



National Transportation Safety Board Aviation Accident Final Report

Location:	Lincoln, NE	Accident Number:	CEN14LA053
Date & Time:	10/12/2013, 1640 CDT	Registration:	N368PK
Aircraft:	CESSNA 525A	Aircraft Damage:	Substantial
Defining Event:	Birdstrike	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

When the airplane reached an initial altitude of 3,000 feet mean sea level (msl), the departure air traffic controller issued a clearance to 10,000 feet msl and a right turn to about 060 degrees. The flight crew made the right turn and began to climb to 10,000 feet msl. During the climb and after passing about 6,400 feet msl at 200 knots indicated airspeed, the flight crew noted a flock of birds. One of the birds struck the right outboard wing, which resulted in wing spar damage. The airplane returned to the departure airport where it landed without further incident. The airport had a standing notice for bird activity on or in the vicinity of the airport. Further, a medium avian hazard risk existed at the time of the accident for the departure airport area. Although over 90 percent of reported bird strikes occur at or below 3,000 feet above ground level, strikes at higher altitudes are common during migration season. The bird remains were identified as an American White Pelican.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The airplane's encounter with a flock of American White Pelicans, which resulted in one bird striking the right outboard wing during en route climb from the departure airport.

Findings

Environmental issues	Animal(s)/bird(s) - Effect on equipment (Cause)
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Factual Information

On October 12, 2013, about 1640 central daylight time, a Cessna 525A, N368PK, experienced a bird strike to the right wing during climb from Lincoln Airport (LNK) near Lincoln, Nebraska. The airplane sustained substantial damage to the outer right wing spar. The airline transport pilot and copilot were uninjured. The airplane was registered to Cessna Aircraft Company and operated by Executive Flight Services, Inc. (dba Executive AirShare) under 14 Code of Federal Regulations Part 91 positioning flight that was operating on an instrument flight rules flight plan. Visual meteorological conditions prevailed for the flight that departed at 1636 and was en route to Charles B. Wheeler Downtown Airport (MKC), Kansas City, Missouri.

The positioning flight departed LNK, elevation 1,218.6 feet mean sea level (MSL), from runway 36 (12,901 by 200 feet, asphalt/concrete) and climbed to an initial altitude of 3,000 feet MSL and contacted LNK air traffic control departure. Departure control issued a climbing clearance to 10,000 feet MSL and a right turn to approximately 060 degrees. The flight crew made the right turn and began a climb to 10,000 feet MSL. During the climb and after passing approximately 6,400 feet MSL, the flight crew noted a flock of birds that they described as "snow geese." The flight crew reported that they were unable to avoid the approximately 12-20 birds and struck one of them at the right outboard wing while the airplane was 7-8 miles northeast of LNK. The estimated indicated airspeed of the airplane at the time of the birdstrike was 200 knots. After noting the wing damage and verifying the engines, controllability, and overall airplane condition were operating normal, the flight crew informed LNK [air traffic control] that they had experienced a bird strike and would need to return to LNK. They were issued vectors back to the longest runway, runway 36, where they landing without further incident.

The Airport Facility Directory for LNK states within the Airport Remarks section that there are birds in the vicinity of the airport.

The Aeronautical Information Manual, Section 7-4-1, Migratory Bird Activity, states in part:

a. Bird strike risk increases because of bird migration during the months of March through April, and August through November.

b. The altitudes of migrating birds vary with winds aloft, weather fronts, terrain elevations, cloud conditions, and other environmental variables. While over 90 percent of the reported bird strikes occur at or below 3,000 feet AGL, strikes at higher altitudes are common during migration. Ducks and geese are frequently observed up to 7,000 feet AGL and pilots are cautioned to minimize en route flying at lower altitudes during migration.

The United States Avian Hazard Advisory System (USAHAS) program objective was to develop a predictive Avian Hazard Advisory System using Geographic Information System (GIS) technology as a key tool for analysis and correlation of bird habitat, migration, and breeding characteristics, combined with key environmental and man-made geospatial data. The Avian Hazard Advisory System indicated a moderate risk at the time of the accident.

Identification of bird species involved in bird/aircraft strikes is an important part of the overall assessment and management of this complex issue. Knowing the exact species provides guidance to the size, behavior, and ecology of the bird in question and is key to tracking species trends as well as focusing preventative measures. Species identifications provide the baseline data needed to plan habitat management on airfields, build avoidance programs, and have

even been used to assist engineers to design windscreens and engines that are more resilient to birdstrike events.

Bird remains were collected by the United States Department of Agriculture to the Smithsonian Institution, Feather Identification Lab. DNA analysis and microscopic examination identified the bird remains as American White Pelican.

