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Breeding bird communities in relation to different habitat islands

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Abstract: The structural parameters were compared of bird communities in habitat islands in a farmland landscape within the Jura Landscape Park System near Kraków. Four types of island habitats were distinguished in line with their structure: woody, scrubby, field-meadow and mixed. The size of individual islands ranged from 0.3 to 40 hectares. In woody and mixed islands the number of breeding species, the species diversity indices (H') and the evenness indices (J') reached significantly higher values than those pertaining to scrubby and field-meadow islands (ANOVA, $p < 0.001$). The density of pairs was, however, the highest on the scrubby islands and differed significantly from the corresponding data obtained for mixed and field-meadow islands ($p < 0.001$). In the bird communities of the woody islands, the most numerous species were: Chaffinch *Fringilla coelebs* and Blackcap *Sylvia atricapilla*, whereas Marsh Warbler *Acrocephalus palustris* and Whitethroat *Sylvia communis* dominated in mixed and scrubby islands, and Skylark *Alauda arvensis* and Marsh Warbler dominated within field-meadow islands. The results obtained indicate that the maintenance of the habitat diversity in the agricultural landscape results in an increasing diversity of species in the bird communities and thus leads to the increased biodiversity of the area. Despite the usual sub-optimum character of the habitat islands they are of enormous importance to birds and, depending on the structure of habitats and plant communities, they also support their characteristic bird fauna. It is thus important that the nature conservation and physical planning in farmlands should not be limited to routine activities such as introducing tree belts or clumps, but should seek solutions at the level of the whole landscape, considering the role of environmentally different habitat islands in maintaining biodiversity.

Key words: breeding bird communities, habitat islands, habitat fragmentation, biodiversity, agricultural landscape, southern Poland.