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Niagara Falls

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## ICAO Document 9137 New and Improved

Nicholas Carter

*Director/Principal at Birdstrike Control Program, [nick@birdstrikecontrol.com](mailto:nick@birdstrikecontrol.com)*

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# **ICAO Document 9137**

## **New and Improved**



**Dr. Nicholas Carter**  
**Birdstrike Control Program**  
**IBSC, CARSAMPAF**

**Doc 9137 - AN/901  
Part 3**



**Airport Services Manual  
Part 3  
Wildlife Control and Reduction  
Fourth Edition - 2011**

**Notice to Users**

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1<sup>st</sup> edition – 1975

2<sup>nd</sup> edition – 1978





**1<sup>st</sup> edition – 1975**

**2<sup>nd</sup> edition – 1978**

**3<sup>rd</sup> edition - 1991**

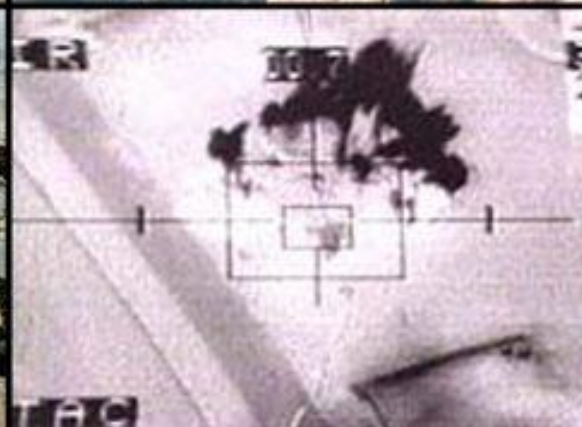




20 years ago...















