

**WINTER HAVEN'S GILBERT AIRPORT (KGIF)  
WILDLIFE HAZARD SITE VISIT  
WINTER HAVEN, POLK COUNTY, FLORIDA**



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## PREFACE

This Wildlife Hazard Site Visit (WHSV) was written to assess wildlife attractants as a summary inspection of conditions that currently exist at Winter Haven's Gilbert Regional Airport (KGIF). Though KGIF is not a Part 139 Certificated Airport, the WHSV does follow the specifications addressed in the latest versions of Advisory Circular 150/5200-38, AC 150/5200-33B, and AC 150/5200-36A in order to comply with the FAA standards and requirements described in CFR Title 14 Part 139.337. This document is specifically intended for use by the Winter Haven's Gilbert Regional Airport staff to monitor and reduce wildlife hazards at KGIF.

## 1. EXECUTIVE SUMMARY

This Wildlife Hazard Site Visit (WHSV) was written to assess wildlife attractants as a summary inspection of conditions that currently exist at Winter Haven's Gilbert Regional Airport (KGIF). Field inspections were conducted on October 2, 2018, October 18, 2018, and October 26, 2018. Field Inspections included areas both inside and outside the AOA at KGIF. When the document is submitted to the FAA Southern Region and the FAA Orlando Airports District Office, these reviewing agencies may consider this WHSV to suffice as a future or preliminary Wildlife Hazard Assessment validating the need for recommended and/or planned improvements to the airport. The recently released final version of Advisory Circular 150/5200-38, describes the protocol for conducting this WHSV.

This WHSV includes a review of the FAA National Wildlife Strike Database for KGIF. The FAA National Wildlife Strike Database showed only 3 wildlife strikes reported from 11/29/2011 through 11/23/2013, with 1 strike reported as Substantial damage (S), one strike reported as Minor Damage (M), and the earliest strike in 2011 with No Damage (N). The FAA National Wildlife Strike Database has been lagging the actual reported dates, but has been recently updated through 10/5/2018.

In summary, the 520+/- acre airport appeared to be in fairly good shape with nominal wildlife populations observed during the three field inspection dates. The most obvious recommendations to help in reducing wildlife incursions and incidents at the airport include: 1) the modification and/or removal of certain natural habitat areas that remain within the Airport Operations Area (AOA); 2) repair and modify and/or replacement of the AOA wildlife exclusion fences; repair AOA exclusion gate opening gaps to less than 6-inches, and grate openings on culverts within the AOA that extend outside the AOA confines; 3) extract and remove Gopher tortoises and any potential commensals from the dozens of burrows that exist within the AOA, and particularly in locations within the Runway Safety Areas; 4) implement and enforce a no-feeding policy for wildlife, and encourage a proper dumpster closure policy for all dumpsters located within the AOA and enclosed portions of the airport; 5) and implementation of a wildlife monitoring and response program to discourage potentially hazardous wildlife from frequenting the airport.

Winter Haven's Gilbert Regional Airport is virtually surrounded by six large waterbodies as lakes on all sides. Lake Mariana lies to the northwest, and Lake George. Lake Jessie lies to the south and southwest, and Lake Idylwild lies to the south. Lake Hartridge lies to the southeast, and Lake Pansy lies to the east. Each of these lakes lie within 2,000-feet, or 0.4-miles or less of the airport. These large waterbodies are all recognized as significant wildlife attractants for waterbirds, waterfowl, shorebirds, and raptors. It has been well-documented that 10 of the top 15 most hazardous birds at airports include those listed above as water-dependent species. This information is documented in the June 2018, *Serial Report Number 23, Wildlife Strike to Civil Aircraft in the United States 1990-2016*, prepared by the FAA and the U.S. Department of Agriculture Wildlife Services (USDA-WS). Consequently, wildlife strike hazard potentials are real at KGIF, and appropriate actions should be implemented to help reduce wildlife activity at and immediately around the airport.

## 2. INTRODUCTION

Mr. Gary Exner, an FAA Qualified Airport Wildlife Biologist, conducted the Wildlife Hazard Site Visit (WHSV) at Winter Haven's Gilbert Regional Airport, also known as Gilbert Field in Winter Haven, Florida. Field inspections were conducted on October 2, 2018, October 18, 2018, and October 26, 2018. Field Inspections included areas both inside and outside the AOA at KGIF.

As consideration to provide added value to Winter Haven's Gilbert Regional Airport, following discussions with Mr. Alex Vacha, Airport Manager, and the City of Winter Haven, we decided to prepare this Wildlife Hazard Site Visit with hopes that when the document is submitted to the FAA Southern Region and the FAA Orlando Airports District Office, they may consider this WHSV to suffice as a future Wildlife Hazard Assessment validating the need for planned improvements to the airport. The recently released final version of Advisory Circular 150/5200-38, describes the protocol for conducting this WHSV.

## 3. PROTOCOL FOR A WILDLIFE HAZARD SITE VISIT (WHSV) AC 150/5200-38

*"A Site Visit has three parts: Gathering airport information, field observations, and a final report with recommendations. Airports use a Site Visit to quickly evaluate and mitigate potential hazards on airports. An airport can also use a Site Visit to determine whether an Assessment is necessary. If an airport already has a Plan, airport management can use a Site Visit to investigate wildlife strikes to aircraft or to see if the Plan needs to be updated."*

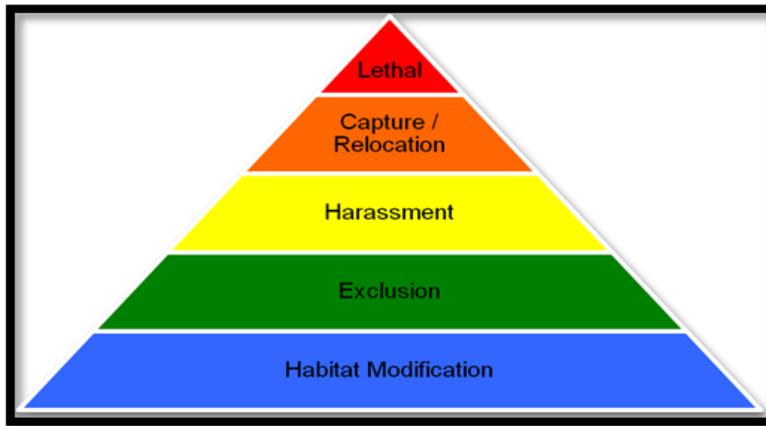
*"During the Site Visit, the Biologist collects and compiles information on the airport's wildlife hazard history, documented and suspected wildlife hazards, habitat attractants, control activities, airport operations procedures, communications of hazards through ATC and pilots, aircraft operations and scheduling. A Site Visit is typically conducted over a period of one to three days during which a Biologist evaluates the habitat on and surrounding the airport and records direct or indirect wildlife observations; and reviews the current Plan, current wildlife management activities and airport wildlife strike data."*

Our Site Visits were conducted on multiple days during the late fall season of 2018 when migration activity is typically more prevalent. The purpose of evaluating wildlife attractants and airport conditions during this time frame was to provide the information most valuable in determining the options and recommendations for improving airport safety with respect to wildlife hazards and minimizing potential damage to aircraft resulting from wildlife incursions to aircraft using the airport.

## 4. RECOMMENDATIONS FROM AC-150/5200-33B

### "HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS" 8/29/2007

This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. A recognized approach to manage wildlife at airports follows an FAA preferred hierarchy to be used before implementing lethal taking of wildlife at an airport. The hierarchy provides methods to employ and evaluate before depredate wildlife that should otherwise be discouraged from working at an airport through more effective management techniques.



