WP/13

BIRD STRIKE COMMITTEE EUROPE

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AIRPORTS SURVEY AND BIRD STRIKE STATISTIC 1981/82/83

Italian Civil Aivation Authority

In 1982 the Civil Aviation Autority in consequence of experience gained also through participation in BSCE, set up a "Permanent Study Group on the presence of birds over airports" to study the problem and make proposals on how to distance and above all prevent the presence of birds over airports and in the immediate vicinity.

The Group, after examining measures already adopted in other countries, and together with various organizations connected with the world of civil aviation, preceeded to draw up a detailed map of each Italian airport open to civil aviation traffic, as the first step towards tackling the problem.

The results, shown in the attached tables A and B, indicate that in Italy the coefficient of risk is not so very high, perhaps because of the scarce presence of aviafauna in our country; statistics show inequivocably that public menace number 1 is the sea-gull, aprotected species in Italy, not seught after by sportsmen.

Once they had understood the situation, the Group began to propose various solutions on the basis of the different operative factors where the geographical-environmental conditions and the means and the men available are diverse.

They then brought to the attention of those responsible at the Airports the less sophisticated and more readily available systems to maKe the airport habitat less attractive, and to keep the birds away, through the following information:

WINGED CREATURES AND AIRPORTS

Most collisions between aircraft and birds take place in daytime, especially in the morning, and there are two seasonal peaks reagistered in Italy, the towest in Spring and the highest in Autumn, connected with rainfall.

Three-quarters of the collisions reported occur under 100 metres in height from the ground, in proximity to the airports, and two-thirds of them actually inside the airport limits; nearly all the impacts occur under 1500 metres relative quota.

The collisiones happen then in the critical phases of take-off and landing, and effect the safety of the aircraft.

At take-off the ingestion of birds into the jets often results in a sudden fall in power, if not in the complete cutting out of the motors; these occurrences are obviously very dangerous and could be fatal.

The damage varies and goes from a simple trace of impact to a costly partial breakage or expensive total destruction of the reactors, where the worst doesn't happen.

Flight safety therefore demands that the riscks of collision are brought to a minimum, and, while there is little that can be done about the migratory birds, much can be done to improve the safety of airports and their vicinity by freeing them from the permanent bird population.

Aerodroms, besides being the focal point of aircraft operations are unifortunately also places which, by their very nature, polarize great concentrations of birds.

THE SIGHTING OF BIRDS

This can be done by staying in a high place or patrolling the perimetrical roads and runways in a car or jeep which has a radiotelephone and anti-collision beacon, traffic permitting.
Inspections must be carried out before the first aircraft departures of the morning, in any case at dawn, and whenever consistent formations of birds appear.
It is essential to verify, before each movement of aircraft, that the runways and take-off and approach areas are completely free of birds, both on the ground and in flight.
All birds, even if not numerous, on runways in use are dangerous and must immediately be reported to the Control Tower and Traffic Controller and promptly driven away.
The species which prefer settling in mass on property are the common sea-gull, the royal sea-gull, the flying gunard and the domestic pigeon.
The flocks of birds that stand on the edge of the runways are a risk but can be tolerated and somentimes left alone, according to the the number, their position and behaviour, keeping in mind that they might still cross the runway.
The species which choose to stay on grassy ground between or beside the runways are the common crow, the copper pigeon or wood pigeon, the lapwing and the starling.

ACTION OF DISCOURAGEMENT

Constant activity of a pure ecological nature must be undertaken both inside the airport area, which must be sistematically cleaned

of all types of rubbish, and outside the airport territory, which must be maintained free from pubblic, private or abusive rubbish dumping.

All operators must be prohibited from leaving any kind of food waste or any sort of rubbish which might offer an axtra supply of food to the birds.

In the areas under the airport traffic zones only controlled waste discharge or installations for hygienically guaranteed sanitary interment can be permitted.

