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A preliminary assessment of odonate (Insecta: Odonata) diversity and abundance in Mihintale lake and Kaludiyapokuna in Mihintale, Anuradhapura

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The odonates of Sri Lanka comprise with 129 known species, including 67 species belongs to 12 families where 56 species (43%) are known to be endemic to the country. These organisms are currently threatened due to increase in human population and activities, climatic change, intensive agricultural practices and pollution and in need of conservation. Having less diversity, richness, abundance and distribution surveys is one of the key obstacles in conservation. There have been less surveys of odonates in dry zone areas. This study intended to prepare an inventory of odonates that inhabit two lotic ecosystems in dry zone. Four sample sites were selected from each lotic habitat. Visual observations of adult odonates were conducted by walking along belt transect of 100 x 3m that are adjacent to the water bodies in all four sample sites in the selected two lotic ecosystems. Observations were taken from 0900 h to 1100 h in the morning and 1500 h to 1600 h in the evening for six months from Kaludiya pokuna and Mihintale lake visiting three times per month to each site. The observed individuals were photographed. A total of 3,343 of individual odonates were recorded. A total of 22 species identified using standard field guides, belong to three families, Coenagrionidae (25.90%), Gomphidae (3.26%) and Libellulidae (70.83%), two vulnerable species *Aciagrion occidentale* and *Ceriagrion cerinorubellum,* two endemic species *Cyclogomphus gynostylus* and *Pseudagrion rubriceps ceylonicum* where one was considered as critically endangered and three nearly threatened species *Orthetrum glaucum, Hydrobasileus croceus* and *Rhodothemis rufa* were recorded. The diversity of odonates and abundance was higher in Mihintale lake because Shannon – Weiner diversity index (2.267) and Simpson's diversity index (0.854) and Eveness (0.817) were high for Mihintale lake. The highest number of individuals that observed was *Brachythemis contaminata* in both study sites as a total but in Kaludiya pokuna number of individuals that was observed from this species was higher than Mihintale lake. This study shows odonate diversity is high in both lotic habitats that were studied and in Mihintale lake it is higher than Kaludiya pokuna. This study needs to be further expanded taking microhabitat parameters, water quality parameters and expanding it over time and area. Further, both lotic and lentic habitats can be considered with and without/less anthropogenic activities.

Keywords: dragonfly, damselfly, abundance, endemic, conservation