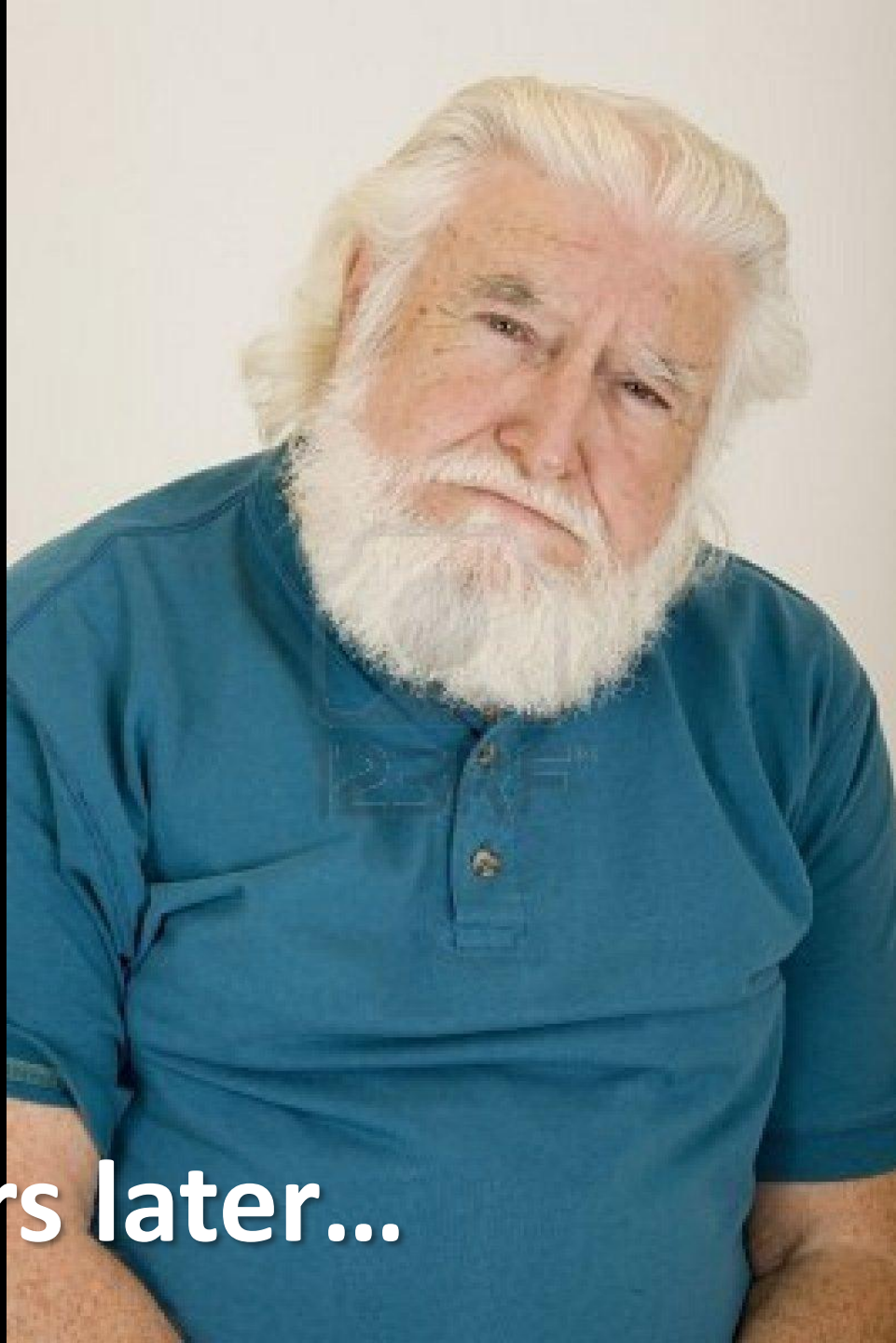


THIS MACHINE HAS  
DO NOT POWER  
DOWN!