The strips of land where birds perch, also those where they permanently rest, pasture, fly, build nests, and the migratory stops of birds must be regularly patrolled, reclaimed and made, as far as possible, inhospitable to avifauna.

ACOUSTIC METHODS OF FRIGHTENING BIRDS

All procedures made to ensure, on a practical level, the efficiency of acoustic frightening of birds are functionally based on the production of a biological stimulus in the birds.

Excitement is produced by reproducing natural cries of fear emitted by birds, previously recorded, or by the artifical production by advanced technology of electronic-acoustical sounds, with variabel frequencies of impulses and power.

To obtain the greatest effect of disturbance and dissuasion, a tape-recorder with continuous cassettes must be used, with an amplifier and diffusors, plus an electronic-acoustic device immobile and rotating, connected to a continuous current of 12 V.

The first device is more suitable for frightening sea-gulls and

crows than for lapwings and starlings, and it is useless for pigeons and birds or prey.
The second apparatus is valid for a variety of birds.

DETONATOR MEANS OF DISPERSION

These phonal machines must in any case be linked with a two-tone klaxon and at least two liquid propane gas detonating pistols which fire blank, possibly in wind direction.
These must be used extemporaneously for appropriate and methodic intervention against birds, and without an appreciable increase in the negative factor of familiarity.
All the previously mentioned apparatus must be installed in an appropriate anti-bird vehicle, equipped with a battery-charge, so as to be self sufficient.
The special motor-vehicle against birds must also have a radio-telephone and anti-collision light or beacon, plus the regulation signals for driving on the runways.
The operator of the mobile unified bird-frightening centre must intervene before each aircraft landing and take-off when birds are present in the areas of operation.

METHODS OF INTERVENTION

The driver of the anti-bird vehicle can be provided with a short-barrelled rifle and/or pistol, both of calibre 12, adapted to fire special blank cartridges, and with double detonation.
The rifle and/or pisto must however be used with every precaution, in particular, they must never be carried loaded on top the vehicle and must never be used dfrom inside the vehicle, and the

barrels must never be obstructed.
The use of the three techniques just explained, in the airport precincts means that a great degree of caution is necessary and requires the utmost prudence when air traffic is very intense.
A flight of frightened birds, without coordination and wrongly directed towards the runways in use, can be vary dangerous and cause an accident, the opposite of the desired aim.
It is indispensable to intervene successfully, keeping in mind various factors and especially the times at the disposal of the inspector.

IMMEDIATE INTERVENTION

For the species of birds which ract to cries of fear, like sea-gulls crows and rooks, the klaxon, the sound device and the electronic acoustical apparatus should be used.
For the other species, which do not emit sounds of fear and are not sensitive to these sounds, such as lapwings, starlings and pigeons, detonating pistols should also be used, and, at discretion rifles and/or pistols with blank cartridges.
The operator should drive up in the anti-bird vehicle and stop in the field about 50 metres from the birds, if possible with the wind behind him, to increase effectiveness.
In the first case, the birds will probably flu over the vehicle and can be encouraged to fly further away by firing a cartridge; in the second case some cartridges fired towards a flock of birds will bring about their further removal.

PREVENTIVE OPERATIONS

The inspector must not forget to retrieve the cases of the fired cartridges as well as any dead birds, as these don't act as a deterrent to the return of avifauna, but rather attract birds of prey.

Control towers and Air Traffic Control Officies in strict cooperation must promptly carry out their respective duties, informing pilots and the automatic information service to Terminals calling into operation the anti-bird vehicle and issuing the bird-tam or notam/birds.

It is necessary to supend air traffic for about 10 minutes, going into action with the means at disposal; laser beams, flashes of light, microwaves and repellent substances are alla still being researched, so are in the future.

Given that two-thirds of Italian airports are near the coast and only one-third are inland, the gratest effort is needel in the struggle against the danger from birds, wherever impending.