**FAA RECOMMENDED HIERARCHY FOR MANAGING WILDLIFE AT AIRPORTS**

## 5. REVIEW OF DATA MANAGEMENT

The FAA National Wildlife Strike Database showed only 3 wildlife strikes reported from 11/29/2011 through 11/23/2013, with 1 strike reported as Substantial damage (S), one strike reported as Minor Damage (M), and the earliest strike 2011 as No Damage (N). The FAA National Wildlife Strike Database has been lagging the actual reported dates, but has been recently updated through 10/5/2018.

3

**Records to display per page:**

<u>Date</u>	<u>State</u>	<u>Airport</u>	<u>Airline</u>	<u>Aircraft</u>	<u>Engine</u>	<u>Species</u>	<u>Damage</u>
11/23/2013	FL	WINTER HAVEN'S GILBERT ARPT	PRIVATELY OWNED	C-400		Turkey vulture	M
09/01/2012	FL	WINTER HAVEN'S GILBERT ARPT	BUSINESS	PILATUS PC12	C	Anhinga	S
11/29/2011	FL	WINTER HAVEN'S GILBERT ARPT	CHANTILLY AIR	LEARJET-60	D	Unknown bird - small	N

**FAA NATIONAL WILDLIFE STRIKE DATABASE - KGIF**

The earliest wildlife strike on the Learjet-60, tail number N424KW, in 2011 had no damage (N) reported by airport operations when the aircraft was on approach to Runway 23 at dusk. The strike was reportedly an unknown bird-small and it may have involved an engine ingestion according to the FAA National Wildlife Strike Database report.



**LEARJET-60, N424KW – STRIKE REPORTED NOVEMBER 29, 2017**

The most significant wildlife strike reported in the past involved an Anhinga (*Anhinga anhinga*) that struck the windshield, nose, propeller, and right wing, doing Substantial (S) damage to the aircraft during climb at 6,000 ft. from Runway 5. The Pilatus aircraft, tail number N328JP, wildlife strike was reported to FAA by airport operations. The strike occurred during daytime hours with no clouds reported.



**PILATUS AIRCRAFT N328JP – STRIKE REPORTED SEPTEMBER 1, 2012**

The most recent wildlife strike reported involved a Turkey Vulture (*Cathartes aura*) that was struck by a private aircraft Cessna C-400 Corvalis aircraft that encountered a Turkey Vulture on approach to Runway 5, with some clouds noted during daytime hours. The aircraft sustained Minor (M) damage primarily to the painted finish, with no structural damage reported.



**CESSNA C-400 CORVALIS AIRCRAFT N232CH – STRIKE REPORTED NOVEMBER 23, 2013**

Turkey Vultures are fairly common hovering over airport and highways. Their unpredictable soaring characteristics can frequently result in causing serious impacts to aircraft, and in some cases resulting in Substantial damage to an aircraft.



**MILITARY AIRCRAFT-TURKEY VULTURE SUBSTANTIAL DAMAGE STRIKE**

No other recorded wildlife observations or strike information data specific to KGIF was provided by the FAA National Wildlife Strike Database.

## **6. AIR TRAFFIC CONTROL OPERATIONS**

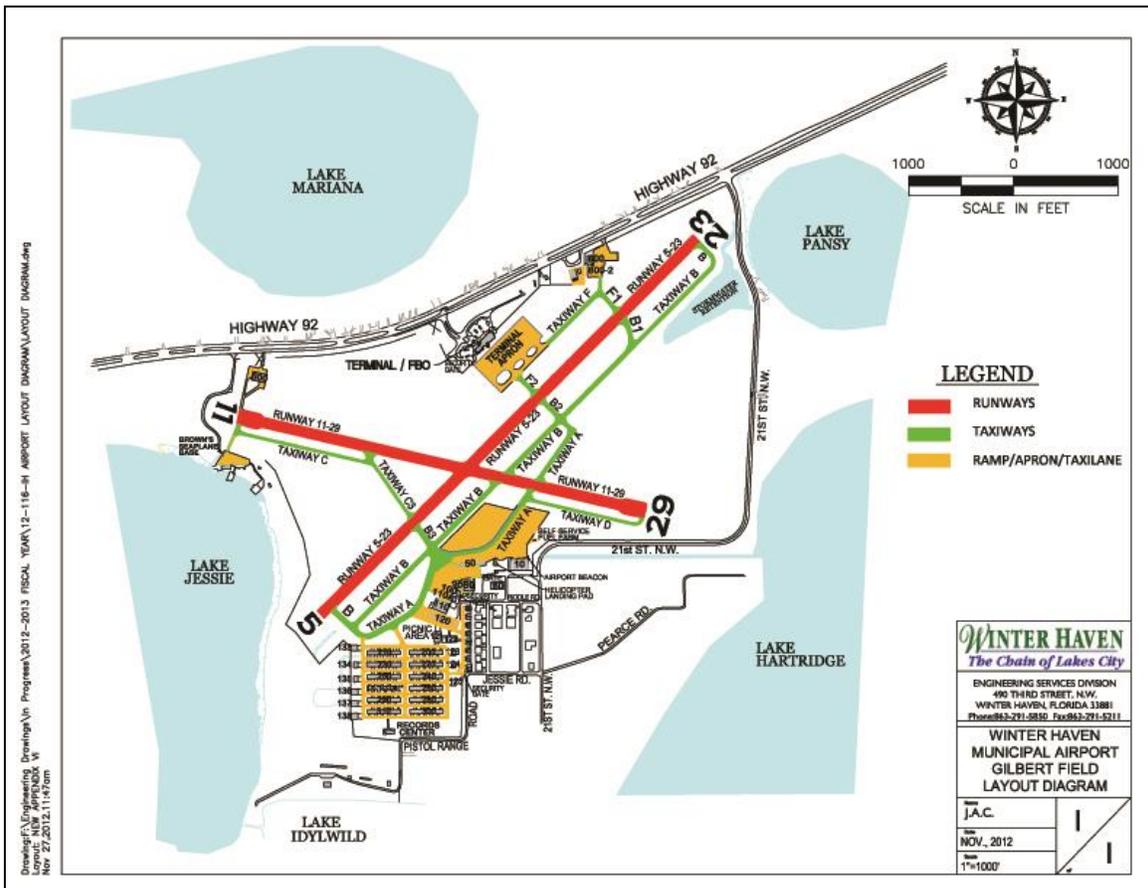
Winter Haven's Gilbert Regional Airport does not have an Air Traffic Control Tower. The airport is open to the public and provides AWOS-3 communications information via frequency 133.675 MHz, Telephone 863-956-2097. It also uses CTAF and UNICOM frequencies which are operating at 123.05 MHz. NOTAM-D is available 0700-1900. The airport operates a white-green beacon from sunset to sunrise daily. KGIF reports to have an average of 214 operations daily for the period ending July 14, 2017. Reported during same time period, there were 135 aircraft based on the field with 116 single engine aircraft and 13 multi-engine aircraft, 1 jet, 1 helicopter, and 4 glider aircraft. Approximately 60% of the operations are local general aviation, while the remaining 40% of the operations are transient general aviation activities.

