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## LAND USE PLANNING FOR CONTROL OF BIRDS NEAR AIRPORTS

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During the 1966 Bird Control Seminar, we began to look at birds as a hazard to aircraft, and a possible new role was emerging for the pest control industry. Ten years later, we have yet to see the concept of bird control as seen through the eyes of our Canadian and European counterparts. You know of the assistance role the Air Force is playing in reducing bird strikes, and the Federal Aviation Administration is beginning to actively participate in bird control programs.

Success has been seen in habitat modification as a means of reducing bird strikes. The Canadians (Blokpoel, 1976) have reduced damaging bird strikes significantly. Air Canada's average yearly cost for damage in 1959-63 was \$173,000. From 1969-73, just ten years later, this figure was reduced to an average of \$86,000 per year. This is remarkable when you consider the increases in flight operations, repair costs, and inflation over the ten-year period. Modification of the airfield environment is possible, and the Air Force is doing it routinely at many bases. A more complex problem is land use, which attracts birds beyond the airfield boundary.

An airport authority or military base has little or no control over matters outside its territory. Usually it is extremely difficult to implement recommendations to reduce known bird hazards. Progress is slow in altering community land because of a wide variety of organizational, legal, financial, or political reasons.

Certain land use practices must be examined in preparing comprehensive plans and bird control programs. Scientists and technicians working with birds have the necessary knowledge to identify problems with land use which will aid in planning for the future. To appreciate the problems created by land use, we must examine a few uses found near airports.

### SANITARY LANDFILLS AND DUMPS

The first step in locating an airport is to move it away from people because of noise and safety. The county or municipality buys the land, puts in roads, and changes zoning as land values increase. Why not use some of this county land for a dump or landfill -- after all, the roads are in and the site is away from the people. This logic is how the problem starts. Most planners are unaware of any possible conflict between refuse disposal and airports; and once a conflict develops, it is difficult to close or relocate the dump because airport development has increased land values.

The Environmental Protection Agency surveyed 105 dumps and landfills near 32 airports having serious bird problems (Davidson, et al., 1971). Of the landfills examined, 73% were being operated improperly and had to be considered as being an open dump. Many of the landfills surveyed were being operated in violation of state and federal regulations. Changes in operations resulted in a decrease in the total numbers of birds at several airports.

Several planning actions have been initiated to reduce the hazards from birds due to the proximity of landfills to airports. The International Civil Aviation Organization (ICAO, 1975) recommends a minimum distance between dumps and airports of eight miles or such a distance as determined in excess of eight miles based on known bird movements. FAA guidelines are 5000 feet for propeller-driven aircraft airports and 10,000 feet for airports serving jet aircraft. The FAA criteria only apply to the location of new refuse sites. The Southwest Region of the FAA has developed a planning guide for municipalities which defines the bird problem with dumps and landfills and outlines corrective measures. Future FAA actions include relocation of dumps and, where necessary, purchase of land for relocation.

Some states actively support bird control planning measures related to refuse disposal. The Texas Department of Health Resources uses the following clause when granting permits for landfills near airports:

The permittee shall monitor bird flight activity at this site to determine if birds which may be attracted to the landfill site create an air navigation hazard in the primary approach and departure areas of the nearby airfield. Should it appear that a hazard is developing, the airfield manager shall be notified immediately. The permittee shall immediately cease receiving solid waste and cover all exposed solid waste with two feet of soil. Operations will not be resumed without the concurrence of this Department (Permit, Hondo, Texas).

This type of advanced planning can eliminate many of the problems generated by landfills and dumps which attract birds.

### RECREATIONAL LAND USE AND WILDLIFE MANAGEMENT

Pest bird specialists can make valuable planning inputs to reduce bird populations on airports with this type of land use. How many landscape architects know what problems they are creating by building lakes and ponds, planting berry-producing shrubs, or planting trees for noise suppression? Dulles Airport, for example, has planted trees, which in a few years could well become a blackbird roost. Removal of some of the trees has been recommended. Had bird control personnel been contacted, the potential problems and waste of resources would not have occurred.

We in the Air Force suffer from the same planning problem, because most planners, designers, and architects are not aware of the bird strike problem. Golf courses, sewage holding ponds, horse stables, and feed lots adjacent to the airfield all create a problem, which in many cases could be avoided through better community planning.

### AGRICULTURAL LAND USE

Certain crops and harvesting practices can create serious bird hazards, especially when crops are being grown on or adjacent to the airfield. At one Air Force base, wheat was planted in violation of a lease agreement, and large numbers of pigeons were attracted to the grain. An aircraft hit and killed 250 pigeons. Fortunately, the aircraft sustained only minor damage. Corrective measures included scaring off the birds and plowing under the crops.

