

STRIKE REPORTING

VOLUNTARY VS MANDATORY

ICAO, World Birdstrike Association &
CARSAMPAF Bird/Wildlife Strike
Prevention Conference

Santa Fe, Mexico City, Mexico,
October 20th – 24th, 2014

John R Weller



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

Voluntary vs Mandatory

- **What is Goal of Strike Report Data?**
- **Voluntary Sufficient? Mandatory Necessary?**
- **How is Mandate Enforced?**
- **Is there a Penalty? Is it Punitive?**
- **Who wants Mandatory?**

Voluntary vs Mandatory

- **When is Enough, Enough? Is there a predetermined goal? (50% - 100%)**
- **How do you know percentage of collected data? (strike detectability unknown)**

Strike Reporting

- **CAA** and **Airports** want Quality and Quantity
- **CAA** needs 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
- **Airports** need enough data to identify & mitigate hazardous species, strike dynamics and attractants and evaluate effectiveness of wildlife management program
- **Industry** wants enough data to evaluate effectiveness of aircraft components



Voluntary Reporting

- Voluntary Program not necessarily “easier” or “cheaper”
- Requires active Outreach program
- Would Voluntary Program provide information necessary?

Mandatory Reporting

- Does Not Require Outreach
- Equals Increased Data
- Does Not Equal Improved Data
- Equals Increased Costs / Enforcement / Penalty
- Is a Mandate Punitive?

Strike Detectability

Variables Include:

- **Human Capabilities**
- **Wildlife Species**
- **Aircraft**
- **Weather**
- **Flight Distance**
- **Time of Day**
- **Number of Operations**
- **Time of Shift?**