According to the National Audubon Society, the American White Pelican is one of North America's largest birds, the American White Pelican is distinctive for its nine-foot wingspan, conspicuous white body, and the improbable proportions of its large bill and pouch. Despite their size, the pelicans are graceful fliers, with flocks soaring high in the air and wheeling in unison. American White Pelicans may be seen cooperatively foraging in shallow waters, or at adjacent loafing sites.

American White Pelicans weigh about 16.4 pounds (7,500 grams), and measure over five feet in length, with a huge 9-foot wingspan. Sexes look similar, with short legs and tail; long, broad white wings with black tips and trailing edges; a large, heavy all-white body; and a huge pinkish to paleorange bill and throat pouch.

The American White Pelican resides mainly in western and southern portions of North America, breeding in colonies in inland scattered locations from western Manitoba and Minnesota westward to northern California. The birds winter along the warm southern coasts of California, Mexico, the Gulf Coast, and Florida.

In breeding season, American White Pelicans are found mostly inland, nesting on isolated islands in lakes, and feeding on shallow lakes, rivers, and marshes, which may be far from nesting sites. They also breed locally on coastal islands. The birds winter mainly along coasts, in shallow, protected bays and estuaries, and on large lakes in warm climates. Migrating flocks of pelicans rest on lakes and rivers along the way.

According to the Smithsonian Institution, Feather Identification Lab. Reporting every wildlife strike is crucial to the continuing effort of birdstrike prevention. Equally important is to assign an accurate species to each case so the overall data is complete and can be correctly interpreted. Although commercial aviation currently reports about 7,500 strikes per year (Wildlife Strikes to Civil Aircraft in the United States 1990 - 2010 (PDF), Dolbeer et al.), very few of these cases are associated with a specific identification of the wildlife involved. Methods used by the Smithsonian Institution's Feather Identification Lab - as well as links and recommendations for reporting, collecting, and shipping birdstrike material is available at the following link:

http://www.faa.gov/airports/airport_safety/wildlife/smithsonian/

The airplane was not equipped with a flight data recorder or a cockpit voice recorder. The Cessna Aircraft Company AReS 1 maintenance recorder, part number 6918231-1, serial number 1118, recorded the airplane's last flight on September 27, 2013, and did not record any subsequent flights. It was unknown why any later flights were not recorded.

History of Flight

Enroute-climb to cruise

Birdstrike (Defining event)

Pilot Information

Certificate:	Airline Transport	Age:	30
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	08/07/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	07/31/2013
Flight Time:	4500 hours (Total, all aircraft), 100 hours (Total, this make and model), 3500 hours (Pilot In Command, all aircraft), 80 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	34
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	02/08/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	08/20/2013
Flight Time:	3800 hours (Total, all aircraft), 70 hours (Total, this make and model), 2500 hours (Pilot In Command, all aircraft), 140 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N368PK
Model/Series:	525A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	525A0448
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:	06/30/2013, AAIP	Certified Max Gross Wt.:	10000 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:	289.7 Hours	Engine Manufacturer:	Williams
ELT:	Installed, not activated	Engine Model/Series:	FJ44-3A-24
Registered Owner:	Cessna Aircraft Co	Rated Power:	2400 lbs
Operator:	Executive Flight Services, Inc	Air Carrier Operating Certificate:	On-demand Air Taxi (135)
Operator Does Business As:	Executive AirShare	Operator Designator Code:	E07A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LNK, 1219 ft msl	Observation Time:	1554 CDT
Distance from Accident Site:	8 Nautical Miles	Direction from Accident Site:	225°
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	15° C / 1° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	8 knots, 340°	Visibility (RVR):	
Altimeter Setting:	30.19 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Lincoln, NE (LNK)	Type of Flight Plan Filed:	IFR
Destination:	Kansas City, MO (MKC)	Type of Clearance:	IFR
Departure Time:	1636 CDT	Type of Airspace:	Class E

Airport Information

Airport:	LINCOLN (LNK)	Runway Surface Type:	Asphalt; Concrete
Airport Elevation:	1218 ft	Runway Surface Condition:	Unknown
Runway Used:	36	IFR Approach:	None
Runway Length/Width:	12901 ft / 200 ft	VFR Approach/Landing:	Precautionary Landing

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	40.850833, 96.759167 (est)

Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	Adopted Date:	04/23/2014
Additional Participating Persons:	Owen Grimm; Federal Aviation Administration; Lincoln, NE Henry Soderlund; Cessna Aircraft Company; Wichita, KS		
Publish Date:	04/23/2014		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88427		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.