

US INITIATIVES IN BIRD HAZARD REDUCTION

This paper summarizes current initiatives in the United States regarding bird hazard reduction. Since our last participation with the Bird Strike Committee Europe (BSCE) at the 12th BSCE Meeting we have been active in developing a national program to reduce bird hazards on airports serving commercial air carriers. We have made significant progress in the reporting of bird strikes, airport bird control, research and development of a national organization to address the problem.

National Organization

No formal organization exists to direct a national program. Instead, we have representatives from selected Federal agencies who participate in providing policy and direction, as well as actually working with the airports in accomplishing bird control. Policy decisions, as they relate to civil airports, are developed by the Federal Aviation Administration's (FAA) Office of Airport Standards, with technical assistance being provided by the US Fish and Wildlife Service's (USF&WS) Animal Damage Control Branch. Through a Memorandum of Agreement between the FAA and the USF&WS, a working relationship has been established to provide an effective means of identifying vertebrate pest hazards and implementing procedures for planning, developing, and coordinating measures designed to minimize these hazards to the aviation industry.

The FAA and USF&WS have been working to identify problem airports, exchange technical data, conduct training sessions in bird control and to assist airports in implementing these airport bird control measures. The US Air Force is active in accomplishing the same tasks, with all three agencies cooperating with training. Since 1978, the USF&WS has sponsored seven workshops to train over 150 biologists and FAA and military personnel on the problems. The FAA has established regional bird hazard control groups that develop regional policies and implement national programs. These groups receive technical support from USF&WS biologists. Where a critical bird hazard exists, the group issues a Notice to Airmen, warning pilots of the hazard. The group can also take measures to restrict or discontinue use of the airport by air carrier aircraft. A single coordinator in each FAA region works with FAA field offices to identify airports with potential or serious bird hazard problems. These airports are then visited by a USF&WS biologist to identify bird attractants, making recommendations to the airport operator on how to reduce bird hazards.

Airport certification and safety inspectors and USF&WS biologists work side-by-side to resolve airport wildlife problems. The airport operator takes the initiative to implement bird hazard reduction recommendations and some of these airports have their own committees working to improve safety.

Airport Organizations

There are over 14,000 airports in the United States. Slightly less than half of these are public-use airports. However, only 731 airports are certificated to accommodate air carrier operations. Of these, 127 airports have a bird hazard problem and 3 additional airports have had collisions with deer. Since each airport is responsible for its own operation, the methods used in addressing bird hazards are as varied as the airports are themselves. The Federal government does not dictate to the individual airport operators the methods required to control birds, or the number of personnel needed. Airports that are served by air carriers must have the capability to control birds, but how they do bird control is dependent on their available resources.

Where airports have recognized that they have bird hazards, there is usually a formal organization established to handle the problem. This organization is a safety committee responsible for all aspects of airport safety; however, in some instances it is a special group composed of operations, maintenance, and planning personnel. With assistance from the USF&WS, the airport develops a plan to control the birds and coordinate habitat changes to reduce airport bird populations.

Airport Bird Patrols

The day-to-day responsibility for bird control belongs to the airport bird patrol. Few U.S. airports have bird patrols that operate full-time on the airfield. In most cases, the airports have individuals who are designated to respond to bird concentrations and disperse the birds. They must rely on tower personnel or pilots to provide the warning of any hazard. A problem with this type of operation is the poor response times and the lack of continuous harassment of the birds. Eight airports have full-time bird patrols, some are outstanding, others are ineffective.

Two Effective Bird Patrols

Portland International Airport, Oregon, and Seattle-Tacoma International Airport, Washington, are examples of airports with effective bird patrols. Both airports use highly motivated, well trained personnel and have successfully reduced the airport bird hazards. In contrast with many other civil airports, these two programs are exceptional because of the people involved. At Portland, for example, they use three people to provide bird control. These three operations coordinators work on a rotational shift to provide protection from before dawn to after sunset during most of the year, and increasing the patrol coverage during bird migratory seasons.

