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Carla J. Dove, Ph.D.  
Birdstrike Committee 2018  
Baltimore, MD



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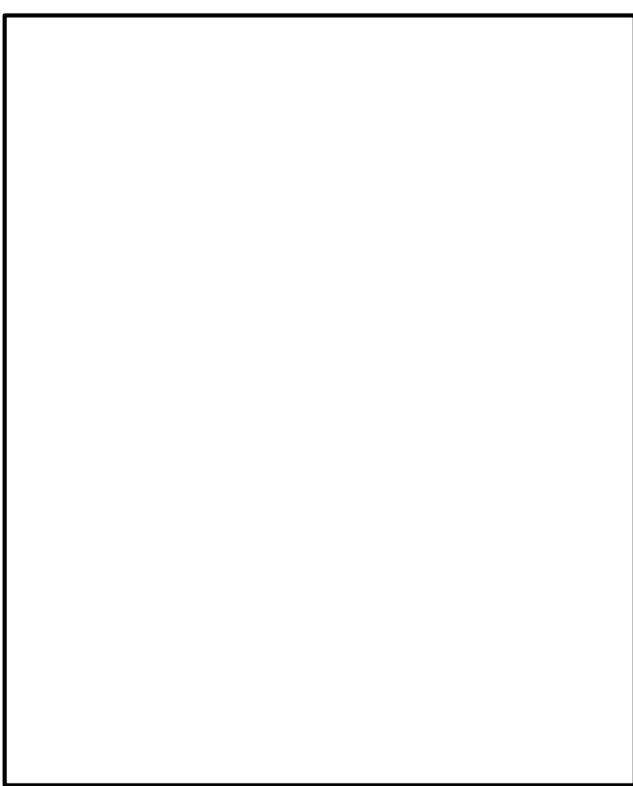
**Carla Dove**  
Program  
Manager

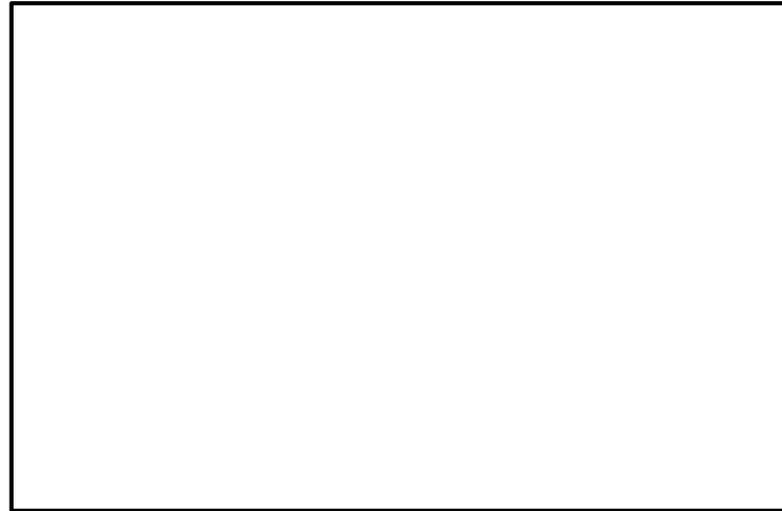
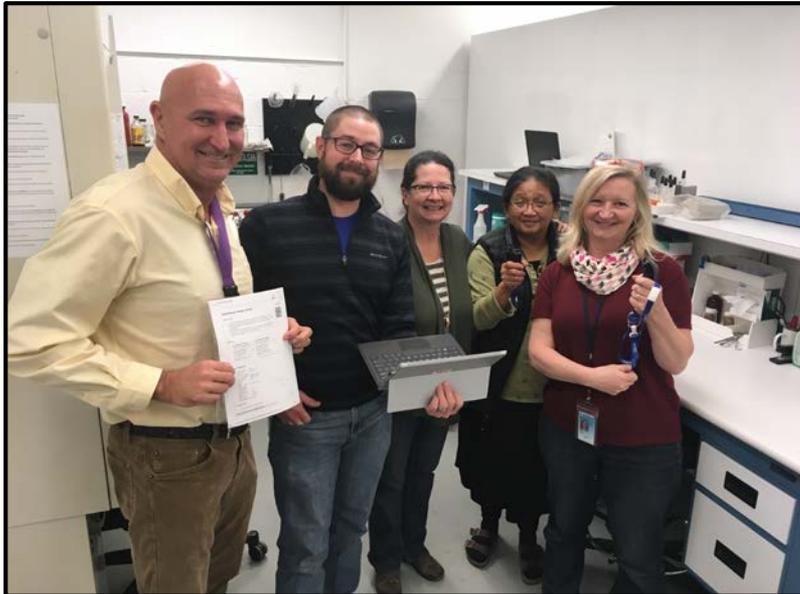
**Marcy Heacker**  
Research  
Assistant

