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## **Birds and Flight Safety Awareness in the Middle East and Africa – A Test Case**

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### **Abstract**

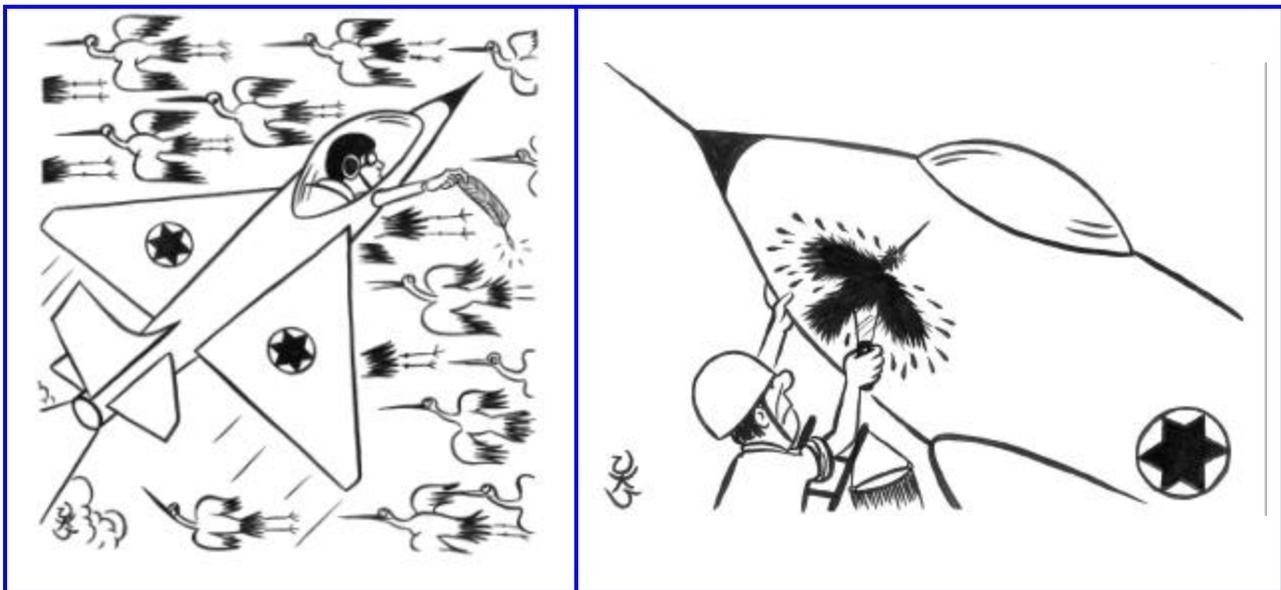
In order to significantly and effectively advance the issues of flight safety and the conflict with birds we believe that we must work simultaneously on five levels:

- The experimental-research level- to provide a solid scientific basis for the actions taken.
- The application level -To assimilate and apply the conclusions of the basic research in daily **actions (the yearly activity both at the CTR and throughout the entire airspace).**
- **The building of data bases** and continuous analysis of the effectiveness of actions taken as well as analysis of changing population sizes over time.
- **Continuous development** of new and efficient methods of advancing solutions to the conflict.
- **Increasing awareness** - Long-term and continuous exposure to this issue must be given to all factors involved in flight, operations, decision makers, and the general public in order to involve them in commitment to take action.

It is precisely at the fifth level that continuous action is often lacking or almost completely absent.

We will present our achievements in this area vis-à-vis the Israeli Air Force over the past two decades as a model for perennial activities in the area of safety. Our activities created a change in methods for dealing with this issue throughout the IAF at all levels from squadron technician to the IAF commander. As a model for successful decision-making we will present the assimilation of the use of border collies on large IAF bases, from the moment that the idea was presented at the last BSC conference in Vancouver about two years ago by Dr. Nicholas Carter and up to the present.

We will also highlight the great importance of advancing solutions for bird-plane conflict through efficient development of activities on the regional level in the Middle East and in cooperation with African countries. Such activities have been initiated over the past two years in order to advance this issue in countries where it has been dealt with on a limited level.



