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Karolina CHOSIŃSKA[1], Leszek DUDUŚ[2] and Zbigniew JAKUBIEC[1]

[1] Faculty of Biological Sciences, Univeristy of Zielona Góra, ul. prof. Z. Szafrana 1, 65-516 Zielona Góra, Poland
[2] Lower-Silesian Field Station of the Institute of Nature Conservation PAS, ul. Podwale 75, 50-449 Wrocław, Poland

SUPPLEMENTAL FEEDING OF BIRDS IN HUMAN SETTLEMENTS OF WESTERN POLAND

INTRODUCTION

Humans are probably the only species which obtain satisfaction from helping other species, including the feeding of animals. Since the end of the XIX century it has been proposed to feed birds, but only in the recent decades – due to the massive growth of urban populations with an accompanying increase of the urban areas and the synanthropisation and urbanisation of many animal species – bird feeding became more common and can be conducted throughout the year. In supplemental feeding of birds we can distinguish between targeted actions and involuntary actions. Among ornithologists two extreme attitudes are apparent: The suggestion to completely abandon feeding and stop providing nest boxes on the one hand, and the strong propagation of both supplementary feeding and putting up nest boxes to enrich the composition and abundance of birds on the other hand (Berthold and Mohr 2008). The results of several studies indicate that supplemental feeding of birds must follow specified rules (Berthold and Mohr 2008, Graszka-Petrykowski 2008, Szokalski and Wojtatowicz 1989). This view has been commonly accepted now. In cities species inhabiting the built-up and green areas as well as water birds are usually fed (Berthold and Mohr 2008). Despite the fact that the problem of feeding birds has been studied often an in depth in Western Europe and North America, in Poland there are no publications on this topic so far.

Supplemental feeding of birds has also biological consequences, increasing survival and breeding success in the next season (Doerr and Silvy 2002, Robb et al. 2008).

Key words: birds, supplemental feeding, human settlements.

STUDY AREA

The studies were conducted in Lower Silesia and the Lubuskie province, i. e. in areas characterised by relatively mild winters with little snow cover (Lorenc 2005). Observations were carried out in the large cities of Wroclaw and Zielona Góra as well as in two non-urban areas, Trzebiel and Sokołowsko. Counts of birds in Wroclaw was

conducted on three plots during the seasons 2010/2011 and 2011/2012, respectively. In each season, 2 to 5 (average 3.7) counts were made on each study site between the third decade of December and the third decade of February. Controls in the Lubuskie province were completed in March 2012, and in Sokołowsko in April and May 2012.

Within the cities emphasis was put on (1) estates of compact, high-rise buildings, (2) residential areas, (3) parks, and (4) downtown fragments of the Odra valley. In the village areas, the village centre as well as peripheral sites were studied.

In the Lubuskie province, the following areas were investigated:

Trzebiel – outskirts (7 ha), characterised by an assembly of single-family houses, near a forest. Housing and farm buildings prevail, and some residents breed poultry.

Trzebiel – centre II (15 ha), with two-storey blocks and detached, dispersed houses. Trees are present.

Zielona Góra – painters' estate (16 ha), a complex of detached houses with gardens.

Zielona Góra – sun estate (6 ha), consisting of four-storey blocks.

Zielona Góra – friendship estate (7 ha), characterized mostly by eleven-storey high-rise buildings.

Areas examined in Wroclaw were:

- Szczytnicki Park (30 ha), bordered by Mickiewicz Street, Hevelius street, the Japanese Garden, and the 9th May Street. The study area covered the southern part of the park, adjacent garden plots and the area of the garden department.
- Downtown (40 ha), from the bank of the Odra river to the Słowacki Avenue and Wit Stwosz Street and from the Kuźnicza Street to the Warsaw Insurgents Square. Outside the park, relatively small areas of green can be found between the buildings in the courtyards, along certain streets and along the river.
- Biskupin (40 ha), from the Olszewski Street to the bank of the Odra and from the Rodakowski Street to the Baciarelli Street. The predominant type of buildings are villas surrounded by gardens. The study plot covered a part of the villa estate of Biskupin and a fragment of the Nadodrzański Park.
- Downtown part of the Odra from the Sand Bridge to the University Bridge, together with walkways through the Sand Island and the Mill. There are five bridges and overpasses, as part of a highly frequented promenade area.