## Airport Operational Statistics

Aircraft based on the field: 135 Single engine airplanes: 116 Multi engine airplanes: 13 Jet airplanes: 1 Helicopters: 1 Gliders airplanes: 4	Aircraft operations: avg 214/day * 60% local general aviation 40% transient general aviation * for 12-month period ending 14 July 2017
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### Additional Remarks

- BROWN'S SPB LOCATED ON ADJACENT LAKE.
- ANEMOMETER REMOTED TO FBO OFFICE.
- GLIDER ACFT OPERG ON AND INVOF ARPT.
- GCO AVBL ON FREQ 121.725 THRU TAMPA CD.
- RWY 05 PREFERRED FOR CALM OR LIGHT WINDS



**WINTER HAVEN'S GILBERT REGIONAL AIRPORT STATISTICS AND DIAGRAM**

## 7. AOA HABITAT MODIFICATION-TURF/NATURAL LAND MANAGEMENT

The AOA has two primary runways, Rwy. 5/23 and Rwy. 11/29, and main taxiways A, B, C, D, and F. Turf grasses comprised of primarily bahia grass (*Paspalum notatum*) within these areas appeared to be cut at a mowed height of less than 6-inches and approximately at a mower height of 4-5 inches. Although this turf height is lower than the FAA recommended turf maintenance range of between 6-12 inches, most of the turf did appear to be healthy and free from insect attracting flowering weeds in most areas. There were a few areas where the turf appeared to be cut too low resulting in scalping and opening these areas of barren sandy soils.



**TURF MOWING HEIGHTS TOO LOW IN SOME AREAS EXPOSING BARREN SANDS**

Open and barren sandy areas may attract various ground mobile wildlife that forage on bahia grasses and forage on other vegetation in the natural areas. Sandy barren areas attracts numerous Gopher Tortoises to areas within and close to active movement areas in the AOA. Gopher tortoise burrows may house several other wildlife species and attract meso-mammals that prey upon symbiotic wildlife that dwell in tortoise burrows.



**DOZENS OF GOPHER TORTOISE BURROWS SCATTERED WITHIN THE AOA**

Weeds and relic grass emergence through former paved surfaces within the AOA can tend to create grit and gravel from the deteriorating pavement. These areas can attract small grass nesting birds collecting crop grit, as well as Killdeer (*Charadrius vociferous*) that frequent open ground with low vegetation (or no vegetation at all), including, driveways, parking lots, and gravel-covered roofs, and relic or cracked and fissured abandoned paved runways and taxiways at airports. This species is one of the shorebird species least water-dependent of all shorebirds, and is found at nearly all airports, particularly those in Florida. Nests are typically found in well-camouflaged gravel areas on old pavement.



**KILLDEER ATTRACTANT AREA WITHIN OLD PAVEMENT**

Preferred management practices to reduce this minor attraction would include a plan to remove the old pavement and stock-pile the milled asphalt for later use at the airport. Pavement that exhibits cracks and weed growth should be treated with herbicides to reduce weed growth and limit the attraction of wildlife foraging and grit collection.

Flowering weeds attract a wide range of insects that can attract birds to the airport. Although areas of flowering weeds were rather small, and were not evident in high concentrations in most of the Runway Safety Areas (RSA).

Flowering weeds including Lantana (*Lantana disambiguation*) were found primarily in the brushy areas adjacent to forested natural lands. Lantana and other noxious invasive vegetation species were found at various locations near the forested, uncleared areas around the airport.



**GULF FRITILLARY BUTTERFLY (*Agraulis vanilla*) ON LANTANA**



**BUMBLEBEE (*Bumblebee disambiguation*) ON FLOWERING WEEDS**



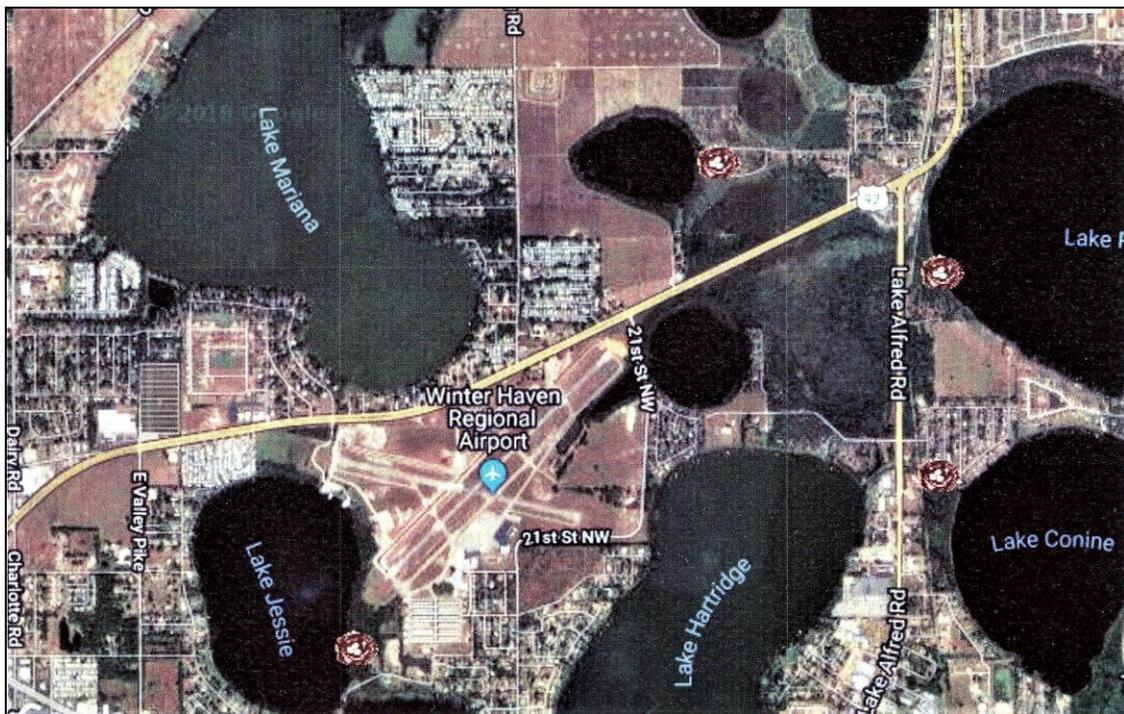
**ERRATIC SWALLOWS FLOCK FORAGE AIRBORNE INSECTS OVER FLOWERING WEEDS**

Tree swallows (*Tachycineta bicolor*) and Barn swallows (*Hirundo rustica*) regularly migrate through Florida. These aerial foragers feed in flight collecting a wide range of insects as they fly erratic sorties over open grassy fields.

Bats, swallows, swifts, martins, kites, gulls, and plovers were the most commonly struck type of flying animal at many airports. The size of bird, or more precisely the mass of the bird, corresponds directly to the potential for aircraft damage occurring from a bird strike. Larger birds pose the greatest threat, e.g. eagles and buzzards. Smaller birds, swallows and the like, pose less of a threat. However, if an aircraft encounters a large flock of erratic flying birds and if these birds are ingested through an engine or multiple strikes impact the aircraft, Minor (M) or even Substantial (S) damage could occur.

Some airports routinely engage a focused, short-term pesticide application program in areas that have been seasonally reported to have higher concentrations of migrating swallows and other aerial foragers.

The Florida Fish and Wildlife Conservation Commission (FWC) reports four Bald Eagle (*Haliaeetus leucocephalus*) nests within 1-mile and less from the airport. Eagle nest PO-246 is located along the southeast side of Lake Jessie and lies approximately 0.25-miles southeast of approach Runway 5, and approximately 0.5-miles south of approach Runway 11. During the field visit on 10/31/2018, a radio communication PIREP came through reporting a bald eagle sighting at approximately 200-feet AGL on approach to Runway 5.

