

## SHORT COMMUNICATION

# Species Composition and Ecological Distribution of the Subfamily Cicindelinae Latreille, 1801 (Coleoptera: Carabidae) Based on Voucher Specimens in Sarawak

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### ABSTRACT

The subfamily Cicindelinae which belongs to the family Carabidae are commonly known as tiger beetles. Despite the recent studies conducted on this taxon, current ecological knowledge on tiger beetles is limited. Thus, this study aimed to provide a current checklist of tiger beetles as well as their species distribution, abundances and habitat preferences in Sarawak based on voucher specimens from Universiti Malaysia Sarawak Insect Reference Collection (UIRC). A total of 76 specimens of tiger beetles were examined in which comprising of seven genera from eight species. The genus *Neocollyris* was represented with two species, namely *Neocollyris* (s. str.) *ermaginata* and *Neocollyris* (*Stenocollyris*) *sarawakensis macrodera*, while the other genera were represented by only one species, respectively. The most abundant species with 64 individuals (84.21%) were represented by *Cosmodela aurulenta*, followed by *Abroscelis tenuipes araneipes* and *Therates labiatus* with three individuals (3.95%) and *N. ermaginata* with two individuals (2.63%). In this study, there were eight ecological habitats being identified, namely heath forest, limestone forest, littoral forest, mixed dipterocarp forest, oil palm plantation, peat swamp forest, riverine forest and urban area. The data indicates that *C. aurulenta* being recorded at seven ecological habitats suggesting this species to have a wide distribution capability while species such as *A. tenuipes araneipes*, *Callytron doriai*, *Cicindela* sp., *Myriochila* (s. str.) *specularis brevipennis*, *N. ermaginata* and *N. s. macrodera* suggesting these species to have a very narrow habitat specialisation. The results of this preliminary study provide evidence on the need to conduct further studies on the ecological aspects of tiger beetles in Sarawak.

Keywords: Cicindelinae, ecological distribution, Sarawak, tiger beetles, voucher specimens

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The subfamily Cicindelinae or commonly known as tiger beetles were formerly assigned to a separate family Cicindelidae (Carter, 1989; Pearson & Cassola, 2001; Pearson, 2007) and is now classified as a subfamily within Carabidae (Hill & Abang, 2010; Bosuang *et al.*, 2017; Gough *et al.*, 2018). The distinctive characteristics of these beetles can be observed from their large eyes, long narrow legs, and acutely toothed mandibles. Adult tiger beetles are known to be brightly coloured usually with iridescent or metallic and often with distinct colour pattern (Triplehorn & Johnson, 2005; Hill & Abang, 2010). When disturbed,

they fly rapidly or run swiftly in short distances making them a challenge to capture. Moreover, most species are diurnal, usually found active in daylight in open habitats such as water edges, grasslands, woodland paths, and roads, but a few are nocturnal (Knisley, 1984). These beetles specifically, are ground surface predators and can be seen visually hunting with their sickle-like mandibles on a variety of smaller insects in which they feed on (Knisley, 1984). Area with enough sun light with the presence of bare soil are a necessary habitat requirement for the tiger beetle's predatory activities. Besides that, recent studies from