**Jim Whatton**  
Research  
Assistant

**Faridah Dahlan**  
Genetics  
Specialist

**Sarah Luttrell**  
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Assistant

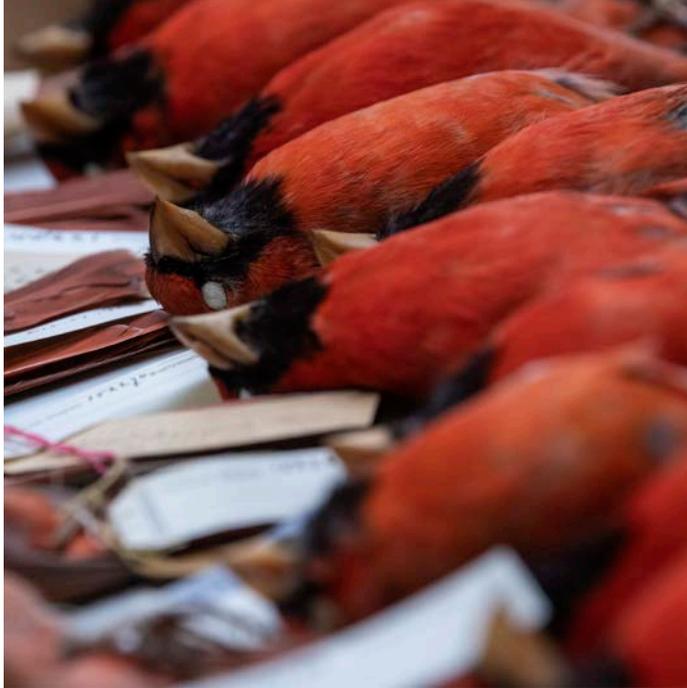




Filemaker Pro® Programmer – Bailey Kessing



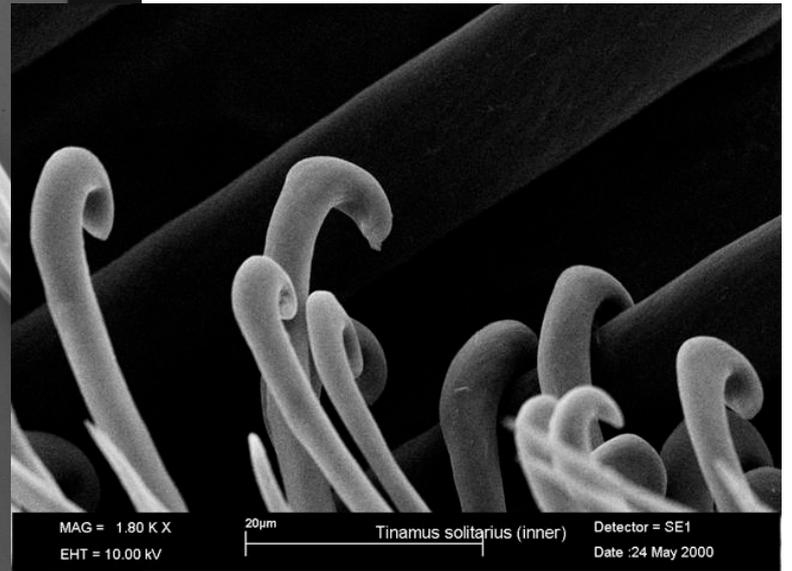
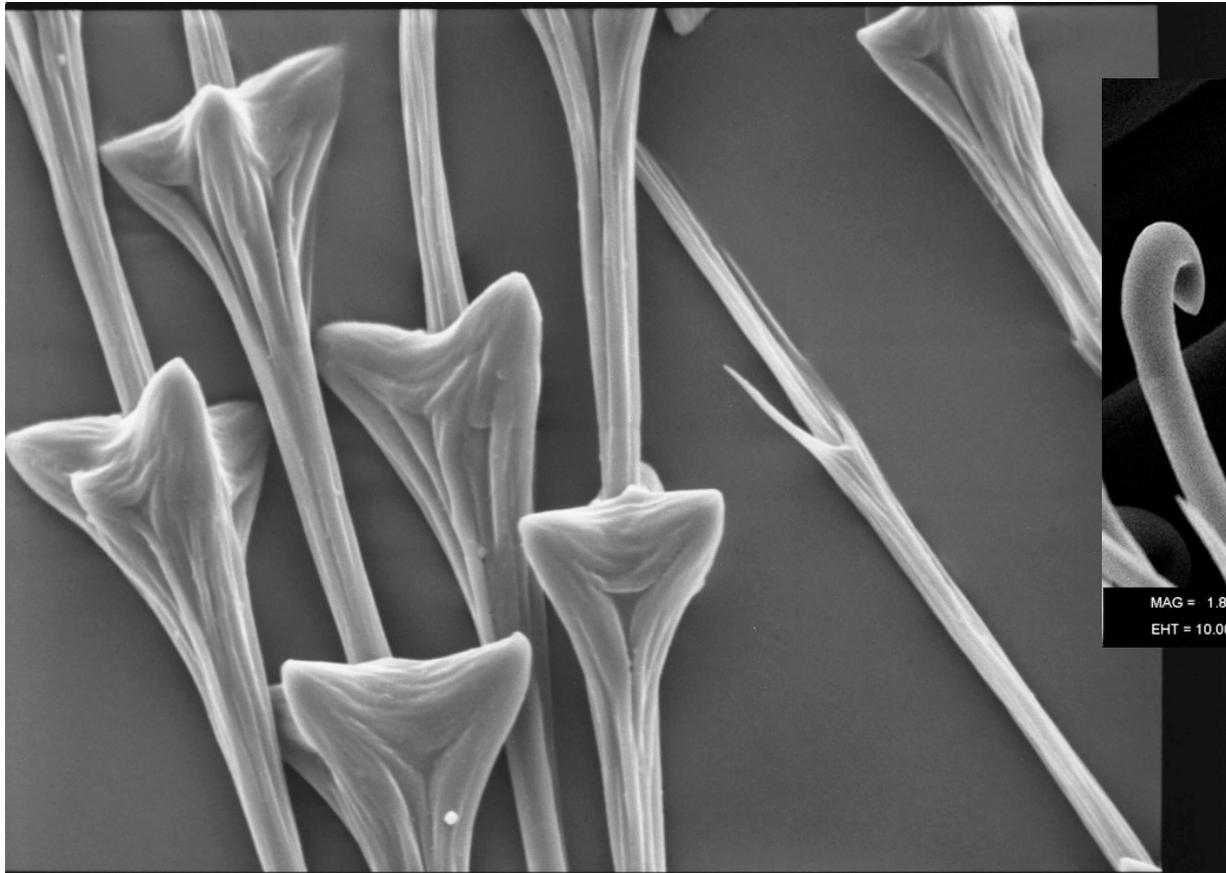
Morphology:  
Whole Feathers