**20 years later...**

# **Overview**

**Reviewed by 10 birdstrike  
experts from all parts of the  
world**

**(expanded to 16 for final draft)**

**Took about two years to  
complete review**





Transport  
Canada

Transports  
Canada

# Overview

Contains 39 pages

FAA manual – 362 pages

Transport Canada – 270 pages



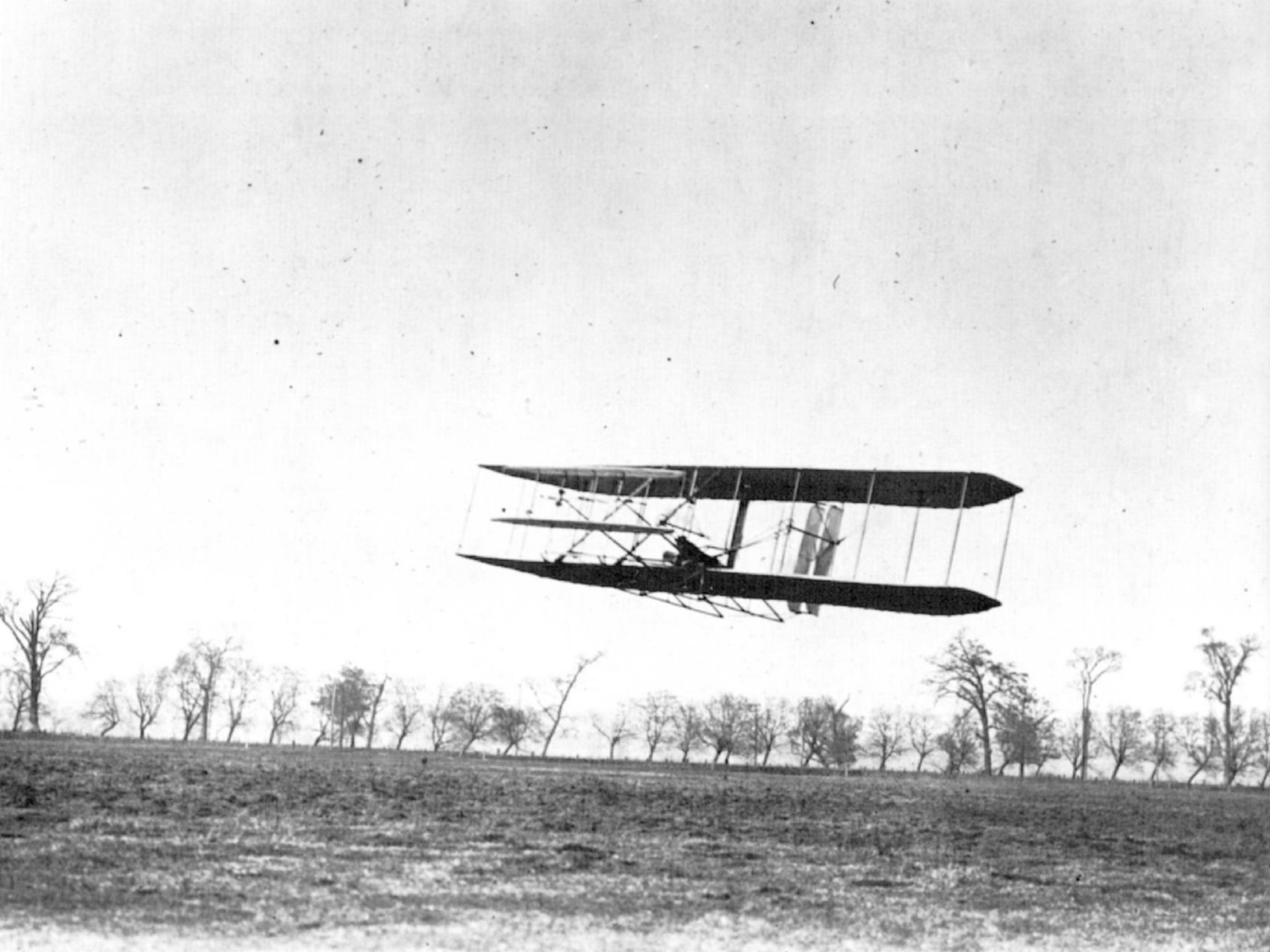
TP 11500 E



(03/2002)