- 100% is not possible -

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**



National Wildlife Strike Database Management

FAA contracts USDA



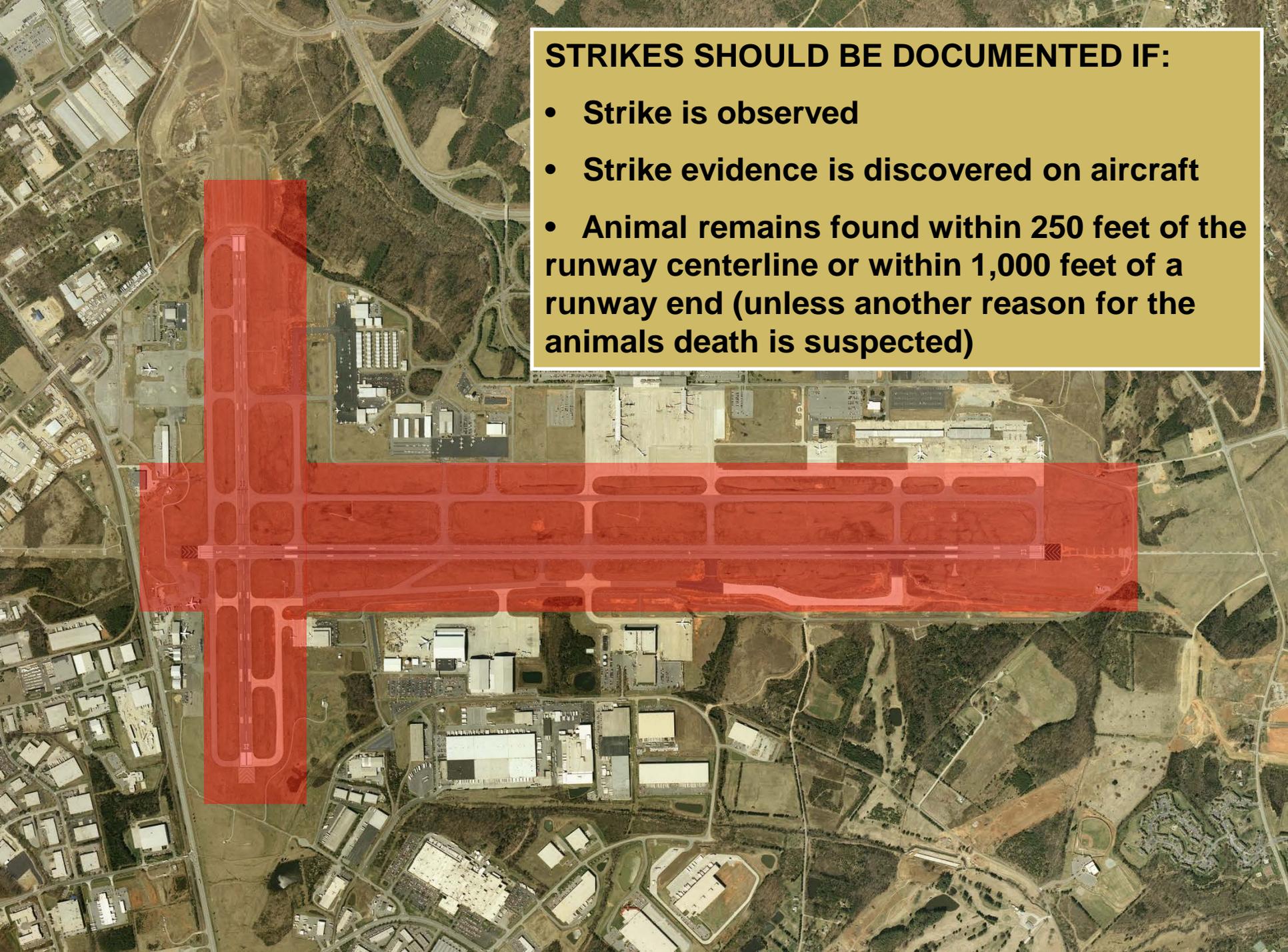
Federal Aviation
Administration

Strike remains / feather identification

FAA contracts Smithsonian Institution



Federal Aviation
Administration



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)**

Outreach

Strike Posters

2011, 2012, 2014

12,000 posters each year

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



Federal Aviation
Administration

Wildlife Strike Reporting to the FAA

Form Approved OMB NO. 2120-0044

BIRD/OTHER WILDLIFE STRIKE REPORT

1. Name of Operator

2. Aircraft Make/Model

3. Engine Make/Model

4. Aircraft Registration

5. Date of Incident
Month Day Year

6. Local Time of Incident
 Dawn Day Night AM PM

7. Airport Name

8. Runway Used

9. Location If En Route (Nearest Town/Reference & State)

10. Height (AGL)

11. Speed (KAS)

12. Phase of Flight

13. Part(s) of Aircraft Struck or Damaged

	Struck		Damaged	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Portion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Tail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Take-off Run	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Climb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. En Route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Descent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Landing Roll	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Propeller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Wing/Rotor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Fuselage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Landing Gear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Tail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Specify, if "N. Other" is checked)

14. Effect on Flight
 None
 Aborted Take-Off
 Precipitation Landing
 Engines Shut Down
Other: (Specify)

15. Sky Condition
 No Cloud
 Some Cloud
 Overcast

16. Precipitation
 Fog
 Rain
 Snow
 None

17. Bird/Other Wildlife Species

18. Number or birds seen and/or struck

Number of Birds	Seen		Struck	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2-10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11-100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
more than 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Size of Bird(s)
 Small
 Medium
 Large

20. Pilot Wounded of Birds Yes No

21. Remarks (Describe damage, injuries and other pertinent information)

Paper or Electronic Report Forms

DAMAGE / COST INFORMATION

22. Aircraft time out of service: hours \$

23. Estimate reported by (Optional)

24. Network Reduction Act Statement: The information provided on this wildlife-aircraft strike problem in the U.S. is primarily caused by wildlife-aircraft strikes. We estimate concerning the accuracy of this burden estimate a Management Staff, AIR-10, 800 Independence Ave, conduct or sponsor, and a person is not required to collect number associated with the collection 2120-0044.

FAA Form 5200-7 (3-97) Supersedes Previous Edition

Microsoft Internet Explorer

Address: http://wildlife.faa.gov/aircraft/wildlifeforms/birdstrikeform.html

TO: For more information, click on the link below. CLICK HERE!

