

BIRD STRIKE IN HELLAS - CIVIL AVIATION

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Abstract

The paper contains brief details of all bird strikes avoidance methods used at Hellenic airports along with the particularities of each airport.

Thereinafter, an analysis is made regarding the methods used and a risk assessment of bird strikes at airports.

Finally it is concluded that Hellenic Civil Aviation Authority implements competent bird avoidance methods at Hellenic airports in order to ensure aviation safety.

Keywords: Hellas, Bird strike, Bird Strikes, Risk Assessment, Hellenic Airports, Avifauna Habitats, Civil Aviation Authority, Civil Aviation, Mishap investigation, Reporting

BIRD HAZARD REDUCTION

For “the Bird Hazard Reduction”, the International Civil Aviation acts, according to the provisions of **ANNEX 14 –AERODROMES, of the Chicago Convention, “the Airport Services Manual (Doc 9137-AN/898), Part 3, Bird Control and Reduction”** by adopting measures, for discouraging the presence on, or in the vicinity of, an airport of birds constituting a hazard to aircraft operations,

and “**the Airport Planning Manual “Part 2, Land Use and Environmental Control** where in the Appendix 2 “**Land- use guidelines for the Avoidance of Bird Hazards”**”, it is described with examples of how various land uses may affect flight safety around an Airport.

National Committee, Roles and Responsibilities of a Control Program

Since our main purpose is to ensure flight operations by preventing bird hazards with respect to nature conservation, the creation of a national committee with the involvement of all interested stakeholders can serve as a focal point to deal with analysis of the problem. Members of the Committee should be the Departments of Air Transport and Defense, aircraft operators, Airports, pilots associations and engine manufacturers, and as advisors the Departments of Environment and Agriculture.

- Effective wildlife control policies and programs should be centrally administered by the authority responsible for airport operations.
- Each Airport has the responsibility to take any necessary action to minimize the rate of bird strikes at the airport.
(Athens International Airport has a full wild life control programme)
- Good reporting is the base of a good control program and involves pilots, aircraft operators and those at the site.

- ICAO has organized the Bird Strike Information System (IBIS) (Doc 9332) and collects the reporting forms, which are sent by the States for further analysis and comparison of strikes in different areas.

How to organize an Airport Bird Strike Control Program

-THOSE RESPONSIBLE FOR THE PROJECT PLANNING OF THE AIRPORT MUST REALIZE THE IMPORTANCE AND SERIOUSNESS OF THE BIRD STRIKE HAZARD.

-The balance of expenditures for improvement of airport facilities may cause delays in the implementation of important wildlife control recommendations.

-The airport ground staff who operate the program should ensure that all parties involved in flight operation are informed of the actions taken for the bird avoidance.

-Airfield and ATC personnel must communicate to ensure proper control.

-Aircraft operators should stress to the pilots the importance of notifying ATC and the Airport Authorities of all bird strikes or near-misses. The aircraft operators should also report all bird strikes and send them to the appropriate Authority for collection, according to ICAO bird strike reporting program.

Birds a Potential Hazard

Classification of Birds as a Potential Hazard

It is difficult to establish whether a species of bird is a hazard to aircraft.

So we have to count the number of the species, which are present and prevalent on and around the Airport. Migration is also another significant factor, since bird populations pass over the site and move in the area of the Airport and in its vicinity.

Any bird, even a small one has the potential to cause major damage to an aircraft.

Flocking of small birds constitute a great threat.

Flocking birds of large species constitute the greatest threat to the aircraft.

When Airports examine bird strike records and analyze them the most hazardous bird species will occur.

Pilots give some idea of the size of bird involved in a bird strike, which assists in identifying the hazard. An ornithologist may do the identification of the species by the bird remains.

Environment Management and Site Modification

Birds occur on airports attracted by food, water and shelter existing on or in the vicinity of the airport.

Environment Management is integral to bird control as it offers effective long-term measures to limit the attractiveness of an airport to birds by eliminating a large part of the hazard.

There are many bird attractants that an environment management plan may control:

- **F o o d**

Birds enter airport lands in order to feed on mice, moles, earthworms, insects and spiders as well as on berries, seeds or agricultural crops.

- **A g r i c u l t u r e**

Agriculture land that is not used for airport operations is often leased for agricultural production. Cultivation of airport lands will, no matter what the crop type, attract birds.

- **R e f u s e d u m p s**

Dumps attract birds. It is a necessity to bring about national and local legislation, which will establish firm procedures prohibiting the establishment of new dumps close to airports and provide for the closure of existing ones if this is necessary.

Dump sites should not be closer than 13 km from airport property.

- **W a t e r** pits and artificial and natural lakes attract birds.

- **S h e l t e r**

Birds often seek for a shelter **in hangars and nooks** of the buildings, as well as on **open spaces** to have a clear view of their surroundings in all directions, so they prefer the runways and the airfield zones.

Trees provide food, protection and nesting sites for birds.

