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IMPORTANCE OF REASSESSMENT OF BIRD MENACE TO AIRCRAFT AT AIRPORTS AFTER A PERIOD OF TIME ESPECIALLY WHEN BIRD AIRCRAFT STRIKES ARE ON THE RISE

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Summary

This paper points out the importance of reassessment of bird menace at airports after a period of time, especially when bird aircraft strikes are on the rise. The field studies carried out by the author at Trivandrum International Airport in 1994 and Bangalore Airport of Hindustan Aeronautics Limited (H.A.L) in 1995 reveal the status of implementation of the recommendations given in 1989 to contain bird menace by the Bombay Natural History Society (BNHS). This also elaborates new findings and provides fresh recommendations to combat bird hazards.

Key Words: Aerodrome Surveys, Control Methods, Asia, Statistics, Attractants, Garbage, Slaughter Houses, Hazard Management, Food Sources

INTRODUCTION

Bird hazard studies were carried out by the BNHS, with the author as the main field scientist, at Trivandrum Airport in 13 weeks between 1983 and 1986 and Bangalore Airport in 14 weeks between 1983 and 1985. Later the author, as an independent expert consultant, carried out fresh assessment of bird menace at Trivandrum in December 1994 and at Bangalore in April 1995. The following is a brief account of these field studies.

MATERIAL AND METHODS

Data was collected through direct observations during survey of airports upto 25 km radius of aerodrome reference point using four-wheeler. Discussions were carried out with officials of Airport and City Civic Authorities as well as local people on bird active areas.

RESULTS

The results of these field studies are given below:

A. Status of implementation of the BNHS recommendations (Grubh, Satheesan, Rao & Datye 1989; Grubh & Satheesan 1989) **in these airports**

a. Measures within the airport

1. Levelling of airport grounds was carried out in both airports to a large extent.
2. Controlling of vegetation was done by periodical mowing of shoulder grass. Planting of "Dhub grass" *Cynodon dactylon* was not carried out.
3. Drainage system was improved to some extent. A sewage treatment plant within Bangalore airport is closed down.
4. Bird-proofing of buildings and hangars was not carried out.
5. Nothing appears to be done to improve garbage disposal system.

b. Measures outside the airport

1. Garbage disposal system is still inefficient. But closing down of one municipal garbage dump each situated very close to Trivandrum and Bangalore airports reduced kite hit incidents.
2. The K & C Valley Sewage Treatment Plant close to Bangalore Airport was modernised and it no longer attracts problem birds.
3. Meat, fish and Poultry markets and the waste dumps near them are not bird-proofed. The piggeries in Konan Agrahara in Bangalore, near Hosur road, are neither closed, translocated to a distant place nor bird-proofed.
4. A primitive Carcass processing centre, situated at Viswaneedam, about 20 km west of Bangalore airport has been completely bird-proofed. Whitebacked vultures (wt c 4.5 kg) have stopped visiting this site for food and aircraft flying over Bangalore is now safe from these birds.
5. A modern slaughter house and a modern carcass utilization centre are not set up. Existing primitive slaughter houses are not fully bird-proofed.
6. Fishing villages near Trivandrum airport have fish drying in the open and open fish, and meat stalls all around. Illegal slaughtering and open sale of meat is rampant in both cities.

B. New findings

a. Current Status of bird menace

An analysis of bird hit incidents of the past 15 years since 1980 revealed that the bird

menace was very serious between 1985 and 1991 at both the airports (Table 1.)

TABLE 1- Number of bird hit incidents recorded for Trivandrum and Bangalore airports from 1980 to 1994-95.

year		1980	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95
No of Bird hits	Trivandrum	9	8	8	6	5	8	16	13	15	8	12	6	0	0	3 till Dec	-
	Bangalore	3	5	2	5	4	9	13	9	9	8	5	9	5	3	6	4 till 1995

