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Comparison of tiger beetle (*Coleoptera:Cicindelidae*) diversity in four protected areas in different climatic zones of Sri Lanka

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Tiger beetles are highly predacious carabids with over 2,500 described species worldwide. In terms of density and richness, Sri Lanka is regarded as a global hot spot for tiger beetles. According to literature 56 tiger beetle species have been recorded of which 35 are endemic to country. During the period 2014-2016 tiger beetles were surveyed in four protected areas in the country. This paper attempts to compare tiger beetle richness in Sinharaja Rain Forest (Wet Zone), Dhaiyagala Sanctuary (Intermediate Zone), Chundikulum Sanctuary (Dry Zone) and Bundhala National Park (Arid Zone). Each location was visited twice on days that were not overcast and sampling was done using visual encounter surveys. At each sampling locality after detecting tiger beetles; population counts were obtained by walking along transects ranging from 100 m to 300 m. The variable lengths of transects reflected the physical obstacles of different localities. The survey was conducted in primary and secondary forests, foot paths, stream edges, forest gaps (Sinharaja), scrub forests, lagoons, beaches, sand dunes (Chundikulum, Bundhala), thick and secondary forest patches, foot paths, scrubs, tank edges, paddy and corn cultivations (Dhaiyagala). Specimens collected were subsequently identified to the species level using available keys. PAST 3.12 statistical software was used to calculate the diversity indices. The highest species richness was recorded from Dhaiyagala Sanctuary (8 species) and *Oligoma lacunosa* was the dominant species. *Calomera angulata* was the most abundant species in Bundhala National Park and Chundikulum Sanctuary. Surprisingly, the lowest number of species was recorded from Sinharaja Rain Forest and *Calochora lacrymans* was the most commonly occurring species. None of the species was found to be common to all four protected areas. In terms of Shannon index (H) Dhaiyagala (1.24) had the highest diversity and lowest H values was recorded from Sinharaja. *Calochora lacrymans* and *Ifasina waterhousei* recorded from Sinharaja are endemic. An extremely rare endemic species *Jansenia laeticolor* was recorded from Bundhala after 108 tearsand no other specimens were sighted in subsequent visits. The endemic species *Ifasina henryi*, *Calochora lacrymans* and *Ancyclia ceylonensis* were also observed from Dhaiyagala. In terms of tiger beetle conservation, Dhaiyagala can be considered as a critical location which included more open forest gaps and micro habitats compared to other three protected areas. There could be other causes such as evolutionary and physiological and climatic factors that favor tiger beetle species accumulation to specific habitats. The longer term implications of climate change impacts have to be taken into account in strategies for conservation of tiger beetles of Sri Lanka although the current climate projections for the wet, intermediate, dry and arid zones have shown high uncertainty with regard to precipitation changes, while a trend for warming and occurrence of extreme events appears to continue.

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