



## Enhancement of Reference Collections for Bird Strike Identifications – Phase II

03-144

### Background:

Bird Aircraft Strike Hazards (BASH) are more common among military aircraft because training occurs at high speeds and low altitudes. Approximately 3,000 bird strikes occur annually. Bird strikes cause problems such as financial loss, loss of mission capability for the crew, and much worse, is the occurrence of aircrew mortality. The BASH team manages the largest bird strike database used for conducting statistical analysis and environmental assessments. The Smithsonian Institute has been the provider to the U.S. Air Force, Navy, and Marine Corps with identifications of bird strike remains. Currently the collection at the Smithsonian is the third largest in the world, consisting of approximately 600,000 specimens. The Smithsonian Institute, in working to establish a better knowledge of birds involved in air strike accidents, has created bird feather collecting methods on U.S. military installations in Phase I of the Legacy Resource Management Program project, that provided 165 tissue and feather samples of birds that are commonly found in air strike situations. Along with the expansion of the Smithsonian Institutes collection, the threat of the West Nile virus prompted the testing of over 500 of the tissues samples for any traces of the disease.

### Objective:

The goals of Phase II of this Legacy-funded study were to increase the bird reference collection at the Smithsonian Institute and to collect tissue samples for research on DNA identification techniques. Knowledge of the types of bird species that commonly occur in bird air strikes will help in the formulation of effective management techniques that may increase our ability to avoid BASH incidents.

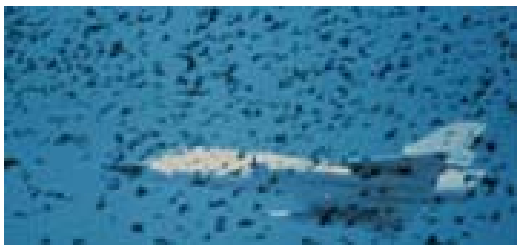


Photo by Air Force Bird Aircraft Strike Hazard Team  
**Aircraft flying through a flock of birds**

### Summary of Approach:

The diversity of a region, accessibility, logistics, and air base cooperation were factors that prioritized which military bases were surveyed for specimens. The number of recorded strikes and BASH identification databases

were also used in the selection of geographic locations. Bases that were ranked highest on the priority list were surveyed for avian samples and tissue samples that provided vital comparative specimens. Expansion of this project to include foreign military bases will increase the number of specimens for future analysis of DNA identification research. This phase of the project lasted nearly 3 years due to seasonal collecting opportunities and expedition planning.



Photo by Paul Noll

**Migrating birds pose threat to airplanes**

### Benefit:

The results gained from this study will help decrease the number of bird strikes by providing information that will give aviators more knowledge of migration seasons. Information gathered enhanced the tools presently used for identification of bird species involved in military aircraft strikes. Programs aimed at preventing bird strikes are greatly supported by the knowledge gained from this study. The Smithsonian Institute is currently working to create technology to make it easier for air strikes samples to be taken and recorded.

### Accomplishments:

The species added to the Smithsonian Institute bird collection increased the reference samples able to help in bird strike identifications. These samples were prepared so that they are more conducive to feather identification. Participation from naval air bases continues still with submission of samples to the Smithsonian Institute for bird identification. Tissue samples also serve to advance DNA identification techniques and were used for virology studies.

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