

Aircraft and bird strikes in IR Iran

Abstract

Since Iran is a very large country (1.65million km², 2,200km northwest – southeast, 1,300km north–south, and 67million inhabitants) travelling by air is very popular and is, compared with other means of transport, relatively cheap. Iran has 64 civil airports of which some are situated next to wetlands.

According to the data recorded by Civil Aviation Organisation of Iran, the bird species involved in bird strikes are mostly unidentified. Fortunately, bird strikes have never resulted in casualties in Iran, but the material damage may exceed millions of dollars per year. Several suggestions to minimize the bird strike risk are given.

Keywords: IR Iran, airports, bird strikes, bird strike ratio

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Airports in Iran

Iran has more than 60 civil airports of which some are situated next to wetlands (29 airports provide both domestic and international flights, 31 only domestic flights). The total number of aircraft movements of all civil airports together is approximately 534,000 per year (2012), of which 83% domestic. However, the number of international flights is increasing; it doubled in the last 10 years.

Bird control in Iran

The civil airports are not provided with full-time bird control units. Typically, the ground staffs of airports are controlling the birds by pyrotechnics and rifles.

Some advantages on bird strike

- Steps towards establishment of the “Bird Strike National Committee”.
- Control activities by the ground staff (but no full-time staff responsible for bird control).
- Pyrotechnics and rifles.
- More awareness in CAO Iran.

R Iran regulations regarding bird/wildlife strike

The basis for managing bird strike hazard at and around airports in Iran is responsibility of the Iranian Airport company. Iranian civil Aviation Organization (CAO) has developed the Iran Civil Aviation Standards (ICAS). “Bird and Animal Hazard Management” is described through the: ICAS 114–Volume 1: Aerodromes, Design and Operations, Chapter 10: Operating Standards for Certified Aerodromes, Section 14: “Bird and Animal Hazard Management”.

10.14.1.1 The aerodrome operator should monitor and record, on a regular basis, the presence of birds or animals on or in the vicinity of the aerodrome. Monitoring personnel must be suitably trained for this purpose.

10.14.1.2 Where regular monitoring confirms existence of a bird or animal hazard to aircraft operations, or when CAO so directs, the aerodrome operator must produce a “Bird or Animal Hazard Management Plan”, which would be included as part of the Aerodrome Manual.

10.14.1.3 The management plan must be prepared by a suitably

qualified person such as an ornithologist or a biologist etc.

10.14.1.4 The management plan must address

- Hazard assessment, including monitoring action and analysis.
- Pilot notification (NOTAM).
- Liaison and working relationships with land use planning authorities.
- On-airport bird and animal attractors which provide food, water or shelter.
- Suitable harassment methods.
- An ongoing strategy for reduction on bird and animal hazard, including provision of appropriate fencing.
- The subject of Bird strike is reviewed on Runway Safety Team (RST) of each airport and related safety indicator was concerned on Safety Management System (SMS) of the airport.

10.14.1.5 The bird and animal hazard management plan must be reviewed for effectiveness, on a regular basis, at least as part of each technical inspection.

10.14.1.6 Where the presence of birds or animals is assessed as constituting an ongoing hazard to aircraft, the aerodrome operator must notify the AIS in writing, to include an appropriate warning notice in the AIP and NOTAM.

10.14.1.7 Where a bird or animal hazard is assessed as acute, of short term or seasonal nature, additional warning must be given to pilots by NOTAM.

Note: Aerodrome operators are encouraged to provide bird strike incident information via mandatory occurrence report to IRI CAO.

As well, Iranian Civil Aviation Organization (CAO) has developed the national Civil Aviation Directives (CAD). In this regard, the “Area Surrounding of Aerodromes” is described through the CAD 5414 (first edition: March 2010). Some parts of the ICAO’s Doc 9137, part 3 is included in this document.

Administrative responsibilities

- The IR of Iran Civil Aviation Organization (CAO):

- a) To consider safety issues in relation with bird strike according to the DOC 9137, as well, supervision and maintain strike records.
- b) To evaluate and identify areas of bird attractive in the airports which are situated in migration routes during different seasons, and reflect findings to the related units.
- c) To send annual bird strike reporting forms to ICAO.

II. The Iranian Airports Company:

- a) Accordance to Annex 14: Reduction of dangers caused by bird strikes with aircraft.

Bird strikes in Iran

The Civil Aviation Organisation of Iran registered 318 bird strikes within the last 19 years in 31 airports. The number of registered bird strikes 1 to 64 in reported airports (Figure 1). The number of registered bird strikes varies from 10 up to 31 in various year (Figure 2), i.e. this means a ratio of 16/74 strikes per year and ratio of between 0.33 and 0.78 per 10,000 movements. The distribution of strikes over the year shows peaks in spring and August (Figure 3).

