Bird Hazards to Aircrafts in Kochi Naval Aerodrome INS GARUDA , Naval Base, Kochi , India 682004, during 2003 – 2011.

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Abstract

Our voluntary study for reducing bird hazards to aircrafts at the Naval aerodrome Kochi entered its 21'st year without any financial support of any other agency. We depend upon few observations in the operational areas and supplement our data with the stations records from its Flight Safety Officers(SFSO). We visit a few other aerodromes like Calicut and Cochin International Airport and attend the meetings of IBSC regularly. We advise the airports on the new developments in bird control presented at the IBSC, with stress on non-violent methods and sharing the skies with birds.

During 1990's, we started trying the carbide cannons, reflective tapes and broadcast of distress calls of birds in the Kochi and Ramnad Naval airports. Today many Indian airports use LPG cannons, son guns and reflective tapes. In one airport we found too many Red Wattled Lapwings(moving into the runways from its grassy border. We found the grassland to be too soft and muddy. The Director of the airport promptly got the entire grass area graded. This reduced the lapwing numbers and prevented serious damage to two passenger aircrafts which had skidded from the runways in the last few years in that aerodrome.

The Indian aerodromes do not employ the Border Collie Dogs to scare birds as we had suggested. We hope that the Indian aerodromes will use these dogs and FLIR to control birds, before long. The defence service aerodromes keep upto date bird strike records, but not the civilian aerodromes. Some details are presented in our paper. Our greatest satisfaction is that our city's [Calicut International Airport] aerodrome does not use shot guns to control birds!

Key words: INS GARUDA, LPG Cannons, Son guns, Border Collie Dogs, Bird strike records and non violent control.

1. Introduction

Cochin Naval Air station {[CNAS] (77°.17´E x 10°N)} is used by naval aviation, The Indian Air Force and Indian coast guard flights. Situated close to the large Vembanad Lake of Kerala, India, off the Arabian sea coast the aerodrome is rich in vegetation and wildlife, more than 40 species of birds(Mathew 1997) were recorded in its operational area. The Aerodrome is in use round the clock and all the year through resulting in many bird strikes in the process round the year. (table 1) (fig.1)

We had the support of the defence ministry (Aeronautic Research And Development Board Govt. of India) during the years 1992-94 as staff of the dept. of Zoology University of Calicut. As the aerodrome is strategically important we have continued to offer our advice to CNAS voluntarily ever since. As we did not get any financial support we could visit the aerodrome only 3 to 4 times a year, but supplemented our data with the records of bird strike from the stations Flight Safety Officer [SFSO]. For comparative data we periodically visit other aerodromes. To update our bird control information we have been attending the IBSC Meeting at our own expense.

2. Findings

2.1 Types of Aircrafts.

The following types of aircrafts have been used at the CNAS from 1999 to 2012 and suffered bird hits

A. UAV
B. Dornier
C. Islander
D. Sea King
E. Chetak
F. Advanced Light Helicopter
G. Avro
H. Boeing 737

2.2 Birds striking aircrafts as identified by naval officials at CNAS between 1999-2012

S. No	Name of species	Nos.
1	Bats	6
2	Egret	1
3	Little Tern	1
4	Black Kite	5
5	Brahminy Kite	1
6	Eagle	2
7	Red Wattled Lapwing	2
8	Pigeon	2
9	Barn Owl	1
10	Owls	22
11	Roller	1
12	Sparrow	2
13	Unidentified	22

[Table-1]

From the above list it is appears that owls cause the maximum bird strikes. We are trying to improve the bird identification process by a serious study

2.3 Stages of flight at which the bird strike was noted during 1999-2012.

The SFSO of the CNAS has recorded the incidents of bird hits at the following stages of flights of the various aircrafts:

s.no.	Stages	No.
1	External check after flight	10
2	On ground	1
3	Down wind of runway	2
4	Taxy on ground	5
5	Runway	4
6	Night sortie within air filed	4
7	Night sortie art sea	1
8	Post landing	7
9	Hover on runway	7
10	During landing	11
11	Touch down	1
12	During take off	13
13	Circuit	1
14	Short finals	4
	Total	71

