



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: May 21, 2010

In reply refer to: A-10-87

Mr. Michael J. Begier
National Coordinator
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
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The National Transportation Safety Board (NTSB) is an independent U.S. Federal Government agency charged by the U.S. Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information in support of the safety recommendation in this letter. The NTSB is making this recommendation because it is designed to prevent accidents and save lives.

This recommendation, which addresses innovative technologies that can be installed on aircraft to reduce the likelihood of bird strikes, is derived from the NTSB's investigation of the January 15, 2009, aviation accident in which US Airways flight 1549 was ditched on the Hudson River in Weehawken, New Jersey, and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the NTSB has issued 34 safety recommendations, 1 of which is addressed to the U.S. Department of Agriculture (USDA). Information supporting the recommendation is discussed below. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken, or intend to take, to implement our recommendation.

On January 15, 2009, about 1527 eastern standard time, US Airways flight 1549, an Airbus Industrie A320-214, N106US, experienced an almost total loss of thrust in both engines after encountering a flock of birds and was subsequently ditched on the Hudson River about 8.5 miles from LaGuardia Airport (LGA), New York City, New York. The flight was en route to Charlotte Douglas International Airport, Charlotte, North Carolina, and had departed LGA about 2 minutes before the in-flight event occurred. The 150 passengers, including a lap-held child, and 5 crewmembers evacuated the airplane via the forward and overwing exits. One flight attendant and four passengers received serious injuries, and the airplane was substantially damaged. The scheduled, domestic passenger flight was operating under the provisions of 14 *Code of Federal Regulations* Part 121 on an instrument flight rules flight plan. Visual meteorological conditions prevailed at the time of the accident.

The NTSB determined that the probable cause of this accident was the ingestion of large birds into each engine, which resulted in an almost total loss of thrust in both engines and the subsequent ditching on the Hudson River. Contributing to the fuselage damage and resulting unavailability of the aft slide/rafts were (1) the Federal Aviation Administration's (FAA) approval of ditching certification without determining whether pilots could attain the ditching parameters without engine thrust, (2) the lack of industry flight crew training and guidance on ditching techniques, and (3) the captain's resulting difficulty maintaining his intended airspeed on final approach due to the task saturation resulting from the emergency situation.

Contributing to the survivability of the accident was (1) the decision-making of the flight crewmembers and their crew resource management during the accident sequence; (2) the fortuitous use of an airplane that was equipped for an extended overwater flight, including the availability of the forward slide/rafts, even though it was not required to be so equipped; (3) the performance of the cabin crewmembers while expediting the evacuation of the airplane; and (4) the proximity of the emergency responders to the accident site and their immediate and appropriate response to the accident.¹

During the June 2009 public hearing on this accident, a USDA Wildlife Services representative outlined the agency's current wildlife research projects, including a project to determine if pulsating lights on airplanes would make them more conspicuous to birds. Preliminary results from the project indicate that pulsating lights affect the behavior of some birds but not others. The USDA intends to continue this research using an airplane outfitted with pulsating lights. In addition, the USDA reported that the use of lasers has been shown to be effective in repelling birds from hangars and other areas on the airfield and that there is anecdotal evidence, but no conclusive evidence, that using weather radar on airplanes disperses birds from the airplane's flightpath. Another area of USDA research involves planting grasses and other vegetation unattractive to wildlife to deter them from airfields and surrounding areas. Additional research relates, in part, to modifying trash transfer stations, implementing fencing, eradicating earthworms, and designing water retention facilities to deter wildlife.

In addition to its research endeavors, the USDA assists the FAA in wildlife mitigation efforts by providing technical experts to assess and control wildlife on and around airports. USDA wildlife biologists routinely conduct wildlife hazard assessments around airports, as was done for LGA, to identify types and numbers of wildlife in the vicinity and then help airports to develop and implement wildlife hazard management plans. In 2008, USDA wildlife biologists assisted 764 airports in wildlife mitigation activities and trained 2,200 airport personnel to FAA standards, as required under Part 139. The NTSB believes that the USDA's research activities in wildlife mitigation and guidance and its assistance to airports on these issues contribute significantly to the safety of the airport environment; the NTSB strongly encourages the USDA to continue these efforts.

Preliminary reports of the effectiveness of various bird hazard mitigation strategies, including pulsating lights, lasers, and weather radar, suggest that these techniques have potential

¹ For more information, see *Loss of Thrust in Both Engines After Encountering a Flock of Birds and Subsequent Ditching on the Hudson River, US Airways Flight 1549, Airbus A320-214, N106US, Weehawken, New Jersey, January 15, 2009*, Aircraft Accident Report NTSB/AAR-10/03 (Washington, DC: National Transportation Safety Board, 2010), which will be available on the NTSB's website at <<http://www.ntsb.gov/publictn/2010/AAR1003.pdf>>.

as bird repellents and may be helpful in keeping birds away from an airplane's flightpath. However, according to witnesses at the public hearing, the effectiveness of these methods is not well understood, and further research in these areas is needed. The NTSB believes that it is important to pursue all potentially useful approaches to bird hazard mitigation and is particularly interested in those that use aircraft systems to repel birds away from airplanes.

The NTSB concludes that research on the use of aircraft systems such as pulsating lights, lasers, and weather radar may lead to effective methods of deterring birds from entering aircraft flightpaths and, therefore, reduce the likelihood of a bird strike.

Therefore, the National Transportation Safety Board makes the following recommendation to the U.S. Department of Agriculture:

Develop and implement, in conjunction with the Federal Aviation Administration, innovative technologies that can be installed on aircraft that would reduce the likelihood of a bird strike. (A-10-87)

The National Transportation Safety Board has issued a related safety recommendation to the Federal Aviation Administration.

In response to the recommendation in this letter, please refer to Safety Recommendation A-10-87. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: correspondence@ntsb.gov. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Member SUMWALT concurred with this recommendation. Member SUMWALT filed a concurring statement, which is attached to the aviation accident report for this accident.

[Original Signed]

By: Deborah A.P. Hersman
Chairman