A lot of information on the bird strikes is missing. Species identification is poor, 69% are unidentified.

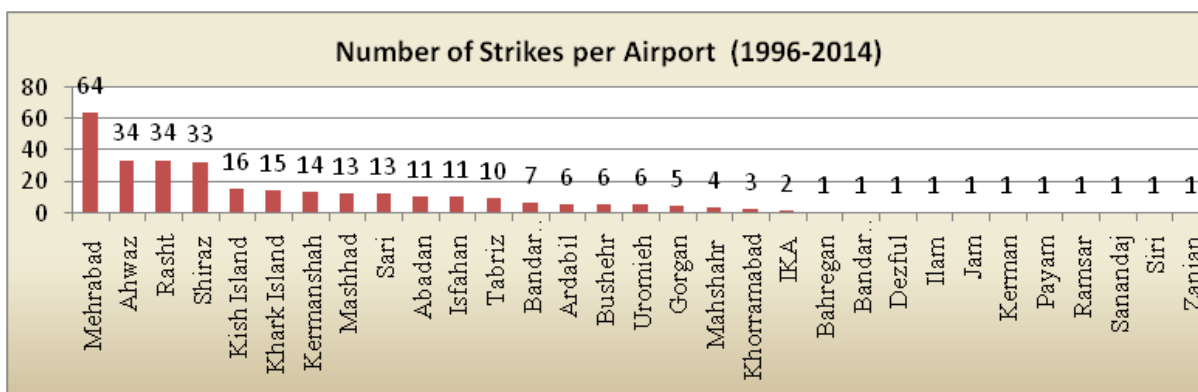


Figure 1 Total number of bird strikes in each civil airport, 1996–2014.

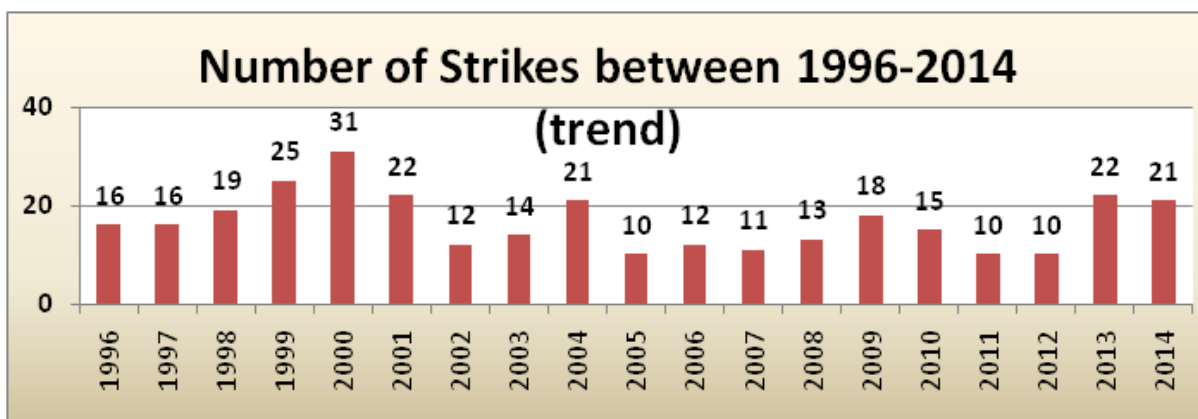


Figure 2 Total number of bird strikes on civil airports in each year.