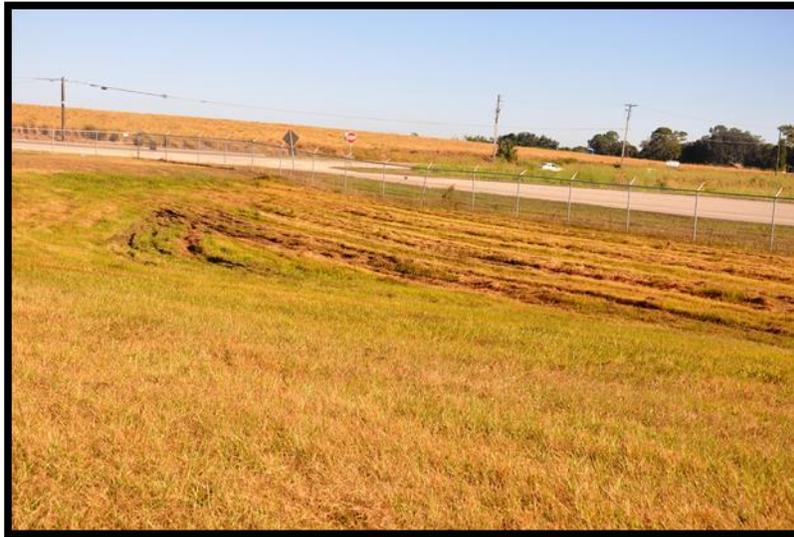


**BALD EAGLE NESTS NEAR KGIF**

While eagles and other raptors may continue to hunt various locations on and around the airport, habitat management should include the removal of dead trees and snags that can serve as regular perching sites for raptors and vultures. While eagles will generally build their nests only in live trees, ospreys (*Osprey disambiguation*) may build their nests in dead trees.

Other large birds that tend to soar over airports in Florida include Turkey Vultures and Black Vultures. Vultures may perch in dead trees and snags at the airport for hours before taking flight. Turkey Vultures have a keen sense of smell and usually are the first to find carrion in large open areas. Black Vultures sacrifice their sense of smell for keen vision and when they see Turkey Vultures foraging on carrion, large groups of Black Vultures will bully their way onto the carrion, this sometimes causes problems in getting them to dispatch from the carcasses.

Special attention should be paid to mowing in low areas where soft or soggy ground results in leaving tire or track ruts. These ruts tend to retain water and may result in damage or loss of normally healthy, but taller groundcover. In some cases, ruts may open mucky subsoils which can attract a wide range of shorebirds. If extremely wet conditions exist in these areas, it is generally better to refrain from mowing until the area dries out. Routine mowing along the same patterns will also tend to cause uneven turf growth.



**MOWING PATTERNS SHOULD BE VARIED IN DIRECTION TO PRESENT TIRE RUTS/DITCHES AND UNEVEN TURF GROWTH**

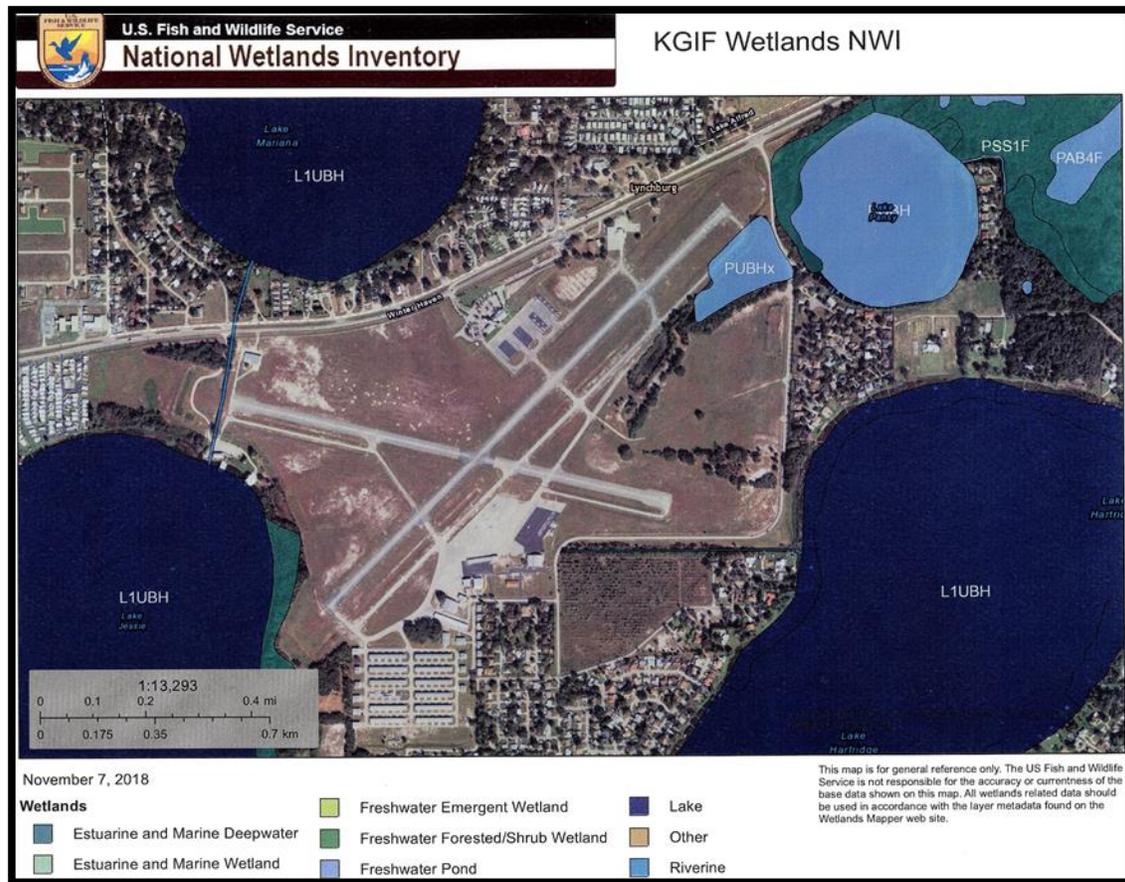
FAA recommends turf management as one of the most important habitat management techniques to discourage wildlife from becoming attracted to an airport. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. Turf grass areas can be highly attractive to a wide variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations.

## 8. AOA HABITAT MODIFICATION–STORMWATER LAKE/POND MANAGEMENT

### STORMWATER AND WETLAND AREAS

Another important attractant area that may require additional maintenance is stormwater retention ponds, ditches, and low-lying stormwater conveyances. The airport has one large stormwater retention area along the east side that is described as PUBHx by the National Wetlands Inventory (NWI). PUBHx is described as a Palustrine system that includes all non-tidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It describes the stormwater retention wetland as having an unconsolidated bottom with at least 25% cover of particles smaller than stones, and vegetative cover less than 30%. The hydrology regime is permanently flooded throughout the year in all years. And at this particular site, the retention area appears to have been excavated as a basin.

The only other wetland described by the NWI is situated along the extreme southwestern edge of the airport, and adjacent to Lake Jessie. This area is defined as a PSS1F wetland, which again recognizes the wetland as Palustrine, with Scrub-Shrub vegetation that is woody and generally less than 20-feet in height. It may include true shrubs, young trees or sapling, and shrubs that are small and/or stunted because of environmental conditions. Woody vegetation is primarily broad-leaved deciduous that shed their leaves during cold seasons.