Observations in Sokołowsko in the Arid Mountains, south of Walbrzych, were made on one feeder at the edge of the town, adjacent to trees and the bordering forest.

METHODS

Supplemental feeding of birds may be intentional or involuntary. Therefore, the investigated sites were divided into:

- feeders, i.e. specific constructions for providing birds with food, often covered and protecting the food from precipitation, and

– accidental feeding spaces – places of dumping food remains, garbage, poultry feeding sites, etc.

During the field observations in Zielona Góra and Trzebiel all feeders at houses, on balconies and on lawns and trees were counted. Also, accidental feeding sites wre recorded, such as unprotected garbage and chicken coops with food left for domestic fowl. Counts in Wroclaw were conducted along fixed transects in the morning between 8:00 and 11:00 h. Start and end point of any transect alternated between consecutive counts.. Observations in Sokołowsko consisted of recording the presence of particular species at feeding spots from dawn to dusk.

Studies of feeding water birds were conducted nine times, from 19 Jan. to 05 March 2012, in five selected places in the city centre in the afternoon hours, i. e. the time of highest number of pedestrians). The number of people feeding was counted for five minutes for each site and day of observation. Additionally noted was:
– who feeds (adults, adults with children)
– what an amount of food was provided (large portion is a bag full of food)
– which bird species used the feeding spot.

RESULTS

1. Distribution and number of feeding places in different urban and rural environments

Feeders were found on all examined plots (Tab. 1). The highest number of feeders per unit area was located in the block estates, where people often placed feeders on balconies. Also many dangerous garbage cans where birds could get food were recorded in these estates. In the study area of the painters' residence in Zielona Góra birds were fed most often in feeders placed in the individual gardens. On the plot of the detached houses in Trzebiel only two feeders were found, but birds used food spread for domestic fowl. The lowest number of places at which birds could find food provided by people

Table 1. Number and density of feeding places in different types of estates.
ZG = Zielona Góra, Wr = Wroclaw.

Plot	Size	Number of feeding places (k+p), with k = feeders and p = random feeders	Number of feeding places per 1 ha
Trzebiel outskirts	7 ha	8 (2+6)	1.15
Trzebiel centre	15 ha	9 (6+ 3)	0.6
Painters' estate (ZG)	16 ha	12 (10+2)	0.75
Sunny estate (ZG)	6 ha	22 (17+5)	3.7
Friendship estate (ZG)	7 ha	25 (19+6)	3.6
Szczytnicki Park (Wr)	30 ha	5 (3+2)	0.2
Downtown (Wr)	40 ha	20 (5+15)	0.5
Biskupin (Wr)	40 ha	10 (9+1)	0.25

was recorded in the central part of Trzebiel. Here, not many feeders had been put up, people do not breed poultry, and most garbage cans were closed.

2. Location of feeders in various types of estates

In all invetisgated plots combined(161 ha), a total of 111 feeding places was recorded, corresponding to a density of 0,7 / ha. Density values were similar for cities and villages. In the villages, random feeders slightly dominated, whereas in the cities specially prepared feeders were most numerous. The data from three plots in Wroclaw, including the built-up areas and parks, indicate that feeders (37) were more often located near buildings (37) than away from them (7). In the villages all feeders were close to buildings.

3. Bird species using feeding places

A total of 23 species were recorded at feeders in Wroclaw and Sokołowsko (Fig. 1), of which 14 were noticed only for Wroclaw and15 only for Sokołowsko. 6 species were shared by both cities, so the composition of the birds visiting the feeders was greatly influenced by the surrounding environment. Finches dominated with 9 species. Tits were also numerous with 4 species but the majority of them were found in Sokołowsko. Also 4 species of corvids were recorded, mostly in Wroclaw.

The presence of particular species during 19 controls conducted in each place varied, with a range from 5.2 to 47.4% in Wroclaw and 5.2 to 100.0% in Sokołowsko. The average frequency was markedly lower in Wroclaw (16.9%) than in Sokołowsko (53,3%), indicating that birds visited the feeding places in mountain conditions more often.