Crop harvesting practices also create problems. Mechanical harvesting of corn leaves corn standing in the field, providing food for large numbers of blackbirds. This harvesting practice creates particular problems at Moody Air Force Base, where four million blackbirds leave the roost daily to feed near the airport. The soil also yields large numbers of worms and grubs, attracting still more birds. At times, bird densities are so great that aircraft flight operations must be stopped. Efforts are being made to convince farmers that they should plow their crop after harvesting, removing the food source prior to the arrival of the blackbirds.

Grounds maintenance on and off airfields also causes problems. Simple operations such as cutting the grass can attract large numbers of birds. Bird control experts need to evaluate other operations and interface with landscape architects to reduce the presence of birds near new and expanding airports. Studies on alternate ground covers being conducted by the Canadians may prove to be a solution to birds being attracted to the airfield grounds.

### ENCROACHMENT

As cities develop toward an airfield, suitable habitat for birds is diminished. Where residential development surrounds airfields, we generally find greater numbers of birds on that airfield. The airfield acts as an oasis, which can create unique bird invasion problems, usually in the fall and spring. Several bases experience large seasonal influxes of sparrows, swallows, blackbirds, and Starlings. At bases where suitable habitat is available in the surrounding community, the problem is not as great.

### ZONING FOR THE FUTURE

To arrive at an overall planning program for bird control on and off of airfields, we need the combined talents of bird experts, land use planners, and considerable legal assistance. An optimum plan must contain data on compatible land use. Much of the data amassed on blackbird habitats and other bird habitats needs to be assembled for use in planning.

The Canadians have developed a compatible use plan based upon a circular radius around an airfield (Canadian Air Transport Administration, 1972). Zones are established and compatible activities for each zone are listed. A refinement of this approach listing noncompatible land use practices is needed. The biologist can then provide better interface with the planner in developing zoning requirements for land use, landscaping requirements, and locations for new airports. Specialists in bird control need to provide assistance to planners to permanently reduce bird hazards around airports.

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## DISCUSSION

- Question: I recall reading recently that at Moody Air Force Base morning and evening flights of blackbirds crossed the runway and the Air Force ceased operations during this period to minimize hazards. Is that still in effect and how well did it work?
- Harrison: Yes sir, it is. We've gone through quite a transition at Moody Air Force Base. It used to be a pilot training base where we had quite a number of sorties or missions that were performed on a daily basis. Now we've gone to a Tactical Air Command operation flying F4 aircraft. We have developed a technique where we don't take off until the blackbirds have already passed through the area. Our main problem now is that as winter begins to come on us the birds decrease their range and stay closer and closer to the roost, and they're starting to feed on the airfield itself. So we have people out there who routinely chase birds off using all kinds of different techniques. And the concept of holding aircraft and not letting them take off until the birds have passed is something we in the military can do. The problem with commercial airline pilots is that if they want to take off nothing can stop them. They're the "King of the Mountain." There have been so many poor decisions made by airline pilots that have taken birds very lightly, and they have paid very serious prices.
- Question: Mention was made of slow-moving prop planes. Does that mean that small airports now are experiencing problems?
- Harrison: No, that's not true at all. The significance of the propeller-driven aircraft is not only a factor of speed, but it's got a heck of a chopper in front of it. Your smaller airports now are catering very much to the Falcon jet, the Lear jet, and some of the others. Peachtree Dekalb Airport is a good example where they had a serious loss of a jet aircraft which crashed. The point is that any airport has that problem. The magnitude of the problem will depend upon what's attracting the birds to the airfield.
- Question: I've seen huge masses of blackbirds in cornfields adjacent to airports. How would you approach the airport management and the people that would be concerned with using the land? How would you get a management program developed?
- Harrison: The first thing that airport manager has to do is to sit down and find out what his problems are. The best way to do that is to bring in someone from the Department of the Interior or some of the private pest control people that are knowledgeable. Bring everybody together; sit 'em down. Stress the fact to this farmer that there are things that he can really do to help the situation. There may be things like adding a carbide cannon to the top of his tractor. Or maybe they should go out and get some shell crackers. It may be that you could get his approval to shoot shell crackers from his field. So there are a lot of things along this line that can be done. But the ultimate goal is better planning over the long haul. It's one of the big problems that we've had with architecture. Nobody's ever thought of getting all the architects together and saying "You've got a bird problem. Let's do something about it by design."
- Question: Have you noticed any difference percentage wise in bird strikes in the continental U.S. compared to outside the U.S.?

Harrison: Yes, we have. The European theater has been active in bird control a long time, and we see the difference: very few bird strikes in Europe compared to the United States.