The experimental use of the peregrine falcon was again tried in some airports, Milan-Linate and Turin, with results that can be called satisfactory.

However, some protective associations, ENPA (National Body for the Protection of Animals) and LIPU (Italian League for the Protection of Birds) in particular, have demonstraded in various ways their opposition to the use of these birds of prey, both because it is considered cruel and because it would endanger the existence of the various species of falcon which are on their way to extinction on our country.

It is therefore now difficult to continue with this method.
The Study Group also didn't consider it appropriate to continue research and experiment into the use of chemical repellents, because this method is too expensive on account of the extent of airport areas to be covered, and because it would be difficult to reconcile the use of chemical substances with the Italian laws which protect the soil and subsoil from pollution.
The group, with increasing experience and knowledge, has decided however that it would be expedient to Keep watch at airports using personnel acting to drive away birds from zones where there is the greatest probability of collision with aircraft.
The action mustn't necessarily mean the indiscriminate slaughter of the species of fauna present, forbidden under Italian law, but must consist of measures to remove sources of danger while respecting the natural equilibrium.
That stated, there are several associations in Italy, authorized by the appropriate official state organizations to act to protect wild life inside national territory.
This is done by means of agents, through a vast and wide-reaching organization whose purpose is purely moral, which could olso carry out specific activities of naturalistic surveillance in airports to keep birds away from areas of aircraft movement, thus contributing to reduce the problem.
For this reason the Civile Aviation Autority is making the relevant contacts to bring this sollaboration into effect.
The BSCE will be quickly informed of any definite results abtained to share the news with States interested in the problem.
However the Group has obviously not forgotten that modern tecnology can and must be able to help us resolve the problem without

having to use systems which could now be defined as antiquated. Experiments are now taking place on an apparatus called"Space control" which through the emission of a combination of ultra-sounds and sounds (cries of fright) should effectively frighten birds, in particular sea-gulls, which, as we have said, represent the most striking aspect of the problem in Italy.

Trials carried out up to now on the prototype apparatus have given positive results, as regards both the effectiveness of the system and the possibility of development, with consequent raising of the effective range of the emissions, and finally as regards the features of the system which acheives the means of combatting birds, a dynamic way of removing them from airport areas. Besides, the device can be used in a fixed position or fitted on vehicles.

As the sounds are emitted with the "randoom" system, it should eliminate the phenomenon of familiarity on the part of the birds towards the sound, a problem particularly difficult to resolve as regards the permanent avifauna, though it is less present with migratory species.

Further trials will be necessary however, to be able to make a more complete final judgement, following which, if positive, it will be brought to the attention of the Civile Aviation Autority for its sistematic use.

The Study Group considers this an extremely interesting instrument and reserves the right to inform the BSCE of its final judgement about it.

In conclusion, in our contry there has been a serious considera-tionof the problem of the danger from Bird Strikes and this consciousness, through the activities of the Group, has had wide spread effect, also among Commercial Aviation pilots, who are most scupulously compliling the "Bird Strike Report Form", in this way helping the competent authorities to gain a more precise knowledge of the problem and thus a greater possibility of action.

WP/13 A

AIRPORTS

BIRD STRIKE REPORTS: 1981 / 1982

ATTACHED "A"

AIRPORT	MOVEMENTS (a)	BIRD STRIKE REPORTS	POLLUTION COEFFICIENT (b)	PREVENTION METHODS
ALGHERO	6840 / 6170	1 / 2	1,46 / 3,24	GAS-GUNS (2) SIREN
BARI	4854 / 5545	===	=	SIREN
BOLOGNA	5490 / 4259	1 / 3	1,82 / 7,04	PATROL
BRINDISI	3244 / ====	===	===	PATROL
CAGLIARI	11843 / 12428	=== / 3	=== / 2,41	GAS-GUNS (2)
CATANIA	12139 / 13728	=== / 3	=== / 2,18	MOTOR-VEHICLE
GENOVA	8788 / 10732	5 / 6	5,69 / 5,96	PATROL
LAMEZIA TERME	1653 / ===	===	===	GAS-GUNS (1)
LINATE	79266 / 65987	8 / 7	1,00 / 1,06	GAS-GUNS (20) PATROL
MALPENSA	13192 / 25732	2 / 3	1,51 / 1,16	GAS-GUNS (30) PATROL
NAPOLI	13431 / 12590	3 / 4	3,72 / 3,25	GAS-GUNS (6)
OLBIA	5601 / 6002	1 / 2	1,78 / 4,84	GAS-GUNS (2)