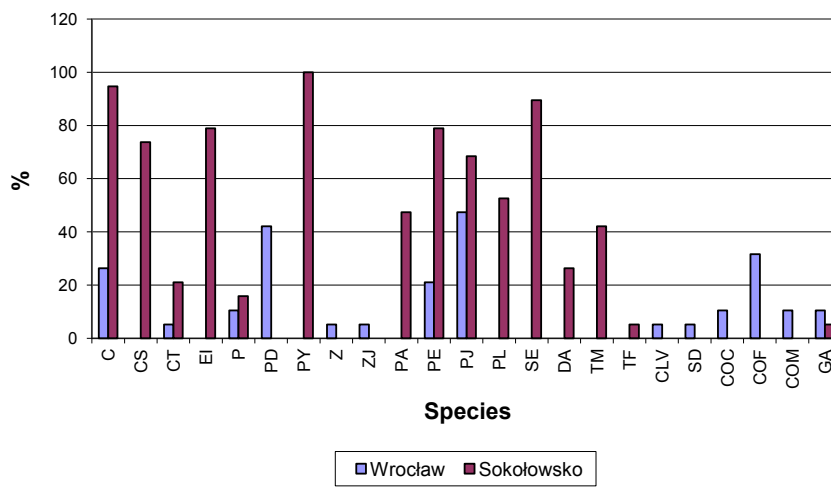

Figure 1. Species composition and frequency at feeders in Wroclaw and Sokołowsko (N = 19). Abbreviations of species names follow Jakubiec 2003

The composition of species and their frequency clearly differed between three plots in Wroclaw (Fig. 2). In the built-up areas House sparrows and, to a lesser degree, Street pigeons dominated, whereas in green areas Tree sparrows and Great tits were the most abundant species. Other species occurred in low frequency, indicating only occasional visits to the feeders.

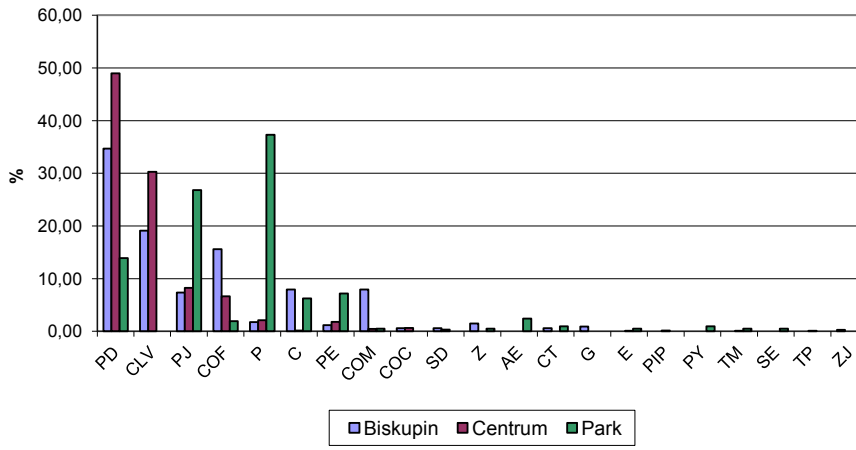

Figure 2. Species composition and frequency at feeders in three plots in Wroclaw

4. Supplemental feeding in parks

Apart from providing food for birds in feeders, people also feed outside the estates. Unsystematic observations in the park adjacent to the Popowice estate in Wroclaw indicated that a group of people feed almost year-round, especially from autumn to spring. These persons probably visit the park every day with bags full of food (mostly bread). Some of them are individually recognised by Street pigeons and corvids, which approach as a group and wait for food as soon as the respective person appears (see photo).

5. Supplemental feeding of water birds

In 18 (40%) out of 45 five-minutes trials people were seen feeding water birds. The respective value at single study sites ranged from 1 to 8 out of 9 observations (Fig. 3), indicating that at some plots birds were fed permanently and at others less often or only exceptionally. Of the investigated five places in Wroclaw, feeding was most often

observed at Żabia Kładka where two or three people were providing foodat the same time. Other places were located on pedestrian communication routes and feeding was less common there. Also, only at the area of Żabia Kładka adults with children were seen feeding, indicating that providing food for the local birds was the goal of the walk.

