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Biodiversity of dragonflies and demselflies of Acharya Prafulla Chandra College campus, West Bengal in Monsoon and Winter seasons

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Abstract

The objective of the present study is to explore the Diversity and Abundance of dragonflies and damselflies (Order – Odonata, Class Insecta, phylum Arthropoda) in Acharya Prafulla Chandra College in Monsoon and Winter seasons (July, 2016 to March, 2016). They are an important part of ecosystem and a important indicator of environmental quality. As they are predator of mosquito larvae, they also act as mosquito controlling agent. Total 19 species belonging to six families of dragonflies and damselflies were recorded, in which the most abundant (10 species), 8 species from family Coenagrionidae and Gomphidae, Lestidae Aeshnidae, Platycnemididae families were very least abundant.

Keywords: Dragonfly, demselfly, ecosystem, odonata.

Introduction

Dragonflies and damselflies are amongst the most attractive of creatures on earth. They are well-known insects, and many people appreciate their striking colors and equilibristic flight. Odonata (Dragonflies and Damselflies) constitute a small, well known order of insects that are widely distributed all over the world (Tillyard, 1917).

Dragonflies and damselflies collectively called Odonates, are one of the most common insects flying over forest, fields, meadows, ponds and rivers. There are around 5,680 species of odonata known form all over the world, among them 503 species occur in India with around 186 species being endemic. The dragonflies is an important indicator for ecological balance. By way of reproduction, these insects lay their eggs in or near only freshwater (Corbet, 1999) and thus, their high abundance in an area is a good indication of the quality of freshwater. The use of odonates as indicators offers several advantages: they are widespread and represent one of the historically most studied insect groups, and so there is a good knowledge of the ecological requirement of a large number of species and their distribution and seasonality; they are relatively easy to observe and indentify, and finally they are well dependent on the ecological conditions of the environment (Corbet, 2004). Although after a lots of work on insects, still information about odonata of West Bengal is not sufficient. Here the distribution of odonata of Acharya Prafulla Chandra College was studied.

Methods

Acharya Prafulla Chandra College campus were selected to study, this campus consist of two small ponds and a small flower garden. Number of individuals of every species of dragonflies and demselflies present in the campus were noted throughout the time of Monsoon and Winter seasons (July, 2016 to March, 2016). The data was collected randomly in three time schedule which 08:00 am to 12:00 noon, 12:01 noon to 04:00pm and 04:00pm to 06:00 pm.

Result and Conclusions

Total 19 species belonging to six families of dragonflies and damselflies were recorded, in which the most abundant (10 species), 8 species from family Coenagrionidae and Gomphidae, Lestidae Aeshnidae, Platycnemididae families were very least abundant.

It was found that demselflies (family- Coenagrionnidae) were more in number (52%) than dragonflies (family- Libellulidae) (41%) at the study area. Among dragonflies three species viz., *Crocothemis servilla* (44%), *Brachythemis contaminate* (24%), *Bradinopyga geminate* (13%) were most common, and among damselflies every species were present nearly equal in number. We also found that both dragonflies and demselflies were more active around the time 12:01 noon to 04:00 pm.

In this study, out of 19 dragonfly species examined, 5 species are common and 2 species are occasional. Some Dragonflies viz. Common Clubtail (*Ictinogomphus rapax),* Trumpet Tail (*Acisoma panorpoides),* Ground Skimmer (*Diplacodes trivialis*) and Ruddy Marsh Skimmer (*Crocothemis servilia)* were recorded in every months. The species of dragonflies and demselflies we found there, every species is *least concern* (IUCN 3.1) by the conservational point of view.

Table 1. Some species of dragonflies and Demselflies are listed below-

Family- Libellulidae (Dragonflies)	
Species	**Common name**
Crocothemis servilla	Scarlet skimmer, Ruddy marsh skimmer.
Brachythemis contaminate	Ditch jewel.
Diplacodes trivialis	Blue percher, Chalky percher, Ground skimmer.
Orthetrum Sabina	Slender skimmer, Green marsh hawk.
Rhyothemis variegate	Common picture wing, Variegated flutterer.
Trithemis pallidinervis	Long legged marsh glider, Dancing dropwing.
Tramea basilaris	Keyhole glider, Red marsh trotter.
Bradinopyga geminate	Granite ghost
Orthetrum pruinosum	Crimson tailed marsh hawk.
Family: Gomphidae (Dragonflies)	
Species	**Common name**
Ictinogomphus rapax	Common Clubtail
Paragomphus lineatus	Common Hooktail
Family: Aeshnidae (Dragonflies)	
Species	**Common name**
Anax immaculifrons	Blue Darner

Family- Coenagrionnidae (Demselflies)	
Species	**Common name**
Pseudagrion microcephalaum	Blue riverdamsel, Blue sprite, Blue grass dart.
Ceriagrion coramandelianum	Coramandel marsh dart, yellow waxtail.
Pseudagrion rubriceps	Saffron faced blue dart.
Agriocnemis femina	Variable wisp, Pinheaded wisp.
Agriocnemis pygmaea	Pygmy wisp, Wandering midget, Pygmy dartlet, Wandering wisp.
Ischneura seneghalensis	Common bluetail, Marsh bluetail, African bluetail, Senegal goldendartlet.
Onychargia atrocyana	Marsh dancer, Black marsh dart.
Ischneura aurora	Golden dartlet, Aurora bluetail.

Odonates are a predaceous, hemi-metabolous and amphibiotic insect, which inhabits all kinds of freshwater habitats either permanent or temporary. Odonates are among the ideal taxon for investigation of the impact of environmental warming and climate change due to its tropical evolutionary history and adaptations to temperate climates (Hassall et al., 2008). During the study, it has been found that the institution campus fulfills most of the criteria important for Odonates as it is rich in grassland, shrubs and small water bodies. This study strongly encourages the use of institutional estates in providing habitat facility not only to the Odonates but also to other wildlife as a whole. The data recorded in the present study may prove valuable as a reference for assessing the changes in environmental tools in the locality, in near future. The high population of *Brachythemis contaminata, Crocothemis servilla, Diplacodes trivialis* species is may be due to some contaminated water bodies near the college campus. We also conclude that the present area is rich in dragonflies and damselflies diversity.

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