures at higher altitudes for longer durations than other birds and therefore more likely to have interactions with aircraft.



5401 S. Kirkman Road  
Suite 475  
Orlando, FL 32819  
407-748-2729 phone

[www.esassoc.com](http://www.esassoc.com)

The proposed project is adjacent (and will be hydraulically connected to) the Kissimmee River. The Kissimmee River, which was ditched in the 1960's as a flood control project, has been subject to extensive habitat restoration since 1999. This has led to the recovery of hundreds of species and the river and its floodplain provide forage, nesting (including rookeries) and full life cycle habitat for hundreds of avian species. Additionally, the proposed project is in the vicinity of Lake Okeechobee, which is also less than 5 miles from OBE.

During the site visit, the FAA Qualified Biologist confirmed the land cover and existing conditions documented in prior studies and observed the following wildlife in the proposed project footprint: Eastern Meadowlark, greater yellowlegs, great egret, American kestrel, Eastern phoebe, white ibis, anhinga, sandhill crane, pied-billed grebe, red tailed hawk, great blue heron, and others.

#### *Review of Existing STAs*

In addition to the existing natural features, it was noted that there are existing (previously developed) STAs in the vicinity of OBE. The Taylor Creek STA is located approximately 2 miles northeast of OBE in the departure/approach of the main runway (5-23). The Lakeside Ranch STA is located on the eastern side of Lake Okeechobee, more than 12 miles from OBE, but it is located directly off the approach / departure of a private airstrip (Flying Cow Air Ranch – FD39) which has a single turf runway. While private use airports are not subject to the FAA AC for Hazardous Wildlife, Lakeside Ranch STA was reviewed because it provided a good comparison for the wildlife species likely to utilize the LKBSTA.

The Lakeside Ranch STA has been constructed in two phases which allowed the qualified biologist to observe similar wildlife activity to that likely anticipated at the proposed LKBSTA. The first phase of the existing Lakeside Ranch STA was heavily vegetated with dense cattails with drivable embankments between them. It is understood that this is the expected cover (dense cattail) for the STAs in the Lake Okeechobee watershed due to high nutrient content in the source water. While the dense vegetation provided a limited view in many areas, the biologist listened for and noted avian vocalizations coming from the vegetation. Wildlife activity was low in this area and consisted of observations of red-shouldered hawk, osprey, cattle egret, anhinga, and wading birds. It was noted this habitat cover took approximately two years to achieve.

The newer phase of Lakeside Ranch STA showed the greatest potential for wildlife activity. Vegetation was patchy and thin, although several areas had been planted to expedite vegetation coverage in those areas. The open water in the lightly vegetated areas appeared to attract species including glossy ibis, cormorant, with wading birds the most prevalent. While waterfowl were not observed, the open water areas could be an attractant for that guild.



5401 S. Kirkman Road  
Suite 475  
Orlando, FL 32819  
407-748-2729 phone

[www.esassoc.com](http://www.esassoc.com)

### FAA Qualified Biologist Review

In addition to the site reviews and analysis of previously collected data, the ESA FAA Qualified Biologists reviewed existing strike data and compared that with the expected avian species / families at the proposed STA and the observations during the field review. The review of the FAA strike data<sup>1</sup> for OBE for a 10-year period (10-27-2013 to 10-27-2023) identified a total of six (6) strike reports with annual operations of ~50,000. This included 4 “unknown birds” (small to medium), one vulture and one crow. While it is not possible to determine whether the “unknown birds” would occur at the proposed STA, neither of the other species would be more likely to occur than in the site’s existing condition. Several of the “top 10” from the list of species hazardous to aircraft (Table 1 – AC 150/5200-32B – **Exhibit 1**)<sup>2</sup> currently occur at the proposed project location.

Wildlife is attracted to a variety of different features and the extent of the wildlife hazard risk for an individual airport depends on many factors including number and type of operations, local and migratory wildlife populations, and habitat conditions. OBE averages ~50,000 operations per year, of which the majority (~45,000) are general aviation (GA) aircraft. According to a letter from the FAA’s Orlando Airports District Office (ADO) dated September 27, 2023, OBE completed wildlife surveys in one month (September) in 2016 and identified ~2,900 observations of 27 different avian species. ESA’s biologists have not reviewed that data and it is not clear whether those observations represent ~2,900 birds or repeat observations, but it was reported in this FAA letter that 71% of the observations were wading birds. While the FAA establishes separation criteria as a guideline for perimeters within which hazardous wildlife attractants should be avoided off airport, it is acknowledged that the majority of wildlife strikes occur within the immediate airport environment (74% of all strikes occur at or below 500 feet above ground level (AGL)<sup>3</sup>). It is not known if OBE has a current Wildlife Hazard Management Plan (WHMP) nor what measures OBE is using to address the wildlife hazard concern on airport property, but management for the hazardous species on airport should be the primary focus for risk management related to wildlife.