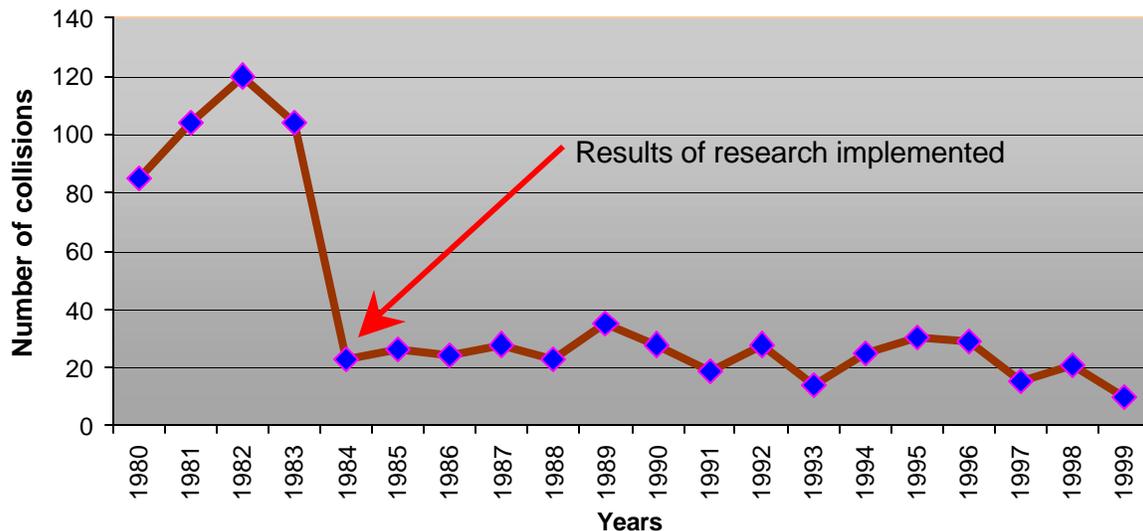
**Cartoons used in the IAF campaign to collect feather remains after bird-aircraft collisions.**

### Introduction

Israel is small country, but strategically located at a junction of three continents. As a result, Israel is a “bottleneck” into which all or a large part of the world populations of certain species converge during spring and autumn migration.

Over 500 million migrating birds cross the small air space of Israel twice a year. At the same time the Israeli Air Force (IAF), with its hundreds of aircraft, must train and maneuver and thus finds itself competing with the birds for this very limited air space. It has been calculated that the size of the Israeli air space, divided either by the number of aircraft or by the number migrating birds, is twice the world record.

The IAF in cooperation with the Society for the Protection of Nature in Israel (SPNI) and Tel Aviv University has initiated a long-term research program, which was part of the first author's Doctoral Thesis, the results were presented at several IBSC meetings (Leshem 1990, 1992, Leshem & Yom-Tov 1996, 1998). From 1984, the research results were immediately integrated into the IAF flight regulations. The changes in flight regulations led to a reduction of 76% in bird strikes (Figure 1), saving the IAF an estimated 540 million US dollars, between 1984- 2001.



**Figure 1: The number of air collisions with damage during the last two decades (1980-1999), before and after applying the research results (in 1984).**

The program was extremely successful in the IAF, in part due to our concept of incorporating education and awareness with the applied research from the beginning. Although the contract and funding with the IAF only specified research, we initiated an education and awareness program as an integral part of the research and its application.

