

2.11. An Analysis of the Bird Strike Reports from
The Deutsche Lufthansa.

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The German Lufthansa recorded since 1965 the bird strikes. Our committee got copies of each report. An other copy goes to the Luftfahrtbundesamt. We have now 7 years of recording and we had the following numbers of reports for these years:

1965	49	1969	153
1966	51	1970	221
1967	92	1971	312
1968	144		

The datas for the 7 years show an increasing of the bird strikes from year to year. But this picture is not quite right. In the first 5 years the low rate of bird strikes don't give a correct view. The crews did not give a report about each bird strike. Since autumn 1969 the young pilots get lessons for a day about the bird strike problem. This helps us a lot. In July 1970 Lufthansa issued a special bulletin with the assistance of our committee about the danger of bird strikes, the work of the committee and the possibilities to decrease the bird strike risk. Therefore shows our statistic in August 1970 a sudden rise of the bird strikes from 11 in July 1970 to 56 in August.

Now some remarks about the analysis of the reports. An important point is the distribution of the strikes in the different month of the year.

The absolute and relativ maximum is during the month of October. 15.4 % of the strikes are in this month. August has amount of 13,5 % and September an amount of 13,0 %. The month with the lowest rate is the January with 2,3 %. The three months of August-September-October have an amount of 41,9 %. This means that nearly half the bird strikes occur during early autumn. The period March to May has only 23,3 % of the yearly bird strikes. If we take these 6 months together 2/3 of bird strikes are during the two birdmigration periods. Between 75 and 81,6 % of the bird strikes occur on aerodromes or during the approach or the take off phasis of the flight. The rest of the strikes take place during the cruise above 2000 ft. These dates show that the results of civil aviation are opposite to the military results. The fact of this should be to force more the research-work on the aerodromes and there vicinity, as I said in my paper yesterday.

An other important aspect is the distribution of the bird strikes on the different aerodromes. Here the list for 1971:

Bremen	8	1,02 by 10 000 movements
Düsseldorf	26	1,25 by 10 000 movements
Frankfurt	29	0,37 by 10 000 movements
Hamburg	24	1,12 by 10 000 movements
Hannover	10	0,57 by 10 000 movements
Köln/Bonn	7	0,47 by 10 000 movements
München	12	0,40 by 10 000 movements
Nürnberg	3	0,38 by 10 000 movements
Stuttgart	5	0,34 by 10 000 movements

The list shows that Düsseldorf, Hamburg and Bremen have the most bird strikes if you see it in comparsion with the movements. Frankfurt, which has the highest absolut number of strikes is on the end of the list with 0,37 %. I think that is might be also of interest that a total of 80 bird strikes occure during the different phases of the aproach under 2000 ft. The total number of strikes during take off was only 44. This means that during the aproach of an aircraft the risk of a bird strike is twice as high as during the take off.

Outside Germany Lufthansa had in 1971 107 strikes on aerodromes

<u>Europe</u>	64 (aproach 41, take off 23),
Paris	9
Brüssel	5
Zürich	4
London	4
Rom	4
Kopenhagen	4
Istambul	4
<u>Northamerica</u>	11 (aproach 6, take off 5),
New York	3
Mexico	3
Boston	3
<u>Southamerica</u>	9 (aproach 4, take off 5),
Buenos Aires	5
<u>Africa</u>	14 (aproach 6, take off 8),
Dakar	6
Entebbe	3
<u>Asia</u>	5 (aproach 5, take off 0),

Australia 4 (approach 4, take off 0),
 Sydney 4

The list shows that Paris with 9 and Dakar with 6 strikes are on its top. In our opinion Dakar is the most dangerous aerodrome. In 1970 Lufthansa had at Dakar also 6 bird strikes. 1970 3 engines, 1971 2 engines must be changed after bird strikes at Dakar. It would be very interested for us to know which other European airline has bird strikes at Dakar how many engines must be changed on a bird strike at Dakar-aerodrome.

Altogether in 1971 Lufthansa had change 18 engines after a bird strike. In 1970 Lufthansa had 20 engine-changes. The B 737 had 7, the B 707 10 and B747 1 engines-change. Outside Germany we had 2 engines lost at New York and Dakar, 1 engines at London, Paris, Nice, Istanbul, Guayacill and Tunis. It shows again, that B 727 has the lowest rate on engines-changes (no change 1971, 1 change 1970). If we do a look on the bird-list which occur the strikes it shows clearly that the different gull-species number one (42). Second are Swallows and swifts (15). It are following pigeons (10), the Kastrel (8) and the Lapwing (6).

At last the costs for repair. In 1971 the German Lufthansa and Condor had repair-costs of

DM 2.383.935.46 (about 750 000 US Dollar)

In 1970 the repair-costs were about 400 000 US Dollar. Therefore Lufthansa had to pay nearly twice as much in 1971 as the year before. A few days ago I received the bird-strike-list from BEA. Many thanks to BEA for the informations about the bird strikes BEA had in Germany. We also receive the strike-reports from SAS in Germany. It would be a much better understanding and a better information, if other airlines would join this exchange of information from country to country.