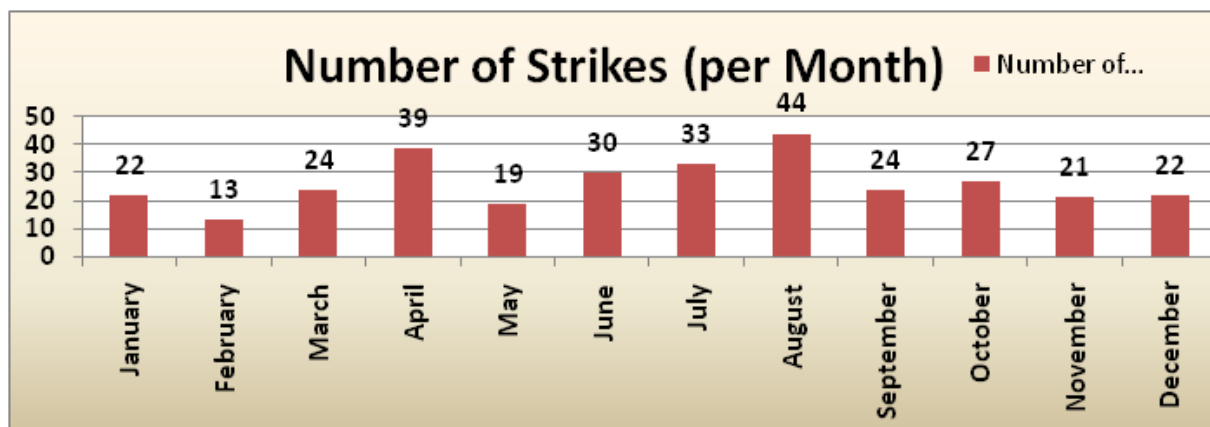


Figure 3 Monthly distribution of the total number of bird strikes on civil airports.

From those of identified species, 26% are birds of prey, 25% Pigeon and Doves, 11% Pheasants, 10% Sparrows, 9% Gull and Terns, and remaining of 19% are belonging to 14 species (Figure 4).

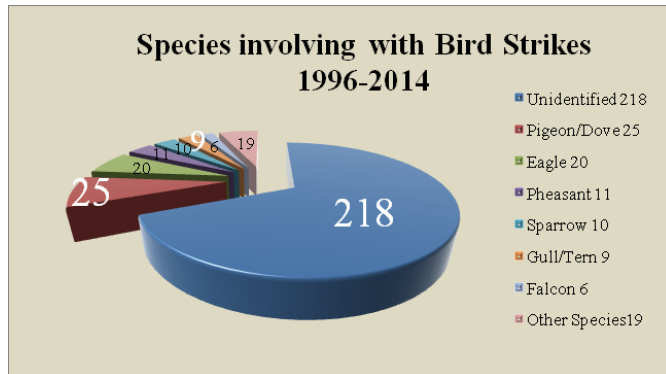


Figure 4 The distribution of species involving with bird strikes 1996–2014.

Furthermore, not much information is available on the impact point; 52% is unknown. From those of identified points, 33% are belong to engines, Fuselage 18%, Wing 15%, Radom & nose 10%, Windshield 6%, Landing Gear 6% and other parts 13% (Figure 5).

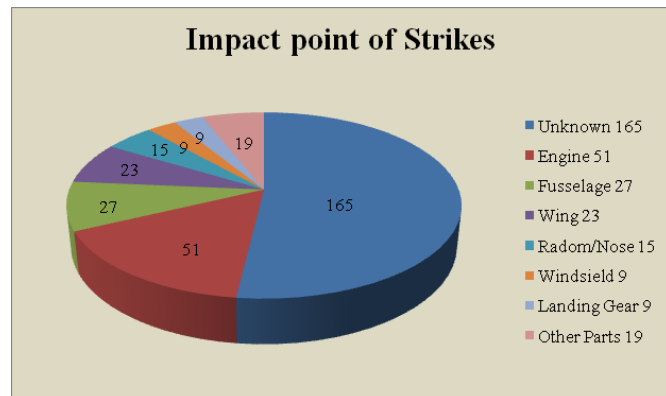


Figure 5 The distribution of impact point of strikes 1996–2014.

The total number of bird strikes at each airport doesn't only reflect the number of birds crossing the flight path of the aircraft, but also the number of aircraft movements. Unfortunately, there were hardly water birds among the bird strikes recorded by CAO Iran in the past ten years. For this reason, we could not compare the number of water birds in the sites close to the airports, nor could we calculate the potential risk of water birds to aircraft landing and departing from those airports (Figure 6).



Figure 6 The distribution of 318 bird strikes over the 31 civil airports, 1996–2014.

Needed for the future

Fortunately, bird strikes have never resulted in casualties in Iran, but the material damage may exceed millions of dollars per year. To minimise the bird strike risk, several actions should be taken. As a first start, speed up the establishment of the National Bird Strike Committee. Since, the Department of Environment will be a member of the mentioned committee, this will help set up a bird remains identification scheme for the strike cases. Furthermore, in order to get as close as possible to the highest international flight safety standards, the Department of Environment will suggest the CAO Iran to establish bird control units, at the airports with most bird strikes.

- Bird remains identification.
- More awareness in CAO Iran.
- Bird monitoring at and around airports.
- Bird strike risk assessment for all major airports.
- Continuous monitoring of birds in and around the airports.
- Reporting all bird strikes and identifying the remains of birds (establishment of database).
- Preparation of bird/wildlife management plan.
- Design and implementation of training programs.
- Establishing wildlife / birds control units.

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Conflict of interest

The author declares no conflict of interest.