

Wildlife Hazards at Airports

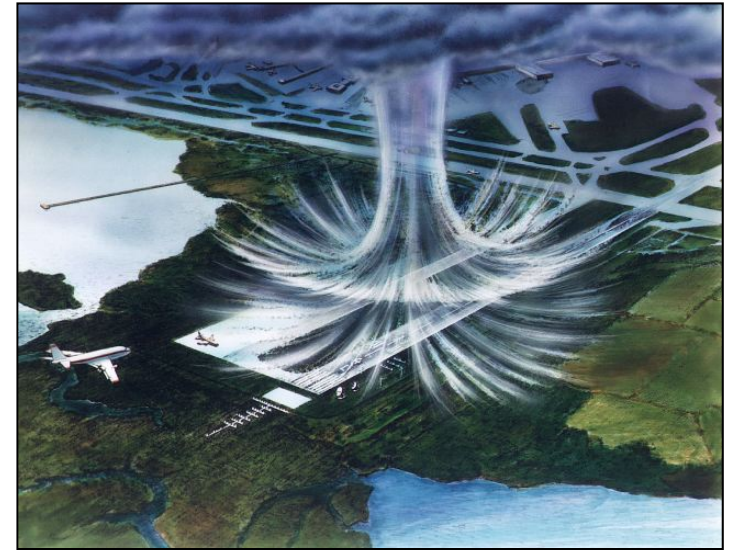
Regulatory Oversight, Program
Evaluation and Strike Reporting

**Wildlife and Foreign Object Debris (FOD)
Workshop, Cairo, Egypt**

March 24 - 26, 2014

John R Weller



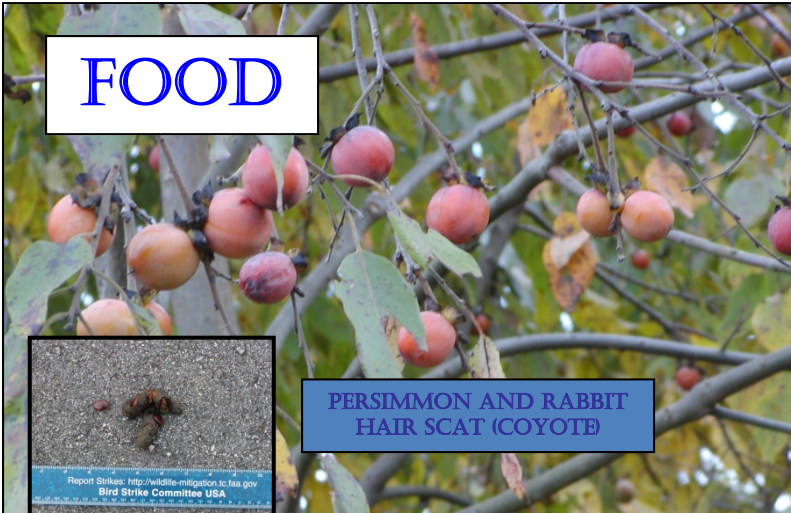


Safety Hazards



Wildlife Use of Airports

FOOD



PERSIMMON AND RABBIT
HAIR SCAT (COYOTE)



Report Strikes: <http://wildlife.mitigation.tc.faa.gov>
Bird Strike Committee USA

