## **Abstract**

The sand quarries that are used occasionally and not subjected to rehabilitation, are important biodiversity banks in both anthropogenic and semi-natural landscapes. However, their value for biodiversity preservation can change due to dynamic successional processes . We determined responses of three Aculeata groups: herbivores (Apiformes), predators (Spheciformes), and kleptoparasites (Chrysididae, Apiformes) to successional transformations in 32 sand quarries, spanning 15 years of spontaneous succession. Response to successional changes in vegetation differed depending on the trophic group. Values of community indices for herbivores and kleptoparasites reached the highest complexity at the middle stages of succession, whereas for predators they remained stable. Arrival of new species, but not changes in dominance structure, significantly affected community structure of all the three groups of Aculeata. However, only for predators species turnover rate increased at the later stages of succession. This was manifested by rapid accumulation of new and rare species. In contrast, β-diversity of kleptoparasites decreased, and in the case of herbivores remained constant throughout successional stages. Predators were also characterized by a high number of prevalent species, present at all stages of succession. Our results point that various patterns of species exchange can affect conservational values of sand quarries. We provide information about preferences of predatory, herbivorous (pollinating), and parasitic Aculeata, including rare and threatened species, in respect of stages of ecological succession. The collected information will allow more deliberate selection of protective measures through implementation of suitable methods of management, to facilitate the preservation of these valuable habitats.