After 1991 bird hit incidents have dropped considerably at these airports. The current tendency of increasing bird hits warranted a fresh assessment of bird menace. Pariah kite, *Milvus migrans govinda* (wt. c. 680 g) continued to be the major problem bird at both the airports. Blue Rock Pigeon *Columba livia* (wt. c. 300g) which was not a problem earlier, has manifested itself as a problem bird at Trivandrum airport and has hit aircraft recently. Lapwings, Brahminy kite, crows and other birds are less hazardous to aircraft now.

b. Attractions prevailing for birds in and around these airports

1. A few water-logged areas within Trivandrum airport continue to attract kites and other birds for drinking and bathing. Problem birds obtain food from open sewage canals clogged with waste food from canteens in Bangalore airport.
2. The buildings and hangars at Trivandrum airport are safe roosting places for pigeons which feed on grains at godowns of Food Corporation of India close by. Utility structures such as walls, fences and localizers provide good perching places for kites and other birds.
3. Airport areas continues to be a safe resting place for birds which get ample food easily from neighbourhood. (Satheesan 1992,Sathoosan, *in press*)
4. Garbage disposal system inside airport and in the city is inadequate and problem birds feed leisurely at garbage dumping sites and fish, meat and poultry markets which are not bird proofed.
5. The primitive municipal slaughter houses in these cities attract birds. Open piggeries and pig meat sales in Bangalore City attract large number of kites.
6. Above all, illegal slaughtering of animals and sale of fish and meat in open stalls is the main cause for proliferation of birds.

C. Fresh recommendations to combat bird hazards

a. Measures inside airport

1. Levelling of remaining undulating terrain of the infield areas should be done to prevent water-logging.
2. Drainage canals should be improved and covered using wire-mesh from the top to deny water and animal food to problem birds.
3. Light-weight grass-cutting machines should be used for mowing grass. Excessively tall vegetation and weeds growing away from runway can be removed by applying some safe weedicides such as klass 80 wp manufactured by Hoechst Schering and AgrEvo Limited. Supervision by an Ornithologist is necessary while carrying out such operations in airport area.
4. Localizer, walls, fences and other utility structures should be armed with metal spikes on the upper surface to make it inhospitable for birds.
5. Pigeon-proofing of all hangars and terminal buildings should be carried out.

6. Garbage disposal system should be fool-proof. Garbage should be carried far away from airport where it can be processed.
7. Manual scaring of birds using fire crackers by bird chasers is very effective. At least ten bird chasers are required for one runway. Gun shots can be used to scare birds. Occasional killing of one or two birds in a flock will help reinforce the scare. Runway inspection has to be carried out before and after every aircraft movement, to scare birds and remove bird carcasses.

b. Measures outside airport

1. Bird-proofing of all meat, poultry and fish markets as well as piggeries should be done effectively.
2. All illegal slaughtering and open sale of meat, fish and dressed poulty should be stopped enforcing **Aircraft Rule 81 B of Indian Aircraft Act of 1937.** The City Civic Authorities, Airport Environment Management Committee and City Police should form a task force.
3. Both the cities need modern abattoirs to provide hygienic meat to the public and reduce bird population.
4. Both the cities need modern carcass-processing plants which can yield chiken feed, bone fertilizer and tallow and reduce the population of scavenging birds.
5. An efficient garbage processing plant is another necessity. Excel Industries of Bombay has the know-how to convert garbage into organic manure. Inoculation of "Celrich", a microbial culture, converts garbage into manure in a months time. "Celrich" is nontoxic, nonexplosive and eco friendly. It makes garbage fire-resistant and repells insects and birds after 2-6 hours of treatment.
6. To deny food grains problem birds such as pigeons at the godowns of Food Corporation of India near Trivandrum airport tarpaulin spread on the ground can help easy retrieval of grains spilled on the floor while loading and unloading grain bags to and from trucks.
7. Awareness programme to educate the public through mass media can help reduce bird hits (Satheesan 1994)

DISCUSSION AND CONCLUSION

The results of non-implementation of some of the recommendations given earlier have led to increase in bird hits. An effective grabage disposal system has to be instituted in both the cities. Bird scaring in airport area also should be adequate. A continuous monitoring of bird activity is desirable. Assessment of bird menace after every five years becomes necessary in the light of increasing bird hits at Trivandrum and Bangalore airports.

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