International Journal of
Life Sciences
International Peer Reviewed Open Access Refereed Journal

Int. J. of Life Sciences, 2020; 8 (4):751-756
ISSN:2320-7817(p) | 2320-964X(o)

Original Article Open Access

Odonatan diversity in the campus area of Pt. Ravishankar Shukla University Raipur (C.G.) India.

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Manuscript details:

Received: 13.11.2020
Accepted: 23.12.2020
Published: 30.12.2020

Cite this article as:
Sanap NP (2020) Odonatan diversity in the campus area of Pt. Ravishankar Shukla University Raipur (C.G.) India, *Int. J. of Life Sciences*, 2020; 8 (4):751-756.

Available online on http://www.ijlsci.in
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)

ABSTRACT

The study provides the Odonatan diversity in the campus area of Pt. Ravishankar Shukla University Raipur (C.G.) India. In the present study 15 species of dragonflies and damselflies were recorded from four survey sites. Coenagrionidae family is mostly present in abundance followed by family Libellulidae comprising 06 species. *Crocothemis servilia, Brachythemis contaminata, Diplocodes trivialis, Trithemis pallidinevis, Orthetrum sabina, Ictinogamphus rapax, Bradinopyga geminata, Ischnura aurora* were found from all study areas and these were the most dominant species in the campus.

Keywords: Odonata, Biodiversity, Chhattisgarh States, India.

INTRODUCTION

The order Odonata (dragonflies and damselflies), compising three suborders Anisoptera, Anisozyoptera and Zygoptera are one of ancient group of Insects. Within India, 463 species belonging to 140 genera have been recorded representing 8% of the world known species (Subramanian 2009). The larvae and adults are predatory and very important biocontrol agents for insect (Khaliq 2002). Moreover, studies across the world have shown that they are good indicators of ecosystem health and ideal surrogate taxa for identifying freshwater biodiversity hotspots for conservation (Hart, 2014).

The Odonates have strong association with water because of their aquatic larvae. Dragonflies have been extensively used as indicators of environmental quality in aquatic ecological units. Dragonflies are key organisms of the food web as predators both as larvae and as imagoes. They usually have definite habitat preference and territorial behavior. Odonates are ecologically important as both predators and prey. In India, Odonata status gives valuable insight about ecosystem health. They are among the dominant invertebrates' predators in any ecosystem. Being predators both at larval and adult stages, they play significant role in the

food chain of the ecosystem. Their aquatic larvae constitute a natural biological control over mosquito larvae and help to control several epidemic diseases like malaria, dengue, filaria etc.

The present study was carried out in four different sites in Pt. Ravishankar University Raipur campus. The objectives undertaken in the present study were: To survey and identify the dragonfly species found in four study areas, to evaluate the species diversity, evenness, richness and abundance of the species in both the study areas and to identify bio indicator dragonfly species in the four ecosystems.

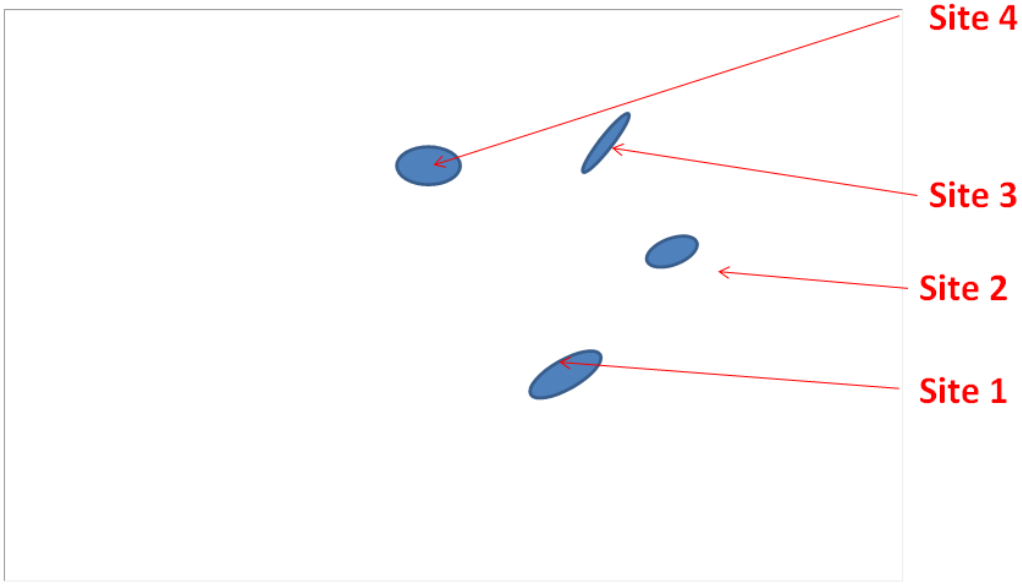
MATERIALS AND METHODS

Study Sites:

The present study was done in Pt.Ravishankar Shukla University, Raipur campus, district Raipur State of Chattisgrah. The study area is located between latitude 21.2469 N and longitude 81.5974 E. The university campus has total area of 207 acres.

Data Collection: The study was conducted for a period of fourteen days from four July 2018 to Seventeen July 2018. All surveys and photograph were taken in morning and evenings, Canon, Digital 7 camera, and lens 55-250.

