



Conference Abstract

# Body size in tiger beetles (Coleoptera: Cicindelidae) in the south-eastern European biodiversity hotspot: sexual dimorphism and patterns of co-occurrence

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## Abstract

In south-eastern Europe, especially in lowland areas located close to the sea coast, the diversity of Cicindelidae is one of the highest in the entire Palaearctic realm. This is both because of geological history of the region and the presence of large mosaic of habitats attractive for these beetles. As a result in the region about 25% of all Palaearctic species of tiger beetles can be found, including endemics. Many of them can be characterized by narrow or very narrow habitat preferences occurring only in one or two types of macrohabitats.

In the present study sexual dimorphism of six species of tiger beetles (*Calomera littoralis*, *C. fischeri*, *Cephalota circumdata*, *C. chiloleuca*, *Cylindera trisignata trisignata*, *Myriochila melancholica*) collected along the sea coast of the Black and Mediterranean Seas was studied based on eight body parameters (right mandible length, length of head, width of head, length of pronotum, maximum pronotum width, length of elytra, maximum elytra width, and total body length.). Moreover, patterns of species co-occurrence on the basis of body size were investigated.

As results we found significant sexual dimorphism indicated by larger body size of females and longer mandibles in males of the studied Cicindelidae species, what can be explained by different roles of the particular sexes in courtship (females invest much more energy in the reproduction process than males, e.g. to produce eggs or to find a good place to deposit them, as a result bigger size is much more beneficial for this sex). Moreover, we discovered that in the studied area tiger beetle species characterized by similar body size avoid each other and do not occur in the same areas.

## **Keywords**

tiger beetles, species co-occurrence, sexual dimorphism, Balkan Peninsula, Black Sea coasts

## **Presenting author**

Radomir Jaskuła

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## **Author contributions**

Radomir Jaskuła designed the work, collected material, identified species, analyzed material, performed statistical analysis, prepared figures, wrote the text

Axel Schwerk performed statistical analysis, prepared figures, wrote the text

Mateusz Pióciennik performed statistical analysis, prepared figures, wrote the text

## **Conflicts of interest**

Authors declar no conflict of interest