BIRD/OTHER WILDLIFE STRIKE REPORT

Form Approved OMB NO. 2120-0044

1. Name of Operator

2. Aircraft Make/Model

3. Engine Make/Model

4. Aircraft Registration

5. Date of Incident
mm dd yyyy

6. Local Time of Incident
 Dawn Day Night AM PM

7. Airport Name

8. Runway Used

9. Location If En Route (Nearest Town/Reference & State)

10. Height (AGL)

11. Speed (KAS)

12. Phase of Flight

13. Part(s) of Aircraft Struck or Damaged

	Struck		Damaged	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Portion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Tail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Take-off Run	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Climb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. En Route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Descent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Propeller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Wing/Rotor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Fuselage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Landing Gear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Tail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. (Cont.)

14. Effect on Flight
 None
 Aborted Take-Off
 Precipitation Landing
 Engines Shut Down
Other: (Specify)

15. Sky Condition
 No Cloud
 Some Cloud
 Overcast

16. Precipitation
 Fog
 Rain
 Snow
 None

17. Bird/Other Wildlife Species

18. Number or birds seen and/or struck

Number of Birds	Seen		Struck	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2-10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11-100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
more than 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Size of Bird(s)
 Small
 Medium
 Large

20. Pilot Wounded of Birds Yes No

21. Remarks (Describe damage, injuries and other pertinent information)

<http://wildlife.faa.gov>



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.

<http://wildlife-mitigation.tc.faa.gov/wildlife/default.aspx>

12/2011



Federal Aviation Administration

National Wildlife Strike Database Report

Wildlife Strikes to Civil Aircraft in the United States 1990-2013

FEDERAL AVIATION ADMINISTRATION
NATIONAL WILDLIFE STRIKE DATABASE
SERIAL REPORT NUMBER 20

REPORT OF THE ASSOCIATE ADMINISTRATOR OF AIRPORTS
OFFICE OF AIRPORT SAFETY AND STANDARDS
AIRPORT SAFETY & CERTIFICATION
WASHINGTON, DC
JULY 2014

08/22/2013 11:16



Federal Aviation
Administration

Source of Information for Reported Strikes 1990 - 2013

Source	1990–2013		2013 only	
	Total	% of total	Total	% of total
FAA Form 5200-7E (Electronic) ¹	62,863	44	9,376	83
FAA Form 5200-7 (Paper) ¹	42,436	30	918	8
Airline report	14,660	10	219	2
Multiple ²	10,856	8	500	4
Airport report	6,080	4	114	1
Other ³	1,795	1	52	<1
Daily Report (FAA)	1,116	1	128	1
Preliminary Aircraft Incident Report	885	1	1	<1
Engine manufacturer	823	1	0	0
Aircraft Incident Report	714	1	3	<1
Aviation Safety Reporting System	196	<1	0	0
National Transportation Safety Board	85	<1	3	<1
Aircraft Incident Preliminary Notice	68	<1	1	<1
Transport Canada	22	<1	0	0
U.S. Air Force (BASH)	4	<1	0	0
Total	142,603	100	11,315	100

Electronic Reporting Options



FEDERAL AVIATION ADMINISTRATION
U.S. Department of Transportation
Federal Aviation Administration

