Improving Aviation Safety: Questions and Answers

Since 1989, the U.S. Department of Agriculture's (USDA) Wildlife Services (WS) program, part of the Animal and Plant Health Inspection Service (APHIS), has partnered with the Federal Aviation Administration (FAA), Department of Defense, airports and the aviation industry to provide scientific expertise and operational assistance to reduce the safety hazards and economic impacts to aviation caused by birds, mammals, and other wildlife.

Below are common questions regarding WS' role in reducing wildlife hazards to aviation, as well as changes in aviation safety since the 2009 'Miracle on the Hudson.'

1. **What has changed in aviation wildlife strike hazards since the forced landing of Flight 1549 in the Hudson River on January 15, 2009?**

   A significant change since January 2009 is greater recognition by the public and the aviation community of the hazards that birds and other wildlife pose to aviation safety (i.e., wildlife strikes). The reporting of wildlife strikes with civil aircraft increased by 90% from 7,600 strikes in 2008 to 14,500 strikes in 2017 likely due to greater recognition of the importance and method of reporting, as well as expanding wildlife populations and a growing airline industry. This increased reporting has helped experts define and reduce the risk of wildlife-aircraft collisions.

2. **What changes did WS make following the forced landing of Flight 1549 in the Hudson River on January 15, 2009?**

   Following the 'Miracle on the Hudson,' APHIS committed $250,000 for training airport staff on identifying and responding to wildlife hazards at airports. WS biologists trained 2,751 airport staff at 365 airports in 2009. In 2017, that number exceeded 5,000 airport staff at 406 airports.

   Additionally in 2009, Dr. Richard Dolbeer, an internationally recognized leader in bird strike issues, returned to public service as the Science Advisor to the WS' Airport Wildlife Hazards Program. He assists in research, development of advanced training for WS staff, and other duties, as needed. Dolbeer had retired from WS in 2008.

   Since November 2009, WS has placed staff on a long-term, fulltime basis at U.S. military installations overseas to reduce wildlife risks to aviation.
   - A WS biologist position was established at an air base in Afghanistan and one in Iraq starting in November 2009.
   - Biologists work in four-month rotations at the bases, conducting a hazards assessment and managing wildlife strike risks.
   - A total of 71 deployments of WS airport qualified personnel to international U.S. military installations has occurred since 2009.

3. Is air travel safe?

Air travel remains a safe mode of transportation. Reports show that although the total number of reported strikes has increased, damaging strikes in the airport environment have decreased.

- In 2000, 14% of reported strikes indicated damage to the aircraft; in 2017, the rate was only 4%.
- The number of wildlife strikes reported to FAA increased steadily from 6,000 in 2000 to 14,500 in 2017, whereas the number of *damaging* strikes decreased from 762 in 2000 to 633 in 2017.

The decline in damaging strikes can be attributed in part to increases in the development and use of wildlife hazard management plans at airports.

4. What is the role of WS in wildlife-strike mitigation?

The WS program is recognized as a leader in airport wildlife hazard management by the FAA, the Department of Defense (DoD) and the National Association of State Aviation Officials, and has signed Memoranda of Understanding with each of them. Through its Airport Wildlife Hazards Program, WS provides consultation and management assistance to assess wildlife conflicts at airports and improve safety by reducing hazards and risks associated with wildlife.

WS also cooperates with other agencies, such as the National Transportation Safety Board and private institutions, to define and mitigate risks to aviation caused by wildlife. WS personnel have played key leadership roles in Bird Strike Committee-USA (BSC-USA) since its beginning in 1990. BSC-USA provides guidance to the FAA regarding wildlife strikes.

5. What is the WS Airport Wildlife Hazards Program?

The WS Airport Wildlife Hazards Program consists of a nationwide network of more than 400 biologists trained and certified in wildlife hazard management at airports. These professional biologists provide airport site visits and wildlife consultations, develop wildlife hazard assessments and wildlife hazard management plans, and conduct operational wildlife management programs. This work helps airport managers in maintaining a safe environment and meeting FAA regulatory requirements and DoD regulations.WS has developed and implemented internal advanced training for biologists and specialists certified for airport wildlife hazards management. In addition, the WS' Airport Wildlife Hazards Program has managed the National Wildlife Strike Database for Civil Aviation since its inception through an agreement with the FAA. The database now contains over 210,000 strike reports from 1990-2018.

6. How many airports receive WS assistance?

WS began concerted wildlife hazard mitigation efforts at airports in the late 1980's. In 1990, WS biologists assisted 42 airports. By 2017, that number had grown to 890 airports and air bases, including 77% percent of the 520 airports certified (certificated) for passenger traffic in the United States.

7. What is a wildlife hazard assessment?

Each airport in the United States deals with unique wildlife hazards and risks based on the plants, animals, geography and other factors in the area. As such, each airport conducts its own wildlife hazard assessment, a year-long prescribed study by a qualified airport wildlife biologist documenting wildlife usage of the airport and its immediate surroundings. Elements of a wildlife hazard assessment include a review of wildlife-strike database records, visually inspecting the airport/air base property for wildlife attractants, and conducting systematic surveys of wildlife over time. The wildlife hazard assessment provides the scientific basis for writing and implementing a formal wildlife hazards management plan.

8. What is a wildlife hazards management plan?

After a wildlife hazard assessment is completed, a wildlife hazards management plan is developed to document an airport's wildlife hazards and how the airport plans to address and manage them. It guides operations, defines roles of airport personnel, and details training to reduce risks. A wildlife management plan often involves a variety of methods to resolve wildlife conflicts including the following:

- Habitat Modification — Altering vegetation and water, creating fences and barriers, and other activities to make the airport unattractive to wildlife.
- Active Dispersal — Scaring and hazing wildlife away from airport environments.
- Trapping and Relocation — Capturing and moving animals can be used for some species when legally allowed and feasible (e.g., hawks and owls).
- Lethal Removal —Lethal removal may be used in some situations for the protection of the flying public and crew. Lethal removal is permitted by the U.S. Fish and Wildlife Service and state wildlife agencies under airport depredation permits.

9. Does WS comply with the National Environmental Policy Act (NEPA)?

As a Federal agency, WS conducts its operations in compliance with the National Environmental Policy Act to understand an action's impact on the environment.

10. What is the role of WS in aviation safety research?

WS works closely with the FAA, U.S. military, and the aviation community to research wildlife hazards at airports and to develop science-based methods to reduce their impacts.

The National Wildlife Research Center (NWRC) is the research unit of the WS program. NWRC's Ohio field station in Sandusky, Ohio, has studied wildlife hazards to aviation since 1990. Research findings are used to help mitigate wildlife hazards at airports around the world.

NWRC aviation research is conducted at public and private airports, military installations, and other research centers, and focuses on:

- Habitat/food resource management at airports
- Wildlife dispersal, removal and exclusion
- Detection/prediction of wildlife movements and behavior so that aircraft can avoid high-risk activities
- Understanding and integration of sensory ecology (i.e., how animals acquire, process, and respond to information in their environment), physiology and anti-predator behavior to understand animal reactions to approaching vehicles

Since the 'Miracle on the Hudson' (2009), NWRC and its collaborators have published results from 118 research studies related to habitat management, wildlife control, and technologies to mitigate wildlife strikes. Two recent research areas include the evaluation of bird-detecting radar systems at airports and the use of lighting systems to help birds detect and avoid aircraft.