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**"Biodiversity and structure of communities of selected families of Aculeata
(Hymenoptera: Aculeata) of wet meadows of *Molinietalia* order in the Świętokrzyskie
Voivodeship"**

Joanna Posłowska, M.Sc.

Wet meadows (*Molinietalia*) are relatively numerous both in the Świętokrzyskie Voivodeship and throughout the country. They were protected under the European Natura 2000 network as 6410 natural habitat type and are now one of the most endangered semi-natural ecosystems in western and central Europe. However, they have never been eagerly chosen as research sites by hymenopterologists. The reason may be the belief that interesting species of Aculeata cannot be found here. These are insects that in almost 80% establish their nests in the ground (which is impossible in meadows where the ground is saturated with water practically all year round).

The aim of the study was to examine whether wet meadows, not being an attractive place for Aculeata nests, are at the same time an attractive food base for them and whether the level of their biodiversity in particular communities depends on the mosaic nature of the surrounding environment. The research was conducted for 3 growing seasons between 2016-2018. Two research methods were used: MOERICKE traps and trap reed nests. Material from MOERICKE'S traps was collected every 2 weeks throughout the period of the Aculeata appearance (from the beginning of April to the end of October). Trap reed nests were exposed on the research plots in early April and collected at the end of October. After that they were transferred to the laboratory at the Jan Kochanowski University in Kielce, where they were farmed.

The material was obtained from four research plots, each of which was surrounded by a different number of communities. All stations were located in the Świętokrzyskie Voivodeship. Two to the north of the city of Kielce (Barcza and Gruszka) and two to the south of Kielce (Piotrkowice and Zwierzyniec). The collected material was subjected to a zoocenological, zoogeographical and phenological analysis. In the zoocenological analysis, several parameters (qualitative, quantitative and qualitative-quantitative) were used to describe the grouping. The dominance structure (D_i) was the quantitative parameter, and the number of species was the qualitative parameter. The last of the parameters (qualitative and

quantitative) was analyzed using the appropriate indicators: SHANNON-WIENER (H'), SIMPSON (D) and HURLBERT (PIE) and PIELOU (J'). The values of all four of the above-mentioned indices were the highest for the researched community on a wet meadow in Piotrkowice, and the lowest for the Aculeata community in the research area in Gruszka.

In order to discover the similarity between the clusters of Aculeata occurring in the studied meadows, indices were used to compare their similarity in terms of quantitative, qualitative as well as qualitative-quantitative. For the quantitative comparison of the structure of the studied groupings, the RENKONEN - Re number was used. In order to compare the qualitative structure of the groupings of the studied meadows, the SORENSEN number - QS and the MARCZEWSKI and STEINHAUS index - MS were used. For the qualitative and quantitative comparison of the clusters, the CODY index - T was used. The MS and QS indices showed that the greatest degree of similarity exists between the areas in Piotrkowice and Zwierzyniec. The Re index showed the greatest similarity for the research plots established in the villages of Barcza and Gruszka, while the highest value of the CODY index was obtained, as did the first two for Aculeata clusters from the research plots located in Piotrkowice and Zwierzyniec.

The Aculeata fauna in the collected material represented 13 zoogeographic elements. Palearctic and Western Palearctic elements were the most numerous. Elements represented by only one species are: Western Mediterranean, Sub-Pontic and Boreo-montane. In the studied meadows, the occurrence of Aculeata species belonging to three phenological groups (early spring, late spring and summer) was found. Early spring species constituted the most numerous group. When analyzing the assemblages of Aculeata of wet meadows in terms of their body size, they were divided into 4 size classes (small, medium, large and very large). Medium species turned out to be the most numerous group in the collected material.

In the studied meadows, the presence of many species considered to be faunal values of the studied area was found. In this study, species new to the fauna of Poland were considered to be faunal values - 4 species and endangered, with an assigned danger of extinction (CR, EN, VU and DD) - 37 species

Joanna Potłowska