REPORT WILDLIFE STRIKES

<http://www.faa.gov/go/wildlife> <http://www.faa.gov/mobile>

USDA

QR Code Available for Smart Phones. Scan to Report a Bird Str. Starting 10/2012

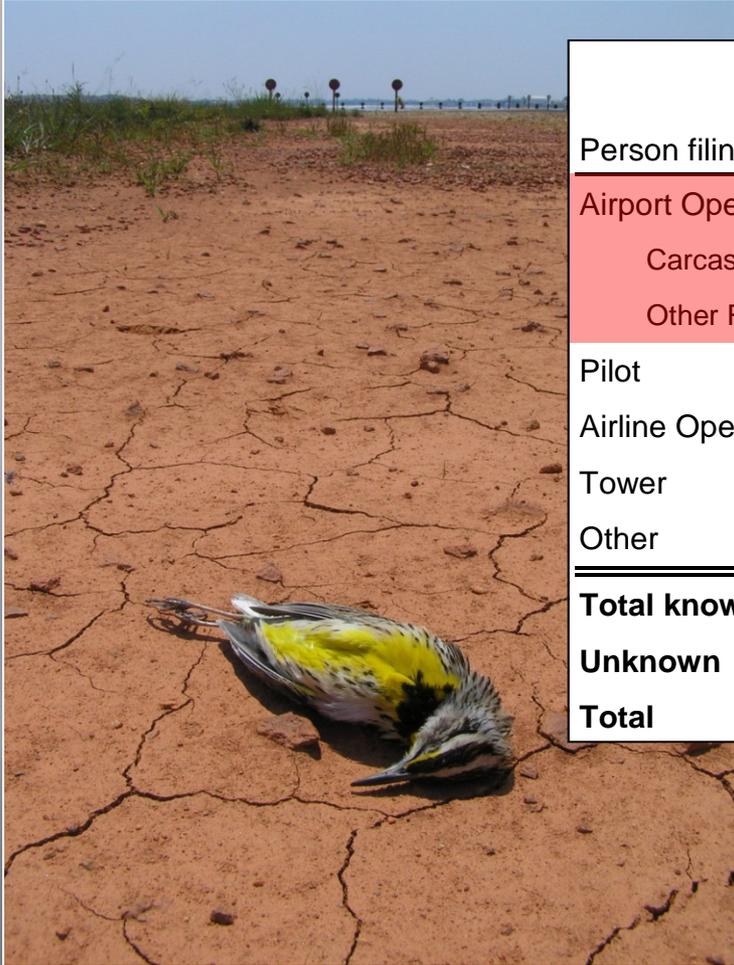


QR Code



Federal Aviation Administration

Who Reports Strikes?



	1990–2013		2013 only	
	Total	% of total	Total	% of total
Person filing report				
Airport Operations	51,699	42	6,869	63
Carcass Found ¹	30,967	25	3,773	35
Other Reports ²	20,732	17	3,096	28
Pilot	28,208	23	2,561	24
Airline Operations	27,407	22	843	8
Tower	11,596	10	386	4
Other	3,060	3	219	2
Total known	121,970	100	10,878	100
Unknown	20,633		437	
Total	142,603		11,315	



