



Coping With The Bird-Strike Menace

Whether your operation is large or small, the author explains how to organize an effective program to deal with bird hazards at an airport.

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by

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The bird-strike menace to aviation is universal. It has no respect for airspace boundaries, airport locations, phase of flight, aircraft type, season of the year or air crew experience. Yet, the solution to the problem can involve each of these factors.

Reducing the hazard involves numerous factors in a constantly changing environment. Aviation regulatory authorities, airport managers, flight operations and ground staffs and crew members can all make specific contributions by taking certain actions.

When these efforts are coordinated, they can produce tangible safety improvements. The magnitude and dynamics of the bird-strike hazard have created a "systems approach" to the continuing efforts towards some solution. Worldwide organizations such as government regulatory agencies, the International Civil Aviation Organization (ICAO) and the Canadian and U.S. wildlife services have long advocated this type of concerted effort in one form or another.

A systems approach to the bird-strike problem includes three types of management actions:

- Repel the birds;
- Make the airport environment totally unattractive to the birds, preferably on a permanent basis; and
- Identify the presence of bird activity and avoid those areas where the hazard is known to exist.

Initiate Some Recommended Steps

The following recommended actions, with some adaptation, have universal application to most of the airports in the world:

- **Acknowledge that the Bird Hazard Exists.** An abundance of scientific literature exists that clearly documents this as a clear and present danger to aviation. There are still significant numbers of birds within airport environments, and immediate countermeasures should be taken. Airport management must not wait for tangible proof of their existence — i.e., aircraft damage and/or losses of aircraft and their occupants.
- **Assess Legal Implications of Airport Bird Hazards.** Serious liability can result from bird-caused losses at an airport with known bird problems and when such an airport is **without** a bird-management program.
- **Assign Responsibility and Delegate Authority for Developing, Initiating and Maintaining an Effective Bird-Management Program.** Once the problem is recognized, it is imperative that certain individuals be assigned unequivocal responsibility and authority for developing, operating and exercising an effective program.
- **Identify Sources of Technical Assistance.** All aspects of such assistance can be obtained from many

sources, including government agencies, national and international aviation organizations, bird-strike-hazard committees, private organizations and technical consultants.

- **Identify Bird Hazards.** An airport bird-management program must be based on knowledge of the bird species that cause bird/aircraft strikes. Professional assistance usually can be obtained from national, state and private organizations, including trained individuals for (a) identifying birds, (b) conducting ecological surveys and (c) assessing the nature of specific problems and the magnitude of the risks involved.

- **Acquire Knowledge About Bird-Management Techniques.** Ample information about such techniques is available from many sources, including those mentioned earlier in this article.

- **Develop an Overall Airport Bird-Management Program and Exercise it Periodically.** Such a program should be based upon the results of an ecological study and include explicit details as to how the airport can be made unattractive to birds through habitat modification and bird patrols. The program also should include guidelines on how to deal with area bird hazards, including nearby solid-waste sites and seasonal bird migrations within the airport ground and airspace environments.

- **Allocate Resources _ Funds and Manpower.** A management program may require substantial funding. For example, a bird patrol operating from dawn-to-dusk at a major hub airport can cost as much as \$100,000 (U.S.) per year. Habitat modifications, such as eliminating impounded water, vegetation control, etc., can require the expenditure of additional funds.

- **Develop Routine Training Programs.** Specific training should be given on bird identification and behavior, bird repellent techniques and, most important, airport operational procedures. Bird hazards can result in an infinite variety of hazardous situations. Operational personnel must be prepared to meet these types of potential emergencies, and guidelines should be exercised accordingly.

There are many organizations available to conduct such training, including the U.S. Wildlife Service and its counterparts throughout the world, the Audubon Society, universities and private individuals.

Assigned airport bird-management specialists should receive recurrent training similar to the programs for fire fighters and flight and cabin crews.

- **Initiate a Bird-Management Program.** The program should begin the moment potential bird hazards

arise. Top priority should be given to bird patrols so that real-time protection can be provided immediately to aircraft within the airport perimeter. Such patrols require a commitment of vehicles and special equipment. A well-coordinated program, with clear communications between pilots and air traffic control, flight service station and bird-management specialists, is essential. Ideally, the head of such a professional, overall program should be an individual with a degree in wildlife biology/ecology or ornithology.

- **Develop Quality Control Procedures.** A consistent and effective program should include periodic inspections and exercises. Coordination with all the responsible agencies should be assured, both within the airport departments and with outside agencies. In the United States, this should include the Federal Aviation Administration (FAA), Air Force, Wildlife Service, Audubon Society, Air Line Pilots Association and the Air Transport Association.

- **Maintain Daily Records of the Bird-Management Program.** Daily logs are essential for monitoring an effective program. Such records provide an excellent source for analyzing weak points in the system. The nature of the bird problem, the success of the management measures, the weather experienced and the actual bird strikes reported or observed are all factors by which a proper evaluation can be made. Such written logs should be brief but factual, with meaningful information covering each bird-management action.

- **Evaluate Bird-Management Program.** A six-month review of the program is ideal, although some airports conduct only an annual review. Progress towards the goals to reduce the hazard should be objectively analyzed by airport management. The results should be incorporated into a report, with possible distribution to airport authorities, government regulatory agencies and air carrier and pilot organizations.