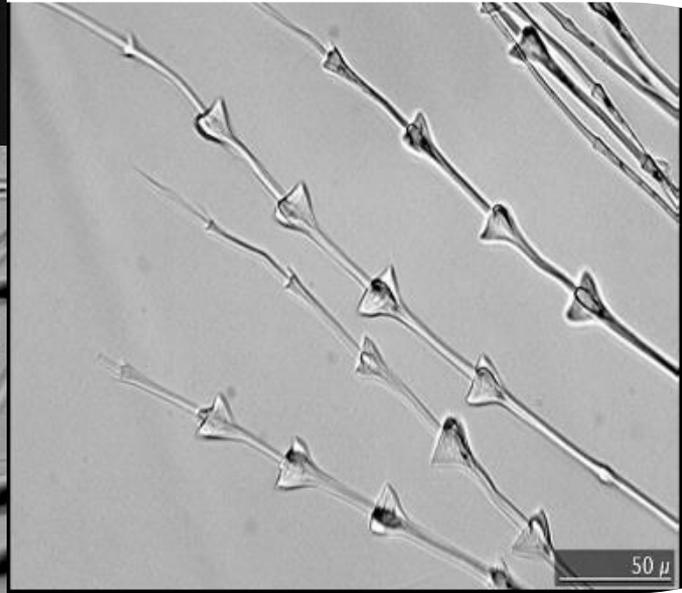
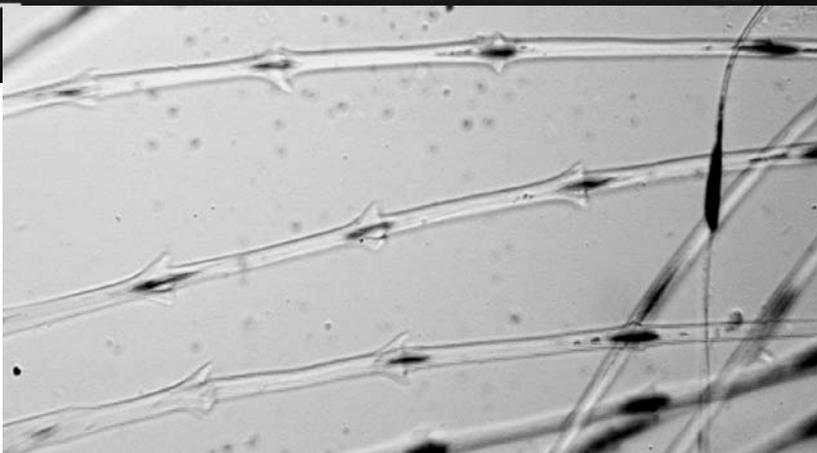


Smithsonian  
*National Museum of Natural History*





20µm

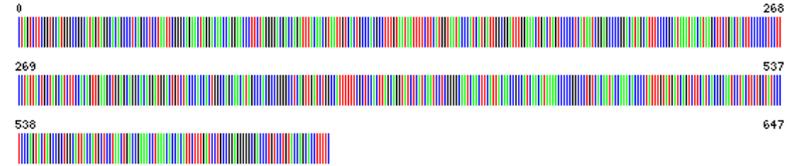


Morphology:  
Microscopy





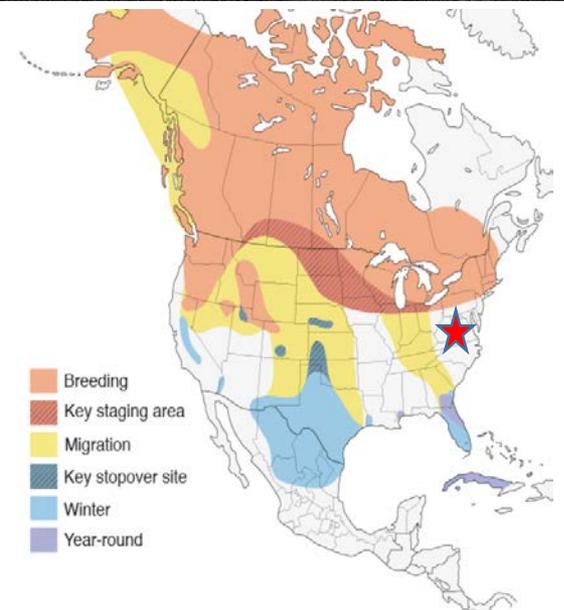
# Molecular: DNA Barcoding



# Laboratory of Analytical Biology - LAB



# BSI B S I



**U S N**  
**N A S M**  
**C A**

19 January 2017

**NAS Meridian, MS**

**19 January 2017**

**T-45**

**Class A**



**Samples collected from inside the right air intake, T-45 Goshawk by USDA biologists (Jon Leddon and Matt Overstreet)**



## Black Vulture (DNA, Micro, Whole)



### Black vulture vs Turkey Vulture

- Hunt by sight but exploit food-finding skills of Turkey Vultures
- More aggressive, and often displace Turkey Vultures from carcasses
- Fly higher than Turkey Vultures for visual foraging
- May fly earlier than Turkey Vultures if returning to a carcass

**A**

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**M**

26 April 2017

# American Airlines flight makes emergency landing at Dulles after bird strike



By [WTOP Staff](#)  
April 27, 2017 10:39 am



ARLINGTON, VA (WUSA9) - An American Airlines flight from Reagan National hit a flock of birds during takeoff Wednesday evening.

Flight 4411 was headed to Fort Myers, Fla., but diverted to Dulles International to make an emergency landing. The plane touched down safely after sustaining the bird strike.

There were 56 passengers on board. No one was hurt.

American Airlines is sending a standby aircraft from Reagan to Dulles to pick up the passengers and fly them to Florida.

They're expected to arrive Thursday morning.

The bird strike damaged the plane, but it's not known at this time how extensive it is, an American Airlines spokesperson said.

