

BIRDS (AVES) IN THE SURROUNDINGS OF JIŘÍKOVICE – DIVERSITY, THREAT AND IMPORTANCE

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ABSTRACT

Occurrence and abundance of birds were investigated in the environs of the village Jiříkovice (southern Moravia, Czech Republic) during years 2010-2012. It was defined transect through all major habitats in the landscape, noticed nesting species, their presence in the landscape and population size. It was conducted an assessment of the avifauna by calculating several ecological indices. There were watched 109 different species of birds, 46 of them nest in this area. Based on the calculated indices, it was found that the best is on the bushes, habitats least affected by human activities and the worst values to habitat disturbed by human activities in the past, which was a stream that was previously regulated.

Key words: birds, human activity, nesting

INTRODUCTION

Birds are a very large group of animals. About 10 000 species are known on the world (BURNIE et al., 2008), more than 400 species were observed in the Czech Republic, of which around 200 nesting (VORÍŠEK et al., 2009). They are adapted to life in the air, yet they are the most affected by human activities on land. They are influenced by agricultural activities to a large extent, which may result in destruction of habitats suitable for nesting or directly destroy nests. Pest control activities liquidate insects, which are food for insectivorous birds. People are nowadays concerned with impact of its activities plants and animals, and birds are very suitable group to observe changes in the environment. Farmland species are significantly affected by the intensification of agriculture, which occurred during the 20th century (ŠŤASTNÝ et al., 2009). Variety of factors effects on birds in addition, such as adverse conditions at the time of nesting, harsh winters or too many predators (CHVÁTAL et al., 2009).

Numbers of birds and their nesting were observed. The aim of the study was to detect the species composition in the area Jiřikovice, with regard to breeding species, to perform basic synecological evaluation and to assess their diversity, to compare historical changes and to propose appropriate measures to promote biodiversity.

MATERIAL AND METHODS

A line transect was defined, approximately three kilometers long, covering all important habitats in the village Jiřikovice and its surroundings. It included habitats of a small forest, meadows, scrub, orchard, field, trees along a stream, stream, village and gardens. The observation was initiated on 23 January 2010 and was completed on 27 October 2012. It was always carried out once a week, on Saturday morning. Species, their numbers and nesting were evaluated during each observation. Dominance, Simpson and Shannon-Wiener indices, evenness and Jaccard index were stated (ODUM, 1977).

RESULTS AND DISCUSSION

Over the period of observation, 109 bird species were observed, including 46 breeding species. The most interesting species included White-tailed Eagle (*Haliaeetus albicilla*), Long-eared Owl (*Asio otus*), Thrush Nightingale (*Luscinia luscinia*) and Hoopoe (*Upupa epops*).

Tab. 1 Numbers of species observed in different habitats during 2010-2012

	Small forest	Meadow	Brush	Orchard	Field	Riparian trees	Village	Garden	Stream
Number of species	22	15	29	20	42	24	23	17	9

Tab. 2 Highest and lowest year values of indices during 2010-2012: *c* – Simpson index, *H* – Shannon-Wiener index, *E* – evenness

	Small forest	Meadow	Brush	Orchard	Field	Riparian trees	Village	Garden	Stream
<i>c</i>	0,13-0,65	0,22-0,27	0,09-0,21	0,13-0,29	0,19-0,24	0,14-0,68	0,16-0,38	0,16-0,28	0,48-0,63
<i>H</i>	0,88-2,45	1,53-1,78	1,94-2,7	1,6-2,22	1,94-2,16	1,61-2,32	1,36-2,09	1,68-2,07	0,67-1,5
<i>E</i>	0,36-0,83	0,14-0,81	0,65-0,84	0,67-0,84	0,58-0,62	0,63-0,83	0,5-0,72	0,65-0,81	0,58-0,84

The habitat of the field was richest in number of species. On the contrary, the stream was species-poor (other habitats see Tab. 1). Dominance concentration shows that all habitats are more or less disturbed, because all had a noticeable presence eudominant species. Scrubs are one of the least disturbed habitats, they also have some of the best results for other indices. The stream is

characterized by distinctly eudominant species (*Anas platyrhynchos*, *Alcedo atthis*, *Troglodytes troglodytes*), subrecent species are missing. This is reflected in all other results. The regulation of the flow performed in the past is certainly involved on species diversity of this habitat. Village and gardens show their results strongly influenced by man. The field is farmed conventionally, yet it still has relatively high values of the calculated indices. Results of the small forest, trees along the stream and the orchard were good, compared to other habitats (cf. Tab. 2). The Jaccard similarity index shows that the small forest is the closest to scrubs (21%), meadows to the village (15%), scrubs to the orchard (23%), the orchard to the garden (23%), the field to the village (14%), trees along the stream to the small forest (21%), the village to the garden (21%), and the stream to the field (4%). Conversely, similarity was none in some habitats. The habitats were the most similar that have been affected by similar levels of the human activity.