VERONA	2677	/	/	4,36	3,74

AIRPORTS	MOVEMENTS (a)	BIRD STRIKE REPORTS	POLLUTION COEFFICIENT (b)	PREVENTION METHODS
PALERMO	13646 / 14260	4 / 3	2,93 / 2,10	PATROL
PANTELLERIA	1495 / 1746	===	===	===
PESCARA	2290 / 1400	===	===	PATROL
PISA	11157 / 13611	1 / 1	0,80 / 0,73	PATROL
REGGIO CALABRIA	3070 / 3345	=== / 1	=== / 2,98	PATROL
RIMINI	3032 / 3326	1 / ===	3,29 / ===	PATROL
CIAMPINO	8011 / 4500	===	===	PATROL
FIUMICINO	136988 / 133462	10 / 13	0,73 / 0,97	GAS-GUNS (33) PATROL
RONCHI	3631 / 4006	1 / 3	2,75 / 7,49	GAS-GUNS (6)
TORINO	12719 / 13784	4 / 4	3,14 / 2,90	SIREN
VENEZIA	13642 / 15782	6 / 15	4,39 / 9,50	PATROL
VERONA	2826 / 2210	=== / 1	=== / 4,51	PATROL

(a) = MOVEMENTS: COMMERCIAL AVIATION ONLY

(b) = POLLUTION COEFFICIENT = B.S.R. x 10.000 / MOVEMENTS

AIRPORTS

BIRD STRIKE REPORTS: 1983

ATTACHED "B"

AIRPORT	MOVEMENTS COMMERCIAL AVIATION A	BIRD STRIKE REPORTS NO IMPACT B	IMPACT C	TOTAL D	POLLUTION COEFFICIENT : (D)x10.000 / A	RISK COEFFICIENT : (C)x10.000 / A	PREVENTION METHODS SEE: ATTACHED A
ALGHERO	6229	/	1	1	1,60	1,60	
BARI	5398	5	3	8	14,82	5,55	
BERGAMO	2253	/	/	/	/	/	
BOLOGNA	9907	/	/	/	/	/	
BRINDISI	3202	/	/	/	/	/	
CAGLIARI	12718	1	5	6	4,71	3,93	
CATANIA	13556	/	1	1	0,73	0,73	
FIRENZE	634	/	/	/	/	/	
GENOVA	11165	1	/	1	0,89	/	
LAMEZIA TERME	3638	1	/	1	2,74	/	
LINATE	78238	2	16	18	2,30	2,04	
MALPENSA	14563	/	1	1	0,68	0,68	
NAPOLI	19016	5	3	8	4,20	1,57	
OLBIA	6787	1	5	6	8,84	7,36	
PALERMO	14384	/	2	2	1,39	1,39	
PANTELLERIA	1032	/	/	/	/	/	
PESCARA	3176	/	/	/	/	/	
PISA	14071	1	/	1	0,71	/	
REGGIO CALABRIA	2623	2	/	2	7,62	/	
RIMINI	3420	/	1	1	2,92	2,92	
CIAMPINO	9576	/	/	/	/	/	
FIUMICINO	134438	4	13	17	1,26	0,96	
RONCHI	5586	4	3	7	12,53	5,37	
TORINO	15672	/	2	2	1,27	1,27	
VENEZIA	16032	1	6	7	4.36	3.74	