WATER



COVER



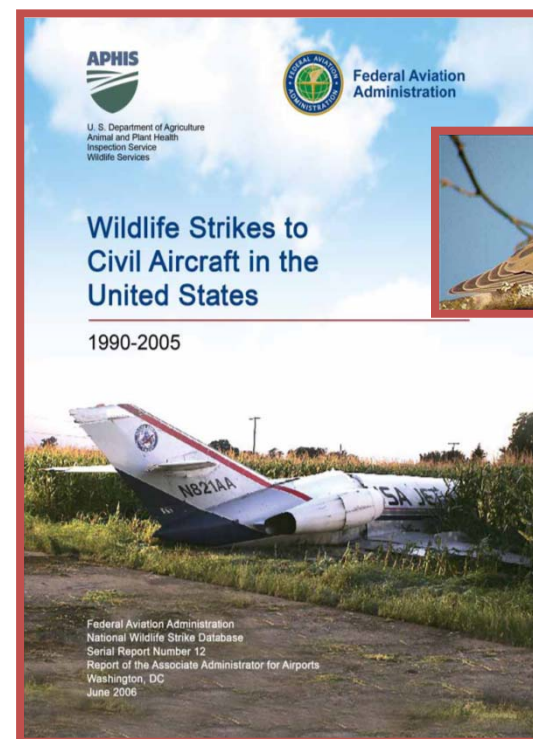
TRAVEL
CORRIDOR



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AIRLINERS.NET

Direct Hazards

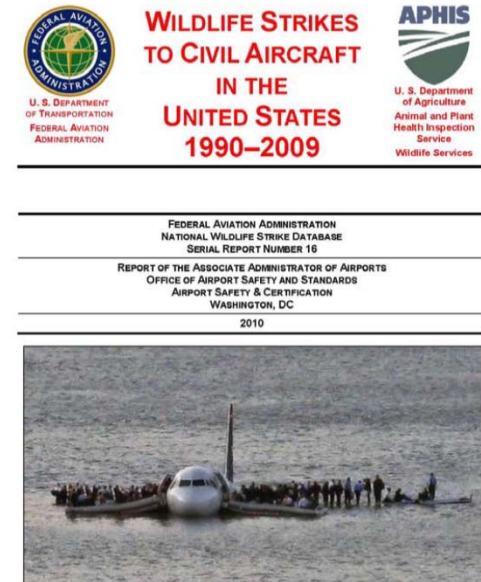


Indirect Hazards



WHY IS AIRPORT WILDLIFE HAZARD MANAGEMENT IMPORTANT?

COST OF WILDLIFE STRIKES:
\$957 million/year in U.S.
\$2 billion/year Worldwide



Airport Wildlife Challenges: Increasing human population



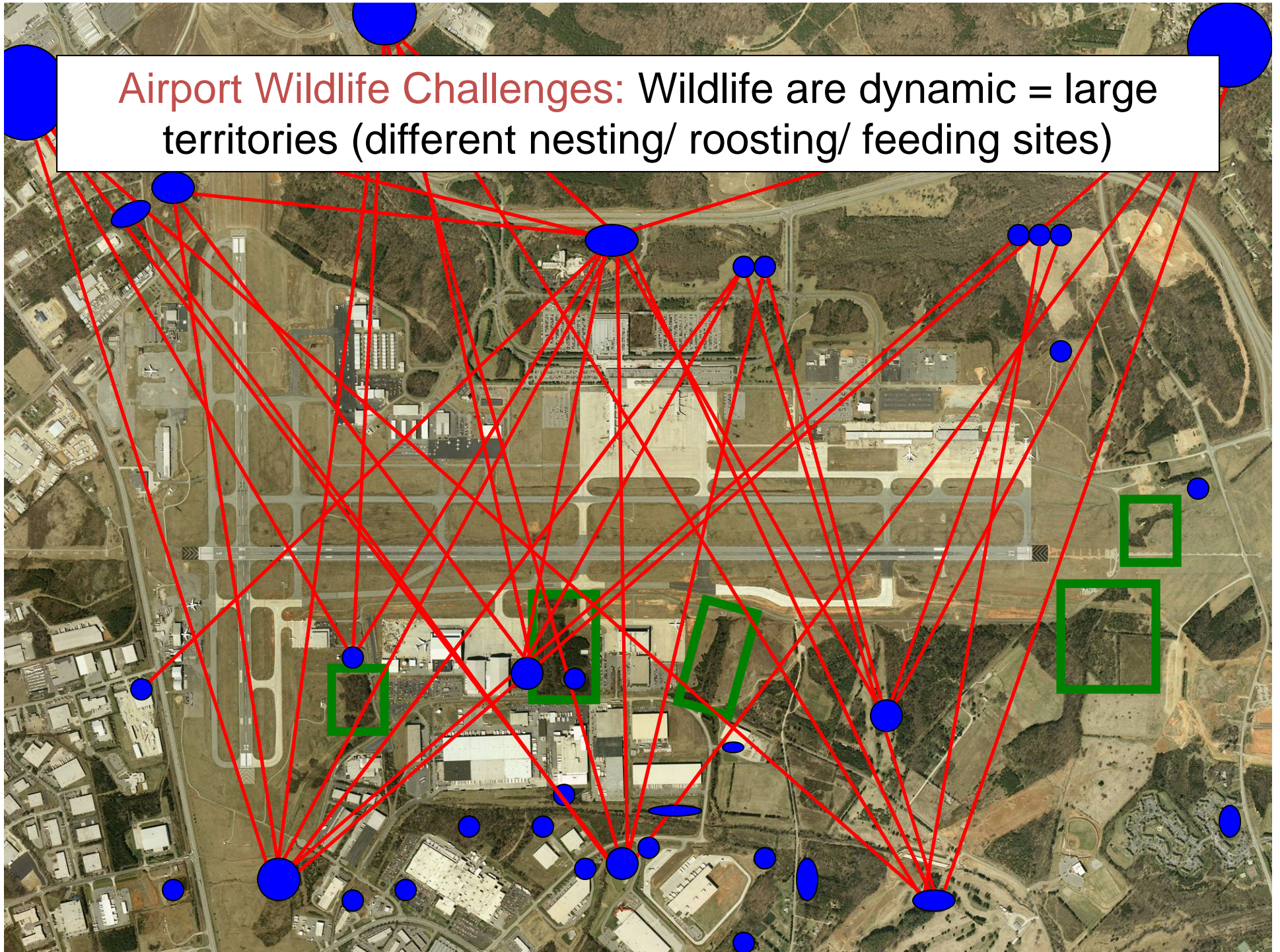
Airport Wildlife Challenges: Increasing wildlife populations