The ground cover with grass and its height depends upon which type of birds is the problem. Gull type birds prefer to rest on short grass, having a good visibility of the danger approaching, and their feeding is not hindered. So grass should be at a height of more than 20 cm.

Dispersal Methods

After environmental modifications of the site are complete, the dispersal of birds from the airport may still be necessary. Scare tactics can include pyrotechnic devices, gas cannons, light and sound, chemicals, trapping and falconry.

Auditory deterrents include

Gas canons

Pyrotechnics

Distress calls

Alarm calls and

Calls of predators

The problem is that birds get habituate to the sounds, when they learn that it is no danger. To reduce this problem, the change of location of the sound source must be frequent and the killing of birds must occur to convince the others that the sound really is dangerous.

Visual Deterrents include

Scarecrows

Flags and streamers

Lights

Predator models

Hawk kites and

Gull models

Habituation is a problem for the resident birds.

Falconry involves the use of predatory birds such as falcons, hawks or owls to drive birds away.

The technique is considered as highly expensive and in some States it is rejected.

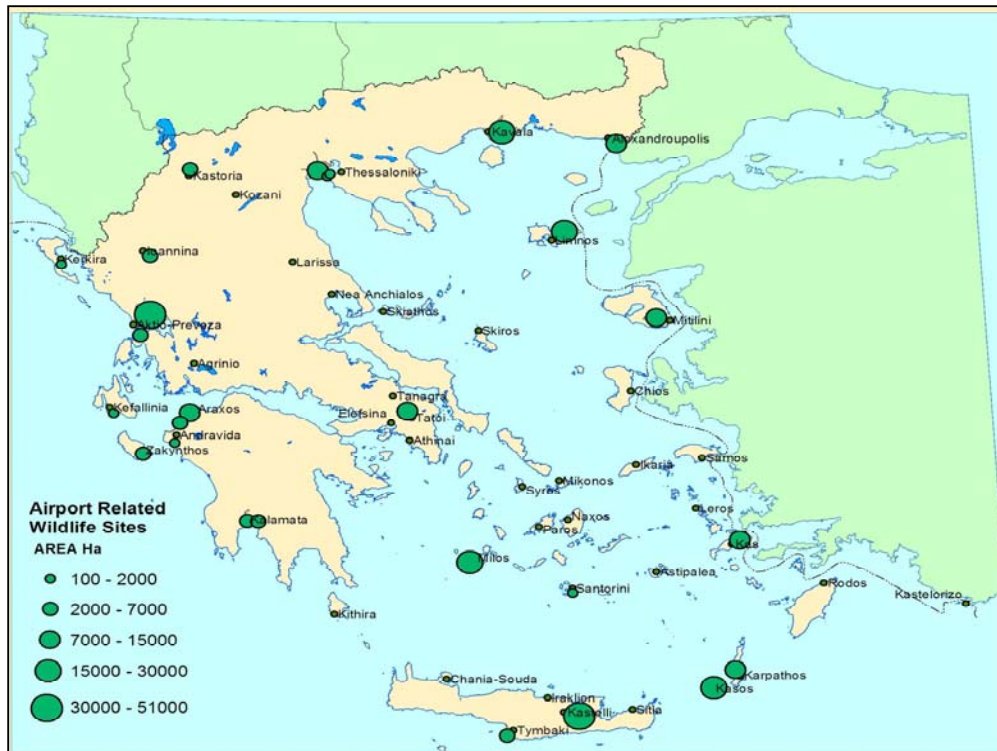
Incompatible Land Use Around Airports

Land use around airports can influence restrictions on aircraft flights as well as affect aircraft safety.

Land uses which have caused specific problems such as

- Fish processing
- Agriculture
- Cattle feed lots
- Garbage dumps and landfill sites
- Slaughter houses etc should be avoided

Research in the area of dispersal of birds from an airport should continue, to ensure that the most up- to date dispersal and detection techniques are used. As present techniques become inadequate, new technologies should be available as suitable replacements.



Picture 2

Hellas (see picture 2) has many Airport related Wildlife Sites (From Delichatsiou-Kolokotroni A., Antoniou D., & Anagnostopoulos A., 2003: Environmental protection in the area of Hellenic airports and airfields – rules and legislations. – IBSC 26). There are 196 Important Bird Areas (IBA's) with a lot of bird activity all over the country since Hellas is also a migratory passage. Bird populations, their movements and activities constitute and have been a potential hazard to flight operations since the beginning of air travel.

So bird strikes became a real threat to aircraft safety, affecting flight operations.

Since the majority of our Airports lies near the sea and some of them at the vicinity of important wild life sites, with high diversity of bird species, HCAA, as the responsible authority for bird avoidance, acts by taking those appropriate measures to keep our Aerodromes unaffected from bird strikes, by preventing possible bird hazards in order to ensure flight safety.