NATIONAL WETLAND INVENTORY AERIAL OF KGIF

There were also some very small areas where it was clear that stormwater may collect and drain portions of the airport. These areas were extremely small in size and generally not considered a significant wildlife attract area, except that some wildlife may periodically hunt and forage in these areas when food or cover is limited. One such area was culverted and had high growth of weedy vegetation contained within it. This area was being sprayed with herbicides during the field inspection. Other areas also showed evidence of herbicide treatment performed by the crews from the City of Winter Haven.



**HERBICIDE TREATMENT ONGOING AT SMALL DITCH**

Other areas along the fringe of the stormwater retention pond at the east side of the airport had also undergone herbicide treatment of some noxious, invasive species. Proper herbicide treatment can help to improve drainage and promote faster evaporation and dry-out in certain areas.

FAA recommends that standing stormwater should be drained and/or removed from areas within the AOA within 48-hours of a rainfall event. **AC 150/5200-33B Part 2-3 Water Management Facilities (a)** *On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Standing bodies of water that can attract hazardous wildlife. FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques.*

*Airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.*

Part 2-3 (b) states: *Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires or grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions.*

Small drainage swales along both sides of the main runways appear to function very well with respect of collecting and dispersing rainfall and stormwater away from the taxiways and runways.



**HERBICIDE TREATMENTS OF NOXIOUS/INVASIVE VEGETATION**



**WEEDY COVER VEGETATION & STANDING WATER REMAINS IN DRY DETENTION AREAS**



**INTERNAL GRATED CULVERT IN STORMWATER DITCH**



**DRAINAGE CULVERTS THAT EXTEND OUTSIDE THE AOA SHOULD BE GRATED**



**CULVERTS SHOULD BE CLEANED FOR DRAINAGE FLOW**

## 9. AOA EXCLUSION AND GATE/FENCE MANAGEMENT

### EXCLUSION MODIFICATIONS TO CONSIDER FOR IMPROVING AVIATION SAFETY

Exclusion gates and fences are perhaps one of the most important features that should be monitored and repaired as quickly as possible, and as regularly as needed to keep potentially hazardous wildlife managed and maintaining aviation safety at an airport.

The FAA recommended wildlife exclusion fences may be cost prohibitive for this airport. Elevated deer and coyote populations in the United States represent an increasingly serious threat to both commercial and general aviation aircraft. According to the National Wildlife Strike Database, deer and coyote are the most frequently struck terrestrial mammals (37% and 34%, respectively). Deer are responsible for 92% of the mammal strikes that resulted in damage to aircraft.

From 1990 to 2015, over 1,107 deer-aircraft collisions and 487 coyote-aircraft collisions were reported to the FAA. Of these reports, 932 of the deer strikes (84%) and 43 of the coyote strikes (9%) indicated the aircraft was damaged as a result of the collision. The FAA reminds airport operators that controlling deer and other medium to large terrestrial mammals on and around airfields is very important. White-tailed deer were not observed, reported, or expected to ingress the AOA at KGIF.

Advisory Circular AC 16-03 (08/03/2016) states that proper fencing is the best way of keeping deer and coyotes off aircraft movement areas. In some cases, deer have been observed jumping over 8-foot fencing, and coyotes have been observed scaling 6-foot fencing. Deer and coyotes can fit through very small gaps between gates and under fencing. Deer have been observed squeezing through a 7.5-inch gap at the bottom of a fence. Coyotes can fit through 6-inch and 4-inch gaps under a fence, and they will also dig under the fence to access the airfield. The FAA recommends a 10-foot fence with 3-strand barbed wire outriggers. In some cases, an airport may be able to use an 8-foot fence with 3-strand barbed-wire outriggers, depending on the amount of deer activity in a local area. A 4-to 5-foot skirt of fencing material, attached to the bottom of the fence and buried at a 45-degree angle on the outside of the fence, is ideal to prevent animals from digging under the fence and reduce the chance of washouts. If the fence skirting cannot be installed at a 45-degree angle, then it is acceptable to install it horizontally underground several inches, and/or at least 2-feet vertically beneath the surface. This type of fencing also greatly increases airport security and safety. A concrete base along the bottom of the fence is also an option to prevent burrowing or digging under the fence. Airport Operators should keep the fence line right-of-way free of excess vegetation on both sides. The fence line should be inspected daily, and a fence inspection schedule should be included in an airport's Wildlife Hazard Management Plan (WHMP). If the proposed inspection schedule is less than daily, it should be approved by an ACSI for Part 139 certificated airports. Washouts, breaks, or other holes in the fence need to be repaired as soon as they are discovered.

The key for excluding deer, coyotes, and other meso-mammals is the proper installation and maintenance of a fence that is:

- Of sufficient height to deter jumping and scaling
- Constructed of a material that is difficult to penetrate
- Constructed fully around the airfield without gaps below the fence or at the gates or that mitigates the gaps with other exclusionary materials
- Constructed to deter and limit digging or burrowing under the fence

The most suitable fence for an airport depends on many factors, including the observed wildlife hazards, the potential impacts of certain types of fencing, seasonality of hazards, costs (both for construction and maintenance), and adjacent habitat types. Airport sponsors must contact their local ADO to discuss what types of fencing are eligible for AIP funding.

For proposed fencing that will intersect wetlands or surface waters (streams, rivers, etc.), the airport sponsor should determine what state and federal permits will be required prior to installation. Fencing that is located in wetlands or over surface waters typically requires additional maintenance and/or cleaning due to debris getting caught and potentially damaging the fence. If a culvert is located along the perimeter fence, grates or some other barrier should be placed over the culvert to ensure wildlife cannot access the airfield through the culvert. The barrier should allow for water movement and should be inspected and cleared of debris regularly to ensure water is flowing efficiently.

Part 139 Certificated Airport sponsors should include new and/or improved wildlife fencing in their WHMP as a prioritized action item. If deer or other meso-mammals are observed on or near the aircraft movement area, immediate action must be taken to remove them. Although KGIF is not a Certificated Part 139 Airport, the airport owners should adhere to the FAA recommendations to assure all deer and other meso-mammals observed on or near the aircraft movement areas will require immediate action to alleviate this condition.

## **FENCE MAINTENANCE**

Several fence breaches were observed during the inspections. Many of these breaches can be repaired by fortifying the area with asphalt millings or fist-sized stones. Herbicide treatment was also recognized along many of the AOA fence bases. An 18-inch wide swath cleared along both sides the fence bases is beneficial in allowing for quick identification and repair of breaches dug from ground-mobile wildlife.



**CLEARED FENCE BASES ALLOWS FOR QUICK BREACH IDENTIFICATION AND REPAIR**

Dig Defence® products have recently been installed at several fence breaches around the AOA at other airports. These inexpensive products should help to reduce the numbers of wildlife incursions in the AOA.



**DIG DEFENCE® PRODUCTS ALONG AOA FENCE BASES**

Remediation to these trouble spots may include fortifying the fence base with either concrete mow strips approximately 18-to-20-inches wide, or installing the FAA recommended fence base with additional chain-link fabric to reduce wildlife intrusions.



**CONCRETE MOW STRIPS ALONG AN AOA FENCE BASE**



**OTHER AOA FENCE FORTIFICATION OPTIONS**

FAA recommended AOA fence base fabric installation and ample fortifications with asphalt millings along former breaches, and particularly at AOA fence corners can help to reduce fence base breaching.

