INTERNATIONAL BIRD STRIKE COMMITTEE IBSC 24/WP 20
Stara Lesna, Slovakia, 14 -18 September 1998

THE PROTECTION OF MILITARY AIRBASES AGAINST COLLISIONS OF PLANES WITH BIRDS

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Summary

Basic information about airfield bird control units activities on the military airbases of Czech Air Forces is given in this article. The short view of collisions of aircraft with birds in 1997 is given too.

The protection of military airbases against collisions of planes with birds.

The Czech Air Force has been solving two missions of an essential character. The f_{irst} one is to ensure a full-value activity in conditions of reduced financial means. The second task is to provide a smooth change-over to the air traffic that should accord with the NATO $norm_s$ These facts define at the same time the sphere of ornithological provision, which has bec_{ome} a matter of course at all airbases in the Czech Republic. The personnel of so called "Station of Biological Defence" (hereafter SBD only) perform a permanent $ornithologic_a$l reconnaissance, active and passive measures to prevent or to reduce an occurrence of birds and day-to-day training flights with birds of prey inside the airbus's area. Mentioned activities are determined by technical equipment of SBDs, which still doesn't reach a desirable level.

Effective active measures that reduce an occurrence of birds at airbases collide with two factors. Apart from an insufficient legislative regulation of these activities there is a very strict protection of free-living birds. That is why the mentioned measures may be executed only within military lands of airbases. Passive measures gain also an ever greater importance, They are based on the permanent ornithological reconnaissance, a precise knowledge of ornithological situation and a perfect appraisal of all risks.

A new computer and informative project named "ORNIT" has been installed into the SBDs and other concerned workplaces since 1997. A main purpose of this project is to process complex ornithological information and to create connection between the Veterinary Service and ACCS (.Air Command and Control System). The ornithological protection of flight activities is solved in accordance of the recommendation ICAO-ANNEX 14-15 and it is represented by a fluent flow of topical ornithological information and prognoses among individual airbases. There also is a civil office included into this chain. It is a special department of the Agricultural College (faculty of forestry), with which the Czech Armed Forces has an agreement for a use of ornithological maps and prognoses. This department at the same time collects and then processes all results of civil ornithologist's reconnaissance. These data complete knowledge of military ornithologists and form a rounded-off summary and prognosis of ornithological situation over the whole territory of the Czech Republic.

A transfer of daily ornithological information (in form of data files) passes among individual airbases through a computer net. For this purpose we use the" system ASM (Air Space Management) and the programme named GRAMIS (Graphic Map Informative System). The working process is similar to the system of the Meteorological Service. Day-today detailed ornithological information is monthly supplied by a forecast that is valid for the whole territory of the Czech Republic.

The installation of this project gives pilots before the flight an exhaustive information and makes a planning of flight activities possible as well in areas that are in jeopardy of birds. The main purpose of this project is to improve the safety of flight activities and to reduce an expense for repairs caused by collisions of aircraft with birds.

The view of used methods and measures

Pyrotechnical measures :

Pyrotechnical measures are used to flush birds through the whole year. This method is provided by the SBD members and besides there is a special group of soldiers in national service who are outfitted with signal pistols and special shrapnel ammunition. It may be said that this way of flushing is largely effective, in particular it concerns species that are marked by a social behaviour.

Bio-acoustic measures :

Birds are flushed with the help of reproduced bird shrieks of anxiety. This method, similarly as the previous one, is effective against species that are marked by a social behaviour. The reaction of birds to mentioned pre-recorded broadcast has two phases - the phase of orientation and the phase of flight away. During the orientation phase birds try to find out a source of anxious shrieks and they concentrate in the proximity of this source. At that moment it is possible to reach a perfect flushing effect by a shot of the signal pistol (or by use of falconry trained bird of prey). The birds then fly for a long time away. Unfortunately, this method has at the same time some problems. The most serious of them it is a fact that the tapes with recorded shrieks are easy to wear. Consequently the flushing effect scales down. Another problem consists in recording of anxious shrieks. There has been found out an existence of so-called "dialect" even within individual bird species. That is why the most effective records are always gained from the local bird population.

The use of falconry trained birds of prey :

The birds of prey are used at all stable military airbases. An effectiveness of their use is in direct proportion to the visibility. In conditions of the Czech Republic we use falcon (Falco peregrinus), saker (Falco cherrug) and hawk (Accipiter gentilis). The birds of prey have a standard falconry training and each single individual is usually specialised in only one bird species. Each falconer - a member of SBD - has an elaborated and well-tried process for the use of trained birds of prey. This process is dependent not only on articulation of terrain, structure of bird species and weather, but also on skills and experience of the falconer. The birds of prey are very effective against some species, e.g. raven (Convs frugitegus) and gull (Larus ridibundus). The drawback of this activity is a restriction in the use of the birds of prey, which is limited by the temperature of minus l0°C, by the speed of wind over 7 m/s (approximately 16 mph) or if there is a poor visibility.