Wildlife / Aircraft Strikes

- from the ground up -

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



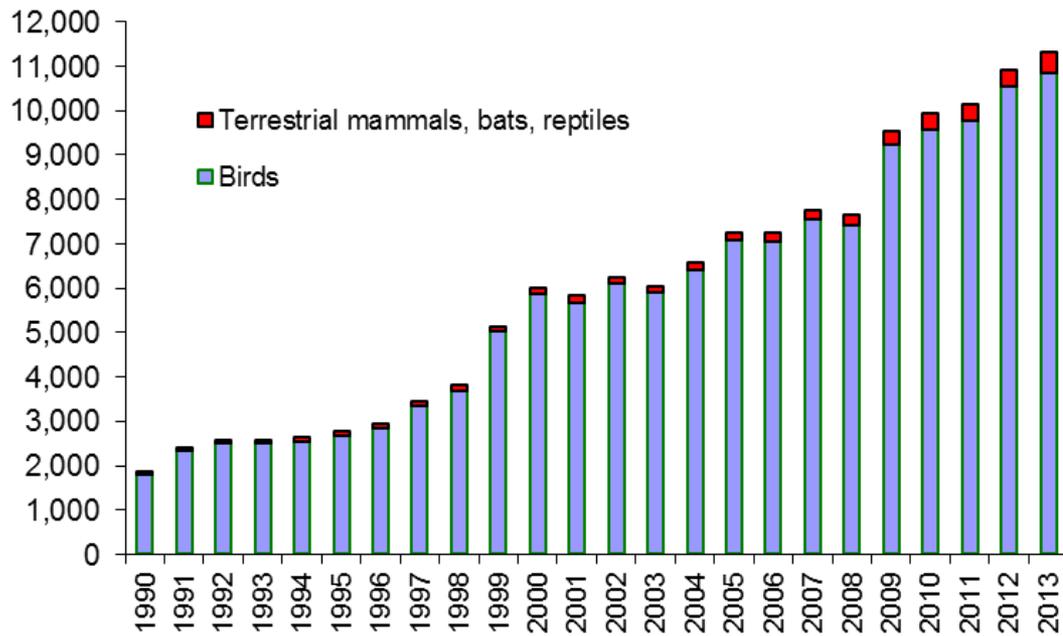
0-500 ft AGL = 72% of strikes



0 ft AGL = 41% of strikes

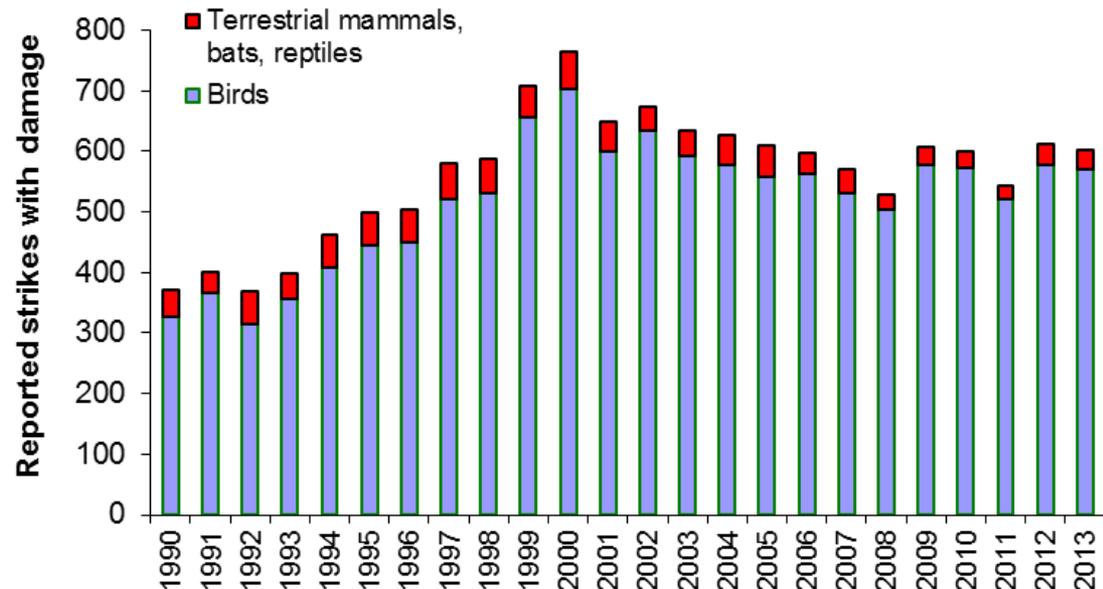


No. of reported strikes



Strikes Reported to Civil Aircraft, USA: 1990 - 2013

Damaging Strikes to Civil Aircraft, USA: 1990 - 2013



Time of Day for Wildlife Strikes 1990 - 2013

	Birds			Terrestrial Mammals	
Time of Day	24-year total	% of total known		24-year total	% of total known
Dawn	3,154	4		53	3
Day	54,958	62		440	25
Dusk	3,977	5		145	8
Night	26,153	30		1,127	64
Total known	88,242	100		1,765	100
Unknown ²	50,015			1,384	
Total	138,257			3,149	



Majority of wildlife strikes occur in airport environment



Federal Aviation
Administration

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



Questions?