Winter Haven's Gilbert Regional Airport's natural resources, and its six surrounding lakes, make KGIF the premier location for seaplane activities within the state. Florida is one of the most seaplane friendly states in the United States, and has the largest number of SPA members in the country. Florida boasts numerous seaplane training schools including Jack Brown's, Florida Seaplanes, Jones Brothers, Adventure Seaplanes and several others. There are more seaplane pilots in the state of Florida than any other state.

Seaplane pilots, and the Seaplane Pilots Association (SPA) are strong advocates for the protection of all waterways--- protection from policies and regulations that would restrict access by trained and responsible users, and protection from predatory and destructive invaders of our waterways. The SPA recognizes the very serious threat that invasive species pose to the health of our lakes and rivers, and is committed to a proactive approach to protecting waterways from the introduction and spread of unwanted and potentially harmful freshwater and marine plants and animals.

## OPEN ACCESS

Gate 8 at the access to Brown's Seaplane Base was found open during each of the site visits. Gates that remain routinely open can allow various wildlife free passage onto the active movement areas of the airport.



**BROWN'S SEAPLANE BASE AT WEST SIDE AOA**

## EXCLUSION GATES

Exclusion gate modifications should also be installed at Gates 2, 3, 4, 5, 6, 6A, 7, 8, 9, 14, 16, and 17, as well as any other gates around the AOA where base horizontal or vertical gaps greater than 4-inches are obvious. Most of the gate modifications can easily be rectified by simply re-adjusting the gate hinges and openings with either additional hardware or installing speed bumps either beneath the gate or on one side or the other to reduce the horizontal gaps to 4-inches or less. With human access gates, tenants should be instructed to properly close gates following ingress or egress. Ground mobile wildlife are generally cunning and capable of moving rapidly through open gates.



**GATES 2, 3, AND 4 RESPECTIVELY NEED ATTENTION**



**GATES 5, 6, AND 7 RESPECTIVELY NEED ATTENTION**



**GATES 6-A, 9, AND 11 RESPECTIVELY NEED ATTENTION**



**GATES 14,16, AND 17 RESPECTIVELY NEED ATTENTION**

## OUTRIGGERS

Three-strand barbed-wire outriggers are installed around AOA fences to keep climbing wildlife from entering the airport. There are a few spots where the outriggers have been damaged and the barbed-wire is missing and these areas should also be repaired or replaced.



**OUTRIGGER AND BARBED-WIRE REPAIRS NEEDED ALONG AOA FENCES**

## FENCE VEGETATION

AOA fence maintenance is critical to reducing hazardous wildlife attractants at airports. Fences that are being compromised with vines, weeds, shrubs, palm, and trees should be cleared.





**VEGETATION COMPROMISING AOA FENCES SHOULD BE REMOVED**

Vegetation adjacent to compromised AOA fences may also provide an opportunity for hazardous wildlife to burrow beneath and/or frequent the airport.



**BREACH FILLED BENEATH THE AOA FENCE**

## GROUND CLEARANCES

Ground surface fence bases should be maintained to prevent wildlife from entering the AOA. Some of the fence bases exceed the minimum 4-inches gaps heights. This may have been caused by maintenance equipment that accidentally hit the fence, or other factors such as soil subsidence and erosion around fence posts. In any event, these flaws in exclusion fencing should be repaired and/or replaced.



**SOIL SUBSIDENCE AND EROSION BURROW AT FENCE POSTS REQUIRES REPAIR**



**AOA FENCE WILDLIFE BREACH AREAS NEEDING RECTIFICATION**

## DUMPSTERS AND TRASH ATTRACTANTS

Other physical attractants that are sometime overlooked at airports is trash containment, i.e. dumpster management. American crows, vultures, and a wide range of ground mobile wildlife will congregate and forage on garbage and food items discarded in dumpsters. Dumpsters that are associated with air terminal café and restaurants, are of a particular concern as food wastes are frequently discarded in the dumpsters just outside the AOA, and in some cases inside the AOA near hangers and tenant facilities. A No-Feeding policy should be employed at all airports and tenants should be reminded to keep dumpster lids closed at all times. It may be the responsibility of some tenants or airport staff to check the dumpsters after the waste collection companies go through the properties to ensure that the lids are closed. Several dumpsters were found open during each of the field inspection periods.



#### DUMPSTER MAINTENANCE

FAA regulations dealing with trash and waste containers is very specific for airports.

FAA Order NG 1050.3G, Part 6 (b) states: *The improper disposal of litter and/or trash items is prohibited. This includes items such as cigarette butts, candy wrappers, and convenience food packaging.*

FAA Order NG 1050.3G, Part 6 (d) states: *The feeding of wildlife is prohibited, excluding confined animals used for research.*

FAA Order NG 1050.3G, Part 6 (f) issued 12/1/2013 specifies: *All dumpsters and refuse containers outdoors or exposed to stormwater shall be covered at all time and shall not spill, dump, or otherwise leak or discharge liquids, semi-liquids or solids from the containers.*



#### **WILDLIFE FORAGING AT OPEN DUMPSTERS AT OTHER AIRPORTS**



#### **BOLD DUMPSTER MARKING MAY HELP AS A REMINDER**

Unfortunately, most of the waste collection haulers will not pay special attention to make sure the lids are properly closed after they empty the containers. This usually requires either the tenants or the airport staff to check each container to ensure closure following hauler pick-up. It is nevertheless important to try to rectify and reduce possible wildlife usage on airport property.

## **WILDLIFE PERCHING**

Wildlife may use various perches within the AOA for loafing, or hunting. In any event perching scenarios should be monitored to identify persistent wildlife activities that may pose hazardous wildlife conditions to aviation safety.



**TWO CROWS PERCH ON BEACON - ONE KESTREL PERCHED ON DAMAGED WINDSOCK**



**OSPREY PERCHED ON SNAG ALONG WEST SIDE OF AOA**

### **ANTI-PERCHING DEVICES MAY KEEP WILDLIFE OFF SIGNS, LIGHTS, AND OTHER STRUCTURES**

New plastic anti-perching strips are now available on the market. Using these products should help to reduce wildlife perching, and reduce guano build-up and possible corrosion of electrical devices while reducing maintenance costs.

## 10. WILDLIFE HAZING AND HARASSMENT

Wildlife hazing and harassment was not apparent during any of the inspection visits. No evidence of White-tailed deer was obvious anywhere on the airport. Coyote tracks were found along the east side of the AOA. The FAA National Wildlife Strike Database reports 31 coyote strikes on Florida airports from 1995 through February 13, 2018. At least 3 strikes were reported as either Minor damage (M) or Minor damage uncertain (M?). Of those reported, 9 of the strikes occurred at Tampa International Airport (TPA) and 5 of the strikes occurred at Orlando International Airport (MCO). Together these coyote strikes were also associated with larger central Florida airports and accounted for roughly 45% of the total reported.



**FRESH ADULT AND SUB-ADULT COYOTE TRACKS ON SAND MOUND AT EAST AOA**

Dozens of Gopher Tortoise burrows were flagged and photographed at nearly all areas within the AOA. Although 25 burrows were counted and flagged during the first field inspection, many additional burrows were found during the second and third field visits. Most of the burrows appeared to be active as evidenced with fresh slide markings and scat in the vicinity of the borrow openings. Tortoise incursions are generally not a serious threat to aircraft safety, but when an aircraft veers off a runway or taxiway, and the landing gear hits one of the large burrows, damage to the landing gear may occur, resulting in an expense to the aircraft owners. Several burrows were observed that were clearly in the Runway Safety Area (RSA).