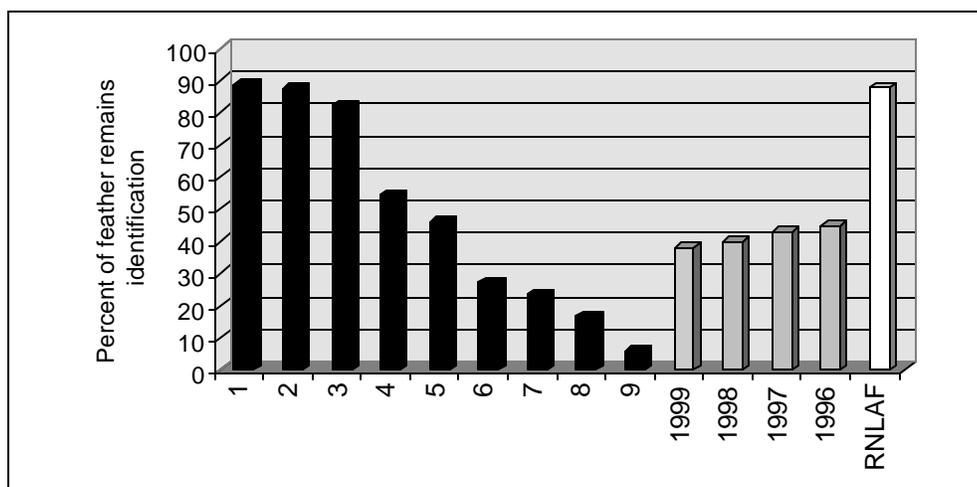
### Education and Awareness Program in the IAF:

- 1. Lectures and presentations** – Presentations included a lecture, slides and videos, which were presented to all levels of the IAF from each air squadron (air crew and technical personnel) to the board and commander of the air force. Once a year a different IAF base hosts a seminar on birds and flight safety issues.
- 2. Publications** – A wide variety of publications, including a new poster every year, car stickers, explanatory leaflets, etc., are published regularly in the IAF, in cooperation with the SPNI and Tel Aviv University. It is essential to produce publications that are both original and of high

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quality, in order to keep the audience interested. These publications received a great deal of interest and can be seen all over the air force.

- 3. Films and videos** – In cooperation with the IAF flight safety division, we produced an enormous number of short videos including original VTR's of bird collisions and near collisions from the aircraft, as well as top flight performances of birds. These videos always have an educational message focused on flight safety and it is mandatory for pilots to watch these movies.
- 4. Traveling Exhibits** – Once in three to five years an exhibit was produced and shown at each of the air bases, followed by lectures and other activities with the IAF staff.
- 5. Guided Tours** – Most of the aircrew were taken to the field to teach and interest them in migrating and nesting birds.
- 6. Documentation and database development** – The IAF has a database including only the technical information on bird strikes, without any organized system to store and document other essential information on the bird strikes such as pictures of the damage, VTR's, interviews with the pilots involved in the air collisions, media clips and information on the birds involved. We initiated and are presently developing a documentation system for the IAF, to create a more complete bird strike database.
- 7. Feather remains** - In addition to feather remains identification, which we initiated in 1992, we developed a first-stage campaign to improve awareness on the issue (Shamoun-Baranes 1998). It quickly became clear that there is a significant difference in the collection and reporting efforts of different bases, reflecting their awareness and involvement in the program (figure 2). Unfortunately, the IAF is still far behind the Royal Netherlands Air Force in bird remains collection, and only about 40% of the feather remains were collected (in four years). In order to advance this we decided to promote the importance of collecting feather remains by developing the second stage campaign. Budget was identified to produce 5000 copies of a colorful 24-page leaflet with cartoons (see abstract) which were distributed to all technical and air staff. The leaflet outlined the aims, technical aspects, and importance of feather remains in order to achieve 60-70% collection of feather remains and hopefully in 2003 to reach the Royal Netherlands rate of 80-90%.



**Figure 2: Comparison of feather remains collection between different IAF bases in 1998 and annual IAF feather remains collection effort from 1996-1999.**

### Test Case: Using Border Collies in the IAF

Below we will present a test case in which we succeeded in implementing in the Israel Air Force, over a two-year period only, an advanced method of bird control. Implementation included funding and budgets at a time when it was very difficult to obtain a development budget. Implementation was successful beyond expectation, as the result of organized planning in stages and the building of a strategic infrastructure of awareness on various levels.

In May of 1999 the first author participated in a conference of the BSC in Vancouver, Canada. Within this framework, a half-day was devoted to a presentation of various means for controlling birds at the Vancouver International Airport. We were especially impressed with the border collie put to use by Dr. Nicholas Carter, president of Border Collie Rescue (BCR).

Immediately after the presentation the first author tried to convince Dr. Carter to come to Israel and present the subject to the Israel Air Force and the Airport Authority. At first Dr. Carter did not agree to come to Israel because of his heavy work load in the US.