© 2017 WUSA-TV

- Dulles Airport, 26 April 2017
- Emergency landing at 1818
- 2000 ft at 1654
- Flying up the Potomac River
- Pilot reported Pelican
- 12" divot in right wing slat



S



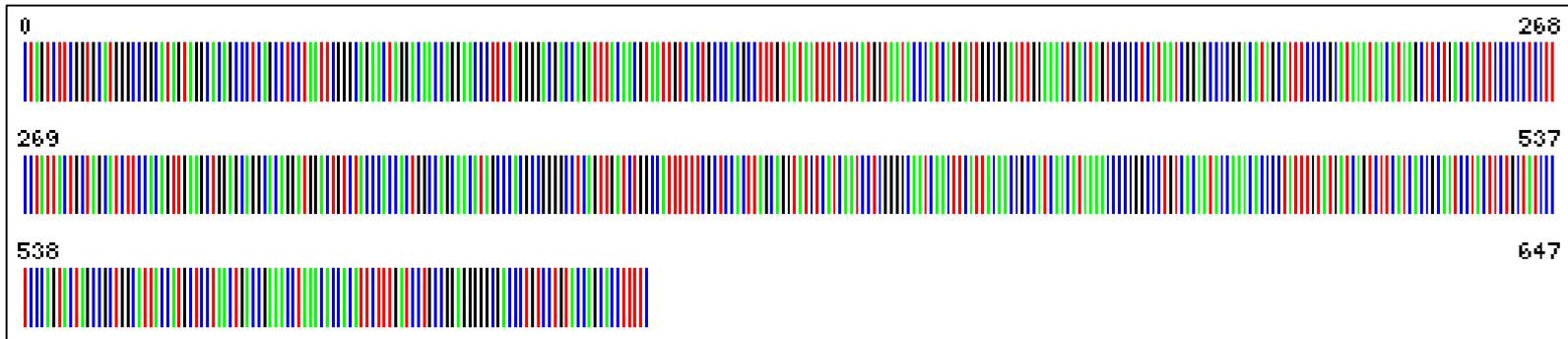


Microslide

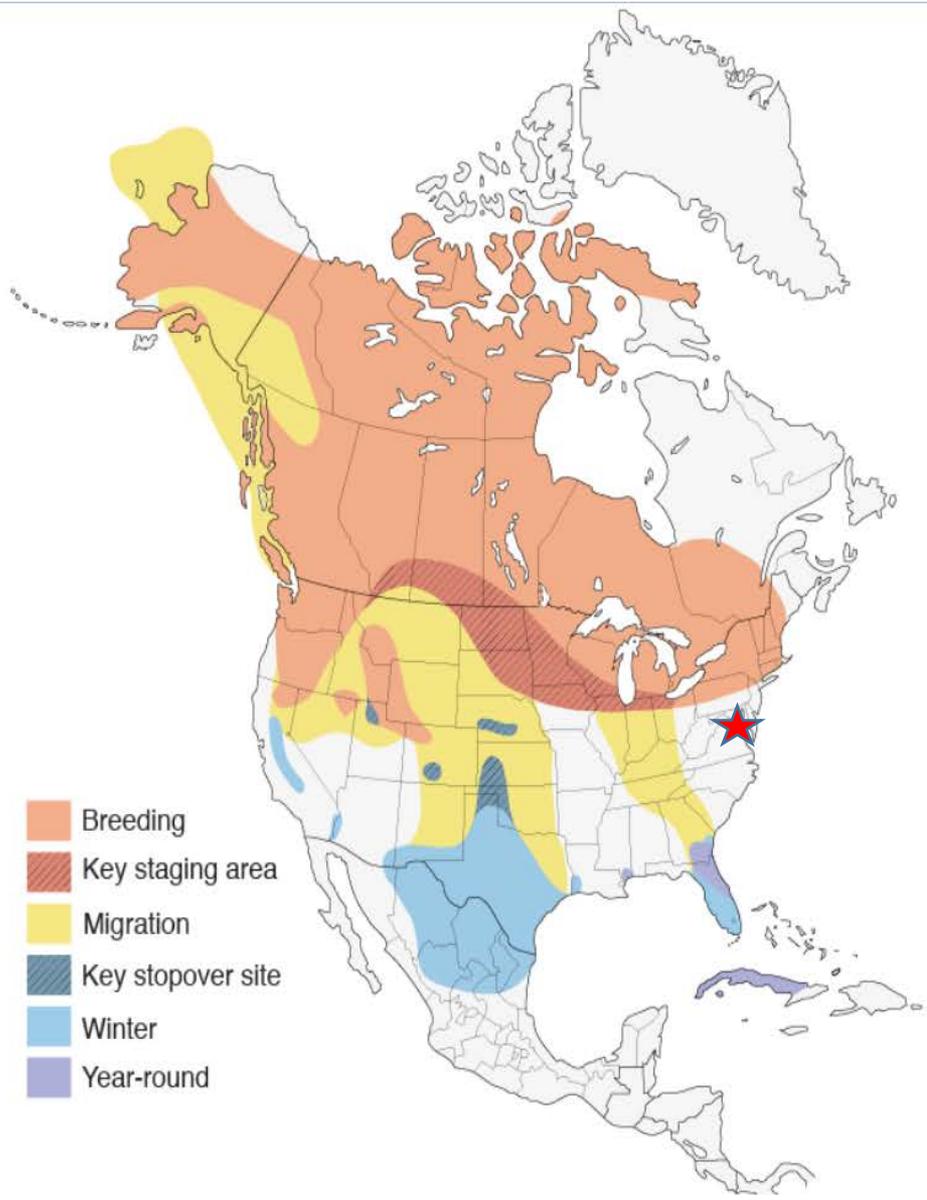


# Sandhill Crane (*Antigone canadensis*)

7-10 lbs



Dulles Airport - Virginia



**Figure 1. Distribution of Sandhill Cranes in North America.**

Northern populations are migratory, southern populations generally non-migratory, remaining near breeding sites year-round.



# E-bird: <https://ebird.org/explore>

The screenshot shows the E-bird website interface. At the top, there is a search bar with a close button (X) on the left. To the right of the search bar, the 'Date' is set to 'Jan-Jun, Current Year' with a dropdown arrow, and the 'Location' is a search input field containing the placeholder text '| Enter place name or address...'. Below the search bar is a map of the Washington, DC area. A popup window is centered over the map, displaying information for a hotspot named 'Dulles Airport--Pond' in Loudoun, US-VA. The popup includes a blue arrow icon pointing right and the text 'EXPLORE HOTSPOT'. Below this, there is a table with columns for 'DATE', '#', and 'OBSERVER'. The table contains one row of data: '2017-01-11', '1', and 'stephen johnson'. To the right of the table, there is a 'Checklist' link and a pencil icon. The map background shows various cities and roads, including Clarksburg, Germantown, Olney, Rockville, North Bethesda, Bethesda, Hyattsville, Washington, Tysons, Chantilly, Sterling, Dulles, Potomac, and Dumfries. Major roads like I-270, I-495, and US-29 are also visible.