Airport Wildlife Challenges: Wildlife rapidly habituate to harassment/ frightening techniques



Airport Wildlife Challenges: Wildlife are dynamic = large territories (different nesting/ roosting/ feeding sites)



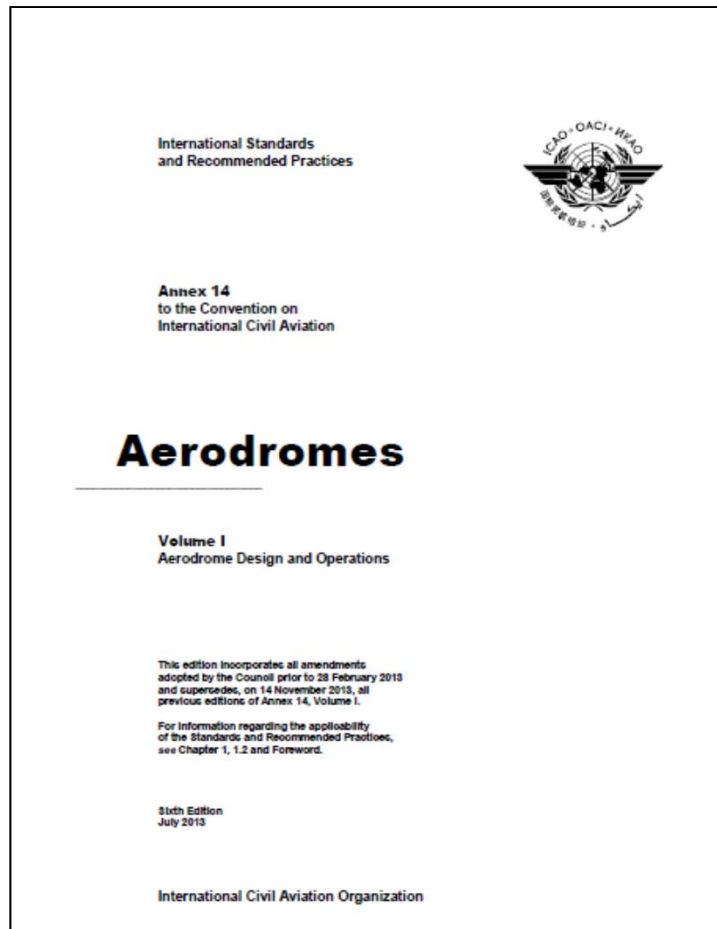
Airport Wildlife Challenges: Airports have limited funding
(particularly General Aviation airports)



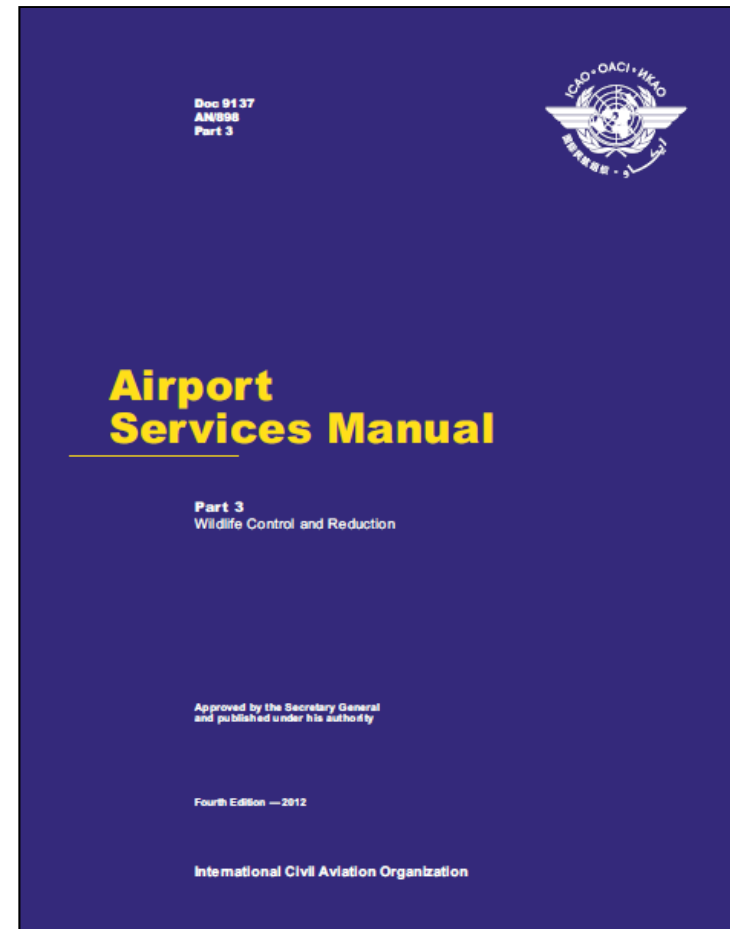
Airport Wildlife Challenges: Public and employees sensitive to killing of wildlife



