
Appendix K – Wildlife Site Visit



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Wildlife Services

2803 Jolly Rd.
Suite 100
Okemos, MI 48864

September 25, 2019

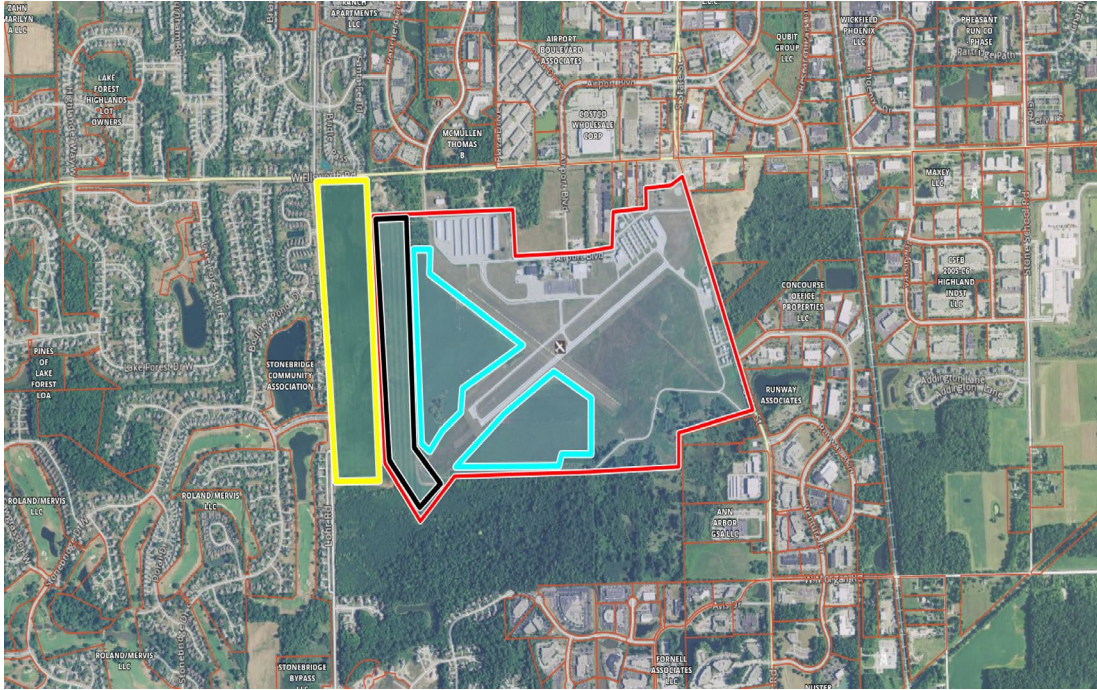
Matthew J. Kulhanek
Airport Manager
Ann Arbor Municipal Airport
801 Airport Drive · Ann Arbor · MI · 48108

Dear Mr. Kulhanek,

At the request of Mr. Steve Houtteman, Michigan Department of Transportation (MDOT) and yourself, the US Department of Agriculture Wildlife Services (WS) signed an agreement to perform a Formal Site Visit at Ann Arbor Municipal Airport (KARB). This letter summarizes the findings of the two-day Site Visit and provides recommendations for KARB in dealing with the wildlife found to be utilizing the site.

The Site Visit (SV) is a tool for the airport to quickly evaluate and mitigate potential or realized hazards on or near the airport. The focus will be on the most hazardous species to aircraft. It is a snapshot of wildlife activity and attractants on or near the airport. The Site Visit is not meant to replace a complete Wildlife Hazard Assessment.

Ann Arbor Municipal Airport Landscape



Red line = Ann Arbor perimeter fence

Turquoise line = Fallow field (too wet for planting)

