

Falconry and bird control of a military airfield and a waste disposal site.

by Edmund Hahn
Manager, Bird Strike Committee Germany (DAVVL)
Postfach 11 62
56831 Traben-Trarbach
Germany

Summary

The paper reports results of a study about the effect of falconry on bird control at a military airfield and a waste disposal site over a period of one month with four peregrine falcons, two gerfalcons and one hybrid falcon near Cuxhaven, Germany. The main target species were gulls during 130 flights. For analysing the effects on flocks different parameters like weather condition, number of present species, distance between falcon and prey, hunting success, time of flight and scaring etc. were ascertained. By the use of correlation we tested the coherence between flight-time and scaring-time or number of the present birds respectively species with the scaring-time. There was no significant correlation found. By comparing the scaring-time between the military airfield and the waste disposal site, the period between take wing and return of the flocks at the airfield was longer.

On the basis of this results we cannot recommend falconry because the success by using falconry for bird control is correlated to a lot of different factors and the effort is not proportional to the success.

Key Words: Control Methods, Falconry

1. Introduction

There is a long tradition to use birds of prey for scaring birds from airfields. But unfortunately you can find only a few current information about the circumstances of the operation respectively you find scarcely a detailed analysis of the efficiency of this method (CHAMORRO, 1994). The Birdstrike Committee Germany does not recommend the use of birds of prey on civil airfields for different reasons (KEIL, 1984), for example: high personnel and financial costs, limitation to daylight hours, purchase of falcons in accordance to the natural conservation laws, flight safety hazard by the hunting falcons etc. Now some of these aspects changed and there is a need of a new assessment. With the objectives to collect data during the flights falcons were launched against birds at the naval airfield Nordholz and the neighbouring waste disposal site of the City of Cuxhaven.

2. Methods

The trial is carried out by an experienced falconer and his assistant who recorded all the flights. Every flight was documented on special multiple choice minutes which recorded all important parameters like: place, date, time, weather conditions, present bird species, flock size etc. In these minutes we tried to document all parameters useful for the final analysis. In table 1 you find a drawing up of the falcons (sex and age) respectively their number of flights and successful predation. The falconer launched peregrine- and gyrfalcons and in some cases birds from crossbreeding of gyr- and peregrinefalcons. Most of these individuals were juveniles. When the trial started all birds were well trained, and already 64 herring gulls were caught.

Tab. 1 Falcons at the trial

species/name	sex	age	number of the flights	successful flights	
				(number)	(%)
Peregrine W1	female	juv.	31	23	74
Peregrine W2	female	juv.	17	9	53
Peregrine W3	female	juv.	19	10	53
Peregrine W	male	adult	1	0	0
Gyrfalcon G1	female	juv.	12	8	67
Gyrfalcon Fritz	male	juv.	36	30	83
Hybrid					
Gyrfalcon/ Peregrine	female	juv.	9	5	56
Gyrfalcon/ Peregrine Mike	male	adult	4	1	25
Gyrfalcon/ Peregrine Jumbo	female	adult	1	0	0
total			130	86	

The area of the naval airfield Nordholz covers 585 ha mostly meadows (60%), forestry (16%) and traffic area (17%). The surrounding is used mostly for agricultural purposes. The military airfield is 8 km far from the coast. The occurrence of birds on the airfield is highly influenced by the low distance to the sea. There is a waste disposal site 3 km north of the airfield. All over the year you find the following species: black-headed gull, herring gull, common gull, starling, lapwing and rook.

For analysing the data we used the statistic package of SPSS.

3. Results

Between the 9th of October and the 17th of November 1995 130 flights were recorded, only at 5 days no falcons were launched. On average 4 flights per day took place. Most of the flights (99) were carried out at the waste disposal site, and only 28 at the airfield because of the frequent absence of birds.