[Table-2]

It may be noted that more bird strikes occurred during take-off , landing and hovering

2.4 Distribution of bird strikes between day and night:

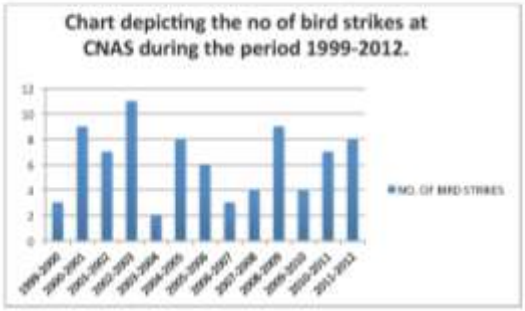
The following table [table-3] indicates the distribution if bird hits during nights and days

S.No	Period	Total no. of Flights landing and taking off at CNAS	Bird strikes during Day	Bird strikes during night	Total
1	1999-2012	-	01	02	03
2	2000-2001	-	02	07	09
3	2001-2002	-	02	05	07
4	2002-2003	-	05	06	11
5	2003-2004	9600	02	-	02
6	2004-2005	9343	03	06	08
7	2005-2006	8950	02	04	06
8	2006-2007	9085	-	03	03
9	2007-2008	9151	03	01	04
10	2008-2009	7852	03	06	09
11	2009-2010	9970	03	01	04
12	2010-2011	8000	01	06	07
13	2011-2012	8200	04	04	08
	Total		30	51	81

[Table – 3]

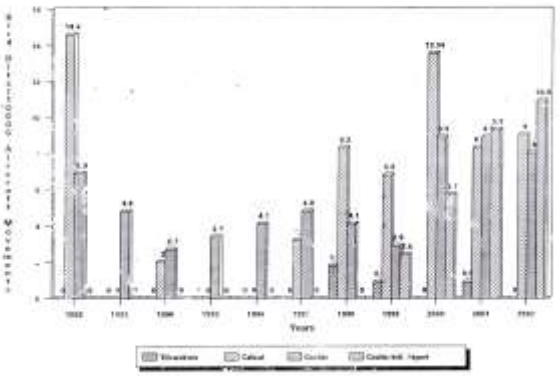
More bat and bird strikes were reported during the night .

2.5 Distribution of bird strike rates over the years (appendix)



(Fig1)

COMPARISION OF NUMBER OF BIRD STRIKES ON AIRCRAFT IN FOUR AIRPORTS OF KERALA



3. Other useful information:

3.1 Use of Zon guns

The SFSO of CNAS has started using zon guns for scaring birds. He has reported very good results and is ordering the purchase of more zon guns.

3.2. An interesting fallout of bird hazard work in an Indian aerodrome

At one of the aerodromes that we had inspected to investigate the presence of too many Red wattled Lapwing in a grass bordered runway. We found that the grass was growing on very soft sand and reported the matter to the director and who noted it and ordered the grading of the entire area of the operational runway. Subsequently two passenger aircrafts skidded off the runway and would have sunk deep possibly resulting in a catostraphie,if it was not graded. We were happy know of the incident though it was never acknowledged officially.

3.3 Bird control without shooting

We are proud to mention that the Calicut aerodrome, an airport we have been advicing from its nascent stages has managed to control birds without killing any. Their control measures are totally non violent. Non violent control of bird hazards is the aim of our work. Control of birds with out disrupting the ecosystem is also advocated by the former chairman of the IBSC Dr. Buurma in article in international airport review [Buurma 2007]. A fragile eco system like that which surrounds the CNAS cannot afford to kill either a scavenging large bird or an insect feeding small birds. Kerala is troubled by mosquito borne diseases and common birds like Drongo and Mynas are natutal and effective predators of these insects

Reference:

Buurma Luit 2007 Bird strike prevention – SMS challenge and a green signal international airport review issue # 4 – 2007

Mathew D N 1997 – Ecological Studies of Bird Hazard to Aircrafts in South India , final report submitted to the AR & DB New Delhi.

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CNAS [INS Garuda]


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