

WATER BIRDS, AIRCRAFT AND BIRD STRIKES IN I.R. IRAN**Hamid Amini Tareh¹ & Albert de Hoon²**¹Wildlife Bureau, Department of Environment, Teheran, I.R. Iran,
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Email: albertdehoon@hotmail.com**Abstract**

Iran is situated in the south-western part of Asia and can be divided into four physiographical regions: the Caspian (forest), the Central Plateau (desert), the Zagros (mountainous), and the south-eastern coastal area (tropical temperature). The palearctic, oriental and Ethiopian influences, together with the West Siberian-Caspian-East African and Central Siberian-Indus-South Asian flyways crossing the country, cause the presence of the varied Iranian avifauna.

In total 517 bird species of 79 families and 19 orders have been recorded in Iran. During the mid-winter water bird censuses, more than a million waterfowl is being counted every year in more than 220 sites throughout the country.

Since Iran is a very large country (1.65 million km², 2,200 km northwest – southeast, 1,300 km north – south, 67 million 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 minimise the bird strike risk are given.

Keywords: I.R. Iran, Ramsar convention, water bird census, wetlands, bird strikes, bird strike ratio

INTRODUCTION

Iran is situated in the southwestern part of Asia and is bordering Iraq, Turkey, Armenia, Azerbaijan, the Caspian Sea, Turkmenistan, Afghanistan, Pakistan, the Gulf of Oman and the Persian Gulf. In total 67 million people (12 million in the capital Tehran) inhabit an area of 1.65 million km². The longest distance is 2,200 km diagonally from northwest to southeast and 1,300 km from north to south. Four physiographical regions can be distinguished: Caspian forest in the north, Zagros mountains from northwest to the south-east, the desert of the Central Plateau in the middle and the east and the tropical coastal area in the south. Due to its vast area, the Iranian avifauna has influences from the Palearctic, oriental and Ethiopian regions. Furthermore, the West Siberian-Caspian-East African and Central Siberian-Indus-South Asian flyways cross the country. All these different habitats, avifaunistic regions and the migration routes cause the presence of a very varied avifauna. In total 517 species (79 families, 19 orders) have been recorded.

RAMSAR CONVENTION

In 1971, eighteen nations met in a small town in the north of Iran, called Ramsar, and agreed to protect their wetlands. This treaty is better known as The Ramsar Convention on Wetlands. At present, 146 countries contract to the convention. In total 1,458 wetland sites, totalling 125.4 million hectares, are designated for inclusion in the Ramsar List of Wetlands of International Importance (<http://www.wetlands.org/RSDB/default.htm>). Iran has 22 Ramsar sites (15,000 km²).

WATER BIRD CENSUS

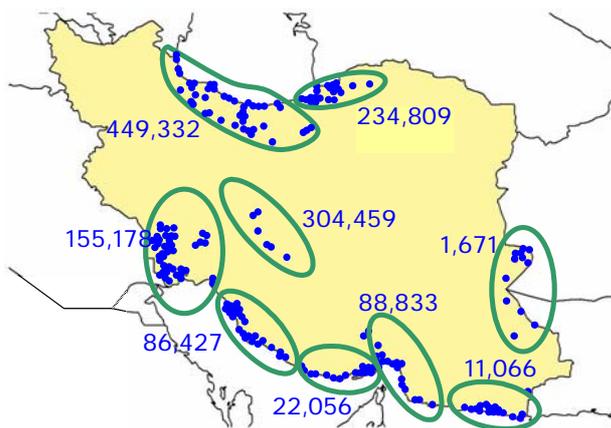
Since birds are relatively easy to count and are good quality markers, the quality and threats of the wetlands are monitored on a yearly basis by carrying out bird censuses. Every year in January the waterfowl of all wetlands and water bodies around the world are counted. This so called Mid Winter Water Bird Census is co-ordinated by Wetlands International and carried out by the Working group International Waterbird and Wetland Research (WIWO). Whenever a country has not enough bird counters itself, as was the case with Iran, the WIWO recruits volunteers. From The Netherlands 11 bird watchers went for 3 weeks in January 2005 to Iran to accompany 19 ornithologists from the Department of Environment in Iran, divided into 6 groups. In total 162 sites in 8 provinces around the country were surveyed. Not only counting birds, but also teaching the Iranian ornithologists was part of the job.

WETLANDS IN IRAN

The majority of important wetlands in Iran are on the shores of the Caspian Sea and the Gulfs of Oman / Persia, of which most beaches have sandy soils. Mudflats are situated in the eastern part of the northern coastline and near Bandar-Abbas in the south. Along the Gulf of Oman, Persian Gulf and Hormoz strait, the coastline is partly covered with mangroves. Inland wetlands are marshes, swamps, (artificial) lakes, salt lakes, ponds and dams.

NUMBERS OF COUNTED WATERFOWL

In total 1.36 million waterfowl were counted in the three weeks period. The highest numbers of birds were found on the Caspian Sea shores and in the central salt lakes, the lowest in the southeast (fig 1). Coot, Teal and Flamingo were the most abundant species (table 1) with numbers exceeding 100,000.