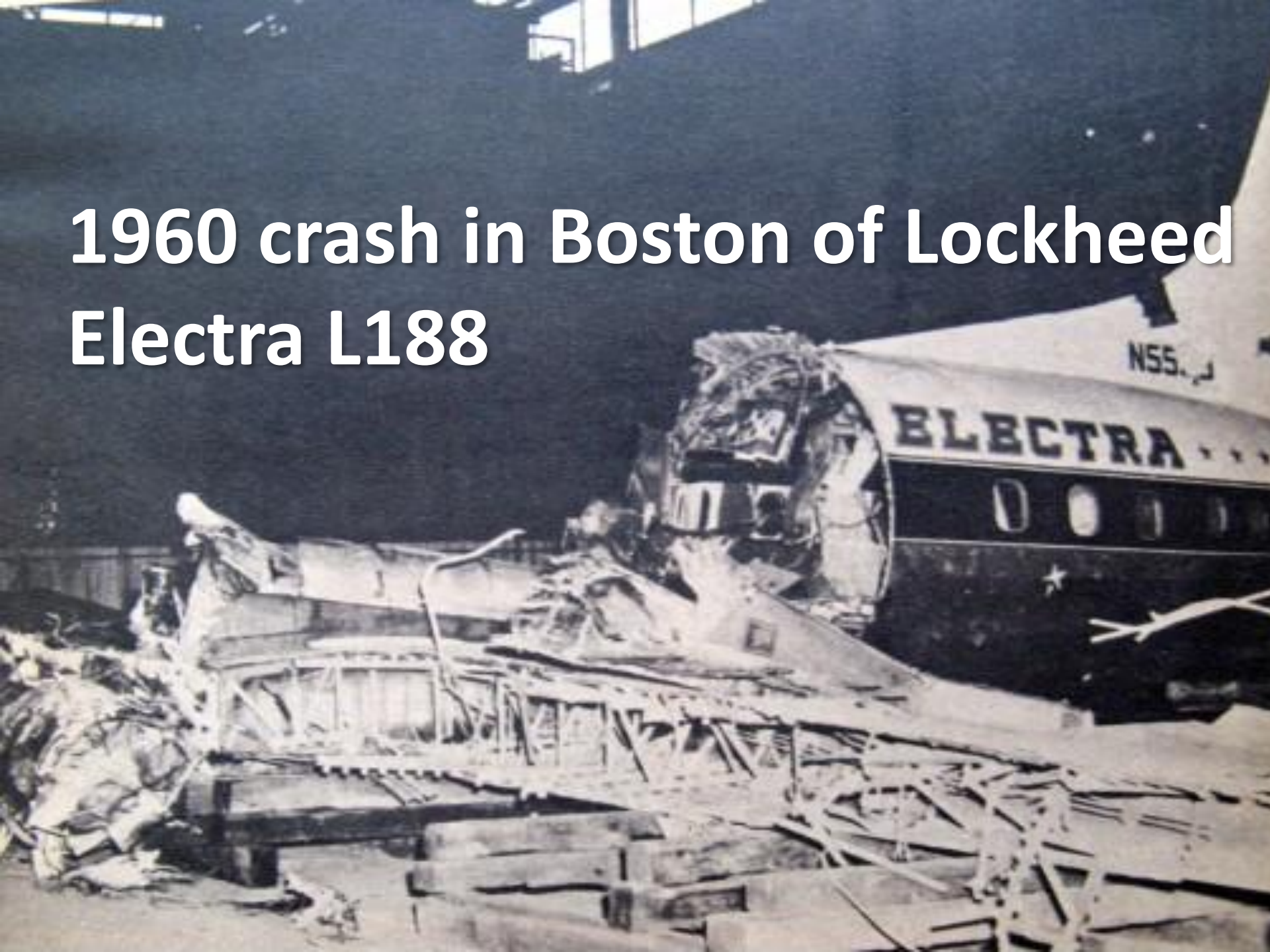
Canada

# Contents





# 1960 crash in Boston of Lockheed Electra L188





# National Committees

Composition

Roles/Responsibilities

Airport Committee





# Birdstrike Reporting

**Importance  
Mandatory Risk Assessment  
Mandatory Forwarding to IBIS  
But No Mandatory Reporting**



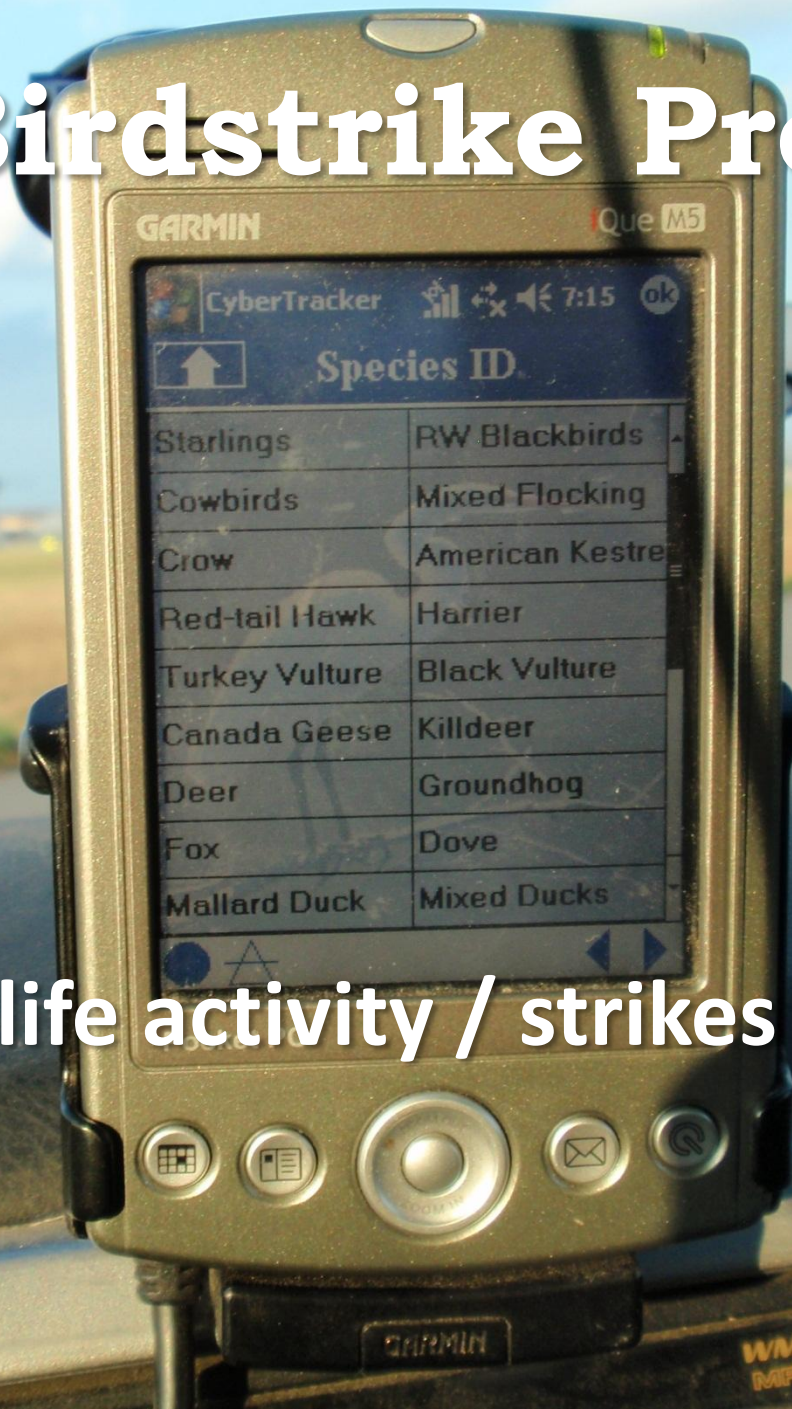


# BIRD STRIKE REPORTING FORM

Send to:

Operator.....		01/02	Effect on Flight	
Aircraft Make/Model .....		03/04	<i>none</i>	<input type="checkbox"/> B2
Engine Make/Model.....		05/06	<i>aborted take-off</i>	<input type="checkbox"/> B3
Aircraft Registration .....		07	<i>precautionary landing</i>	<input type="checkbox"/> B4
Date	day ..... month ..... year .....	08	<i>engines shut down</i>	<input type="checkbox"/> B5
Local time.....		09	<i>other (specify)</i>	<input type="checkbox"/> B6
dawn <input type="checkbox"/> A day <input type="checkbox"/> B dusk <input type="checkbox"/> C night <input type="checkbox"/> D .....		10		
Aerodrome Name .....		11/12	Sky Condition <sup>37</sup>	
Runway Used .....		13	<i>no cloud</i>	<input type="checkbox"/> A
Location if En Route .....		14	<i>some cloud</i>	<input type="checkbox"/> B
Height AGL ..... <i>ft</i> <sup>15</sup>			<i>overcast</i>	<input type="checkbox"/> C
Speed (IAS) ..... <i>kt</i> <sup>16</sup>				
Phase of Flight <sup>17</sup>			Precipitation	
<i>parked</i> <input type="checkbox"/> A		<i>en route</i> <input type="checkbox"/> E	<i>fog</i> <input type="checkbox"/> B8	
<i>taxi</i> <input type="checkbox"/> B		<i>descent</i> <input type="checkbox"/> F	<i>rain</i> <input type="checkbox"/> B9	
<i>take-off run</i> <input type="checkbox"/> C		<i>approach</i> <input type="checkbox"/> G	<i>snow</i> <input type="checkbox"/> B40	
<i>climb</i> <input type="checkbox"/> D		<i>landing roll</i> <input type="checkbox"/> H		
Part(s) of Aircraft			Bird Species* <sup>41</sup>	
	<i>Struck</i> <i>Damaged</i>			
<i>radome</i>	<input type="checkbox"/> 18 <input type="checkbox"/>			
<i>windshield</i>	<input type="checkbox"/> 19 <input type="checkbox"/>			
<i>nose (excluding above)</i>	<input type="checkbox"/> 20 <input type="checkbox"/>			
<i>engine no. 1</i>	<input type="checkbox"/> 21 <input type="checkbox"/>			
<i>2</i>	<input type="checkbox"/> 22 <input type="checkbox"/>			
<i>3</i>	<input type="checkbox"/> 23 <input type="checkbox"/>			
<i>4</i>	<input type="checkbox"/> 24 <input type="checkbox"/>			
<i>propeller</i>	<input type="checkbox"/> 25 <input type="checkbox"/>			
<i>wing/rotor</i>	<input type="checkbox"/> 26 <input type="checkbox"/>			
		Number of Birds		
		<i>Seen</i> <sup>42</sup>	<i>Struck</i> <sup>43</sup>	
		<i>1</i> <input type="checkbox"/> A	<input type="checkbox"/> A	
		<i>2-10</i> <input type="checkbox"/> B	<input type="checkbox"/> B	
		<i>11-100</i> <input type="checkbox"/> C	<input type="checkbox"/> C	
		<i>more</i> <input type="checkbox"/> D	<input type="checkbox"/> D	

# Airport Birdstrike Program



Personnel

Logging of wildlife activity / strikes (DNA)

# Risk Assessment

Species Group	Overall Risk Ranking	Relative Hazard Percentage
Canada Geese	1	100
Snow Geese	2	94
Seagulls (all species)	3	8
Ducks	4	6
Vultures	5	5
Flocking Birds*	6	4
Raptors	7	1
Egrets/Herons	8	1
Crows	9	<1
Songbirds	10	<1
Shorebirds	11	<1
Kestrels	12	<1
Owls	13	<1
Swallows	14	<1
Groundhogs	15	<1
Deer	16	<1
Foxes	17	<1
Rabbits	18	<1

\* Flocking birds consists of species such as red-winged blackbirds, starlings, grackles, etc.