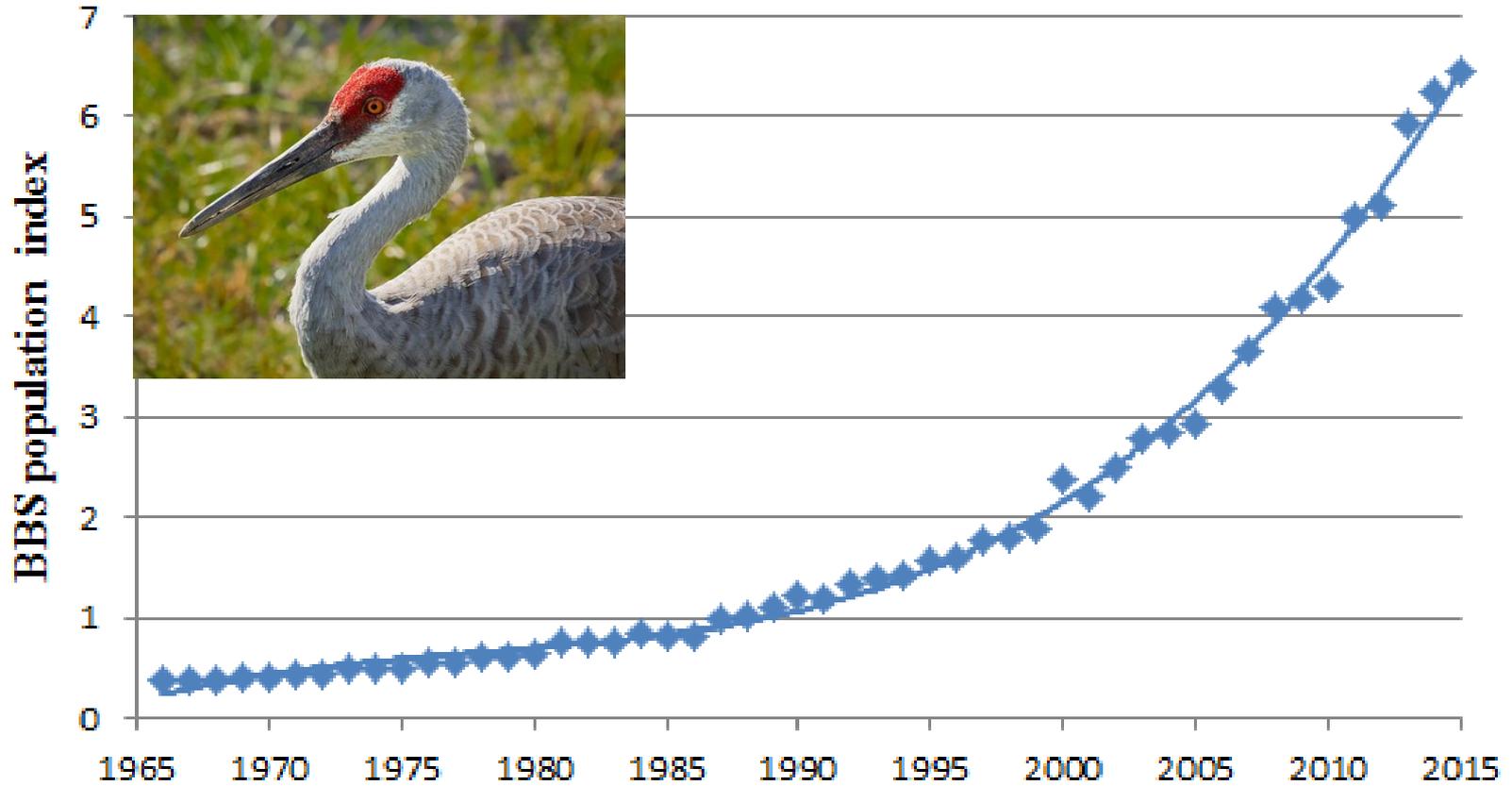
**Dulles Airport--Pond**  
Loudoun, US-VA

[EXPLORE HOTSPOT](#)

DATE	#	OBSERVER
2017-01-11	1	stephen johnson

[Checklist](#)

## Sandhill crane population trend, Eastern Region of N. America, 1966-2015



**B**

**D**

**K**

17 May 2017



- JetBlue Flight 1808 9:11 pm
- Struck bird on takeoff
- Plane in the air for 40 minutes





## **JetBlue flight makes emergency landing at Dulles after possible bird strike**

Eyewitness News

Wednesday, May 17, 2017

NEW YORK (WABC) --

A JetBlue flight en route to New York's JFK Airport may have hit a bird.

The captain on the flight from Washington Dulles Airport to JFK reported the possible bird strike on Wednesday.

The plane landed safely back in Washington just before 10 p.m.

There are no reports of any injuries.

**Passengers said it “was a really an emotional experience”**

AIRCRAFT DAMAGE TO #2 ENGINE, FAN AND STATOR BLADES, ENGINE OUTER CASING PERFORATED, NO EVIDENCE THAT ENGINE PARTS PASSED THROUGH OUTER CASING, UPON LANDING AIRCRAFT LEAKED APPROXIMATELY 200 GALLONS OF FUEL FROM DAMAGED ENGINE BEFORE FLOW WAS MITIGATED.