The role of the Hellenic Civil Aviation (HCAA)

Hellenic Civil Aviation is a self-contained State Authority operating under the aegis of the Ministry for Transport and Communications and is managed by a Governor and Deputy Governors. Hellas has 38 commercial Airports, 54 Heliports, 2 Airports for General Aviation, and 13 Airfields for Aeroclubs.

The duty of HCA Administration is the organization, development and control of the air transport network of the country. It undertakes studies and initiates proposals to the Ministry of Transport and Communications for the policy of air transport.

HCA is a complex organization, capable to provide a number of different services, the most important of which are the following:

- To ensure the safety of aircraft flying over Hellenic territory
- To act for the development, organization and proper operation of a network of airports
- To supervise and control all civil aviation activities in the country as well as national and foreign air carriers
- To monitor effective control on Aerodromes and safety oversight functions

The general increase in air travel has made it necessary for Civil Aviation Administration to carry out improvements on existing airports, to modernize and expand them with new installations, to supply them with new equipment for the promotion and efficient operation of Air transport.

Recently HCAA created the Bird Strike Prevention Office in order to improve the monitoring of Bird Strike Management in Hellenic Airports.

Bird Strike Avoidance Methods used in Hellas

In all our Airports we use auditory deterrents, as gas canons, distress calls, alarm calls, calls of predators and guns. Some Airports are applying bird strike avoidance programs. Athens International Airport applies a full program, which meet the requirements of this document.

Recently Hellenic Civil Aviation Authority has funded the University of Crete to develop a pilot program with radar implementation for the bird surveillance at the Airport of Kavala "Megas Alexandros", which after its evaluation by the Hellenic Civil Aviation Authority could be used at the rest of the Airports.

Possibility of bird strike per movement (%)				
Airport	2001-2004	1999-2000	1997-1998	Until 1996
Araxos	NO BIRD STRIKES	0,14%	N/A	N/A
Kerkira	0,03%	0,12%	0,03%	0,06%
Kalamata	NO BIRD STRIKES	0,10%	N/A	N/A
Kavala Chrisoupoli	0,07%	0,08%	0,37%	0,14%
Preveza	0,02%	0,07%	0,05%	0,109%
Naxos	NO BIRD STRIKES	0,05%	N/A	N/A
Limnos	0,10%	0,04%	0,01%	N/A
Thessaloniki	0,01%	0,02%	0,01%	0,024%
Zakynthos	NO BIRD STRIKES	0,02%	0,01%	N/A
Kos	0,03%	0,02%	N/A	N/A
Hios	0,01%	0,01%	N/A	N/A
Iraklion	NO BIRD STRIKES	0,01%	0,00%	N/A
Mikonos	NO BIRD STRIKES	0,01%	N/A	N/A
Rhodos	0,01%	0,01%	0,00%	N/A
Samos	0,10%	0,01%	N/A	N/A
Mitilini	0,04%	0,01%	0,05%	N/A
Chania	NO BIRD STRIKES	0,00%	0,01%	N/A
Athens Athens International after 28.03.01	0,04%	0,00%	0,00%	0,0028%

Table 1

In table 1 along with the list of the Hellenic airports with the highest frequency (in percentage) of bird strikes. For the calculation of the possibility of a potential bird strike, was taken into account the total number of movements along with the reported by the Airports bird strikes.

For the years 2000 and backwards the information has been taken from ICAO Bird Strike Information System (IBIS).

For the years 2001 to 2004 data were taken from the Hellenic airports

For the Athens International Airport the percentage was calculated based on the indicated bird strikes

Please note that Athens international airport commenced its operations on the 28th of March 2001. In its 8 months of operation two bird strikes were reported to the ICAO. 43 cases were identified by the airport staff as indicated bird strikes from the collected bird remains.

The airports with the highest possibility of bird strike for the years 2001 to 2004 as it is shown on the table are Samos (point 1 percent), Limnos (point 1 percent), Kavala (point zero seven percent), Kerkira (point zero 3 percent)

Conclusions

We would like to conclude this presentation, pointing out that

The fact that ICAO reviewed recently its standards concerning land use at airport vicinity and eliminated some bird attracting features around an aerodrome in favor of flight safety, will promote the cooperation with other stakeholders involved in the contribution to the risk mitigation and will increase the stakeholders' awareness of the issues related to bird strike hazards.

In Hellas because of the complexity of our legislation the National Committee should be created and should involve the environmental and agriculture Department as regular members.

A lot of work has to be done now in order to adjust the Hellenic legislation to those requirements.

We should establish a Bird Remains identification management which is vital for our efforts.

Pilots often don't complete reporting forms for bird activity or bird strike, if there are no damages to the aircraft. Pilots often report bird strikes completing a form of ASR (Air Safety Report) instead of the appropriate ICAO form. Therefore, some facts are missing.

Aircraft operators shall stress to the pilots the necessity of reporting bird strikes and near misses in the appropriated form, so that we can get a clear picture of the facts.