Occasional observations indicate that both the number of people feeding water birds and the intensity of feeding is drastically reduced in periods of a significant temperature drop. During such conditions in winter counts of water birds from 1962-1995 in Wroclaw only a few people were seen feeding.

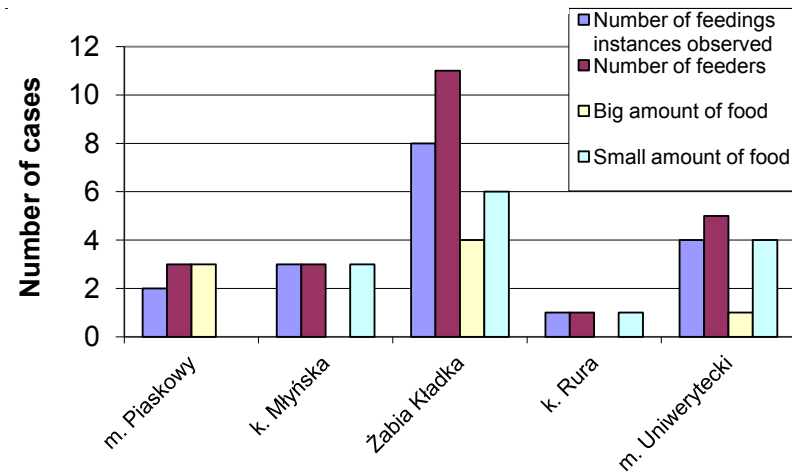

Figure 3. Intensity of supplemental feeding of water birds in five places in the centre of Wroclaw (N = 9)

The food provided by humans was extensively and regularly taken by birds wintering in Wroclaw (Fig. 4), which, in addition to water birds, also included corvids and Street pigeons. Birds were used to getting fed, and readily approached when they saw people appearing in each of the studied sites.

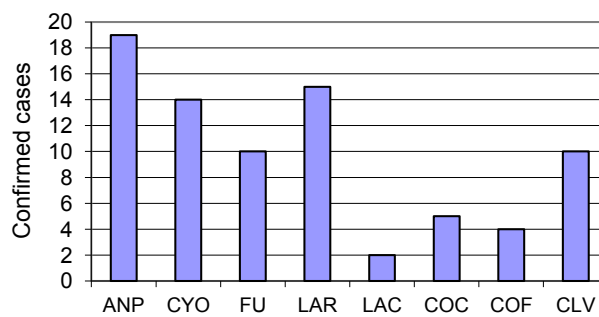

Figure 4. Composition of species using the feeding site at the Odra (abbreviations of species names follow Jakubiec 2003)

Supplemental feeding of birds – biological and social importance

Feeding birds is biologically meaningful. The study by Doerr and Silvy (2002) showed that supplemental feeding can increase survival in times of food shortage, however, other data suggest feeding is not effective in an unfavourable habitat. Feeding of birds outside the breeding period can also increase reproductive success in the next season (Robb et al. 2008).

The idea of the city garden by Ebenzer Howard which originated in England in the second half of the XIX century during the industrial revolution, has fundamentally changed the view and development of the urban environment. With urban populations still growing rapidly, awareness about anthropogenic influences on the environment is rising and causes many citizens to search for contact with nature in various ways. Therefore, feeding birds, which still was still rare at the beginning of the XX century, is commonly practised now by many people who clearly obtain satisfaction from this activity, as also indicated by our observations.

SUMMARY

1. Supplemental feeding of birds in all types of estates in western Poland is currently a common practise.
2. The composition of bird species visiting the feeders is greatly influenced by the surrounding environment.
3. The distribution of feeders and places of feeding is uneven, and their location is influenced by the distance from buildings or the routes of pedestrians.
4. Especially House sparrows, Street pigeons, and corvids use feeding spots in the built-up areas, whereas tits, especially Great tits, and granivorous species do so in green areas.

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