The FAA National Wildlife Strike Database reports 28 Gopher Tortoise strikes at Florida airport from August 2010 through June 30, 2018. Of these strikes, there were no strikes that resulted in Minor, or Substantial damage to an aircraft. Approximately 71% of the strikes, or 20 out of the 28, were reported at Orlando Sanford International Airport (KSFB). In an effort to remediate some of this problem, KSDF elected to try an innovative technique which involved the installation of artificial turf in areas where burrows were prevalent.

Title 14 Code of Federal Regulations Part 139 (14 CFR 139) Section 309, requires airports to maintain runway safety areas (RSAs) free of “hazardous ruts, humps, depressions or other surface variations.” The safety areas must also be capable of supporting the “occasional passage of aircraft without causing major damage to the aircraft.” A number of airports in the Federal Aviation Administration (FAA) Southern Region have difficulty meeting the regulations under 14 CFR 139 for holes in RSAs caused by Gopher Tortoise burrows.

Gopher tortoises are listed as a threatened species in Florida, and mitigation efforts (i.e., tortoise removal or relocation and burrow eliminations) are heavily regulated, expensive, and time-consuming. However, gopher tortoises burrowing in such close proximity to runways are a safety hazard to aircraft that may leave the runway pavement surface.



**NUMEROUS GOPHER TORTOISE BURROWS AT SEVERAL LOCATIONS IN THE AOA**

Artificial turf that meets the specifications in FAA Advisory Circular 150/5370-15B has been identified as a material that can be used to cover large portions of airport property with multiple benefits, such as providing consistent ground cover, as well as reducing maintenance costs and attractive vegetative food sources for hazardous wildlife species. It was determined that research was necessary to assess artificial turf as a potential solution for mitigating the burrowing behavior of gopher tortoises on the airport property.



**ARTIFICIAL TURF AT ORLANDO SANFORD INTERNATIONAL AIRPORT**

Because these potential problem burrows were scattered over nearly every upland soil type defined at the airport, it does not appear that the use of artificial turf would be a feasible solution to the tortoise problem. Instead, other airports have elected to take a long-term remediation approach by assigning one of the airport staff to take action to relocate tortoises that are in areas that may result in eminent danger to aircraft safety. An airport can assign a staff member to take the FWC online examination and become a certified agent as airport personnel to handle tortoises for capture and relocation.

Airport operators can contact the Florida Fish and Wildlife Conservation Commission (FWS) or the nearest USDA, Wildlife Services Office for assistance with deer, coyotes, foxes, tortoises, and/or other ground-mobile wildlife problems.

## **PYROTECHNICS AND FIREARMS**

Airports may use a wide range of pyrotechnics to haze and harass hazardous wildlife away from airports. These tactics have been used in combination with several other techniques including bioacoustics, effigies, drones, lasers, propane cannons, and vehicle lights and sirens.

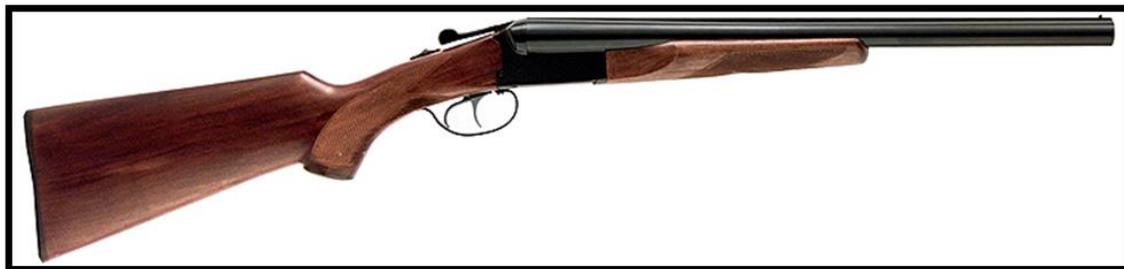
Pyrotechnics are generally preferred for avian wildlife that are foraging or hovering over an airport. A large variety of pyrotechnics are available from various vendors.



**A SEVEN SHOT PYROTECHNIC LAUNCHER AND SHELLCRACKER SHOTGUN**



**SINGLE SHOT, DOUBLE SHOT, AND SEVEN SHOT PYRO LAUNCHERS**



**BREAK-ACTION SHOTGUN TYPICALLY USED LAUNCHING SHELLCRACKER ROUNDS**



### **BIRD BANGERS, SCREAMER SIRENS, AND SHELLCRACKERS**

Economical gas scare cannons are the perfect solution to keep pest birds and wildlife away from airports. The cannons can cover up to 7-10 acres, based on the layout and topography of the land.



### **PROPANE SCARE AWAY CANNON**

The harassment techniques must be bothersome to the animal. Birds will tend to habituate to the location of the hazing devices, so frequent relocation may be necessary to be effective. The greater the discomfort to the animal the faster the harassment technique will develop results. Persistence is key to success.

Effigies are sometimes effective for some birds, but they are less likely a viable solution for this airport.

It appears that the most effective means of managing wildlife at Winter Haven's Gilbert Regional Airport will be to manage habitat identified as wildlife attractant foraging areas both on and off the airport property.

## 11. WILDLIFE CAPTURE/RELOCATION

Wildlife capture and relocation is not really a feasible option for the airport, since minimal public lands relocation areas exist in the immediate region.

## 12. WILDLIFE AREAS AROUND THE AIRPORT

Pilots are encouraged to review their emergency procedures when operating from airports with known bird hazards or when operating near high bird concentrations (i.e. major migratory flyways). The most serious strikes involve when a large mass bird or large mass ground mammal is struck or ingested into an engine, and there is a sudden loss of power or engine failure, or windshield strikes which result in pilot confusion, loss of communication or aircraft control problems. An experienced pilot will generally be able to avoid collision with large birds by climbing to higher altitudes and turning to avoid a strike. The FAA National Wildlife Strike Database shows that although KGIF has not reported a large number of hazardous or damaging strikes, it has however had 3 reported strike. One strike resulted in Minor damage, and another strike resulted in Substantial damage to an aircraft. Both the Minor damage and Substantial damage strike were attributed to large mass birds. With the large number of lakes and waterbodies surrounding the airport, it is likely that additional hazardous wildlife strikes may occur with increased air traffic in and around KGIF, and increasing populations in wildlife that are receiving protection from the U.S. Fish and Wildlife Service (FWS) as well as the Florida Fish and Wildlife Conservation Commission (FWC).

## 13. WILDLIFE LETHAL CONTROL

Lethal wildlife control is used only as a last resort for managing wildlife at airports, per mutual agreement between state and federal wildlife agencies (FWC and FWS), the USDA Wildlife Services, and the FAA. Problem wildlife that are routinely unresponsive to traditional and non-persistent hazing/harassment may be subject to lethal depredation, if permitted.

Depredation of wildlife are detailed and recorded and information pertaining to the depredation activities is reported in the year-end annual depredation reports that are to be submitted to the U.S. Fish and Wildlife Service (FWS). All depredated carcasses are to be properly disposed through the required burial practices as specified by the FWS.



**LETHAL DEPREDATION OF COYOTE IN RSA**

## 14. IMPORTANCE OF WILDLIFE MANAGEMENT

It is ultimately important for the airport to continue to serve the community with essential services for medical and community growth.