At 130 attacks 86 successful flights were recorded. Mostly herring gulls were captured on the waste disposal site where 72% of the flights were successful but only 28% on the airfields with just 3 gulls captured. In some cases the attacks started at the airfield and the falcon flew after a lack of success straight away to the waste disposal site. Table 1 summarises the number and the course of the flights of the single falcons

3.1. Comparison of flight time and scaring time

There are differences between the recorded flight time at the airfield and the waste disposal site. On the waste disposal site the flight time is on average only the half ($\bar{x} = 2,26$; $n = 95$) of the time where falcons on the wings on the airfield ($\bar{x} = 6,51$; $n = 26$). In parallel run the scaring time: at the waste disposal site birds return on average of 16 minutes ($\bar{x} = 15,52$; $n = 76$) in contrast on the airfield it takes twice as much ($\bar{x} = 27,57$; $n = 22$). The reason for this may be caused in higher rate of successful flights at the waste disposal site. Flights with prey take only a little time. After this the situation is becoming more stable. This is documented too by the shorter scaring times of successful flights in contrast to unsuccessful attacks on the waste disposal site. On average successful flights scared flocks for 18 minutes ($\bar{x} = 18$; $n = 71$) in contrast to unsuccessful flights with 22 minutes ($\bar{x} = 22$; $n = 28$) scaring time.

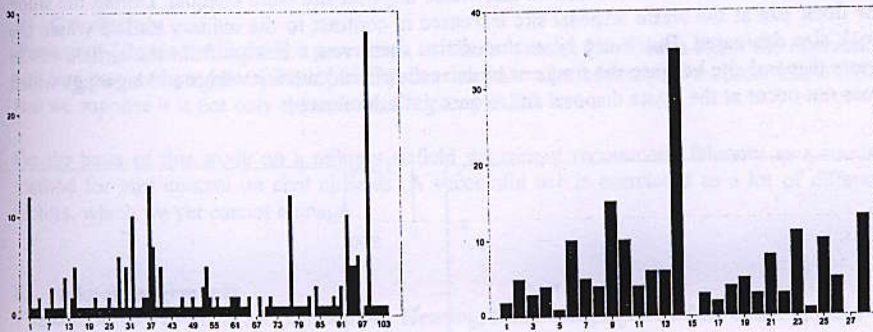


Figure 1: Recorded flight time at the waste disposal site (left) and at the military airfield (right). Y-axis: the recorded flight time in minutes.

3.2. Trends of flight time and scaring time during the trials.

Apart from the comparison of the mean values we asked if there are any effects of habituation or any increase. Therefore we analysed the recorded flight time and scaring time during the period of study. There was no general result. At the waste disposal site the scaring time during the trial was equal. In contrast to this the scaring time at the military airfield increased but not the flight time.

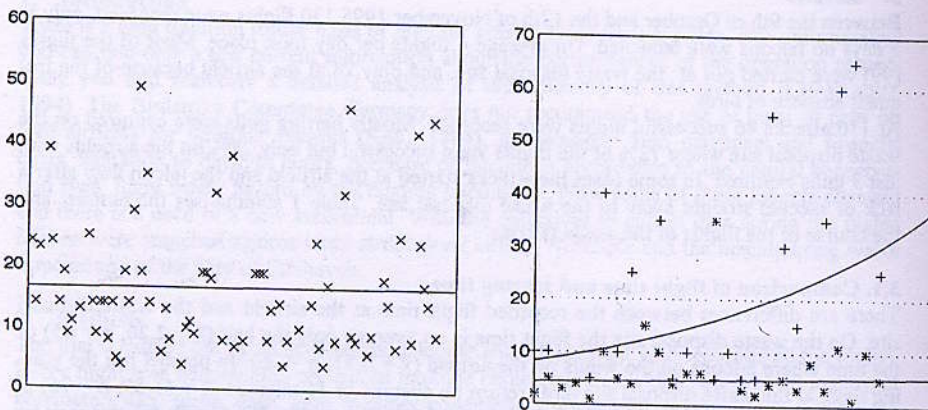


Figure 2: Recorded scaring time at the waste disposal site (left) and the military airfield (right) in minutes. At the waste disposal site (left) there was no increase in the scaring time recorded. At the military airfield the scaring time (+) increased and the flight time (*) stayed constant.