Airport Operations recovered remains from departure runway at 5,100' remaining. **USDA Biologist recovered remains from the #2 engine and transferred both sets of remains to the Smithsonian.**

Ryan Stewart, USDA biologist Dulles Airport

One engine sample  
One airfield sample

**DNA gender typing:**

Male: Ave. wt. = 1154 g (2.5 lb)  
Range = 724 – 1460 g (1.5 – 3.2 lb)

Female: Ave. wt. = 1555 g (3.4 lb)  
Range = 801 – 2046 g (1.7 – 4.5 lb)

Both samples = Male



**Great Horned Owl**  
***Bubo virginianus***  
**Ave. wt. = 3.1 lbs**



- Observed an increase in owl strike frequency over past 10 years
- Trap/Relocation Program (Fall 2014); 25 total relocated
- No GHOW returns
- Catch per effort is declining

**E**

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21 June 2017

# F-16 Houston, Texas – Ellington Field Joint Reserve Base

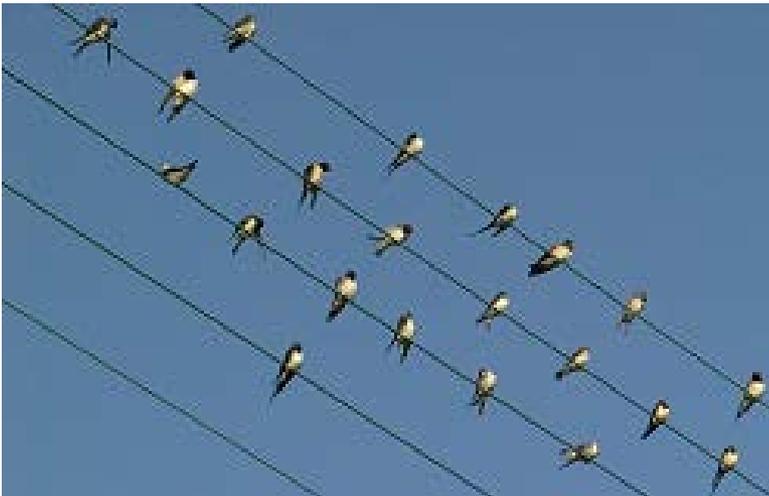
## \$11 M

- 21 June 2017
- ANG pilot ejected shortly after takeoff, treated for injuries
- Training mission carrying military explosives
- Area was evacuated
- Two vials received from engine cowling and windscreen

Barn Swallow (*Hirundo rustica*)

19 g (.67 ounces)

Id confirmed with DNA and microscopy



**Distraction by  
birds caused high  
speed abort –  
birdstrike did not  
cause crash.**

**NTSB M**

**C**

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19 November 2017

# 3 killed in medical helicopter crash in Arkansas County, 19 November 2017



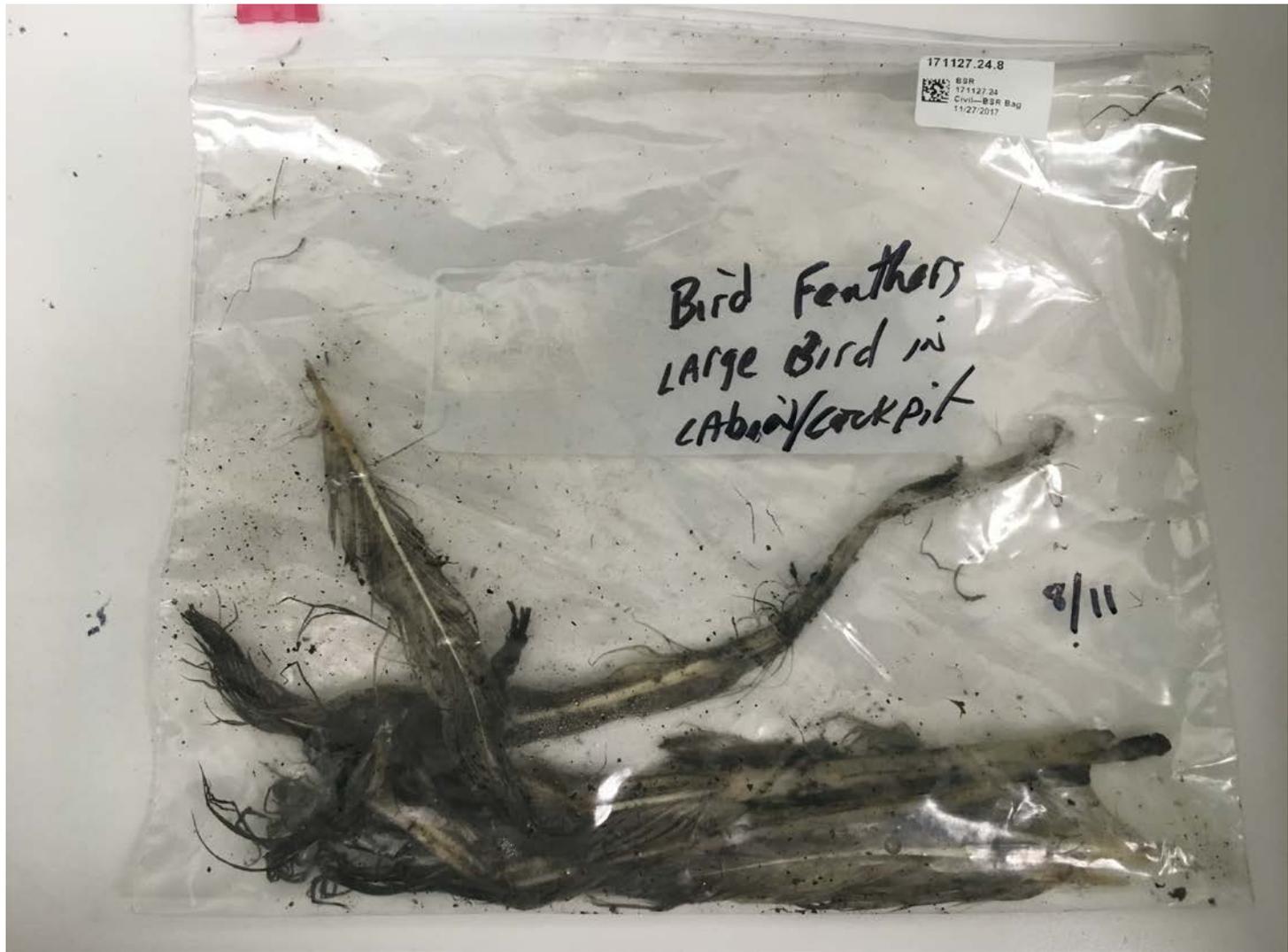
- A witness stated she saw the helicopter go into a spin, heard geese getting loud and saw the Pafford Medical Services helicopter go up in flames.
- “A large flock of geese may have caused the helicopter to downward spiral and crash, according to a sheriff report”.