Based on our understanding of the proposed STA design and field review of existing similarly situated STAs, the site will be heavily vegetated with emergent wetland vegetation, primarily cattails once it is fully established.

---

<sup>1</sup> FAA Strike Database (<https://wildlife.faa.gov/search>) accessed 10/27/2023

<sup>2</sup> AC No. 150/5200-32B - Reporting Wildlife Aircraft Strikes (2013)

<sup>3</sup> Wildlife Hazard Management at Airports – A Manual for Airport Personnel (Cleary and Dolbeer, July 2005)



*Lakeside Ranch STA (ESA photo 10-18-2023)*

Based on this and a knowledge of the habitat and life cycle needs of regional wildlife, a summary table of the avian species likely to utilize the developed STA site was compiled by Common Ground Ecology Inc. (**Exhibit 2**). It is likely that the mature STA will restrict use by some of the more hazardous species as identified in AC 150/5200-32B including cattle egrets and white ibis which the FAA letter (September 27, 2023) identifies were considered the most hazardous species at OBE at the time of the 2016 OBE survey(s) due to their large flock size. The species most likely to utilize the STA once it is fully established include rails, gallinules and their allies, woodcock and snipe, bitterns and green heron. Species including limpkin, cranes, and black- and yellow-crowned herons either utilize thick vegetation for hunting or are widely variable in their habitat use and may occur at this proposed STA.

### Conclusions:

The existing condition at the proposed STA site is improved pasture with intermittent wetlands. A large number of avian species on the list of most hazardous species to aircraft currently utilize the site including turkey vulture, sandhill crane, bald eagle, wading birds and cattle egret. Based on thorough review of the proposed design, similar STAs, understanding of anticipated wildlife use, and the distance from OBE (~4.5 miles), it is the conclusion of the FAA Qualified Biologists that the mature STA, if vegetated as designed, does not represent a significantly greater wildlife hazard to aircraft at OBE than the existing condition.



5401 S. Kirkman Road  
Suite 475  
Orlando, FL 32819  
407-748-2729 phone

[www.esassoc.com](http://www.esassoc.com)

While the habitat of the mature STA is not likely to create a greater risk to aviation than the existing condition, it is acknowledged that it may take up to ~2 years for the STA vegetation to fully establish. It should be acknowledged that the interim phase (between construction and habitat maturity) may attract a greater diversity of wildlife than the mature STA system. Therefore, it is the recommendation of the FAA Qualified Biologists that wildlife monitoring should be conducted during and after construction and continue until the STA vegetation has fully established. If monitoring indicates that wildlife activity deviates from expectations, mitigative actions such as additional plantings to accelerate vegetative coverage of the STA or wildlife deterrent activities may be employed to reduce attractiveness.

Table 1. Composite ranking (1 = most hazardous, 50 = least hazardous) and relative hazard score of 50 wildlife species with at least 100 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight). Data were derived from the FAA National Wildlife Strike Database.

Wildlife species	% of strikes with:			Mean hazard level <sup>4</sup>	Composite ranking	Relative hazard score <sup>5</sup>
	Damage <sup>1</sup>	Major damage <sup>2</sup>	Effect on flight <sup>3</sup>			
White-tailed deer	84	36	46	55	1	100
Snow goose	77	41	39	53	2	95
Turkey vulture	51	19	35	35	3	63
Canada goose	50	17	28	31	4	57
Sandhill crane	41	13	27	27	5	48
Bald eagle	41	12	28	27	6	48
D.-crested cormorant	34	15	24	24	7	44
Mallard	23	9	13	15	8	27
Osprey	22	7	15	15	9	26
Great blue heron	21	6	16	15	10	26
American coot	24	7	11	14	11	25
Coyote	9	2	21	11	12	19
Red-tailed hawk	15	5	11	10	13	19
Cattle egret	10	3	15	9	14	17
Great horned owl	15	3	6	8	15	14
Herring gull	10	5	9	8	16	14
Rock pigeon	10	4	10	8	17	14
Ring-billed gull	8	3	8	6	18	11
American crow	8	3	8	6	18	11
Peregrine falcon	8	2	5	5	20	9
Laughing gull	5	2	7	5	21	8
American robin	7	1	4	4	22	7
Snow bunting	1	1	9	4	23	7
Red fox	3	0	8	4	23	7
European starling	4	1	5	3	25	6
Amer. golden-plover	4	2	4	3	26	6
Barn owl	4	2	3	3	27	5
Upland sandpiper	4	1	4	3	27	5
Purple martin	5	1	2	3	29	5