3.3. Trends of flock size over the period of study.

The trends of flock size at the airfield and waste disposal site were unequal. During the study the flock size at the waste disposal site increased in contrast to the military airfield where the flock size decreased. But it can be excluded that there was a change from the airfield to the waste disposal site because the frequent birds at the airfield were starlings and lapwings which does not occur at the waste disposal site, where gulls dominated.

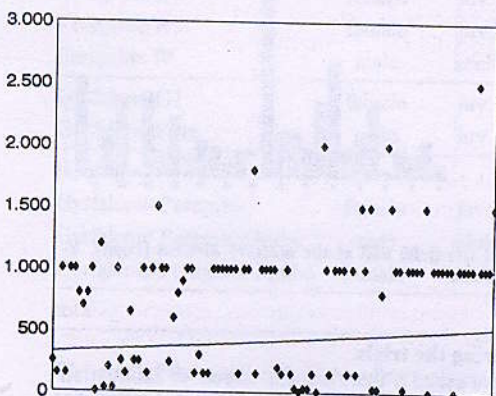


Figure 3: Flock size during the study at the waste disposal site with a calculated trendline

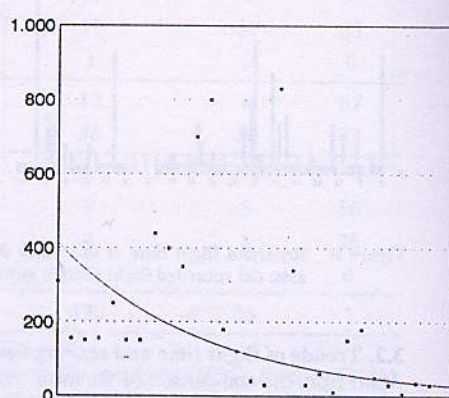


Figure 4: Flock size during the study at the military airfield with calculated trendcurve.

3.4. Correlation between flight time and scaring time

The relation between the parameters flight time and following scaring time we also checked. For both locations we found no statistic correlation between these parameters.

4. Discussion

The difference in the function of the airfield and waste disposal site influenced straightly the result of the trial. On the waste disposal site the immense food supply attracts great flocks of gulls every day. On the military airfield the function of a roosting place is prominent.

Due to the lack of great flocks on the airfield 80% of the flights took place at the waste disposal. Mostly herring gulls were captured there. Nevertheless no decrease of flock size was recorded and the scaring time after the flights was equal during all the study. The reason for this may be caused by the great attraction of this area for gulls and in a kind of habituation: after the short attack the falcon caught the prey and the situation become stable after a short time. On the basis of this trial we suppose that it is not the predation itself which decisively frightens the birds.

Increasing scare time and decreasing flock size at the military airfield may jump to the conclusion that these effects are caused by the action of the falcons but the reason in the decrease of the recorded flock size may be meteorological or induced by bird movements because smaller flock sizes were recorded on the airfield at the end of the trial after a period with no predatory flights of falcons on this area.

The increase of the scaring time at the airfield may be caused by the longer period of the falconer's activity at this area and this may effect a certain disturbance of the roosting birds. The fact that we could not find a positive correlation between the two factors flight time and following scaring time shows the low influence of the use of falcons on scaring birds.

5. Conclusions

The use of falcons for birdstrike prevention needs the precise knowledge about the interaction between prey and predator (CURIO, 1993), but there are a lot of factors we do not know today and we suppose it is not only a question of falconry skill.

On the basis of this study on a military airfield we cannot recommend falconry as a routine method for bird control on civil airfields. A successful use is correlated to a lot of different factors, which we yet cannot manage.

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7. References

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