

**BIRD STRIKE RATES IN THE AERODROMES OF KERALA, INDIA
IN RELATION TO PREVENTIVE MEASURES 1999-2002**

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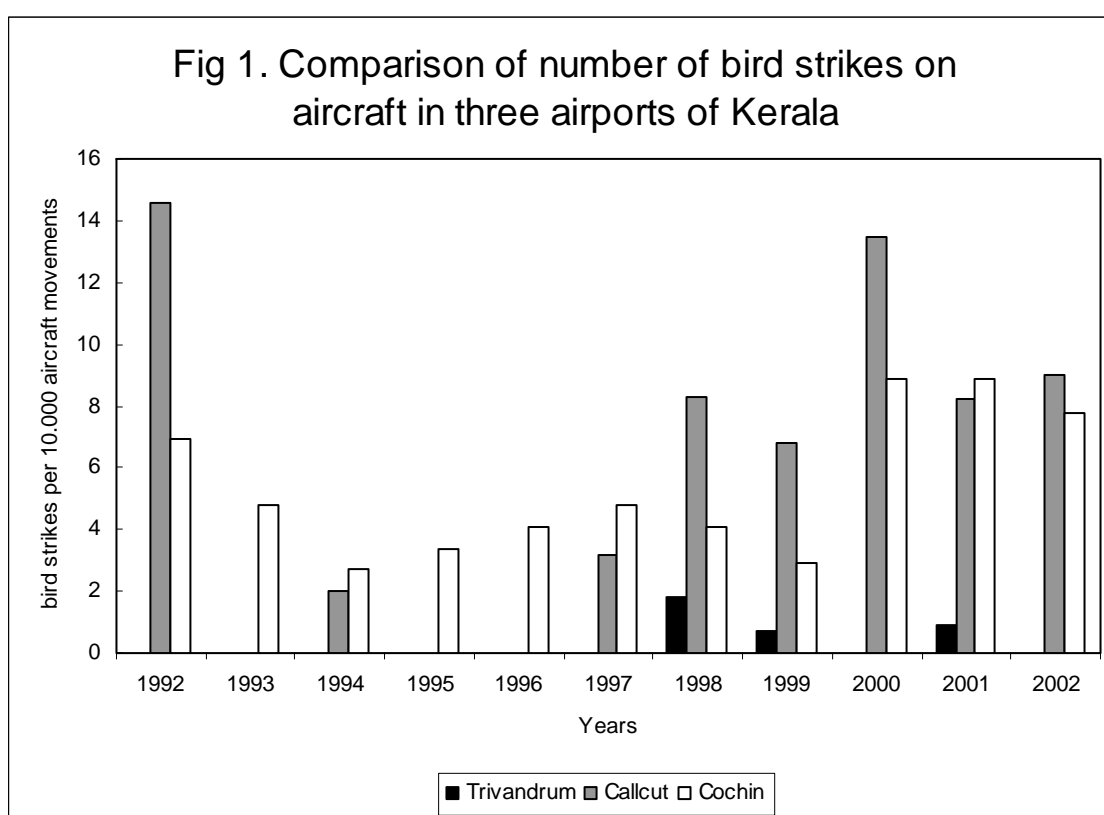
Abstract

Based on the bird strikes recorded by the flight safety officers, a comparative study of the bird collisions on aircraft was conducted in Kerala, South India. All these aerodromes had taken the measures usually taken to keep down the numbers of birds, like removal of garbage and firings of crackers. There is no reduction in the frequency of bird hits in most of the Kerala aerodromes but there were fewer cases of severe damage to the aircraft. Bird hits were minimum in an aerodrome where lethal control of birds was regular practised.

Key words: bird hazard reduction, comparative study, Kerala aerodromes, frequency, lethal control

1. Introduction

This paper is based on a comparative study of bird hazards to aircraft in three aerodromes of Kerala State India. Our aim is to assess the position of bird hazards in these aerodromes. We observed the movements of birds both in the operational area and buffer zones of the aerodromes in Calicut and Cochin and obtained information from other airports by writing to the Directors. As reported in the 25th IBSC meeting in Amsterdam E. Abdul Majeed, an innovative coconut planter of Kondotty, had started an experiment using unprocessed Chicken dressings from the stalls as fertiliser to coconut trees. We were regularly watching the progress of these trials as this could lead to a means of reduction of food available to the Black Kites of Calicut Airport.



2. The airports

2.1 The Calicut Airport ($75^{\circ} .55$ E $11^{\circ} .7$ N) is situated in the hilly district of Malappuram. Calicut is the nearest city and Kondotty the nearest town. There are hundreds of Black Kites (*Milvus migrans*), and crows and 38 other species of birds in the operational area of Calicut airport. The Kondotty market is about 1.5 km distant from the Airport. There are many meat and fish stalls and centres of open slaughter in and around Kondotty producing hundreds of tons of waste every week. Hundreds of Black Kites and crows fed at the market during the daytime and about 30 Black Kites were always present at the airport. They leave the area only during the months of June to August.