ICAO Guidance



sixth edition 2013



Fourth edition 2012

Airport Services Manual:

Part 3 Wildlife Control and Reduction

- Establishment of National Committee
- Roles, Responsibilities and Organization of Wildlife Program
- Aircraft Operators
- Risk Assessment
- Habitat Management
- Repellent Techniques and BMPs
- Incompatible Land Use
- Evaluation

FAA OVERSIGHT of WILDLIFE HAZARDS

REGULATIONS/ GUIDANCE

DATA COLLECTION

OUTREACH/ EDUCATION

RESEARCH

PARTNERSHIPS



Wildlife at Airports: Rules, Regulations and Permits

FAA Regulations, Advisories and CertAlerts

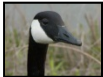
Non-FAA Federal Laws and Policies



Migratory Bird Treaty Act



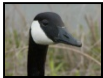
Bald and Golden Eagle Protection Act



Endangered Species Act



National Environmental Policy Act (NEPA)



Executive Order 13112 of February 3, 1999



Clean Water Act (wetlands protection)



Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)



USFWS Depredation Permit

State Laws and Policies

Local Laws and Ordinances

Federal Aviation Administration Wildlife Regulations

14 CFR 139.337
(revised 2/10/04)

- **139.337(a) ...**
each certificate holder shall take immediate action to alleviate wildlife hazards whenever they are detected.



Multiple Wildlife Strikes

“The pitch of the engine said it all,” said plane-spotter Juergen Kienast, who took these dramatic pictures. “It was like sticking a bit of metal pipe into a blender.”



Substantial Damage from Wildlife Strike

OCTOBER 10, 2009- QANTAS #26 BIRD STRIKE CLIMB OUT 8,000 FT.



Engine Ingestion of Wildlife



Wildlife of size, or in numbers, capable of causing any of the previous events is observed on or near airport.



139.337 (c) cont'd... The wildlife hazard assessment must contain at least the following:

An evaluation of...

- 
- (1) Strike Event**
 - (2) Wildlife**
 - (3) Attractants**
 - (4) Wildlife Hazards to Aircraft**
 - (5) Recommendations**

Wildlife Hazard Assessments provide fundamental wildlife and habitat information

Identify

hazardous species
natural/ artificial attractants
trends in wildlife use

Evaluate

overall risk level of wildlife strikes
efficacy of the airport's wildlife hazard mitigation program

Prevent

future strikes through:

- operational changes
- habitat modifications
- customized harassment/ species removal

WHA provides the scientific basis for a WHMP...

WHMP = blueprint for wildlife hazard mitigation

- 1. Authorities and responsibilities**
- 2. WHA actions target dates for initiation and completion**
- 3. Wildlife hazard management procedures**
- 4. Habitat management**
- 5. Permits (local, state, and federal)**
- 6. Resources**
- 7. Training**
- 8. WHMP review / evaluation**

FAA Regulations, Advisories and CertAlerts

Advisory Circulars – Advisory Guidance to Comply with Regulations



AC 150/5200-32B REPORTING WILDLIFE AIRCRAFT STRIKES. May 31, 2013
(December 22, 2004)



AC 150/5200-34A CONSTRUCTION OR ESTABLISHMENT OF LANDFILLS
NEAR PUBLIC AIRPORTS. January 26, 2006



AC 150/5200-33B HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR
AIRPORTS 8/28/2007



AC 150/5200-36A Qualifications for Wildlife Biologist Conducting Wildlife
Hazard Assessments and Training Curriculums for Airport Personnel Involved
in Controlling Wildlife Hazards on Airports January 31, 2013 (June 28, 2006)



AC No: 150/5200-38 **PROTOCOL FOR THE CONDUCT AND
REVIEW OF WHSVs, WHAs, WHMPs and CONTINUAL
MONITORING 2014**

Certalerts

Certalert No. 97-09 Wildlife Hazard Management Plan Outline 11/17/1997

Certalert No. 04-16 Deer Hazard to Aircraft and Deer Fencing 12/13/2004

Certalert No. 98-05 Grasses Attractive To Hazardous Wildlife 9/21/1998

Certalert No. 04-09 Relationship Between FAA and Wildlife Services 8/30/2004

Certalert No. 02-06 Access to the FAA National Wildlife Aircraft Strike Database 10/1/2002

