

Diversity of Odonata in Kirala Kele Sanctuary, Matara District, Sri Lanka

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Abstract

Kirala Kele sanctuary is a wetland ecosystem that is one of the most valuable conservation areas in the Matara. Odonates represent an important role as an indicator species of wetlands and therefore, a study was conducted to explore and investigate the diversity of Odonata species that inhabit Kirala Kele and identify its use as an indicator of environmental management in the area. The study was conducted in selected four different transects (200 m each) which focused on the micro-habitats, and anthropogenic activities. Individuals belonging to different species of dragonflies and damselflies were counted by visual observations and photographs were taken to identify using standard guidebooks. Data collection was carried out from April 2022 to September 2022 once a month from 8.00 am to 10.00 am and 3.00 pm to 5.00 pm. The results showed that there were 27 species of Odonata from 3 different families. Pied Parasol (*Neurothemis tullia tullia*) and Variegated Flutterer (*Rhyothemis variegata variegata*) are identified as the most abundant species in the study area. One species namely, Sri Lanka Orange-faced Sprite (*Pseudagrion rubriceps ceylonicum*) has been recorded as endemic. Species diversity measured within study sites using Shannon wiener index (H') and Simpson index (D) indicated that transect A (marshland) H' -2.08, D -0.82, transect B (paddy fields) H' -2.08, D -0.82, transect C (canal and cultivation area) H' -1.25, D -0.48 and transect D (open water and marshland) H' -1.65, D -0.69, respectively. Based on the study, the overall Shannon wiener index in the study area was 1.95 while Simpson Index (D) was 0.75, which concludes the sanctuary has a considerable diversity of Odonata. The number of dragonfly species and abundance is remarkably higher in transects along the canal, in presence of emergent aquatic reeds and surrounded by paddy fields. Along the transects which are mostly affected by anthropogenic activities such as vegetation clearing and pollution or less anthropogenic activities, but low water levels had a small diversity. The results reveal that the diversity of species depends on several factors like the presence or absence of aquatic habitats, level of human disturbances, presence of emergent aquatic reeds, and degree of pollution. Thus, understanding the diversity and distribution of Odonata in the sanctuary can provide important insight into effective ways to manage the environment, which is often overlooked in biodiversity conservation strategies.

Keywords: Conservation, Diversity, Kirala Kele, Odonata