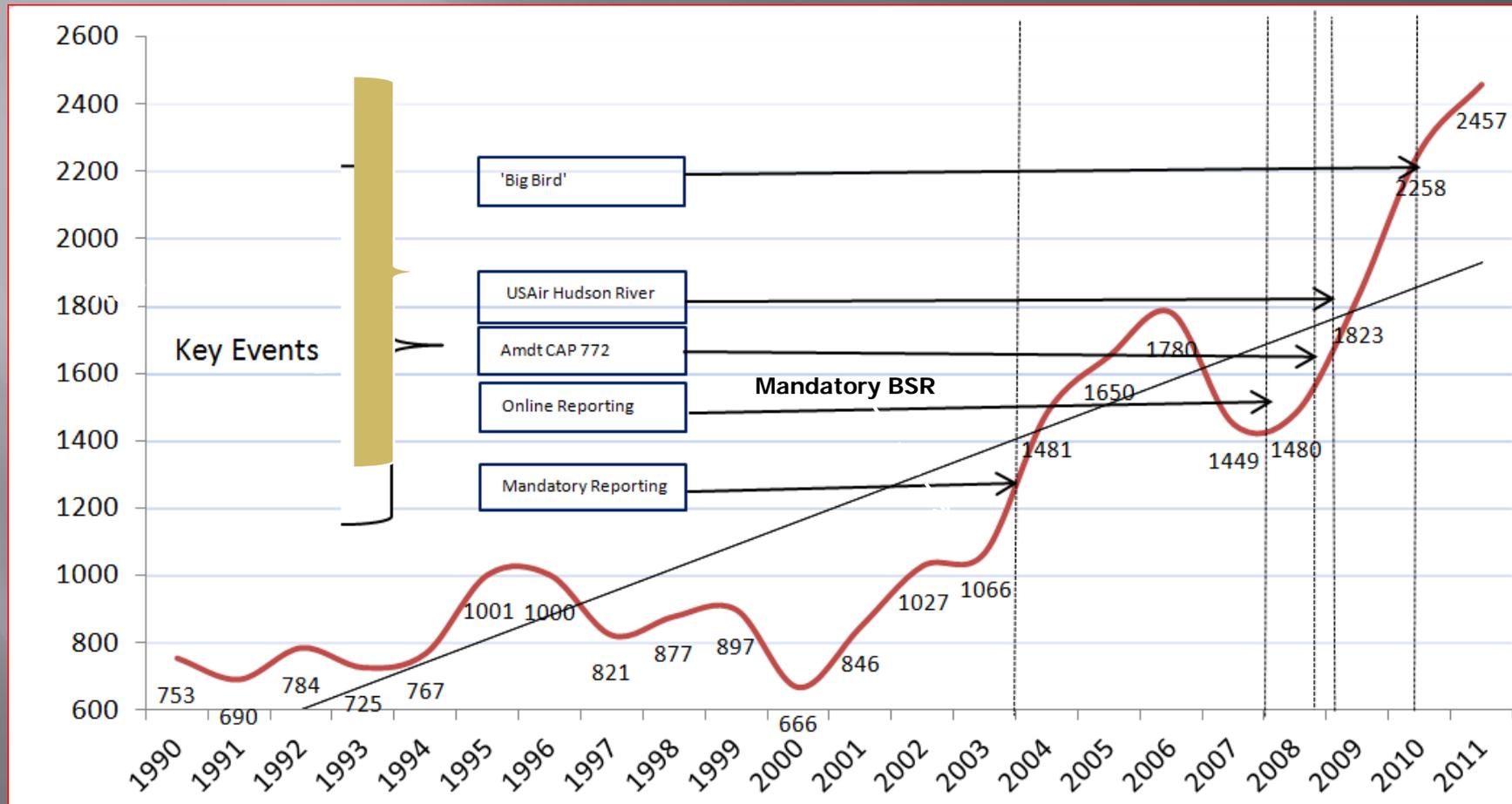




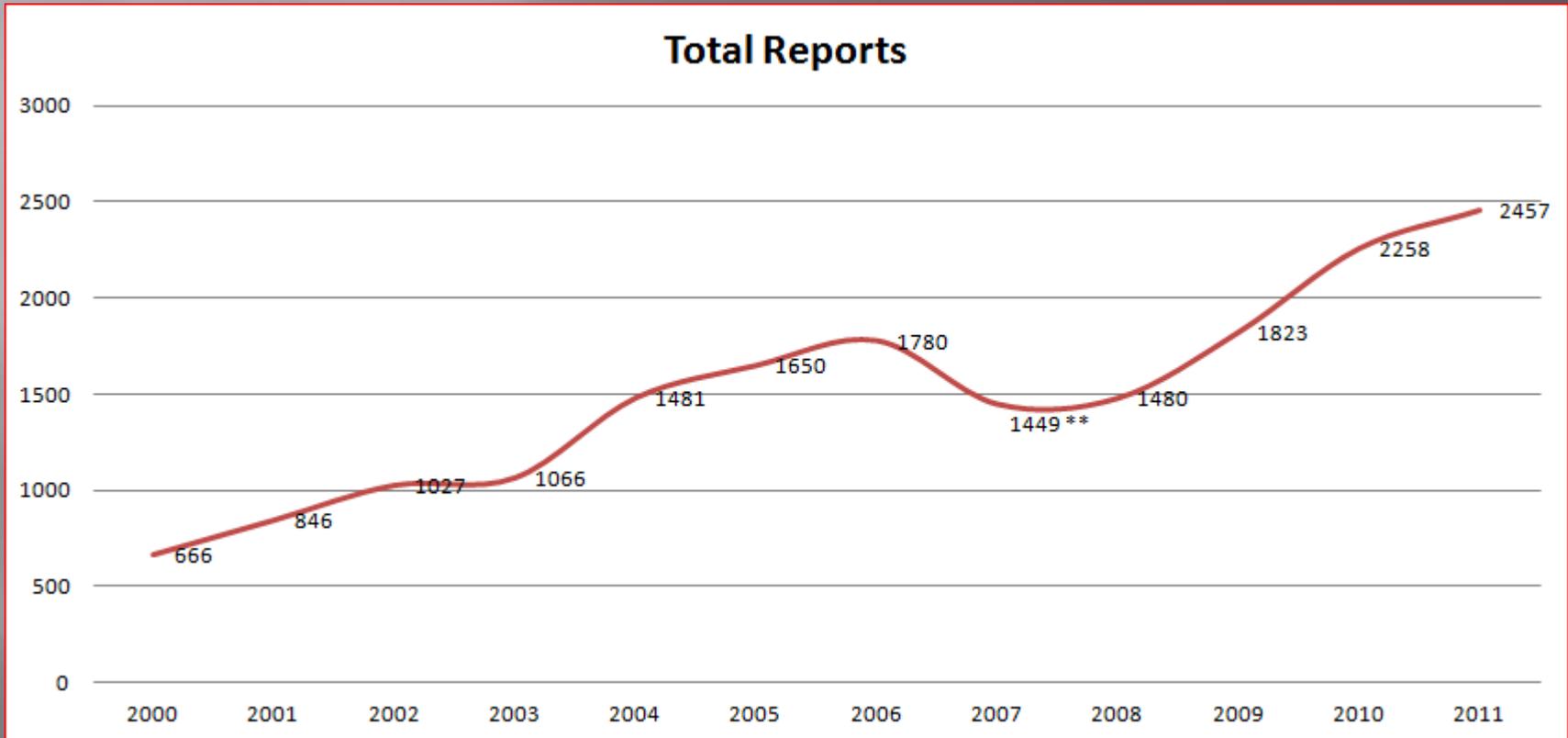


20 Year Timeline

(all reports inc. unconfirmed & NM)