Certalert No. 03-03 Guidelines For Submitting Bird Strike Feather Remains For Identification 8/29/2003

Certalert No. 06-07 Requests by State Wildlife Agencies to Facilitate and Encourage Habitat for State - Listed Threatened and Endangered Species and Species of Special Concern on Airports Date: 11/21/2006

Certalert No. 09-10 Wildlife Hazard Assessments in Accordance with Part 139 Requirements June 11, 2009

**Certalert No. 13-01 Federal and State Depredation Permit Assistance
January 30, 2013**

MOU's & MOA's

Partnerships / Expertise Recognition

MOA - Between the FAA, the U.S. Air Force, U.S. Army, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture to Address Aircraft-Wildlife Strikes

MOU - Between the FAA and the USDA/ Animal and Plant Health Inspection Service/ Wildlife Services

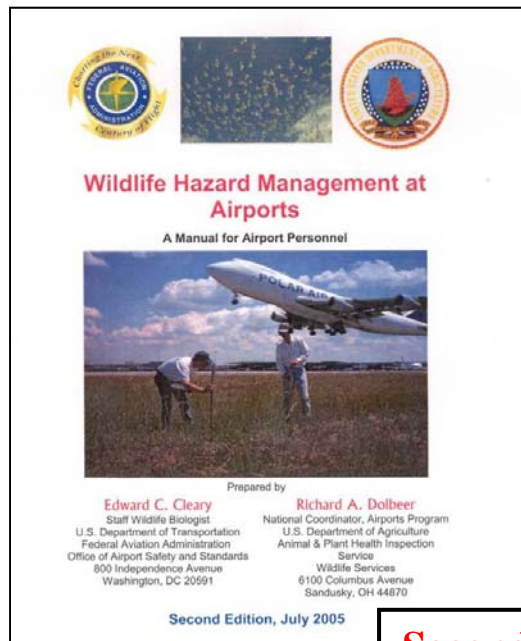
MOU - Between the FAA and the Department of the Interior United States Fish and Wildlife Service Regarding Implementation of Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds"

MOU - Between the FAA and the Bird Strike Committee USA

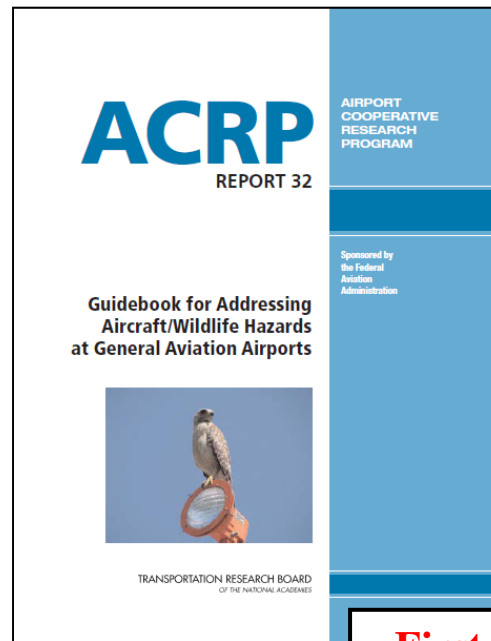
MOU - Between the FAA and the National Association of State Aviation Officials - 2010 Initiative Wildlife Hazards Attachment to existing MOU

Resources

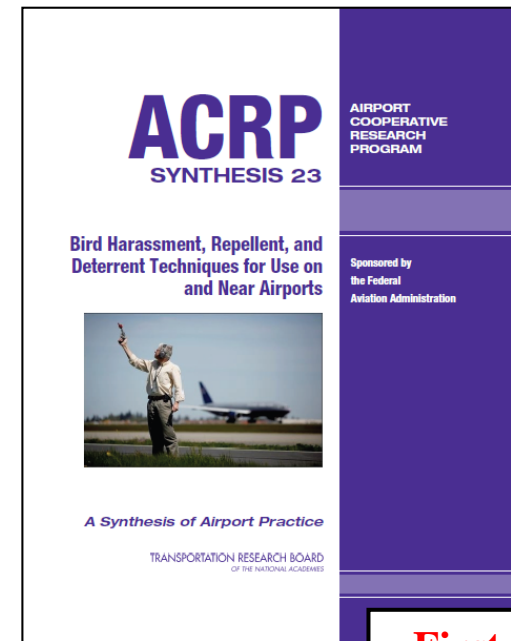
FAA/USDA and ACRP Manuals on Wildlife Hazard Management at Airports



**Second
edition
(2005)**



**First
edition
(2010)**



**First
edition
(2011)**



Federal Aviation
Administration

Airport Technology R&D Branch
Airport Wildlife Hazard Mitigation



Search the Database

Report a Strike

Edit a Strike Report

About the FAA Wildlife Strike Database

The FAA Wildlife Strike Database contains records of reported wildlife strikes since 1990. Strike reporting is voluntary. Therefore, this database only represents the information we have received from airlines, airports, pilots, and other sources.