# Staff Training





# Aircraft Operator Duties





# Vegetation Management

A green John Deere tractor is shown in the middle ground, moving from left to right across a field of tall, green grass. The tractor is pulling a mowing implement, which is partially visible behind it. In the background, a large, white hangar with a blue stripe and the word "BOEING" in blue letters is visible. Several tall, thin poles with lights or antennas are also present behind the hangar. The sky is clear and blue.

Brief overview



# Vegetation Management

Brief overview

Difficult with worldwide environments





# Vegetation Management

An aerial photograph showing a two-lane asphalt road with a white dashed center line, stretching straight into a dense, lush green forest. The road is flanked by grassy shoulders and bordered by a line of trees. The perspective is from a high angle, looking down the length of the road.

**Brief overview**

**Difficult with worldwide environments**



# Vegetation Management

Brief overview

Difficult with worldwide environments



# Typical Attractants

Food

Water

Shelter





# Active Management

Brief overview – introduction to various techniques



# Chemical Repellants





# Auditory Devices

## Gas Cannons





# Auditory Devices

Gas Cannons  
Distress Calls



# Auditory Devices

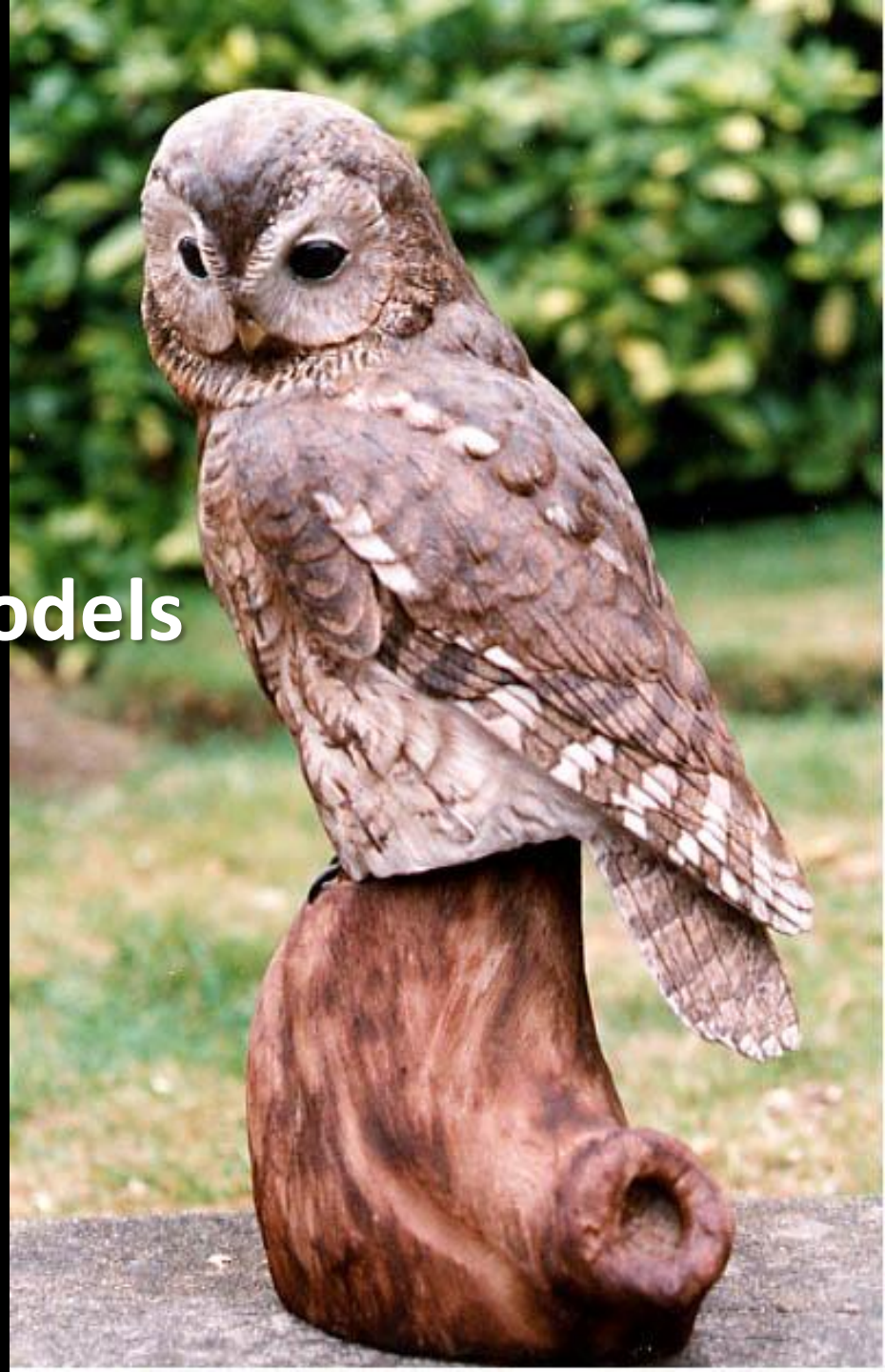
Gas Cannons  
Distress Calls  
Pyrotechnics