Wildlife species	% of strikes with:			Mean hazard level <sup>4</sup>	Composite ranking	Relative hazard score <sup>5</sup>
	Damage <sup>1</sup>	Major damage <sup>2</sup>	Effect on flight <sup>3</sup>			
Mourning dove	3	1	4	3	30	5
Red-winged blackbird	3	0	5	3	31	5
Woodchuck	2	0	4	2	32	4
Northern harrier	2	1	2	2	33	3
Chimney swift	2	0	2	1	34	2
Killdeer	1	0	2	1	35	2
House sparrow	2	0	1	1	35	2
Blk-tailed jackrabbit	1	1	1	1	37	2
American kestrel	1	<1	2	1	38	2
Eastern meadowlark	1	<1	2	1	38	2
S.-tailed flycatcher	0	0	2	1	40	1
Horned lark	1	<1	1	1	41	1
Pacific golden-plover	1	0	1	1	41	1
Barn swallow	1	0	1	1	43	1
Savannah sparrow	1	0	<1	1	43	1
Common nighthawk	1	0	1	1	45	1
Tree swallow	0	0	1	<1	46	1
Burrowing owl	1	0	0	<1	46	1
Western kingbird	0	0	1	<1	48	0
Virginia opossum	1	0	0	<1	48	0
Striped skunk	0	0	0	0	50	0

<sup>1</sup> Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

<sup>2</sup> Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained made it inadvisable to restore aircraft to airworthy condition.

<sup>3</sup> Aborted takeoff, engine shutdown, precautionary landing, or other negative effect on flight.

<sup>4</sup> Based on the mean value for percent of strikes with damage, major damage (substantial damage or destroyed), and negative effect-on-flight.

<sup>5</sup> Mean hazard level (see footnote 4) was scaled down from 100, with 100 as the score for the species with the maximum mean hazard level and thus the greatest potential hazard to aircraft.

**Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA**

This list was compiled using data from eBird (a vetted, citizen-science-based online database). Two reference sites in or near Okeechobee County were used: Lakeside Ranch STA and Taylor Creek STA. This list is not a complete list of expected species but includes the species that are most likely to occur based on the detections at the other nearby STAs. Further, some species listed may not occur at LKB STA-W.

***Waterbirds with Potential for Occurrence in Okeechobee County***

*Waterbirds are listed and grouped based on avian family; general notes associated with each group are provided. Each species has been assigned to one of three categories: Open Water, Dense Cover or Both.*

<i>Family (and description)</i>	<i>Species</i>	<i>Open-water</i>	<i>Dense-cover</i>	<i>Both</i>
<b><i>Waterfowl</i></b> - tend to prefer open water, with some exceptions like tree nesting species that tend to be somewhat secretive, especially in breeding season	Black-bellied Whistling-Duck	x	<b>LSR</b>	
	Fulvous Whistling-Duck	x	<b>LSR</b>	
	Graylag Goose	x		
	Canada Goose	x		
	Mute Swan	x		
	Egyptian Goose	x	<b>LSR</b>	
	Muscovy Duck	x		
	Wood Duck		<b>LSR</b>	x
	Blue-winged Teal	x	<b>LSR</b>	
	Northern Shoveler	x		
	Gadwall	x		
	American Wigeon	x	<b>LSR</b>	
	Mallard	x	<b>LSR</b>	
	Mottled Duck	x		
	Mallard x Mottled Duck (hybrid)	x	<b>LSR</b>	
	Northern Pintail	x		
	Green-winged Teal	x	<b>LSR</b>	
	Ring-necked Duck	x		
	Lesser Scaup	x		
	Bufflehead	x		
Hooded Merganser	x	<b>LSR</b>		
Ruddy Duck	x			
<b><i>Grebes</i></b> - duck like birds that prefer open water with some vegetative cover	Pied-billed Grebe	x		
	Horned Grebe	x		
<b><i>Rails, Gallinules, and Allies</i></b> - Secretive Marsh Birds that are typically associated with dense cover	King Rail		x	
	Virginia Rail		x	
	Sora		x	
	Common Gallinule		x	
	American Coot		x	
	Purple Gallinule		x	



**Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA**

	Gray-headed Swamphen		X	
<i>Limpkin</i> - need vegetative cover but also open spaces to visually hunt for apple snails	Limpkin		<b>LSR</b>	X
<i>Cranes</i> - need vegetative cover for nesting in/near wetlands, prefer open grasslands & pastures when not nesting	Sandhill Crane		<b>LSR</b>	X
<i>Shorebirds</i> - Typically associated with open mudflats, very shallow water, and/or wetland edges; some are very secretive and prefer short herbaceous vegetative cover	Black-necked Stilt	X		
	American Avocet	X		
	Killdeer	X		
	Stilt Sandpiper	X		
	Sanderling	X		
	Dunlin	X		
	Least Sandpiper	X		
	White-rumped Sandpiper	X		
	Pectoral Sandpiper	X		
	Semipalmated Sandpiper	X		
	Western Sandpiper	X		
	Short-billed Dowitcher	X		
	Long-billed Dowitcher	X		
	Short-billed/Long-billed Dowitcher	X		
	American Woodcock		X	
	Wilson's Snipe		X	
	Spotted Sandpiper	X		
	Solitary Sandpiper	X		
	Greater Yellowlegs	X		
	Lesser Yellowlegs	X		
Greater/Lesser Yellowlegs	X			
Willet	X			
<i>Gulls, Terns, and Skimmers</i> - open water foragers	Bonaparte's Gull	X		
	Laughing Gull	X		
	Ring-billed Gull	X		
	Herring Gull	X		
	Least Tern	X		
	Gull-billed Tern	X		
	Caspia Tern	X		
	Forster's Tern	X		
	Royal Tern	X		
	Black Skimmer	X		

**Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA**

<b>Storks</b> - associated with a variety of wetlands, mostly open with some herbaceous vegetation	Wood Stork	x	<b>LSR</b>	
<b>Cormorants and Anhingas</b> - need open water for successful foraging	Anhinga	x	<b>LSR</b>	
	Double-crested Cormorant	x	<b>LSR</b>	
<b>Pelicans</b> - need open water for successful foraging	American White Pelican	x	<b>LSR</b>	
	Brown Pelican	x		
<b>Hérons, Ibis, and Allies</b> - many wading birds prefer short herbaceous vegetative cover at varying depths of water, will use open water if shallow enough; there are a few that prefer dense cover	American Bittern		x	
	Least Bittern		x	
	Great Blue Heron	x	<b>LSR</b>	
	Great Egret	x	<b>LSR</b>	
	Snowy Egret	x	<b>LSR</b>	
	Little Blue Heron	x		
	Tricolored Heron	x	<b>LSR</b>	
	Cattle Egret	x	<b>LSR</b>	
	Green Heron		<b>LSR</b>	
	Black-crowned Night-Heron		<b>LSR</b>	x
	Yellow-crowned Night-Heron			x
	White Ibis	x	<b>LSR</b>	
	Glossy Ibis	x		
	Roseate Spoonbill	x	<b>LSR</b>	
<b>Kingfishers</b> - need open water for successful foraging	Belted Kingfisher	x		

**Other Avian Species with Potential for Occurrence in Okeechobee County**

*These species are not considered waterbirds, but some can be associated with wetlands where indicated. Where noted, the species may be associated with open water, dense cover, or with the edges of STA's where there are larger shrubs, trees, or powerlines*

Family	Species	Comments
<b>Grouse, Quail, and Allies</b>	Helmeted Guineafowl	
	Northern Bobwhite	
	Wild Turkey	
	Ring-necked Pheasant	
<b>Pigeons and Doves</b>	Rock Pigeon	
	Eurasian Collared-Dove	
	Common Ground Dove	
	White-winged Dove	
	Mourning Dove	
<b>Swifts</b>	Chimney Swift	

**Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA**

<b><i>Hummingbirds</i></b>	Ruby-throated Hummingbird	
<b><i>Vultures, Hawks, and Allies</i></b>	Black Vulture	<b>LSR</b>
	Turkey Vulture	<b>LSR</b>
	Swallow-tailed Kite	
	Sharp-shinned Hawk	
	Cooper's Hawk	
	Red-shouldered Hawk	<b>LSR</b>
	Short-tailed Hawk	
	Red-tailed Hawk	<b>LSR</b>
	Osprey	utilize open water for fishing
	Snail Kite	utilize open vegetated areas to visually hunt for apple snails
	Northern Harrier	hunts for small birds in a variety of vegetation
	Bald Eagle	utilize open water for fishing and hunting waterfowl
<b><i>Owls</i></b>	Great Horned Owl	<b>LSR</b>
	Barred Owl	
<b><i>Woodpeckers</i></b>	Yellow-bellied Sapsucker	
	Red-headed Woodpecker	
	Red-bellied Woodpecker	
	Downy Woodpecker	
	Pileated Woodpecker	
	Northern Flicker	
<b><i>Falcons and Caracaras</i></b>	Crested Caracara	<b>LSR</b>
	American Kestrel	<b>LSR</b>
	Merlin	
	Peregrine Falcon	likelihood of presence in the winter months hunting waterfowl in open water areas
<b><i>Parrots, Parakeets, and Allies</i></b>	Monk Parakeet	
<b><i>Tyrant Flycatchers: Pewees, Kingbirds, and Allies</i></b>	Eastern Wood-Pewee	associated with open areas/water for foraging on flying insects
	Least Flycatcher	associated with open areas/water for foraging on flying insects
	Eastern Phoebe	associated with open areas/water for foraging on flying insects
	Ash-throated Flycatcher	associated with open areas/water for foraging on flying insects
	Great Crested Flycatcher	associated with open areas/water for foraging on flying insects
	Western Kingbird	associated with open areas/water for foraging on flying insects

Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

	Eastern Kingbird	associated with open areas/water for foraging on flying insects
	Gray Kingbird	associated with open areas/water for foraging on flying insects
<b><i>Vireos</i></b>	White-eyed Vireo	associated with forested wetlands with medium to dense cover
	Blue-headed Vireo	associated with forested wetlands with medium to dense cover
	Red-eyed Vireo	associated with forested wetlands with medium to dense cover
<b><i>Shrikes</i></b>	Loggerhead Shrike	
<b><i>Jays, Magpies, Crows, and Ravens</i></b>	Blue Jay	
	American Crow	
	Fish Crow	
<b><i>Tits, Chickadees, and Titmice</i></b>	Tufted Titmouse	
<b><i>Martins and Swallows</i></b>	Northern Rough-winged Swallow	associated with open water for foraging on flying insects
	Purple Martin	associated with open water for foraging on flying insects
	Tree Swallow	associated with open water for foraging on flying insects
	Bank Swallow	associated with open water for foraging on flying insects
	Barn Swallow	associated with open water for foraging on flying insects
<b><i>Kinglets</i></b>	Ruby-crowned Kinglet	
<b><i>Gnatcatchers</i></b>	Blue-gray Gnatcatcher	
<b><i>Wrens</i></b>	House Wren	
	Sedge Wren	associated with wetlands with dense cover like cattail
	Marsh Wren	associated with wetlands with dense cover like cattail
	Carolina Wren	
<b><i>Starlings and Mynas</i></b>	European Starling	
<b><i>Catbirds, Mockingbirds, and Thrashers</i></b>	Gray Catbird	
	Brown Thrasher	
	Northern Mockingbird	
<b><i>Thrushes</i></b>	Eastern Bluebird	
	American Robin	
<b><i>Waxwings</i></b>	Cedar Waxwing	
<b><i>Old World Sparrows</i></b>	House Sparrow	
<b><i>Wagails and Pipits</i></b>	American Pipit	
<b><i>Finches, Euphonias, and Allies</i></b>	American Goldfinch	

**Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA**

<b><i>New World Sparrows</i></b>	Bachman's Sparrow	
	Grasshopper Sparrow	
	Lark Sparrow	
	Chipping Sparrow	
	Vesper Sparrow	
	White-crowned Sparrow	
	Savannah Sparrow	
	Song Sparrow	
	Lincoln's Sparrow	
	Swamp Sparrow	
	Eastern Towhee	
<b><i>Blackbirds</i></b>	Bobolink	
	Eastern Meadowlark	
	Baltimore Oriole	
	Red-winged Blackbird	associated with wetlands with dense cover like cattail
	Brown-headed Cowbird	
	Common Grackle	associated with wetlands with dense cover like cattail
	Boat-tailed Grackle	associated with wetlands with dense cover like cattail
<b><i>Wood-Warblers</i></b>	Ovenbird	
	Northern Waterthrush	
	Black-and-white Warbler	
	Orange-crowned Warbler	
	Common Yellowthroat	
	American Redstart	
	Northern Parula	
	Yellow Warbler	
	Black-throated Blue Warbler	
	Palm Warbler	
	Pine Warbler	
	Yellow-rumped Warbler	
	Yellow-throated Warbler	
	Prairie Warbler	
	Black-throated Green Warbler	
<b><i>Cardinals, Grosbeaks, and Allies</i></b>	Summer Tanager	
	Northern Cardinal	
	Blue Grosbeak	
	Indigo Bunting	
	Painted Bunting	