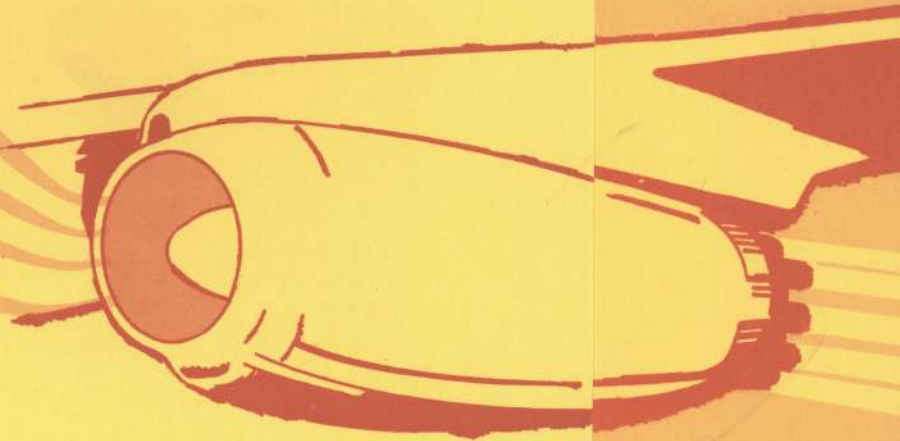




## BIRD HAZARDS TO AVIATION



### BIRD HAZARD RESEARCH

The Federal Aviation Agency and the U.S. Department of Interior are the principal investigating agencies in efforts toward reducing or solving the bird strike problem in the United States and in exchanging data with agencies in Canada, England, Holland, France, and other nations.

In 1960, an official of the International Air Transport Association wrote, "In general, it appears . . . that there is very little which can be done about the problem of the random bird which is struck during cruise and that the real effort needs to be concentrated on the problem of birds in the airport vicinity."

Engineers of the FAA National Aviation Facilities Experimental Center are studying the effects of bird strikes on airframes and engines through impact tests primarily using 4-pound birds at speeds up to 320 miles per hour.

Biologists of the Bureau of Sport Fisheries and Wildlife, U.S. Department of Interior, have been conducting FAA sponsored research programs on bird habitats, migration, and methods of minimizing or eliminating bird hazards to aircraft at or near airports.

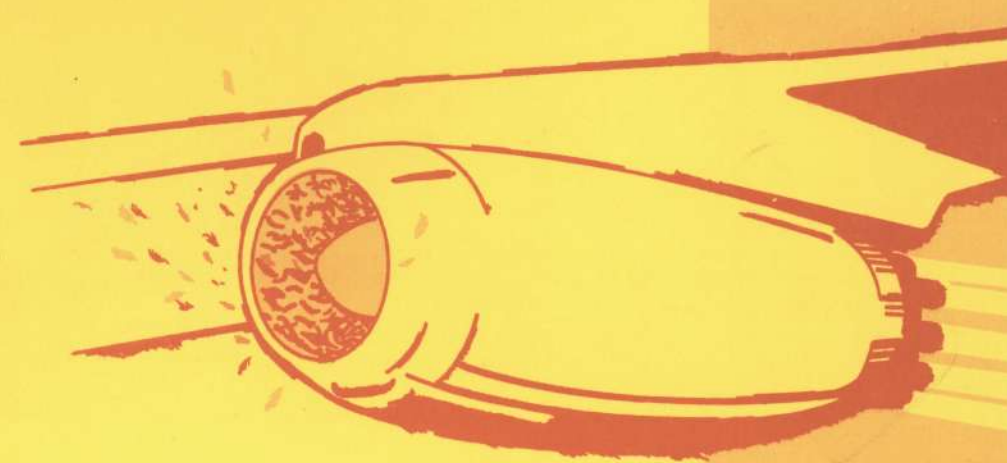
About an equal number of bird strikes are reported for jet and propeller aircraft. Most strikes occur during landing and takeoff at altitudes of 2500 feet or less and have involved over 25 species of birds; gulls and starlings being the most numerous and hazardous causes of strike incidents. In one controlled study of 149 bird strike incidents, damage occurred in 136 cases with the following distribution: 24% on takeoff; 10% on approach; 1% on pavement surfaces; 37% at 800 feet altitude or less; 28% at 800 feet to 2500 feet.

### BIRD STRIKES ARE COSTLY

At the Congress on Bird Hazards at Airports, November 25-27, 1963, a BOAC representative reported that "in 4½ years, Comet IV (aircraft) required 178 engine changes (due to bird ingestion) costing 2,500 to 15,000 Pounds Sterling (\$7,000 to \$42,000) each." A single bird strike caused total loss of one DC-8 engine with a total expense of \$140,000, including dumped fuel. The starling strike at Boston, Mass., in 1960, was a contributing cause of a power failure resulting in a fatal crash at the airport. The strike of a whistling swan at Ellicott City, Md., in 1962, caused severe structural damage, loss of the aircraft, and the death of 17 people. In March of 1963, collision with a loon near Bakersfield, Calif., destroyed the empennage of a Beechcraft resulting in a crash fatal to both the pilot and passenger.