Black line = Soybean field

Yellow line = Cornfield outside AOA

Reported FAA Wildlife Strikes at KARB

Date	SPECIES	Remarks
1991-08-09	Gulls	
1991-05-12	Red-winged blackbird	NO DAMAGE/INJURY. HAZY. HIT A FLOCK, # NOT REPTD ASSUME 2-10.
1990-11-05	Gulls	
1991-08-09	Gulls	HIT A FLOCK, ASSUME 2-10. UNKN IF DAMAGE. TIME = 1415 LCL.
1992-09-16	Unknown bird - small	WET RWY. NO DAMAGE.
1995-08-09	White-tailed deer	STRUCK A DEER ON LANDING R/O. COLLAPSED NOSE GEAR. SUDDEN ENGINE STOPPAGE. ANIMAL CONTROL INADEQUATE.
2001-11-26	White-tailed deer	KANSAS FLT 615 HIT A DEER AFTER ARPT WAS CLOSED FOR THE NIGHT. NO INJURIES OR DAMAGE WAS REPTD. RWY WAS CHECKED AND RE-OPENED.
2001-11-27	White-tailed deer	2-3 DEER TRIED TO CROSS THE RWY DURING LDG ROLL. 1 HIT ENG AND WING. AVOIDANCE WAS NOT A SAFE OPTION
2004-10-29	Canada goose	HIT GOOSE WITH L WING. MINOR DMG. RETD TO ARPT. (DATA ENTRY NOTE: REPTD AS GOOSE, ASSUME CANADA GOOSE FROM DATE AND LOCATION)
2008-08-10	Unknown bird - small	WHILE ON APCH, NON FLYING PILOT SAW A SHADOW GO BY RT SIDE COCKPIT WINDOW. HE ASSUMED IT TO BE A SML BIRD. NO ENG ANOMOLIES NOTED BUT THERE WAS A SMELL IN THE COCKPIT OF BURNT HAIR & BONE. FOUND REMAINS OF A BIRD IN THE STATOR SECTION OF RT ENG. MECHANIC WAS CALLED IN FROM DUNCAN AVIATION AT BTL. INSPN PERFORMED.
2010-09-06	Hawks	LT NOSE WHEEL DOOR DENTED.
2012-07-16	Unknown bird - small	HIT 2 SMALL BLACK BIRDS. NO DMG.
2012-09-04	Unknown bird - medium	NO DMG. BIRD REPTD AS BLACK BIRD/CROW.
2013-05-01	Red-tailed hawk	DMG TO RT HORIZONTAL STABLIZER. STRUCK RT HORIZONTAL STABILIZER AND ELEVATOR. BIRDSTRIKE SEEN BY PAX BUT NOT BY PILOT. ALSO SEEN BY TOWER PERSONNEL. PHOTOS.

2014-10-10	White-tailed deer	A/C WAS DISABLED ON A RWY AFTER HITTING A DEER WHILE ATTEMPTING A T/O.
2016-07-18	Unknown bird - small	Contacted nose gear spade door then lower fuselage below wing line. No damage. SMALL BIRD, SIZE OF A ROBIN BUT GREY IN COLOR.
2016-07-10	Unknown bird	N68812 REPORTED A BIRD STRIKE ON DOWNWIND. HE CAME TO A FULL STOP LOOKED OVER THE PLANE SAID THERE WAS NO DAMAGE TO THE PLANE AT ALL.
2017-06-17	Unknown bird	N119MS REPORTED A BIRD STRIKE ON FINAL BEFORE CROSSING THE THRESHOLD, DID NOT REQUIRE ANY ADDITION ASSISTANCE. NUMBER OF BIRDS STRUCK NOT REPORTED. ASSUME 1

Prioritizing Hazardous Wildlife

Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.¹

Species group	Ranking by criteria			Composite ranking ²	Relative hazard score ³
	Damage ⁴	Major damage ⁵	Effect on flight ⁶		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Herons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

¹ Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003"*. Refer to this report for additional explanations of criteria and method of ranking.

² Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for ≥ 2 of the 3 variables above the next highest ranked group, then proceeding down the list.

³ Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.

⁴ Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

⁵ 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 makes it inadvisable to restore aircraft to airworthy condition.

⁶ Aborted takeoff, engine shutdown, precautionary landing, or other.

Mammal Surveys



Figure 1. Four deer foraging near runway with plane taking off.

During the SV a FLIR (Forward Looking Infrared) unit was used to observe wildlife activity at night. At least eleven different deer were confirmed on the airfield. More deer could be present on the airfield. Six deer were near the runway and observed spooking from a landing aircraft. It is very likely that more deer are present on the airfield.

The six deer observed near the runway came from far south-east corner of the airport and traveled to the soybean field to the west. Three additional deer traveled from the south-east corner of the airport to the soybean field. Two more deer were observed bedding in the woods on the north-west side of the airfield close to the soybean field.

Fencing is the number one way to keep deer off the airfield. KARB contains a mix of chain-link fencing that ranges in height from 4foot to 10foot. In addition to fencing, drainage culverts and gates need to be addressed to prevent deer from access the airfield. Below are some examples of the entrance points deer may use to access KARB's airfield.