- **Establish a Positive Bird-Strike-Reporting Procedure.** A sound understanding of bird strikes occurring at the airport is essential for combatting the problem and for proper analysis of the causes of the hazard. Although this is usually done at the national and international levels, an organized local reporting procedure should be established.

Such reports should be automatically forwarded to the proper national agency for comparison of strike rates in different areas. These reports also afford information to those airlines which operate nationally and internationally. Most government regulatory agencies and ICAO have reporting forms local air-

ports can adopt to suit the specific purposes of the local problems.

Tactics for Repelling and Dispersing Birds

The first management action specified earlier was to “repel the birds.” Bird scientists call this tactic “**behavioral manipulation**,” that is, provide an outside stimulus that changes the bird’s normal behavior.

If you frighten the birds sufficiently, they will move, or at least fly away. There are many types of scaring methods used, including:

- Visual scaring;
- Bird corpses;
- Bird models;
- Acoustical scaring;
- Distress calls;
- Ultrasonic frequencies;
- Other non-natural sounds;
- Combined visual and acoustical scaring;
- Birds of prey;
- Remote-controlled model airplanes; and,
- Shotgun pyrotechnics; perhaps the most popular technique.

Using Temporary Expedients

It must be understood that experts consider such tactics as only partial or temporary solutions to airport bird problems. Falconry has been used at some airports with limited success. Mechanical and automatic scarecrows, fake owls, dead gulls, all seem to work — until the birds realize that they are being fooled. These smart birds even become accustomed to the sight and sound of explosive propane and carbide cannon, which are often placed next to the runways and roosting areas and fired at random intervals, as well as during roosting periods. Some birds become sufficiently brazen to perch on the barrels of these cannon when they are silent in order to warm their feet during cold weather.

Perhaps the method that is unexcelled in cost effectiveness is the so-called “birdman scare dance.” The “birdman” stands in a prominent position in full view of the birds, preferably

silhouetted against a clear sky, and then slowly raises and lowers his arms in mock wingbeats with a frequency of about 25 per minute. Results are surprisingly good. The problem is that other airport personnel observing these gyrations who are uninformed about this scaring tactic think the “birdman” has lost his sanity. Arm flapping probably gets good results in frightening flocks of birds, because it resembles the appearance and actions of a predator.

There is also the runway bird patrol, which coordinates with special bird spotters in the tower. Constant dawn-to-dusk vehicles patrol the airport in crucial areas and where pilots report the presence of birds. When active runway changes are made because of wind shifts, the patrol first sweeps the newly assigned runway before the tower allows an aircraft to take off.

Similarly, if a pilot asks to use a non-duty runway during calm conditions, the tower should not authorize its use until a patrol has issued an “all-clear” bird advisory.

The bird patrol may shoot birds with shotguns when it is prudent and safety permits.

At some airports, two popular techniques are combined — exploding devices and taped distress bird calls transmitted by loud speakers. The loud speaker “concerto” is used to raise flocks of gulls and other birds feeding on the ground. They are dispersed with shellcracker explosions.

This combination has been found to be more effective than either method used alone, since it has been determined that the birds remain away from airport areas for longer periods of time, thus reducing the bird-strike hazard considerably.

Pros and Cons of Short- and Long-Term Solutions

The second management action advocated earlier is to “make the airport environment totally unattractive to the birds.” This involves habitat management, including modification of the ecological status of airport grounds and surrounding real estate and manipulation of the local environment to reduce bird populations.

Short-term solutions to airport unattractiveness for birds include actions such as the use of special food poisons, narcotics and chemical sprays; trapping birds; eliminating vegetation, and erecting wire grids over adjacent dump areas to obstruct the birds’ regular landing paths. These types of action are more immediate and can be accomplished quickly without a large expenditure of funds.

The long-term solutions are based upon ecological surveys and data documentation revealing what bird species pose the greatest threat and then tailoring the solution to counter that threat. Garbage dumps containing edible material, uncovered

waste receptacles near food service areas, attractive agricultural crops grown in the vicinity and other land use practices that make food available to birds must be eliminated.

Attractive shelter — a brushy area, a forest, special crops, water sources, a building — must be neutralized. Clearing forests, cutting hedges and brush, bird-proofing buildings, draining lakes, ponds and ditches and otherwise denying water to birds by land filling and leveling are necessary but often expensive and time consuming.

What Long-Term Commitments Will Accomplish

Examples of long-term commitments to overcome the bird-strike problem in the vicinity of airports are John F. Kennedy International Airport in New York and London International Airport in England. The New York airport spends more than

\$550,000 (U.S.) each year on bird control. The intensified efforts at Kennedy have substantially reduced the number of bird strikes at that location.

At London, the bird inspection and control staff involves 21 men, who work on shifts around the clock throughout the year, using four four-wheel drive vehicles, some of which are equipped with amplified bird call distress signals. Flares and exploding projectiles are used on a routine, repetitive basis. All of this activity protects more than 1,000 aircraft movements per day.

At major airports, where that level of equipment, manpower and money is not employed, experience shows that bird-strike rates will be unacceptably high. A few airports continue to take bird-riddance measures only after learning about the problem firsthand through impact evidence.

A bird on the wing is not worth two in the airport bush. ♦

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