

2.6. Ecological Research in Aerodrome Traffic
Zone and its Results.

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Traffic Zone and its Results

by Dr.W.Keil, Germany

The statistic shows that about 75-80 % of the bird-strikes in civil aviation occur on the aerodrome or during the phases of landing or take-off. Therefore it seems necessary to concentrate the mainwork about the bird hazard problem on the aerodrome and the traffic zones around the aerodrome.

Besides of the development of different ad-hoc-methods we force in Germany the ecological research on aerodromes and there surroundings. We started this research-work in 1966 on a few aerodromes who had lot of birdproblems and therefore a very high percentage of bird-strikes. It was shown after a short period of time that the results of our ecological research and out of it the measures we used on each aerodrome reduced the local bird-strike rate. Our research and the strike rate during the flightphases "approach - landing" and "Take-off-climb" gave us the conviction that the traffic-zones in the surrounding of an aerodrome are as important as the aerodrome-area themselves.

In the meantime our ecological research-programme is carried out on all civil aerodromes we have in Germany. It was not easy to find the personal who could do the work on the different aerodromes. In the most cases amateur-ornithologists are doing the observations, under the direction of our committee and in close connection with the aerodrome-authorities.

The investigation programm is done in the following way:

The numbers of birds and the species are counted at regular intervals, usually one counting every ten days. But it showed that a counting twice a week is much better and gives results which are more correct. The places where the birds are seen are marked on a special map. In our mind it is necessary to do these investigations for about two or better three years. Out of **this** it is found a yearly fluctuation of the different bird species and their numbers. We know also ten places which the birds prefer on the aerodrome. We pay great attation to the control of the run- and taxiways. All dead birds are collected and determined. From our point of view it is important to do everything we can against these bird species first, as they cause, on the basis of our investigations, the most hazards to aircraft on the aerodrome.

In close connection with these ornithological observations investigations about the soil, microclimate, vegetation, hydrogeoclimatic-conditions and other parameters have to be done.

On the base of all these investigations a special map of the aerodrome has to be made. This biotop-map shows exact where birds are roosting, feeding or nesting. It shows also what measures are to be done to change the different biotops so that the birds don't use there favorite places anymore. In my opinion all other investigations have to be based on the ecological studies. On special graphics the yearly fluctuation of the main bird-species are shown. The drawing gives columns who show the presentation of the bird species for each pentate during the whole year.

The biotop-map and the graphics are for use of different departments of the aerodrome, for example traffic department, fire department, agricultural division and the personal of the tower.

Important is the height of the grass. We also don't want the growing of agricultural products such as corn or any kind of vegetable. These fields attract several species of birds for feeding, breeding, hiding or roosting. The same could be said about using grassland for a sheepwalk or for cattle. This also attracts many birds especially starlings and crows. On the forestry side no woodland, scrub areas and similar places should be grown on an aerodrome, maybe except on its boundaries. The using of traps, special hunting measures and chemical substances, base on the ecological research. All these can be done by the aerodrome-authorities themselves. Much more difficult is everything outside the fence of the aerodrome. But it is also very important for the safety of an aerodrome, that a lot of things have to be done outside.

Everybody who tried to do something in this direction knows how difficult it is. **but** it has to be done. Garbage dumps, lakes and marshland should be closed or if this is not possible it must be held under permanent control. Our committee members have the conception that within 5 miles in the approach areas of an aerodrome the above named measures have to be done. The second step should be 30 miles.

Another problem are new aerodromes. In Germany two new aerodromes are projected. In both cases our committee is in close connection with the project. From time to time we have conferences about the progress of the new aerodrome. Important is not only to find the right

places for digging the gravel for the aerodrome. These places are mostly full of water and could be dangerous for the new aerodrome as a place where waterfowl roost specially during the migration times. Even the plans for the construction of the aerodrome buildings should be seen early enough. In the most cases the architect don't know, that birds could use a lot of places on the building for breeding or roosting.

On the base of our experience our Federal Ministry of Transport set up together with our committee special regulations for the aerodromes and there vicinity. These regulations give the aerodrome authorities and our committee the opportunity to do all things which are necessary to reduce the bird-strike risk as much as possible. It is also a guide for the aerodrome personnel themselves how to handle the different methods and measures.

At last I think, that it might be time for the Bird Strike Committee Europa to start a special working-group about the ecology-problems on aerodromes. The working groups from BSCE are now only dealing with projects of the hazard-problem "en route". But we should not forget that the most bird-strikes on the civil side take place on the aerodrome or its vicinity.