Portland's operations coordinators are responsible for all aspects of airport safety. They make runway checks, respond to emergencies, identify maintenance problems, and provide the eyes and ears for airport management on any problem relating to the safe operation of the airport. Their level of responsibility is such that they must be highly dedicated personnel. They are not just employees of the airport, but are essential members of airport management.

who accept responsibility for the safe operation of the airport. None of the operations coordinators are biologists, but all are college graduates and had prior airport experience. They were all trained by USF&WS biologists and have progressed extremely well in developing effective bird dispersal techniques. They also work with the airport planning and maintenance staffs to develop habitat control techniques, relying heavily on recorded distress calls and pyrotechnic devices. They also conduct raptor trapping programs each year to reduce hawk and owl populations through capture and release away from the airport.

Seattle has a similar program, providing 24-hour coverage with 7 employees on a shift basis. Again, the key to Seattle's success is the quality of people doing bird control and their responsibility for all aspects of airport safety. Each member of the bird patrol carries all the necessary control equipment and patrols the entire airport on a routine basis. During the performance of other airport duties, they can be dispatched by radio to any location on the airport to control the birds. As with the personnel at Portland International Airport, the Seattle employees are well educated and experienced in airport operations.

Other Bird Patrols

Other airports that operate bird patrols frequently use personnel that are responsible for duties falling outside the realm of operational safety. These duties involve maintenance functions, security, dispatch duties, etc., which tend to reduce responsiveness to bird problems and require that the individual be away from the runway environment. In most cases, the bird patrol only patrols the airport when birds are observed congregating on the airfield. This is a highly undesirable situation, since an effective bird patrol is only possible with full-time harassment of the birds.

Some airports have a full-time patrol, but the patrol is ineffective because of personnel problems. A highly motivated individual is needed to achieve optimum bird dispersal. Of eight airports surveyed, only one has a biologist on its bird patrol. Most bird patrol employees had transferred from other airport duties and few enjoyed their new jobs. Common complaints were lack of training and responsibility, both of which could be corrected by airport management.

Local ordinances or regulations often interfere with bird control activities. In New York, city ordinances prohibit the discharge of a firearm by anyone other than an officer of the law. To use a shotgun for dispersal of birds requires the services of a policeman. When birds are observed on the airport, the patrol must call security and have a policeman dispatched to the runway area. This same problem occurs at four other airports, reducing the effectiveness of the bird patrol. The FAA is working with the local communities to resolve the problem.

Training

Besides the previously mentioned training for USF&WS and FAA personnel, training programs are being developed to provide instruction to anyone involved in bird control. Course materials are being prepared now for use in 1980-81 for training bird patrols. Annual sessions will be held on both coasts and the courses will be open to both military and civilian personnel. Our objective is to create a North American program similar to the course taught in the United Kingdom by the Ministry of Agriculture, Fisheries and Food. We anticipate participation by International Civil Aviation Organization (ICAO) member nations and plan to hold at least one training session in the Pacific area in 1981.

Advisory Circulars

The FAA's Advisory Circular System is the method that will be used to distribute information on bird control. As the national program on bird hazard reduction develops, information on bird control will be distributed. In preparation now are two circulars, one dealing with problems with bird hazards created by solid waste disposal facilities; the second dealing with airport inspection procedures to be used in identifying an airport bird hazard problem. At the end of 1981, we expect to distribute a comprehensive advisory circular that will cover all aspects of bird control, including staffing recommendations and training standards for bird patrols.

Research and Development

While the FAA has not been active in the recent past in bird research programs, this trend is rapidly being reversed, funding has been provided for:

1. An airport ecological analysis, leading to the preparation of a guide or checklist to identify bird hazard problems on airports.
2. A safety evaluation and product improvement analysis for shell crackers which is jointly sponsored by the US Air Force, USF&WS, and the FAA.
3. A state-of-the-art study of radar systems capable of detecting and warning the pilot of the presence of birds.
4. A bird banding program to document the extent of gull movements between solid waste disposal facilities and nearby airports.

In addition to these studies the US Air Force continues to fund the work being done by Dr. Gauthreaux on new methods of studying migration, as well as a study by another investigator on bird roost energetics.

There is always a need for continued research in bird hazard reduction. We will be concentrating our efforts on evaluating and improving control techniques, providing conclusive evidence as to their effectiveness. We cannot recommend that an airport use a particular method of bird control until we are convinced that it will work and will not interfere with the safe operation of the airport. The future for applied bird control research looks bright and all the data collected over the years will be shared with other nations through both the Bird Strike Committee Europe and ICAO.