# Visual Repellants

Ineffective nature of models





# Visual Repellants

## Vulture Effigies



# Visual Repellants

Lasers



# Real Predators

## Border Collies Keys to Successful Program





# Real Predators

Falconry



# Remote-control Vehicles





# Non-lethal Projectiles





# Best Practices



## **International Birdstrike Committee**

**Recommended Practices No. 1**

**Standards For Aerodrome  
Bird/Wildlife Control**

# Incompatible Land Use

## ICAO Doc 9184 (Part 2)



## **Airport Planning Manual**

**Part 2**  
Land Use and Environmental Control

Approved by the Secretary General  
and published under his authority

Third Edition — 2002

International Civil Aviation Organization

# Evaluating Wildlife Program






# 14 Basic Questions

- 1. Is there a wildlife control officer responsible for the management of wildlife on the airport?**
- 2. Has a land use plan been established with regard to effective land use on and off airport as it pertains to the wildlife control programme?**
- 3. What ecological measures are implemented to reduce wildlife attractiveness at the airport and in the vicinity?**
- 4. Is there a habitat management programme on the airport?**
- 5. Are garbage dumps forbidden around the airport? At what distance?**
- 6. Is the airport fence suitable to prevent hazardous animal incursions?**
- 7. Which scaring methods are implemented at the airport?**

# Emerging Technologies

[HOME](#) [MAP](#) [ABOUT](#) [INSTRUCTIONS](#) [FAQ](#) [GALLERY](#) [AWARD](#) [TERMS](#) [CONTACT](#)



## United States Bird Avoidance Model



Run the Bird Avoidance Model

**Select Biweekly Period:**  
September 24 - October 7

**Select Time Period:**  
Dawn

**Select Search Criteria:**

☐ VR Route ☐ Military Airfields  
☐ IR Route ☐ MOA  
☐ SR Route ☐ Range  
☐ Cities

**Select a flying area: (Select button above to change)**  
MC CONNELL AFB

[Refresh Map](#)

**Advance Time Period**

**By Biweek:** [Previous](#) [Next](#) **By Time Period:** [Previous](#) [Next](#)

**Legend**

☒ September 24 - October 7 DAWN

☒ **Low** (0 - 169 ounces/km2 )

☒ **Moderate** (170 - 7272 )

☒ **Severe** (7273 - 409796 )





☐ Instrument Routes

☐ Slow Routes


☐ Visual Routes

☒ Military Airfields

**Warning:** The US Bird Avoidance Model (USBAM) was constructed with the best available geospatial bird data to reduce the risk of bird collisions with aircraft. Its use for flight planning can reduce the likelihood of a bird collision but will not eliminate the risk. The USBAM organizations are not liable for losses incurred as a result of bird strikes.

ANG USAF BASH FAA



ng the day to ensure that  
d evening requests can be

airfield, but the strike risk

ay and Hour for which you

ly

Zulu  
Zulu

Trend #	Data
N/A	Y

abase

# Emerging Technologies





# Communications





# **USA/Canada Birdstrike Conference 2011**



**Dr. Nicholas Carter**  
**Birdstrike Control Program**  
**[nick@birdstrikecontrol.com](mailto:nick@birdstrikecontrol.com)**