1. Coot (<i>Fulica atra</i>)	288,067
2. Teal (<i>Anas crecca</i>)	179,480
3. Flamingo (<i>Phoenicopterus ruber</i>)	165,284
4. Mallard (<i>Anas platyrhynchos</i>)	83,702
5. Shelduck (<i>Tadorna tadorna</i>)	64,991
6. Black-headed gull (<i>L. ridibundus</i>)	59,563
7. Cormorant (<i>Phalacrocorax carbo</i>)	53,055
8. Pochard (<i>Aythya ferina</i>)	48,900
9. Pintail (<i>Anas acuta</i>)	47,793
10. Slender-billed gull (<i>Larus genei</i>)	28,780

Fig 1. Counted sites with total bird numbers per province Table 1. Ten most counted species

AIRPORTS IN IRAN

Iran doesn't only have many waterfowl, but also many airports. Since Iran is a very large country, 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. Fifteen airports provide both domestic and international flights, 49 only domestic flights. The total number of aircraft movements of all civil airports together is approximately 400,000 per year, of which 80% 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. Occasionally the ground crew is controlling the birds by pyrotechnics and rifles.

BIRD STRIKES IN IRAN

The Civil Aviation Organisation of Iran registered 183 bird strikes at 22 airports within the last 10 years. The number of registered bird strikes varies from 13 up to 31 per year (fig 2), i.e. this means a ratio between 0.33 and 0.78 per 10,000 movements. The distribution of strikes over the year shows peaks in spring and August (fig 3).

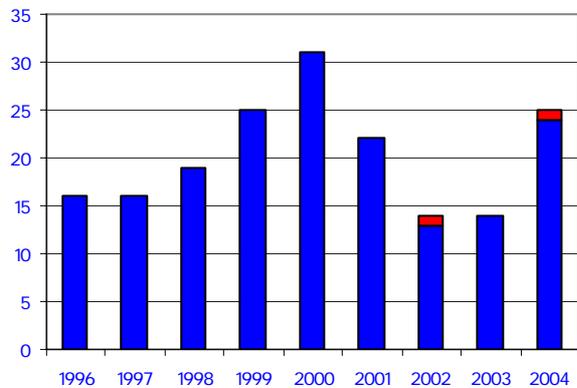


Fig. 2. Total number of bird strikes on civil airports in Iran. One bird strike in 2002 was at Athens Airport; jet engine got struck. One bird strike in 2004 was in Köln, Germany.

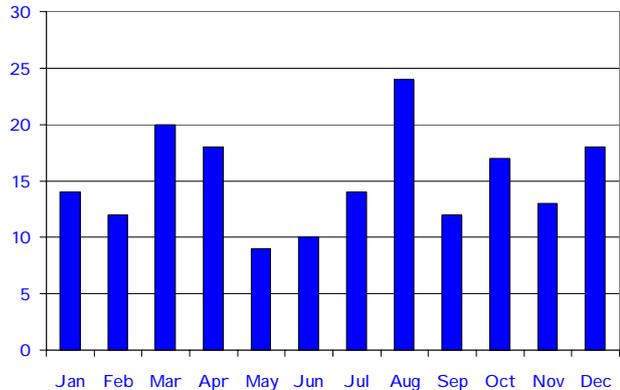


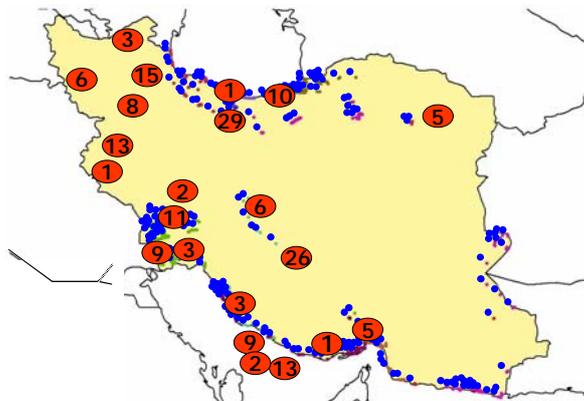
Fig. 3. Monthly distribution of the total number of bird strikes on civil airports in Iran.

A lot of information on the bird strikes is missing. Species identification is poor; 64% are unidentified, 9% are birds of prey and furthermore several species like Greylag goose, Gull/Tern, Starling, Bee-eater and White stork have been identified. Furthermore, not much information is available on the impact point; 69% is unknown, engine 15%, wing 7%, nose 5% and fuselage and wheel both 2%.

Fig 4. The distribution of 183 bird strikes at 22 of 64 civil airports, in the period 1996-2004.

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.

Since there is hardly data on bird strikes with waterfowl, the strike prone of waterfowl is unknown.



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.

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, Hamid Amini Tareh became a member of the Asian Bird Strike Working Group during the IBSC meeting in Athens. He will try to set up a bird remains identification scheme in the Department of Environment. 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, to realise (in random order):

- bird control;
- year-round bird monitoring schemes;
- habitat management plans;
- an efficient bird strike reporting system;
- bird remains collecting scheme.

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