Bird Strike Data

Exchange of bird strike data with other nations is essential. Feedback of data to the individual airports and aircraft operators is equally important. The FAA is committed to doing whatever is necessary to collect and disseminate important safety data. With ICAO's cooperation, the member nations are combining resources and data to make a more meaningful data base. When serious bird strikes occur, the pertinent data will be distributed to members of the BSCE and other selected nations, keeping them informed of American incidents. U.S. based air carriers operating world-wide often report bird strikes occurring in foreign countries. These reports will be processed and mailed to BSCE representatives as they are received. A recent change in our FAA Bird Strike/Incident reporting form has already yielded a 115% increase in voluntary reporting. Computerization of the data will further facilitate data exchange.

The Future for Bird Hazard Reduction

The FAA's aggressive role in establishing a national bird hazard reduction program - and the enthusiastic support provided by the USF&WS - will lead to a strong national program. Our goal is to improve bird control at the airports. Secondary to this are studies relating to migration and enroute bird hazards. We will continue to work with other Federal and state agencies to effect compatible land use around airports. Through the exchange of information with other countries, we hope to capitalize on their experience and build a program to meet the needs of American airports in controlling birds. By 1981, we will be prepared to provide all necessary assistance to airports when needed.

Direct financial assistance is available to airports through the Airport Development Aid Program, paying a major percentage of necessary habitat changes to reduce bird attractants. An expansion in the use of Federal funds in bird control is expected. Although we provide both technical and financial assistance to airports, it is the airport's responsibility to take necessary action in controlling their birds. The degree of success realized in airport bird control is dependent then on the degree of emphasis placed on bird control by airport management.

III SEARCH OF A MOTIVATED BIRD PATROL

Since September 1978, data has been collected on airport bird patrols to determine how effective the patrols are at dispersing birds. Eight airports with bird patrol units were inspected over the course of a year. Following evaluation of their effectiveness, each member was interviewed to determine both positive and negative aspects of their job. Table 1 provides the essential employment and operations data. All airports examined are considered medium to large size airports with serious bird hazard problems.

TABLE 1

BIRD PATROL DATA

AIRPORT	1978 OPERATIONS	FULL-TIME PERSONNEL	PART-TIME PERSONNEL	SHIFT HOURS/DAY	SHIFT DAYS/WEEK	SALARY RANGE
A	340,000	3	1	8	5	14-30,000 1
B	220,000	-	3	8	5	-
C	370,000	2	1	8	5	14-30,000 1
D	210,000	2	1	8	5	14-30,000 1
E	230,000	3	1	10	4	15-22,000
F	380,000	2	1	8	5	14-18,000
G	250,000	-	5	8	5	20-31,000 2
H	350,000	-	3	8	5	20-31,000 2

1. Includes cost of police officer required to discharge firearms.
2. These are airport operations officer positions.

Each airport provides 7 day/week coverage by using 4-5 day rotational shifts.

SUMMARY - AIRPORT A

This airport experiences the greatest problem with bird hazards. Two full-time personnel patrol the airfield from before dawn to after sunset. They spend two weeks on the airfield and then change for two weeks, performing other operational safety duties. The part-time worker augments the staff. One member of the patrol is a police officer, required under city ordinances if a shotgun is to be used. Shellcrackers and live ammunition are the preferred method of control, although other noise producing devices are used.

SUMMARY - AIRPORT B

This airport only uses a part-time patrol composed of airport operations personnel. They only respond when birds are observed to be in a hazardous position on the airport and either reported by tower or aircrew personnel. Shellcrackers and live ammunition are used exclusively.

SUMMARY - AIRPORT C

Essentially the same operation as Airport A, except that personnel assigned to do bird patrol do nothing else, and only locate birds on the airport. They then call the airport police to conduct the actual dispersal.

SUMMARY - AIRPORT D

Same as Summary - Airport G

SUMMARY - AIRPORT E

This is an excellent operation, using one individual shift, two shifts/day, getting 20 hours coverage daily. All three individuals perform duties other than bird control, but all duties are safety related. They are continuously patrolling the airport. The part-time employee is a biologist whose duties primarily concern hawk trapping and relocation. Distress calls and pyrotechnic devices are used.

SUMMARY - AIRPORT F

This airport kills birds routinely and claims that other techniques are ineffective. The two full-time individuals rotate shifts and are augmented by another individual when necessary. When they are on the airport, they are only responsible for bird control; however, they may be removed from this duty to perform other airport duties (snow removal, lighting maintenance, etc.) The airport uses the services of a consulting ornithologist.