**WINTER HAVEN HOSPITAL**

Winter Haven's Target Industries include:

- Healthcare
- Technology & Innovation
- Freight Transportation & Logistics
- Business Development
- Tourism & Hospitality
- Agribusiness

## 15. NEW REMOTE AND ROBOTIC HAZING/HARASSMENT TECHNIQUES

Several new hazing and harassment techniques have developed since 2009 and Flight 1549. Drone robotics have come on to the scene where they chase birds using various bioacoustics and causing the birds to use up their energy trying to stay away from the drones. Radio control coyote decoys are also available. Bird-X 3D is a plastic Coyote Decoy that should be able to be mounted on any sort of heavy-duty, remote control car, airboat, or truck.

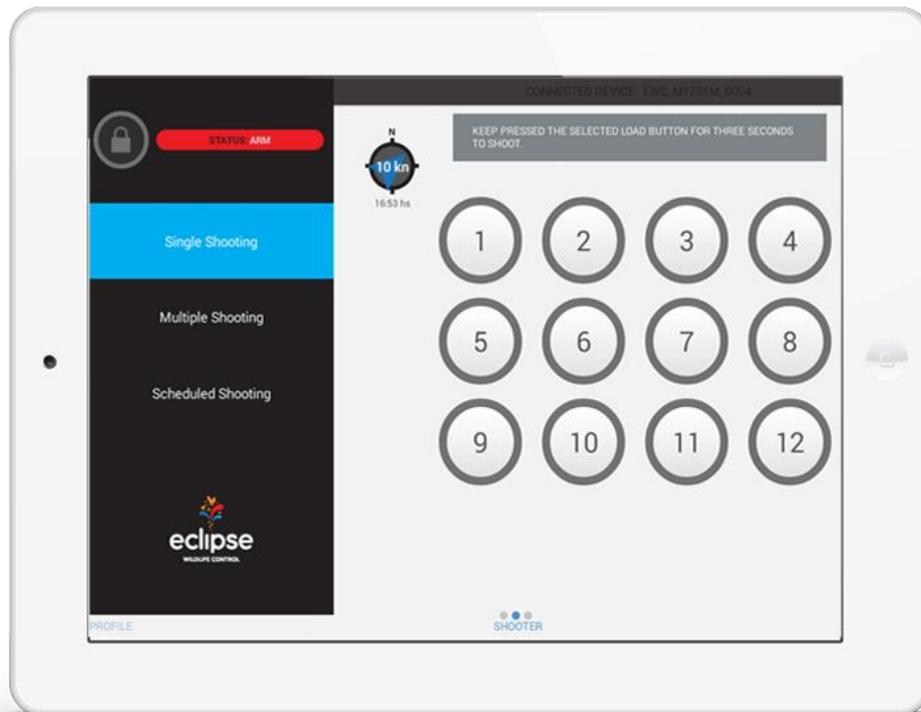


**COYOTE EFFIGY AS HAZING/HARASSMENT TECHNIQUE**



**PLASTIC COYOTE DECOYS**

The remote-control pyrotechnics launcher from Eclipse allows for multiple pyrotechnics rounds to be fired remotely from a pivoting and tilting firing array.



### **ECLIPSE PYROTECHNICS SYSTEM AND REMOTE 12-GAUGE SHELL LAUNCHER**

EWC Pyro System is a Military Grade Heavy Duty 12-Gauge Pyrotechnics System wireless activated exclusive designed for bird control, with two maximum goals. Enhance the safety of the users, and to increase the effectiveness of the pyrotechnics. Four diverse types of shellcracker/12-gauge hazing/harassment rounds area available.

## 16. BIOACOUSTIC DEVICES

The Hyperspike HS-10 Portable Acoustic Device combines a variety of high intensity sounds with an output of 144 dB for a communication range of up to 750+ meters. This device can be used to haze wildlife at higher distances than most pyrotechnics will reach and when combined with other hazing techniques, can be very effective in managing wildlife problems around airports.



**HYPERSPIKE HS-10**

**SCARECROW**  
**BIO-ACOUSTIC SYSTEMS**  
KEEPING BIRDS AT BAY

A screenshot of the Scarecrow Bio-Acoustic Systems website homepage. The header features the company logo and navigation links. The main content area includes a 'Latest News' section with two articles, a 'Welcome to Scarecrow Bio-Acoustic Systems Limited' message, and a featured product 'Ultima' with a description and a 'Discover More' link. A tablet displaying the Ultima interface is shown in the center.

**SCARECROW**  
**BIO-ACOUSTIC SYSTEMS**

Products | Case Studies | News Items | About Bio-acoustics | The Scarecrow Team | Contact Us

### Leaders in Bird Control & Dispersal

#### Welcome to Scarecrow Bio-Acoustic Systems Limited

World Leaders in Humane Bird Dispersal for Airside & Non-Airside Applications

#### Latest News

October 08 2008  
**Historic Warship HMS Warrior 1860 Wins Latest Battle**  
The world's oldest surviving Victoria's battleship, HMS Warrior 1860, has been battling the enemy in the form of the feathery kind. Moored at Portsmouth Historic Dockyard for the last twenty years, the renowned battleship has not only been attracting interest from the public but also from a number of nuisance pigeons, starlings and seagulls.

October 06 2008  
**Scarecrow Bio-acoustic Systems Announces New Directorships**  
Scarecrow Bio-acoustic Systems, the leading international provider in bird dispersal technology

#### Ultima

Ultima, a unique Tablet Computer controlled development from the well established vehicle based Scarecrow Premier bird dispersal system. A true breakthrough in bird dispersal, logging and analysis that is in use in many major airports throughout the world today...

[Discover More](#)

**SCARECROW BIO-ACOUSTIC SYSTEMS**

## 17. CONCLUSIONS AND RECOMMENDATIONS

Our field observations found several areas where wildlife exclusion can be fortified at nominal expense. Airport staff are doing a good job of identifying physical problem areas.

We recognize that wildlife have possibly roamed the airport without any hazing or harassment from the airport staff. Much of the overall airport maintenance is performed in conjunction with the City of Winter Haven's maintenance crews, who may or may not have a clear understanding of Habitat Management, Exclusion Management, and Hazardous Wildlife Attractants that exist on the AOA. Persistent hazing and harassment techniques can prove valuable in discouraging wildlife from visiting the airport.

Wildlife hazing and harassment has been described in this WHSV. A collaborative hazing program with some of the City of Winter Haven's maintenance crews would likely be effective as long as it would be carefully coordinated with the airport staff. New technologies for managing wildlife at airports is continuing to improve the ways that airport staff can help to reduce wildlife impacts on aircraft.

### RECOMMENDATIONS

- Recommend greater coordination with the City of Winter Haven's Maintenance Crews;
- Recommend enhanced work on Habitat Management to reduce attractants at the airport;
- Recommend enhanced work on Exclusion fences and gates repairs and security;
- Recommend appointing an airport staff member for wildlife monitoring and mitigation of Gopher Tortoise burrows;
- Recommend eliminating snags and selected perch trees;
- Recommend installing anti-perching devices and employing an active wildlife hazing and harassment program;
- Recommend developing and implementing a proper No-Feeding and dumpster maintenance program.

In summary, our assessment of wildlife attractants at KGIF was very positive. We recognize that the airport staff is doing a very good job and commend their efforts for improved management of wildlife issues at the airport. We encourage continued vigilance in this airport safety program.



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Gary Exner, FAA Qualified Airport Wildlife Biologist