2.2 The Cochin Naval Air Station ($77^{\circ}.17'$ E x 10° N) which lies close to a large lake, offers plenty of food and very good shelter for birds. There are hundreds of Black Kites and feral pigeons and about 40 other species of birds in the operational area.

2.3 Cochin International Airport

In this newly started airport the habitat is even more favourable for birds. The ground is not levelled fully nor the secondary vegetation removed entirely. Our team is helping the troubled staff of this airport to organise bird control. Their records of bird strikes are not up to date. So no comparison is possible.

2.4 The Trivandrum International Airport

This airport which is the oldest in Kerala has successfully prevented its forty-three species of birds including Black Kite from too many collisions. Beside garbage of every kind there is also a fishing village close to this Airport. During the period of 1980 to '86 Trivandrum Airport suffered 53 birds strikes mostly from kites (GRUBH 1989).

3. Measures taken for bird hazard reduction

3.1 The causes of bird hazards are very similar in the International airports of Trivandrum and Calicut. The ground is levelled and vegetation under control in both aerodromes. Sentries and A.T.C. managers spot the birds and scare them by firing shell crackers. In Trivandrum there are too many Black Kites in the operational area, so that lethal methods have to be used some times to remove them, to avoid collisions.

3.2 The two aerodromes of Cochin are still struggling with the wild growth of grasses and trees, which make spotting birds very difficult. They scare birds by firing crackers. Both aerodromes have many ditches and canals to fill; levelling of the operational area has also not been completed.

3.3 Both Calicut and Trivandrum aerodromes have tried to move garbage to distant areas to be converted into compost. There are no vacant areas sufficiently distant from housing colonies or public places even in remote villages. There is a lot of resistance from public because of the atmospheric pollution created by waste dumps. The incinerators of the Calicut City's municipal waste dump have not worked well, creating more pollution problems. This is an area deserving intensive research by environmental biologists of Calicut.

3.4 Use of Animal wastes from stalls as fertiliser

Chicken waste from the stalls in the market at Kondotty was an important source of food for kites. Now the Chicken dressings are transported to big coconut plantations and buried in deep pits around coconut trees. The farmer E. Abdul Majeed who started this project three years ago (MATHEW et al. 2000) reported that yields of coconuts increased two fold with chicken wastes as fertiliser. Majeed is extending his experiments to other fields, and has also tried using small quantities of slaughterhouse wastes along with chicken dressings and has found the results encouraging (MAJEED Pers.com. 2001).

3.5 Comparison of birds strikes in three airports

The Bird strike rates of the three aerodromes of Kerala from 1992 to 2002 are presented in *Figure 1*. The rate of bird strikes per 10,000 aircraft movements during the three years 2000 - 2002 is slightly higher than that during 1997- 1999. The Calicut airport has the highest incidence of bird hits now. This airport has innumerable centers of open slaughter of beef cattle besides, fish and meat stalls close to the aerodrome. Only nonviolent methods of control of birds are used in Calicut. The rate of bird hit is lowest in Trivandrum airport where control measures are most rigorous.

The high rates of bird hit in the Cochin Naval Air Station is due also to night flying of aircraft. Most of the collisions in this period (2000-2002) did not cause serious damage to the aircraft; only in three cases were engines seriously damaged. The loss of bird life involved in the accident should also be a matter of concern particularly whenever lethal control of birds is considered. Kites and Owls, which often hit aircraft, are important scavengers and /or predators of pests of the environment. Recently the numbers of vultures which were causing many bird strikes in North India have dwindled alarmingly in Northern India. (SATHEESAN Pers. com. 2002)

3.6 Conclusion

The problems of bird hazards to aircraft in Kerala must be solved through integrated control, which will include besides the acoustic and visual scaring methods used now, also ways of transforming the energy of the vast quantities of animal wastes and garbage into more productive pathways, in the food chains.

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References

- GRUBH, R.B. 1989. Ecological study of Bird hazard at Indian Aerodromes phase 2 vol.12 p.6.
MATHEW D.N., M. GANGADHARAN & T.T. JACOB (2000). Waste from chicken dressing centres as fertilizer for coconut trees – to reduce the volume of food available to Pariah Kites *Milvus migrans* in the buffer zone of Calicut aerodrome. IBSC25/WP-AS4 Amsterdam, p. 248.
MAJEED, E. ABDUL (2002) Personal communication.
SATHEESAN, S.M. (2002) Personal communication.