Figure 2. Four foot fence NE KARB



Figure 3. Open fence under construction NE KARB



Figure 4. Four foot tall culvert leading off AOA into woods SW KARB

Deer are crepuscular animals, most active at dawn and dusk. But deer are also active at night. KARB is very quiet at night, during these times deer will wander into areas around the airfield that they are not normally seen. This is when a deer would most likely jump the four foot fence on the north-east of airfield. During the rut, bucks will chase does and deer become frantic and can lose their fear of humans. When this happens, a four foot fence would not pose a significant barrier. KARB also has two large concrete drainage culverts that are four foot tall. They are located on the north-west and south-west side of the airfield. Both of these culverts lead into woods. Neither of the culverts have any type of grate to prevent deer or coyotes from accessing the airfield. Deer can be drawn to walk

through these culverts by the smell of soybeans on the airfield or from the scent of other deer.

Avian Surveys

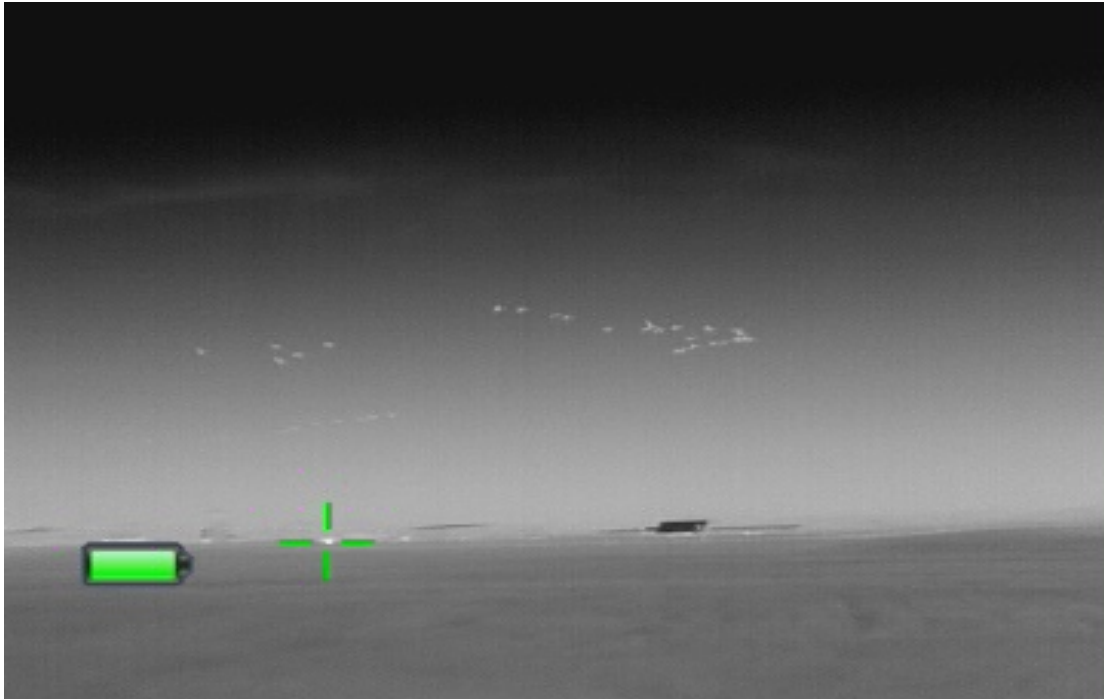


Figure 5. Canada geese leaving KARB in the dark

Morning, afternoon and evening wildlife surveys were conducted during the SV at KARB. During the morning and evening surveys 75-100 Canada geese were observed feeding in the tilled fallow field just north of the approach of runway 9. During the evening survey the geese occupied the approach of runway 9 from 18:30 until ten minutes after dark. During this time flocks of 5 to 15 geese arrived on the airfield at different times. When leaving, the geese took flight and circled the airfield by first heading east before turning west into the approach airspace for runway 9. Figure 5 shows geese leaving the airfield heading east before heading west. Geese were also observed feeding within 10 yards of the runway.

Two red-tailed hawks were observed during the surveys. They were perched on various lights and structures. One red-tail was observed perching on a runway light. The red-tail did not leave its perch even with a plane taking off right next to it.