SUMMARY - AIRPORT G

This airport uses operations personnel who are dispatched from an office to where birds are congregating. After they determine the problem, they request assistance from the airport police to disperse the birds. Shellcrackers and live ammunition are used exclusively.

SUMMARY - AIRPORT H

Same as Airport G except that gas cannons are also used.

OBSERVATIONS

Overall, bird patrols at these airports are somewhat ineffective - with the notable exception of Airport E. Key problems are:

1. Lack of full-time harassment of the birds (Airports B,C,D,G,H).
2. Inability to apply control techniques by the bird patrol because of imposed restrictions on the use of firearms (Airports A,C,D,G,H).
3. Failure to use an adequate combination of control techniques, including noise producing pyrotechnic devices and/or recorded distress calls (Airports A,B,C,D,F,G,H).
4. Inadequate equipment (Airports A,B,C,D,F,G,H).
5. Frequent changing of personnel (Airports B,D,G,H).
6. Lack of training (Airports A,B,C,D,G,H).
7. Lack of biological expertise (Airports A,B,C,D,G,H).
8. Bird control responsibilities are low on airport safety priorities (Airports A,B,C,D,G,H).
9. Low morale of bird patrol personnel (Airports A,C,D,F).
10. Lack of potential for advancement (Airports A,C,D,F).
11. Job dissatisfaction (Airports A,C,D,F).

Without exception, there is a need for better training of U.S. bird patrol personnel. Better training will lead to acquisition of better equipment, once the bird patrols realize what techniques can best be used in controlling their birds. Without the benefits of formal training, personnel lacking biological expertise are ill-prepared to use these various control techniques effectively. Better training will also identify the need for continuous monitoring of bird movements on and off the airport. Part-time bird control is ineffective when birds are always found on the airport. If properly trained, however, some airports could continue to use a part-time patrol, providing it is fully equipped and capable of responding with minimal delay.

A totally unsatisfactory condition exists when the bird patrol must call the airport police to discharge firearms. It causes delays in response times, removes the responsibility of bird control from the bird patrol and leaves the patrol without the benefits of knowing that they can do their job and do it well. The bird patrol must be able to do all aspects of control, from observation to actual scaring. The requirement to use other personnel to fire weapons not only reduces the bird patrol personnel's job satisfaction, but increases the cost of bird control. Overall effectiveness can be improved

by eliminating excess personnel and expanding the responsibilities of the bird patrol member.

When job satisfaction was discussed at Airports A,C,D, and F, frequent complaints were lack of responsibility, the lack of promotion potential, lack of emphasis on the importance of the job function and low morale. An answer to the job satisfaction problem is increased levels of responsibility. When members of the bird patrol had other safety related responsibilities, working conditions were vastly improved. They felt that with additional responsibilities, they could demonstrate performance in other areas of airport operations, improving their chances for advancement. At one airport, the opposite situation existed. Patrol personnel were taken from the maintenance shop and looked upon bird patrol duties as being undesirable because it removed them from chances for advancement within their technical trade.

The Ideal, Motivated Bird Patrol

Airport E represents this ideal patrol. Airport E is Portland International Airport and is identified so that other airports may visit this airport in Oregon, observing first-hand how they operate. The three bird patrol members are motivated because they are 1) trained to do their job, 2) supported by airport management, 3) have broad responsibilities for airport operational safety, and 4) are receiving the necessary work experience which can lead to professional development and advancement. The three employees are classified as airport operations coordinators.

Reviewing the eleven problem areas observed at other airports, we find that at Portland International Airport:

1. Full-time bird harassment is achieved because the operations coordinators are always on patrol, working all types of operational safety programs.
2. The operations coordinators are not restricted in the tools or methods used in bird control (consistent with wildlife laws). They enjoy the opportunity to experiment with new techniques.
3. Portland International Airport uses a variety of techniques, but relies heavily on distress calls, shellcrackers and other noise devices.
4. The airport has equipped a special vehicle for use by the operations coordinator. Radios, tape playback equipment, spotlights, shotguns, and traps are all carried and readily available at a moments notice.
5. There has not been, nor is there expected to be a heavy turnover in operations coordinators. They each enjoy their job and are learning about airport operations and management. Advancement to positions of greater responsibility are likely. Any vacant positions will be filled by personnel trained by other operations coordinators.