171127.24.8

BSR  
171127.24  
Civil-BSR Bsg  
11/27/2017

Bird Feathers  
Large Bird in  
Cabin/Cockpit

8/11



Before Wash



After Wash



Family Anatidae 100

Genus *Chen* 100

Top

Phyla

Chordata

Chordata

Chordata

Chordata

Chordata

Chordata Av

Chordata Av

Chordata Av

Chordata Av

Chordata Av

Chordata Av



Ross's Goose 2.7 lb.

er[32]|Iceland.Austurland|Anatidae|  
er[33]|Anatidae|  
cygnoides domesticus[34]|Anatidae|  
frons[35]|Saudi Arabia|Anatidae|  
frons[36]|Saudi Arabia|Anatidae|  
frons[37]|South Korea.Gangwon|Anatidae|  
anser[38]|Iceland.Austurland|Anatidae|  
fabalis[39]|Sweden.Skane|Anatidae|  
fabalis[40]|Germany|Anatidae|  
frons[41]|Saudi Arabia|Anatidae|  
cythropsus[42]|Sweden|Anatidae|  
brachyrhynchus[43]|Germany|Anatidae|  
brachyrhynchus[44]|Norway.Oslo|Anatidae|  
fabalis[45]|Norway.Ostfold|Anatidae|  
rhynchus[46]|Norway.Nordland|Anatidae|  
ser indic  
8]|India|  
9]|India|  
[50]|Ge

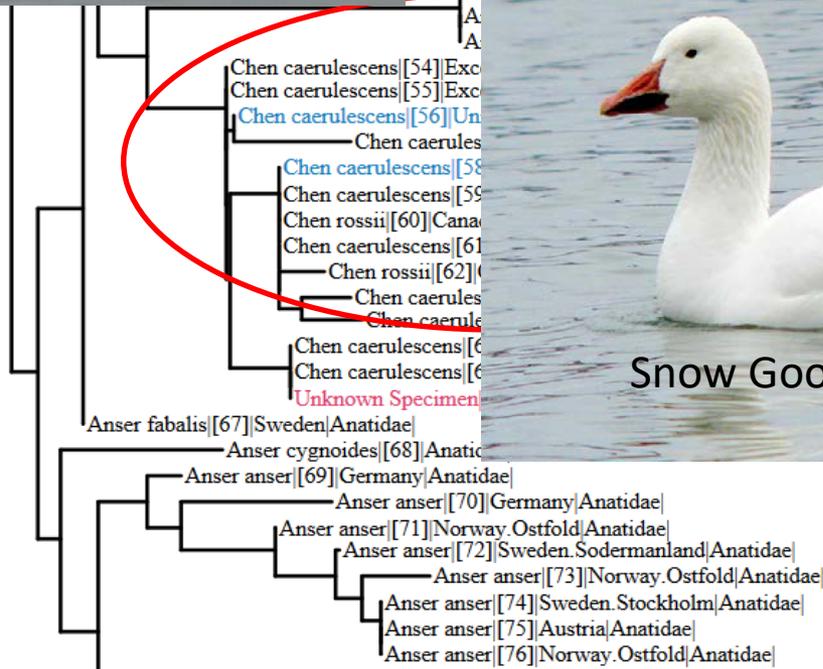
Top 20

Status

Published

Published

Published



Snow Goose 5.3 lb.