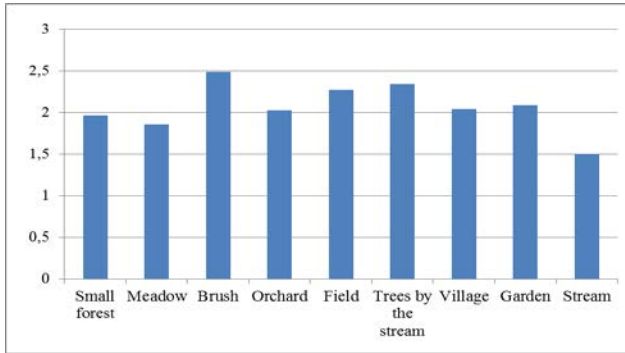


Fig. 1 Shannon-Wiener index of species diversity in 2010-2012

Fig. 1 shows the values of Shannon-Wiener index for all habitats throughout the period of observation. It shows that the highest species diversity is exhibited in scrubs, at least disturbed by human activities. Conversely, the stream habitat shows the lowest species diversity.

It was observed a significant difference between field and meadow habitat. The field was diverse in species (42), while the meadow belonged to the poorest, with only 15 species. The study, which compares the structure of bird communities with regard to the intensity of the environmental burden of pesticides and fertilizers at the finest scale in the field and meadow environments, recorded very little differences between the number of species of meadows and fields at monitored sites Mezensko and Zručsko (ŠTEFANOVÁ, ŠÁLEK, 2012).

Numbers of the Linnet (*Carduelis cannabina*) are the area of interest rising. The Linnet belongs to generally long-term declining species in the Czech Republic. It is a species that feeds on grains and the effect on its loss has probably lack of food (REIF, VERMOUZEK, 2010).

Partridge (*Perdix perdix*) nested throughout the southern Moravia in the years 1973–1977 (ŠTĀSTNÝ et al., 2009). No evidence of nesting of this species was in the monitored area during my research. It is probably due to the huge numerical decline in the region caused by improper management.

Vocal expressions of known species were also used, because the specimen was not always also sighted. However, the need of a direct observation is necessary for identification and abundance assessment in many cases. Only the vocal expressions evaluation may cause a distortion of results. Even in times of highest intensity of voice all individuals may not be active at the site (KLOUBEC, ČAPEK, 2012).

CONCLUSIONS

This work deals with evaluation of the bird diversity in the vicinity of the village Jiřkovice. Most attention was paid to the nesting period. When finding nesting of some species, I tried to observe if nesting was successful. The nesting was disturbed by predators in many times despite stealth colored birds and nesting hidden in vegetation. Another negative factor was proximity of a busy road. Nests of rare species were not observed for all three seasons, even though the adults there were sightings and even brought out along with the brood. In contrast, species that are common in this area, I was often met with their nests. Birds that occur only in low numbers in the area and are less accustomed to human presence, must nest in order to build a successful outlet of brood in places where they are not accessible to people and not disturbed, or they must be at least on places where escape human attention. Conversely common and adaptive birds often build their nests almost anywhere because they do not mind the presence of people, only they must hide the nests from predators. According to this way of nesting, it could be assume that one of the reasons why some species are so widespread and others are just in sightings of lower numbers is that the abundant species do not have a problem in terms of finding the right place to nesting because they do not mind now almost ubiquitous proximity to people. During a specified period, 46 bird species nested in the monitored area. Especially for these species, this area is very important. From the more interesting species, Turtle Dove (*Streptopelia turtur*), Golden Oriole (*Oriolus oriolus*), Green Woodpecker (*Picus viridis*) and Red-backed Shrike (*Lanius collurio*) were recorded as nesting. I recorded 109 bird species during the observations. These are not only the species that remain there for a longer time. Some of them I watched only once, because the environment is not suitable habitat for them. They only fly across the area. However, the observed area is species very diverse. Significant landscape element Loučky, which also falls into studied transect, is very important for species nesting on the ground or in tree hollows. Individual meadows have different owners who mow them at different time intervals. Meadows are of a small sizes and cut and uncut parts occur in the same time, which is good for birds and other animals. Moreover, old fruit trees are in this area that serve as nesting opportunities. Individual lands of this site are partly in the ownership by the village, but its large part is in a private ownership. Therefore, it is important to raise awareness of the importance of this area for various species of animals and plants, and thus for the residents of the village. Now support from the residents of the village will lead to good management in this area and to the maintenance of biodiversity. Number of nesting boxes is hoisted in the village and its surroundings for easy nesting of some bird species which are beneficial especially for the Kestrel booth. It should, however, ensure better maintenance of these boxes, to avoid the failure of nesting due to state of these boxes, as in 2012 when nesting Kestrels. The stream habitat showed the worst index values and also at least species. It could be caused by flow control, which was carried out here in the past. It would be good to keep the stream to get back at least partially created twists, as in the past.

The study area, although it is affected by human activities, has become home to a number of species of birds and other animals for stopping during their migrations or for sustained live. It plays therefore more or less important role as centre of biodiversity in southern Moravian agricultural landscape.

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