11 Year Timeline



Total Strike Reports vs A/C Movements

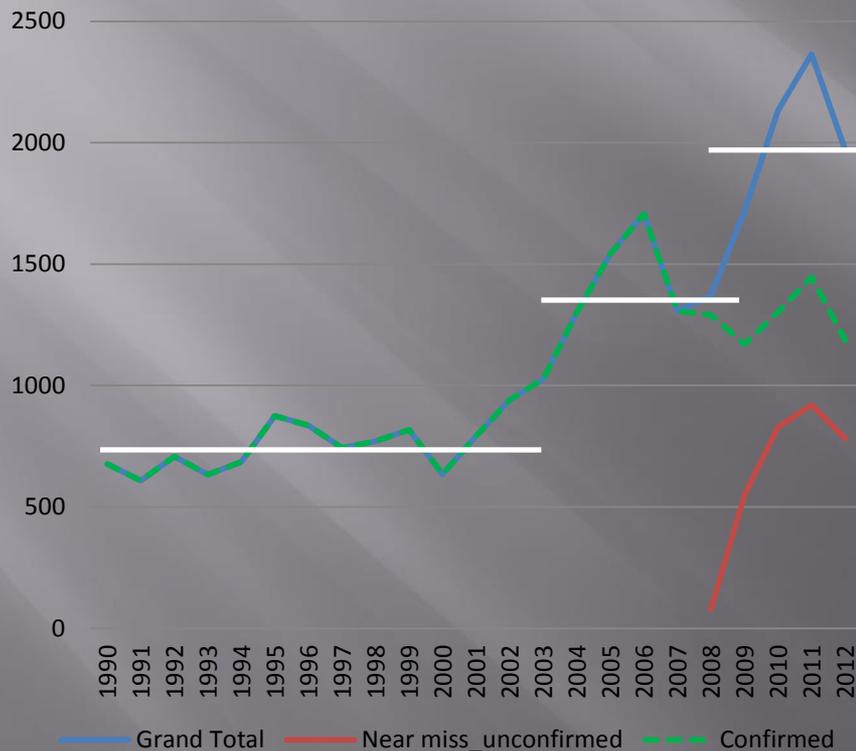


Federal Aviation
Administration

Background

Electronic reporting introduced in 2008

Electronic reporting from 2008



Step change increase between pre and post 2003.

747.8 to 1328.2 to 1911.3

Another step change increase (43.9%)

Does it tell us anything?

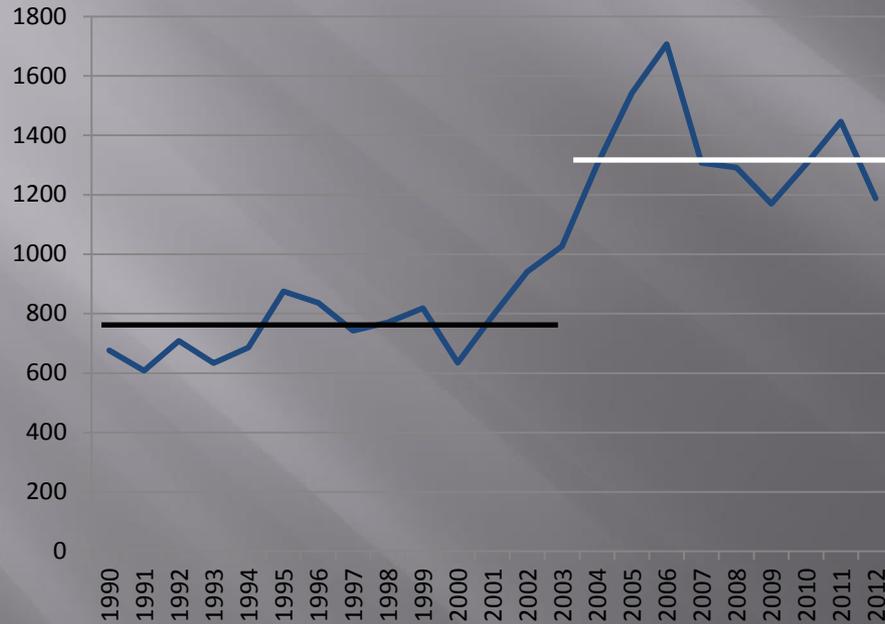


Federal Aviation
Administration

Background

Mandatory reporting introduced in 2003

Confirmed strikes



Step change increase between pre and post 2003.

747.8 to 1328.2 (77.6% rise)

Regulator seeing exponential increases because...



Federal Aviation
Administration