There are two ways to view information in the database:

1. Do a quick search from the [Search the Database page](#). You can export the results to Microsoft Excel.
2. [Download the complete FAA Wildlife Strike Database](#) in Microsoft Access format, and create your own queries.

Our search tool shows key information for each wildlife strike, including Date, Airport, Airline, Aircraft, and Species. To view all 94 fields of information for one or more reports, you must open the complete database. You can also visit the FAQ page for [Frequently Asked Questions](#) about wildlife strikes.

Quick Facts

The FAA has maintained a wildlife strike database since 1990.

The FAA wildlife strike database has recorded over 121,000 (Civil and USAF) wildlife strikes between 1990 and 2010.

92% of the bird strikes to commercial aircraft occur at or below 3,500 ft AGL (above ground level).

In 2010, 52% of the birds struck were identified to the species level.

FAA Wildlife Hazard Mitigation

Web Site Revision

New Look

User Friendly

New Information

New Capabilities

Establishment of National Wildlife Strike Databases

- Civil Aviation Authority will determine voluntary / mandatory reporting system
- Develop / maintain strike database, analyze and summarize data
- Reporting options – electronic / paper
- Identification assistance – museum, university, wildlife / environmental agency or private sector
- Determine gaps & target gaps – locally and nationally

ICAO Annex 14 — Aerodromes

9.4 Wildlife strike hazard reduction

9.4.1 The wildlife strike hazard on, or in the vicinity of, an aerodrome shall be assessed through:

- a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;

* * *

National Procedure may be mandatory or voluntary

National Wildlife Strike Database Management

FAA contracts USDA



Strike remains / feather identification

FAA contracts Smithsonian Institution



Strike Reporting – Voluntary vs Mandatory

- You want Quality and Quantity
- You need enough data to...
 - track national trends
 - determine hazard level of species struck
 - provide scientific foundation for regulatory guidance concerning mitigation of risks from wildlife strikes
- You will need to systematically evaluate

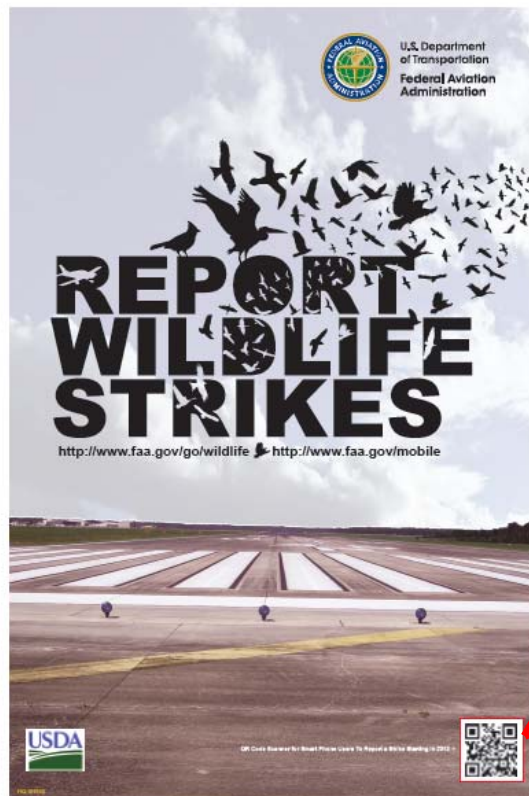


STRIKES SHOULD BE DOCUMENTED IF:

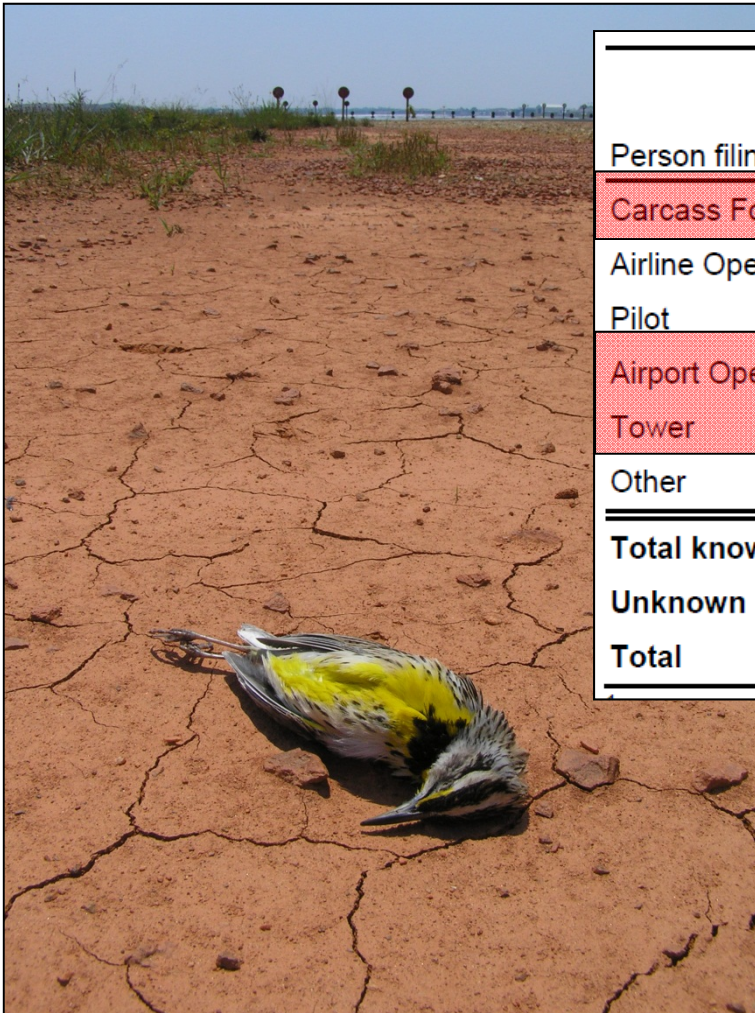
- **Strike is observed**
- **Strike evidence is discovered on aircraft**
- **Animal remains found within 250 feet of the runway centerline or within 1,000 feet of a runway end (unless another reason for the animals death is suspected)**

Source of Information for Reported Strikes 1990 - 2012



Source	1990–2012		2012 only	
	Total	% of total	Total	% of total
FAA Form 5200-7E ¹ (Electronic)	53,335	41	9,245	86
FAA Form 5200-7 ¹ (Paper)	41,526	32	453	4
Airline report	14,444	11	252	2
Multiple ²	10,314	8	471	4
Airport report	5,969	5	133	1
Other ³	1,739	1	54	1
Daily Report (FAA)	886	1	114	1
Preliminary Aircraft Incident Report	983	1	0	0
Engine manufacturer	822	1	0	0
Aircraft Incident Report	711	1	0	0
Aviation Safety Reporting System	197	<1	0	0
National Transportation Safety Board	81	<1	1	0
Aircraft Incident Preliminary Notice	67	<1	1	<1
Transport Canada	22	<1	2	<1
Total	131,096	100	10,726	100



Who Reports Strikes?




Person filing report	1990–2012		2012 only	
	Total	% of total	Total	% of total
Carcass Found	26,733	24	3,381	33
Airline Operations	26,458	24	1,103	11
Pilot	25,651	23	2,289	23
Airport Operations	17,830	16	2,718	27
Tower	11,215	10	425	4
Other	2,865	3	203	2
Total known	110,752	100	10,119	100
Unknown	20,344		607	
Total	131,096		10,726	

	<h1>WILDLIFE STRIKES TO CIVIL AIRCRAFT IN THE UNITED STATES 1990-2012</h1>	
<p>U. S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION</p>		<p>U.S. DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE WILDLIFE SERVICES</p>

FEDERAL AVIATION ADMINISTRATION
NATIONAL WILDLIFE STRIKE DATABASE
SERIAL REPORT NUMBER 19

REPORT OF THE ASSOCIATE ADMINISTRATOR OF AIRPORTS
OFFICE OF AIRPORT SAFETY AND STANDARDS
AIRPORT SAFETY & CERTIFICATION
WASHINGTON, DC