In conclusion it is necessary to emphasize that the basic precondition of an effective use of mentioned methods is a perfect knowledge of topical ornithological situation. This knowledge is essential for indication of dangerous areas and for planning of flight activities concerning these facts.

The view of collisions of aircraft with birds in 1997

Date & Time :	13 May - 9.40 p.m.
Location :	Pardubice
Aircraft/Helicopter :	training aircraft L-29
Altitude & Speed :	300 ft - 124 mph
Phase of flight :	phase of final approaching
Type of contact/Position :	collision - landing gear
Registered by pilot :	no
Damage :	no
Bird species :	horned owl (Asio otus) - determined from the rests on aircraft

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Date & Time :	15 May - 0.20 p.m.
Location :	10 miles from Brno
Aircraft/Helicopter :	transport aircraft AN-26
Altitude & Speed :	3900 ft - 236 mph
Phase of flight :	phase of descending
Type of contact/Position :	collision - frontal part of aircraft
Registered by pilot :	yes
Damage :	frontal part of aircraft
Bird species :	unknown - probably kestrel (Falco tinnunculus) /pilot's information/

Date & Time :	27 May - 10.18 a.m.
Location :	Pardubice
Aircraft/Helicopter :	training aircraft L-29
Altitude & Speed :	1960 ft - 93 mph
Phase of flight :	phase of ascending
Type of contact/Position :	collision - sloping edge of wing
Registered by pilot :	yes
Damage :	no
Bird species :	raven (Corvus frugilegus) - determined from the rests on aircraft

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Date & Time :	26 June - 5.00 p.m.
Location :	5 miles from Pferov
Aircraft/Helicopter :	helicopter Mi-24
Altitude & Speed :	300 ft - 155 mph
Phase of flight :	during the flight
Type of contact/Position :	collision - rotor
Registered by pilot :	yes
Damage :	rotor
Bird species :	unknown

Date & Time :	18 September - 10.00 a.m.
Location :	Náměšť nad Oslavou
Aircraft/Helicopter :	training aircraft L-29
Altitude & Speed :	164 ft - 136 mph
Phase of flight :	landing
Type of contact/Position :	collision - frontal windscreen of cockpit
Registered by pilot :	yes
Damage :	no
Bird species :	unknown

Date & Time :	18 September - 0.40 p.m.
Location :	6 miles from Kolín
Aircraft/Helicopter :	helicopter W-3A SOKOL
Altitude & Speed :	600 ft - 136 mph
Phase of flight :	during the flight
Type of contact/Position :	suction - entrance mechanism of engine
Registered by pilot :	yes
Damage :	no
Bird species :	unknown

Date & Time :	24 September - between 8.30-9.30 a.m.
Location :	unknown
Aircraft/Helicopter :	transport aircraft AN-26
Altitude & Speed :	950 ft - 192-224 mph
Phase of flight :	during the flight
Type of contact/Position :	collision - wing and landing gear
Registered by pilot :	no
Damage :	wing and landing gear
Bird species :	unknown

Date & Time :	7 October - 9.20 p.m.
Location :	Čáslav
Aircraft/Helicopter :	fighter Mig-23 ML
Altitude & Speed :	12000 ft - 466 mph
Phase of flight :	phase of ascending
Type of contact/Position :	suction - entrance mechanism of engine
Registered by pilot :	no
Damage :	engine
Bird species :	unknown

Date & Time :	21 October - 7.50 p.m.
Location :	Praha-Kbely
Aircraft/Helicopter :	helicopter W-3A SOKOL
Altitude & Speed :	1600 ft - 112 mph
Phase of flight :	during the flight
Type of contact/Position :	collision - cabin
Registered by pilot :	yes
Damage :	window of right cabin door
Bird species :	unknown

Date & Time :	4 November - 6.40 p.m.
Location :	Pardubice
Aircraft/Helicopter :	training aircraft L-29
Altitude & Speed :	350-400 ft - 155 mph
Phase of flight :	phase of final approaching
Type of contact/Position :	collision - wing
Registered by pilot :	yes
Damage :	sloping edge of wing
Bird species :	horned owl (Asio otus) - determined from the rests on aircraft

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Date & Time :	18 November - 4.30 p.m.
Location :	Čáslav
Aircraft/Helicopter :	fighter Mig-21 UM
Altitude & Speed :	0 ft - 199 mph
Phase of flight :	start
Type of contact/Position :	collision - landing gear
Registered by pilot :	no
Damage :	no
Bird species :	horned owl (Asio otus)

* unknown bird species = there were no rests to determine the bird


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