But upon the return to Israel of the first author, he convinced the second author, who is responsible for the issue of safety and birds in the Israel Air Force, to finance a week-long visit of Dr. Carter and his dog, Shadow, in February 2000.

#### The visit had three goals:

1. Presentation of bird control techniques using a border collie in the three large IAF bases
2. Exposure of the subject to both the IAF high command as well as the various field commanders
3. A closer acquaintance with Dr. Carter and an examination of the options of using his skills in this area if he could be convinced to cooperate.

The short visit (five days) was carefully planned. In addition to the above goals, a half-day seminar was prepared with lectures by all those connected with dogs in Israel: the police, the military and security forces, seeing-eye dogs, academics, dog handlers, etc. The lecture on the use of dogs in flight safety was the “hit of the day”, with hundreds of participants.

Various media contacts were also invited to the conference, and a great deal of effort was invested in this aspect, providing background material, such as a video, written material, and internet resources.

Dr. Carter's visit enjoyed wide-spread coverage through the media, both local and foreign. After visiting the three bases, the project was presented by Dr. Carter to the commander of the Air Force, his two vice-commanders and all Air Force Board. (As far as we knew this was the first time a dog participated in discussions with the IAF Board).

During the closing discussion it turned out that most of the higher-ranking Air Force officers already had some exposure to the subject through the media and after the meeting with Dr. Carter (who was himself very impressed with the well-organized and intensive PR his visit received) it was decided to bring in the program for a three-month experiment in the IAF's northern base.

From August-November 2000, a period during which Dr. Carter was in Israel once again, the experiment's goals were redefined as follows:

- To test the capability of one dog and its trainer to significantly minimize bird populations at the air base
- To test the involvement of the dog as a leading factor dealing with the ecological system of the base
- To test the working relationship between Air Force base personnel, the dog, and its trainer

The experiment was very successful, and in its wake the IAF decided to contract with Dr. Carter, at the first stage on the IAF's three large bases. The IAF financed an ecologist's position, a dog handler, a four-wheel drive vehicle, and construction of extensive infrastructure.

This plan has clearly born fruit: The director of the Ben Gurion International Airport joined the border collie project as its fourth (and first civilian) although at an earlier stage the Israel Airport Authority did not agree to join the experiment.

In May 2001 we held a flight safety conference for African nations and one of the emphases was Dr. Carter's work. He presented the subject before the representatives of 20 African and seven European nations. As a result of this conference, Dr. Carter traveled to South Africa with Albert Froneman, the co-organizer of the conference. Dr. Carter succeeded in convincing Air Force and civilian flight officials there of the benefits of his system.

### **The Importance of the Dealing with the Bird-Plane Conflict Both Regionally and Globally**

We believe that awareness of the conflict between birds and aircraft must be significantly increased.

In the spring of 1999, the IAF, SPNI, Tel Aviv University initiated a regional conference with an emphasis on regional solutions to the conflict. Representatives to the conference included personnel from the Jordanian, the Turkish, the Israeli, and the Greek air forces, together with representatives of other air forces. The lectures were published in the conference proceedings.

As a result of the meetings of the steering committee of the 25<sup>th</sup> IBSC in Amsterdam in April 2000 it was decided to attempt to initiate cooperation with the African nations regarding the subject of flight safety, still at an early stage there and basically not being moved forward.

At the PAOC 10 conference that took place in August 2000 in Kampala, Uganda the first author suggested, together with Albert Froneman, a seminar to take place in Israel to which representatives from 25 African nations would be invited to learn what is being done in this area and invited to cooperate in these efforts.

With funding by the Israeli Foreign Ministry, Lockheed Martin, and other bodies, the conference took place in March 2001 and was attended by representatives from 20 African nations. It was very successful in achieving higher awareness of the issues involved. The representatives have been moving ahead with plans formulated as a result of the conference: Delegates are dealing with the conflict at the level of each nation and also at the regional level. Africa has been divided into five sub-regions for this purpose and local flight-safety committees have been established. The proceedings of the conference will be published by the end of 2001.

We have no doubt at all that as a result of the conference the nations of Africa, as they learning the developments and applications in this area in the western hemisphere, will join the IBSC family from around the world.

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