One flock of 200-300 European starlings was observed in and around the tree on the south-east side of the T-hanger pad.

Recommendations

Based on the results of the avian and mammalian surveys conducted at KARB, here are several recommendations:

1. The perimeter of the airfield should be enclosed with a deer proof fence, as outlined in FAA CertAlert 04-16:

*“Proper fencing is the best way of keeping deer off aircraft movement areas. The FAA recommends a 10-12 foot chain link fence with 3-strand barbed wire outriggers. In some cases an airport may be able to use an 8-foot chain link fence with a 3-strand barbed outriggers, depending upon the amount of deer activity in a local area. All fencing must be properly installed and maintained. A 4-foot skirt of chain link fence material, attached to the bottom of the fence and buried at a 45 degree angle on the outside of the fence will prevent animals from digging under the fence and reduce the chance of washouts. This type of fencing also greatly increases airport security and safety. **The fence line right-of-way must be kept free of excess vegetation.** The fence line should be patrolled at least daily, and any washouts, breaks or other holes in the fence repaired as soon as they are discovered. Gates should close with less than 6-inch gaps to prevent entry by deer.”*

The fence does not necessarily need to follow the airport’s property line, but could be constructed in such a way as to exclude areas which are desired to be keep open to the public. Once fence is finished, all deer remaining inside should be removed and the fence should regularly maintained. Deer culling requires a permit from the Michigan Department of Natural Resources (DNR) which must be obtained prior to any lethal control work involving deer.

2. Aggressively cull deer from the airfield until a deer proof fence can be constructed. Deer culling requires a permit from the DNR which must be obtained prior to any lethal control work involving deer.
3. Look into to phasing out agriculture on airport property. Start with agriculture inside the AOA and move to outside AOA if/when possible. Corn should never be planted inside the AOA. If agriculture continues, soybeans are the least attractive of the conventional agriculture products. Immediately upon harvest the farmer should be required to plow field under to cover as much of the left over beans as possible.
4. Develop and implement a Wildlife Hazard Management Plan (WHMP). The plan should include language defining roles and responsibilities for those dealing with wildlife present at KARB. The plan should also include target dates for initiation and completion of actions for staff and management which would include the following:
 - a. Designating a Wildlife Coordinator
 - b. Establishing a Wildlife Hazard Working Group
 - c. Obtaining Permits to Manage Wildlife
 - d. Training Personnel in Wildlife Hazing Procedures and Species Identification
 - e. Obtaining Wildlife Hazard Management Supplies
 - f. Recording and Maintaining Wildlife Strike Information
 - g. Reviewing Land Use Changes on and Near the Airport
5. Report wildlife strikes and review WHMP when strikes occur. Should wildlife strikes continue to occur at KARB the plan must be reviewed to determine if there is anything lacking or requiring change in the plan.
6. Monitor wildlife populations and abundance. If hazardous wildlife persists after implementing the WHMP, a full Wildlife Hazard Assessment (WHA) might be necessary to determine the wildlife and attractants involved.

It is important to note that activities such as development of a WHA, or development of the WHMP, training and implementation of direct management programs, could be conducted by qualified personnel from KARB, private sources,

and/or WS. KARB is not required to enter into an agreement with WS, nor is WS the sole source for these services.

The findings of this site visit confirm what the strike records already indicate. Deer are a substantial risk at KARB. The perimeter fence is not sufficient to keep deer off the airfield, combined with a high deer population on and around the airfield this has proven to be an incredibly hazardous situation. While carrying out an aggressive culling program might provide some relief to the problem, in the absence of a deer proof perimeter fence, it is merely delaying the inevitable: the potential for more negative interactions between deer and aircraft.

Avian hazards should not be overlooked either. Canada geese are a real and present danger, and will need to be managed for the foreseeable future. KARB is surrounded by ideal resident/migratory Canada goose habitat.

The SV has a lot of information and recommendations. I know as an airport manager you have many other airport related issues you are dealing with. I work with airport wildlife issues on a daily bases. If you need me to expand or explain anymore, please don't hesitate to reach out to me. I would look forward to continuing to provide assistance as you assess and mitigate wildlife hazards at Ann Arbor Municipal airport.

Sincerely,

Paul Edlund
USDA APHIS WS
FAA Qualified Airport Wildlife Biologist

cc:

Mr. Steve Houtteman, Michigan Department of Transportation



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