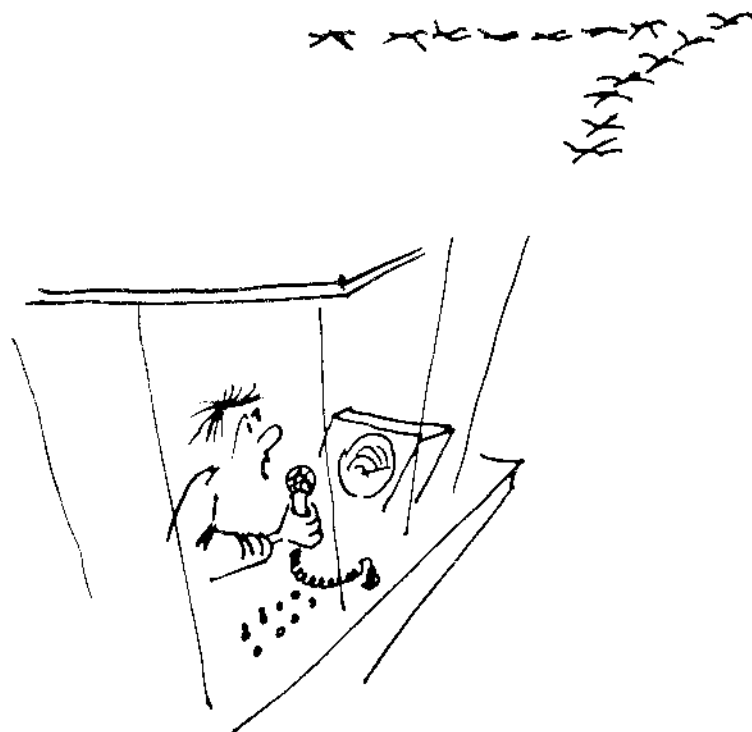


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9. LECTURES RELATED TO W. G. AERODROMES

- 9.1. "General consideration about Entomological Investigations on Airfields", by Dr. J. Becker , W-Germany.
- 9.2. "Special Considerations About Handling of Grassland on Airfields", by Dr. J. Hild, W-Germany.
- 9.3. "Preliminary works before the opening of Malince/Sturup airport for the purpose of reducing the risks of bird strikes" by Mr. Karlsson and Turesson, Sweden.

# Bird Strike Aerodrome Traffic Zone Working Group



HULLO BIRD LEADER!  
ORBIT AGAIN! THERE IS AIRCRAFT ACTIVITY  
ABOVE 7. YOU WILL BE CLEARED TO LAND  
AFTER SCARING PROCEDURE

General Considerations about Entomological Investigations on  
Airfields (Preliminary Report), by Dr. J. Becker, GAF

1. Introduction :

The reason that so many birds are found on airfields is that large grasslands offer rich food sources of soil animals as earthworms, millipeds, spiders, beetles, and many kinds of insect larvae. A great part of them prefers the deeper strata of the soil as a protection against drying up. During rainy weather they make more activity upon the soil surface, and therefore the density of birds often is increasing on airfields.

All attempts for scaring the birds from airfields will be only successful for a short time; if the ecological background of the airfield is unknown. It is too difficult to consider all relationships in a grassland ecosystem, but it is necessary to analyse the most important factors as the microclimate, the soil conditions, the vegetation, and the influence between the soil animals, also with regard to the agricultural methods on airfields. The height of the grass is e. g. one factor which influence not only the behaviour of birds but also the conditions of life for soil invertebrates which birds are living on.

2. Methods :

Since September, 1972 entomological investigations have started on Cologne airfield by using pitfall-traps. Jam jars ( $\varnothing$  8 cm, depth 10 cm) are sunk into the ground and are quarter-filled with 4 % formaldehyde ( $\text{CH}_2\text{O}$ ) solution for the preservation of the contents. They are sheltered against rain by tin roofs which are placed 3 cm above the soil surface. The traps are emptied monthly or twice a month, and the contents are counted and determined.

The advantage of sampling by pitfall-traps in comparison with hand-sampling is that a number of localities can be studied simultaneously, and the number of animals caught is independent of individual skill.

It is also important that the animals can be caught permanently during the whole year at the same place. This is necessary for obtaining the annual activity of the invertebrates. The trapping method, however, only measures activity, and gives no measure of density. Agile soil animals are caught more often than slow ones. Therefore it is not allowed to compare directly the numbers of animals caught between different taxonomic groups. Invertebrates as earthworms, collembola, flies, or ichneumon flies are caught likewise, but the trapping method is less suitable for them, because they make activity on the soil surface only by chance.

Besides the investigation of soil invertebrates it is useful to analyse the stomachs of shot birds which live at the localities investigated. So it can be shown which groups of the soil animals are real food for birds. The most numerous groups may be less important for birds than seldom caught ones.

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3. Preliminary Results :

Two series of each 5 traps were placed on Cologne airfield. The first serie was in a heath locality without agricultural activities, the other serie was on grassland. In two weeks of October the following arthropods have been caught :

|                                   | HEATH | GRASSLAND |
|-----------------------------------|-------|-----------|
| <u>I. Adult insects :</u>         |       |           |
| 1. Cockroachs (BLATTIDAE)         | 2     | --        |
| 2. Crickets (GRYLLIDAE)           | --    | 2         |
| 3. Beetles (COLEOPTERA)           | 235   | 224       |
| 4. Ants (FORMICIDAE)              | 23    | 55        |
| <u>II. Insects larvae :</u>       |       |           |
| 1. Beetles (COLEOPTERA)           | 36    | 25        |
| 2. Tenthredin flies (HYMENOPTERA) | 1     | -         |
| 3. Flies (DIPTERA)                | 1     | 7         |
| 4. Butterflies (LEPIDOPTERA)      | 6     | 2         |
| <u>III. Other arthropods :</u>    |       |           |
| 1. Spiders (ARANEAE)              | 157   | 63        |
| 2. Daddy-long-legs (OPILIONES)    | 185   | 11        |
| 3. Millipeds (CHILOPCDA)          | 3     | 6         |
| 4. Millipeds (DIPLOPCDA)          | 92    | -         |
| 5. Isopods (ISOPCDA)              | 3     | 5         |
| <hr/>                             |       |           |
| TOTAL                             | 744   | 400       |

The table shows that for many taxonomic groups there was no difference significant for the two localities. But some groups as spiders, daddy-long-legs, and millipeds were caught more often at the heath-like place probably because of the higher vegetation. Therefore the total number of animals caught was considerably greater at that locality.

The stomachs of lapwings contained besides parts of plants, roots, and small stones only insect larvae with a thin cuticula, mostly the larvae of butterflies. Otherwise there were found only a few larvae of flies and beetles. Adult insects or other arthropods had not been eaten by lapwings.

These preliminary results should not be generalized because of the short time of the investigation. It is necessary to continue these investigations at different localities during the whole year for obtaining the seasonal differences of the food sources for birds on airfields.