

SPECIES RICHNESS AND ABUNDANCE OF THE FAUNA OF A BIG CITY – CASE OF WARSAW

Summary

A full (i.e. close to completion) list of fauna of any city, nowhere was assessed, mainly because taxonomic and ecological diversity of invertebrates is beyond practical possibilities to have cooperation in the given area of all specialists, which would be necessary for such a study. The most comprehensive studies of this kind, in comparison to fauna of the region, were carried out in Warsaw (Poland), and more recently in Łódź (Central Poland). Within administration area of Warsaw (492 km²), about 3,800 species of terrestrial invertebrates from above 90 families or orders were recorded together with about 320 vertebrate species. The complete list of the animal world of Warsaw is estimated to be about 6–7 thousand species. The species richness of the fauna in large (European) city is likely to comprise 5–10 thousand of species, but the present knowledge about urban invertebrate wildlife does not allow even a basic assessment to be made. The vertebrate fauna is known much better, its species richness is similar in European cities – about 300–400 species.

Total number of animal species recorded in Warsaw (ca. 4,100) is about 12% of that indicated from the whole country (Poland). If only vertebrates (a relatively well studied group) are compared – the

proportion is 48–50%. In almost all of taxa studied, the species richness decreased with increasing urbanization gradient. The number of invertebrate species recorded in the green suburbs of Warsaw was 57% of that recorded in comparable studies in the region, in urban parks – 31%, and in small green patches in the city centre – 14%. As concerns breeding birds – in Warsaw as a whole about 65% of the species were found in comparison to the region whilst in the inner city – about 37%.

Studies on abundance of urban fauna in Warsaw indicated that 1 m² of soil layer in city lawns contains on an average several tens of thousands of invertebrate individuals whilst 1 m² of ground surface – several hundred of them. 1 m³ of the canopy of the park trees contains 2–3 thousand individuals with more than one hundred of them per sample of 100 leaflets. The total population of the breeding avifauna of Warsaw was estimated to be 150–350 thousand pairs (breeding territories) i.e. ca. 300–700 pairs per km². The average density of the bird population in the highly urbanized areas of inner Warsaw was 830–1590 pairs per 1 km² in the breeding season, and 2.5–4.5 thousand individuals per 1 km² in winter. This is similar to values reported from other European cities.