Ross's Goose or Snow Goose

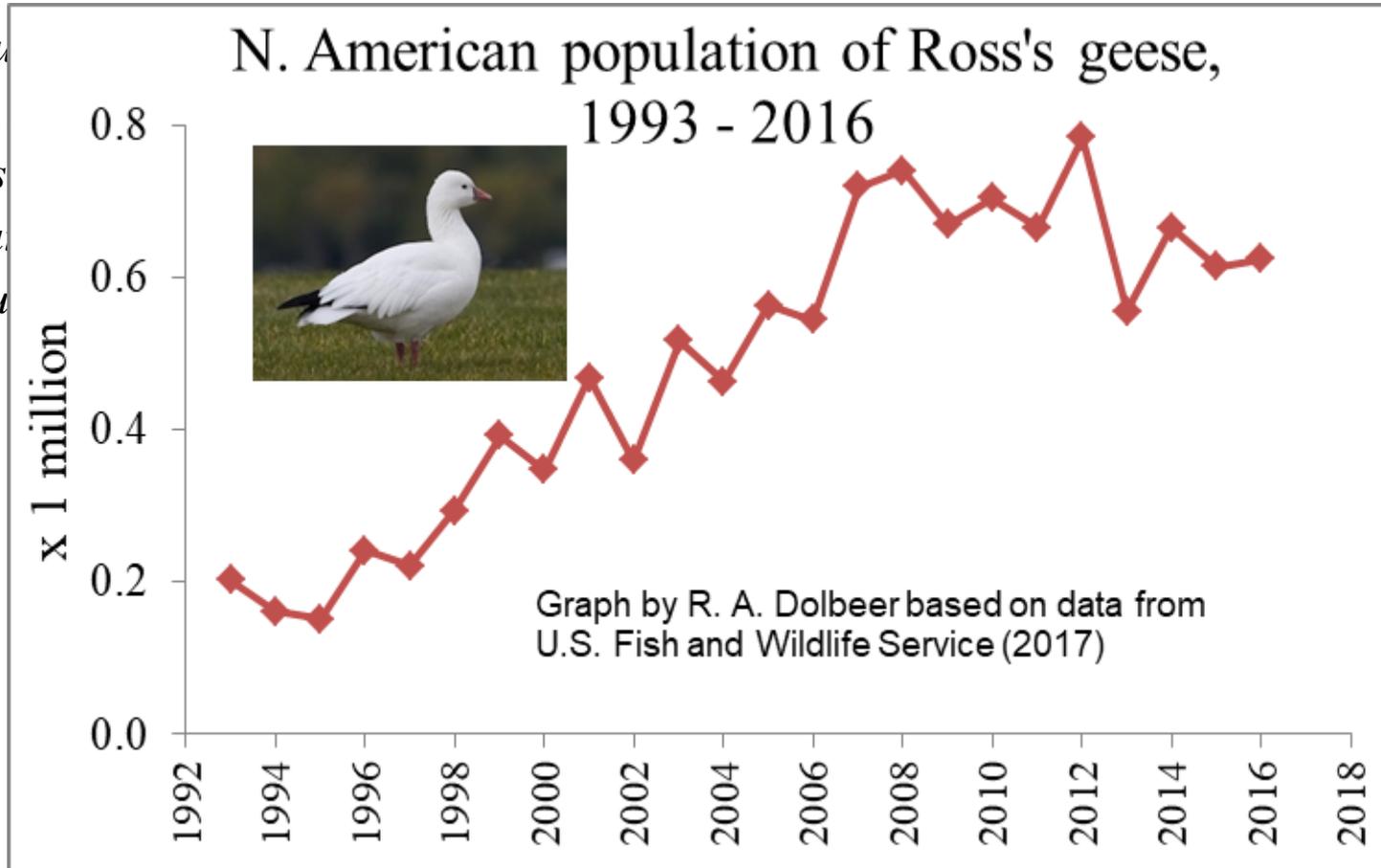


Photo 2: Photo left: Cleaned feather samples received on 27 November compared with museum study skins to identify bird species. Photo right: Dark primary wing feather (at arrow) from the wreckage compared with museum specimen of Snow Goose. In this case, the large size of the feathers matched the Snow Goose and excluded the closely related but smaller Ross' Goose.

# Feather Lab Report to NTSB:

...Because smaller feathers observed on individual Goose.

such as the one on Ross' Goose.



Aircraft:	CANADA 407	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Positioning - Air Medical (Discretionary)		

P



**NTSB**

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20 April 2016

Alaska, north of Anchorage – 20 April 2016  
Cessna 172 ; post-crash fire consumed most of the fuselage  
4 fatalities



**Former NTSB investigator was pilot in crash that killed 4 near Chugiak**





Feather found on ground



Samples from aircraft

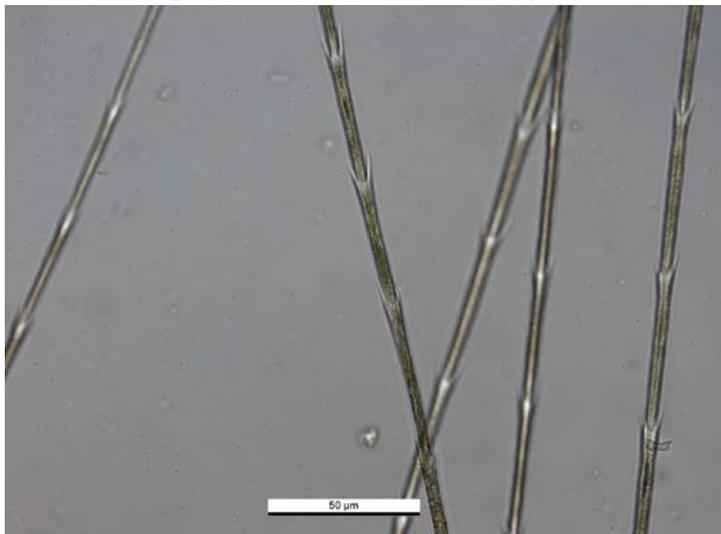


Bald Eagle, immature bird

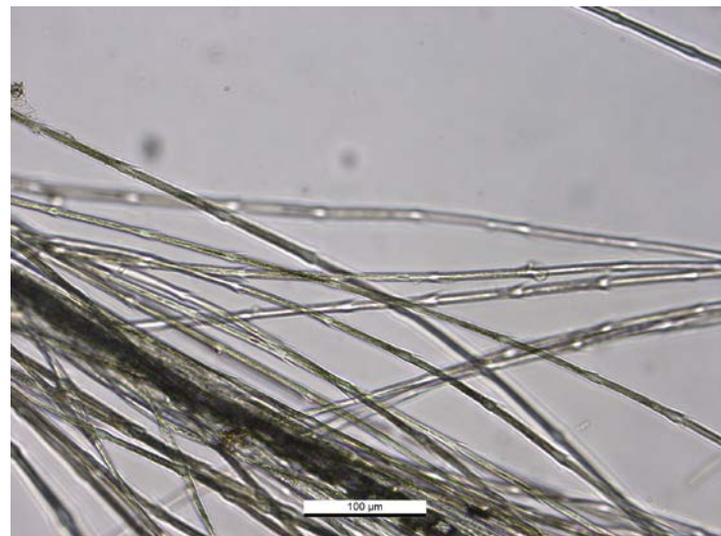
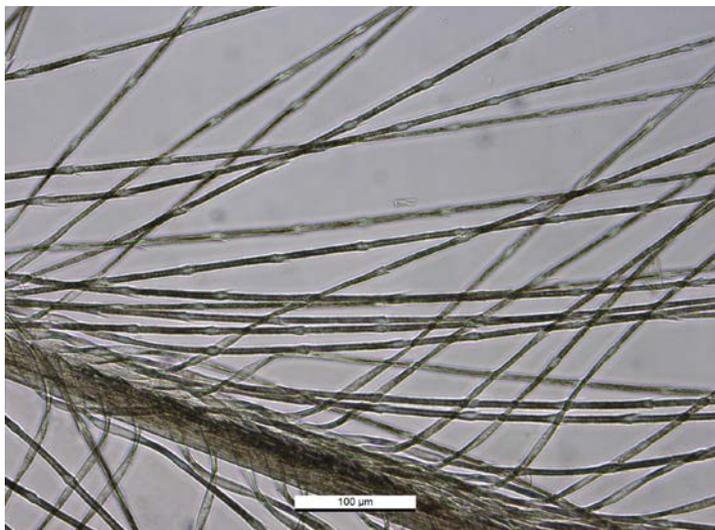




Bald Eagle Reference Sample



Unknown Sample



National News

# Agency: Eagle hit Alaska plane before crash that killed 4



Alaska, north of Anchorage – 20 April 2016

Cessna 172 ; post-crash fire consumed most of the fuselage

4 fatalities

Questions?