**ONE BIRD INGESTED THROUGH A JET ENGINE FREQUENTLY RESULTS IN DAMAGE REQUIRING MAJOR OVERHAUL OR COMPLETE REPLACEMENT OF THE ENTIRE MOTOR ASSEMBLY**



### **AIRPORT AND MUNICIPAL RESPONSIBILITIES**

Serious municipal attention and aggressive airport planning and implementing action should be taken to fill, level, and clear airport and adjacent lands of all ponds, swamps, edible waste dumps, feed pens, and berry and seed bearing shrubs and trees which create bird refuges and increase bird hazards as feeding, bathing, loafing, and nesting places. Birds are attracted to: garbage dumps; food and fish processing wastes; feed pens and piggeries; ponds, sloughs, and swamps (including man-made lakes and reflecting ponds); sewage lagoons and outfalls; seed and fruit producing plants and trees; tall grasses, reeds, and shrubbery.

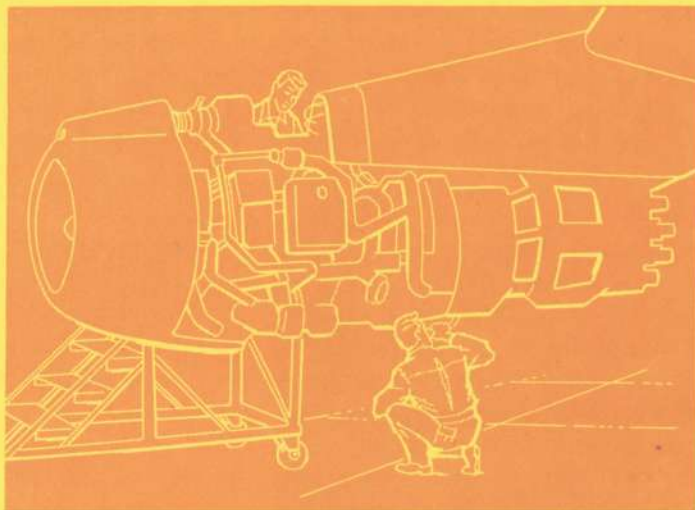
Such areas should be eliminated from the airport vicinity by municipal pressure and influence; by relocation; or by draining, leveling, and surfacing with materials unattractive to bird life, such as gravel. Airport outleases to farmers should stipulate crops least attractive to birds, and cooperation of food and waste processors should be actively solicited by airport management.

### **BIRD HAZARD REDUCTION**

The three most effective bird hazard deterrents are (1) denial of food, water and roosting areas; (2) clearing and gravel surfacing of airport open areas not immediately adjacent to pavements; and (3) scare device programs using recorded bird distress and natural enemy calls; carbide exploders, fuse strings, and explosive shotgun shells. Destruction or scaring of bird life is not a true solution as it is contrary to efforts at wildlife preservation and is only temporarily effective due to constant bird migrations. This does not get to the basic problem. The solution is to make the airport unattractive to bird life.

### **BIRD HAZARD REPORTING**

Airport personnel, radar operators, and pilots should be urged to report birds observed and bird incidents in airport areas and air lanes. Bird hazard information should be included with weather and obstruction data briefing of pilots flying in hazardous areas.





## TECHNICAL ASSISTANCE

Assistance for combating bird problems at airports may be obtained from the Regional Offices of the Bureau of Sport Fisheries and Wildlife. The addresses are as follows:

### **Region 1**

U.S. Fish & Wildlife Service  
1101 N.E. Lloyd Boulevard  
P.O. Box 3737  
Portland, Oregon

### **Region 2**

U.S. Fish & Wildlife Service  
906 Park Avenue, S.W.  
P.O. Box 1306  
Albuquerque, New Mexico

### **Region 3**

U.S. Fish & Wildlife Service  
1006 West Lake Street  
Minneapolis, Minnesota

### **Region 4**

U.S. Fish & Wildlife Service  
620 Peachtree Street  
Atlanta, Georgia

### **Region 5**

U.S. Fish & Wildlife Service  
1105 Blake Building  
59 Temple Place  
Boston, Massachusetts

For those desiring additional general information, Wildlife Leaflet 429, "Bird Hazard to Aircraft," may be obtained from the above listed regional offices of the Department of Interior, U.S. Fish and Wildlife Service.

Assistance on airport technical problems relating to bird hazards and bird hazard prevention, may be obtained by contacting the Federal Aviation Agency, Airports Service, Washington, D.C., 20553.