SEPTEMBER 2013



Wildlife / Aircraft Strikes

- from the ground up -

0-3,500 ft AGL = 92% of strikes



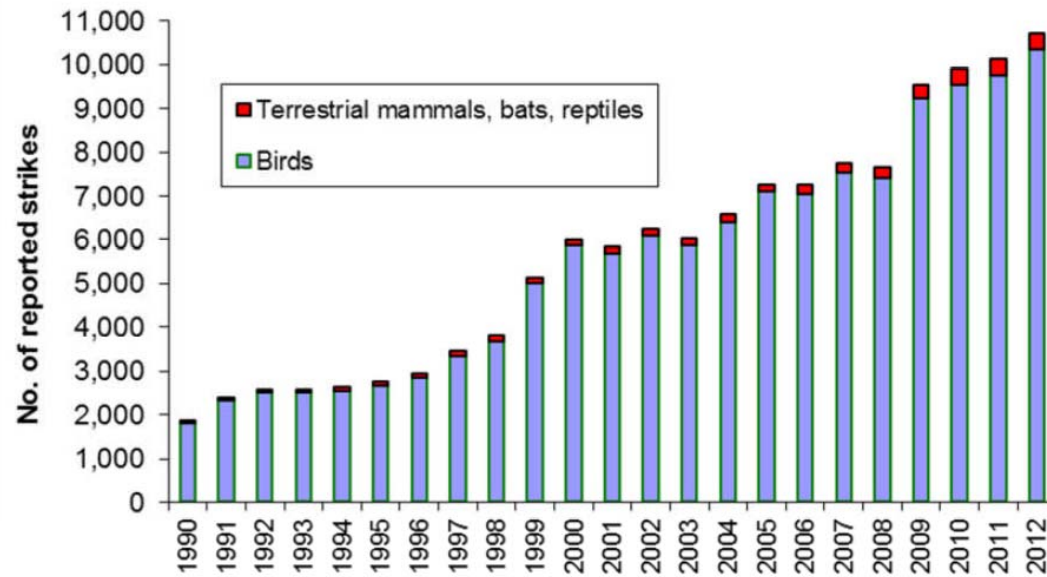
0-500 ft AGL = 72% of strikes



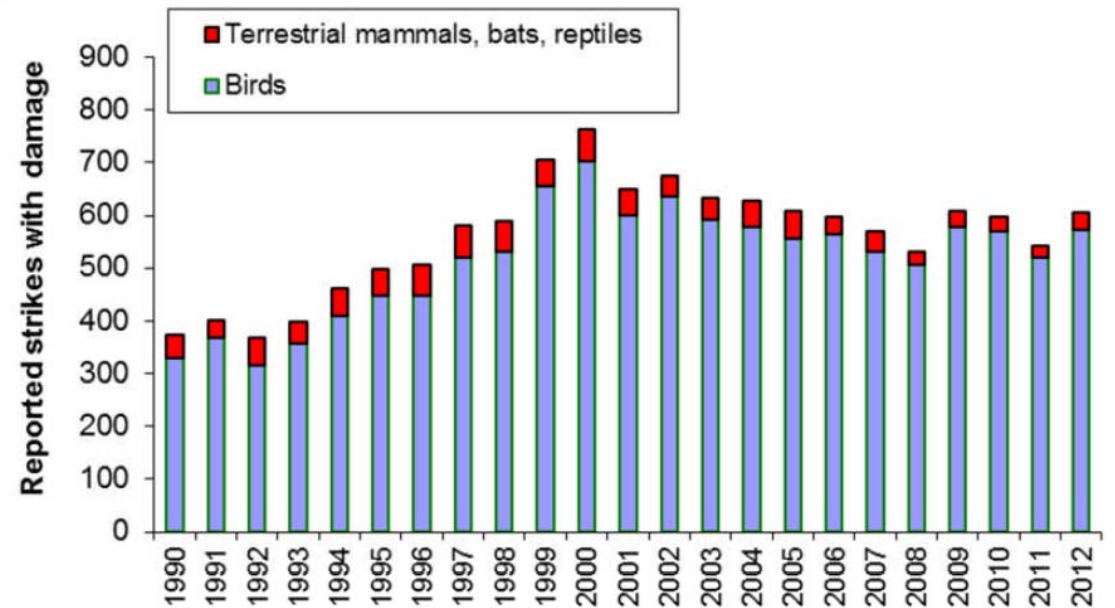
0 ft AGL = 41% of strikes



Strikes Reported to Civil Aircraft, USA: 1990 - 2012



Damaging Strikes to Civil Aircraft, USA: 1990 - 2012



Time of occurrence of wildlife strikes to civil aircraft, USA: 1990 - 2012

Time of day	Birds		Terrestrial mammals	
	23-year total	% of total known	23-year total	% of total known
Dawn	3,038	4	51	3
Day	51,403	62	425	25
Dusk	3,805	5	142	8
Night	24,019	29	1,066	63
Total known	82,265	100	1,684	100
Unknown²	44,947		1,262	
Total	127,212		2,946	

Majority of wildlife strikes occur in airport environment



Don't Wait for Reality to Smack You in the Face



- Systematically evaluate strike data every few years
- Determine data gaps
- Target data gaps – locally and nationally through outreach or regulatory guidance



Outreach

Strike Posters

2011 & 2012

12,000 posters each year

- **Airports**
- **Flight Schools**
- **Airlines**
- **Pilots Association**
- **Engine Manufacturers**
- **Aviation Industry**

Questions?