Study Site : Pt. Ravishankar Shukla University Raipur (C.G.) India



Topological status - latitude 21^0.2469 N, longitude 81^0.5974 E
Area - 207 acres

RESULTS AND DISCUSSIONS

In the present study 15 species of dragonflies and damselflies were recorded from four survey sites (Table 1). It has been found that 08 species of Coenagrionidae family is mostly present in abundance followed by family Libellulidae comprising 06 species. The detailed species names and the site from where they have been observed are given in Table. In the present investigation, a study of dragonflies of Pt. Ravishankar Shukla campus was carried out to ascertain the number of species present in the beautiful landscape flanked by forest areas and water bodies and a checklist preparation was initiated. The survey showed remarkable species diversity of dragonflies followed by *one* species Gomphidae. This investigation showed some addition to the number of dragonfly species already described from Raipur district of Chhattisgarh.

Crocothemis servilia, Brachythemis contaminata, Diplocodes trivialis, Trithemis pallidinevis, Orthetrum sabina, Ictinogamphus rapax, Bradinopyga geminata, Ischnura aurora were found from all study areas and these were the most dominant species in the campus. Their dominance may be attributed to the presence of large green trees and small pond around Pt. Ravishankar Shukla campus. This checklist, a first of its kind, showed remarkable dragonfly diversity and distribution in the beautiful land scape of university

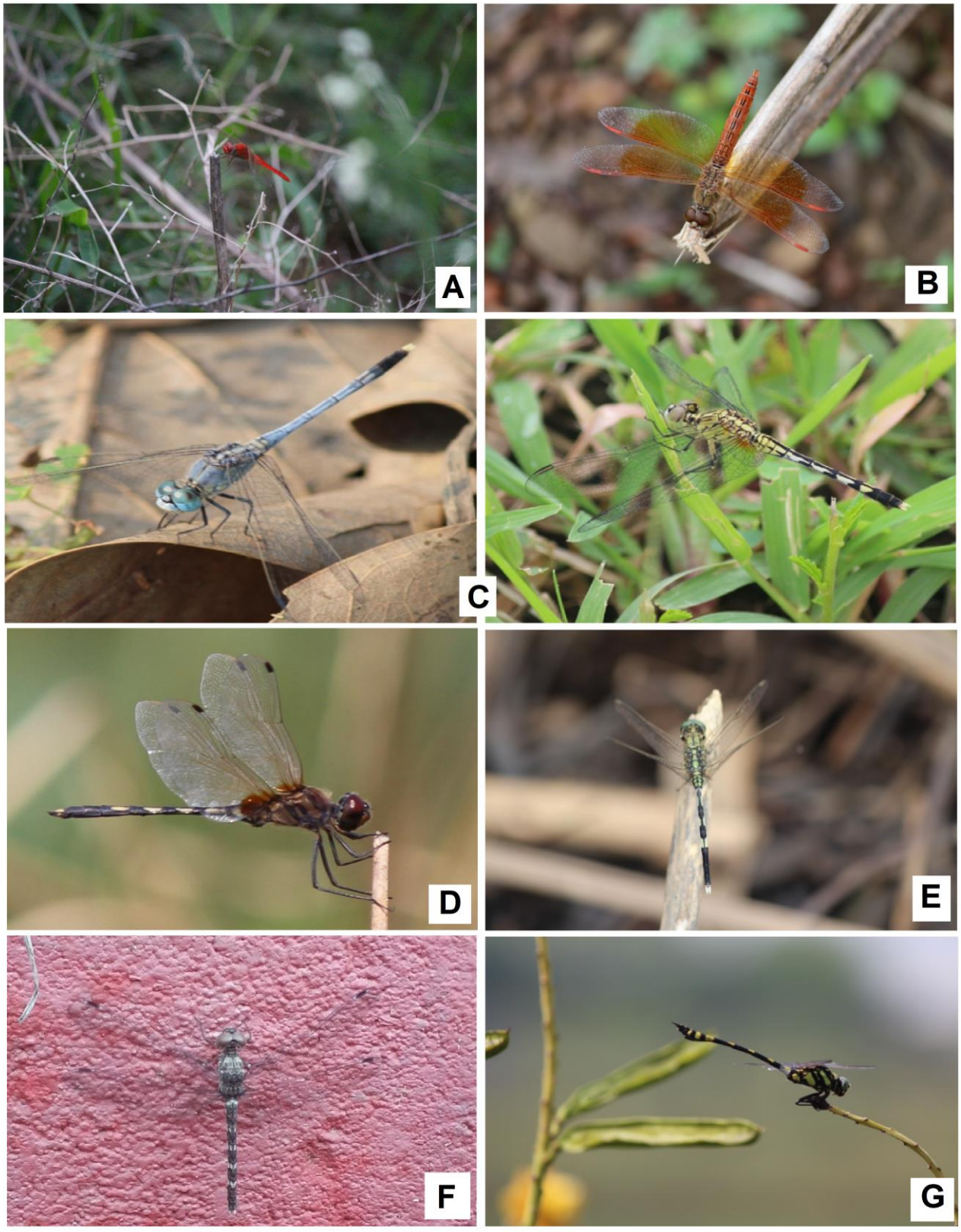
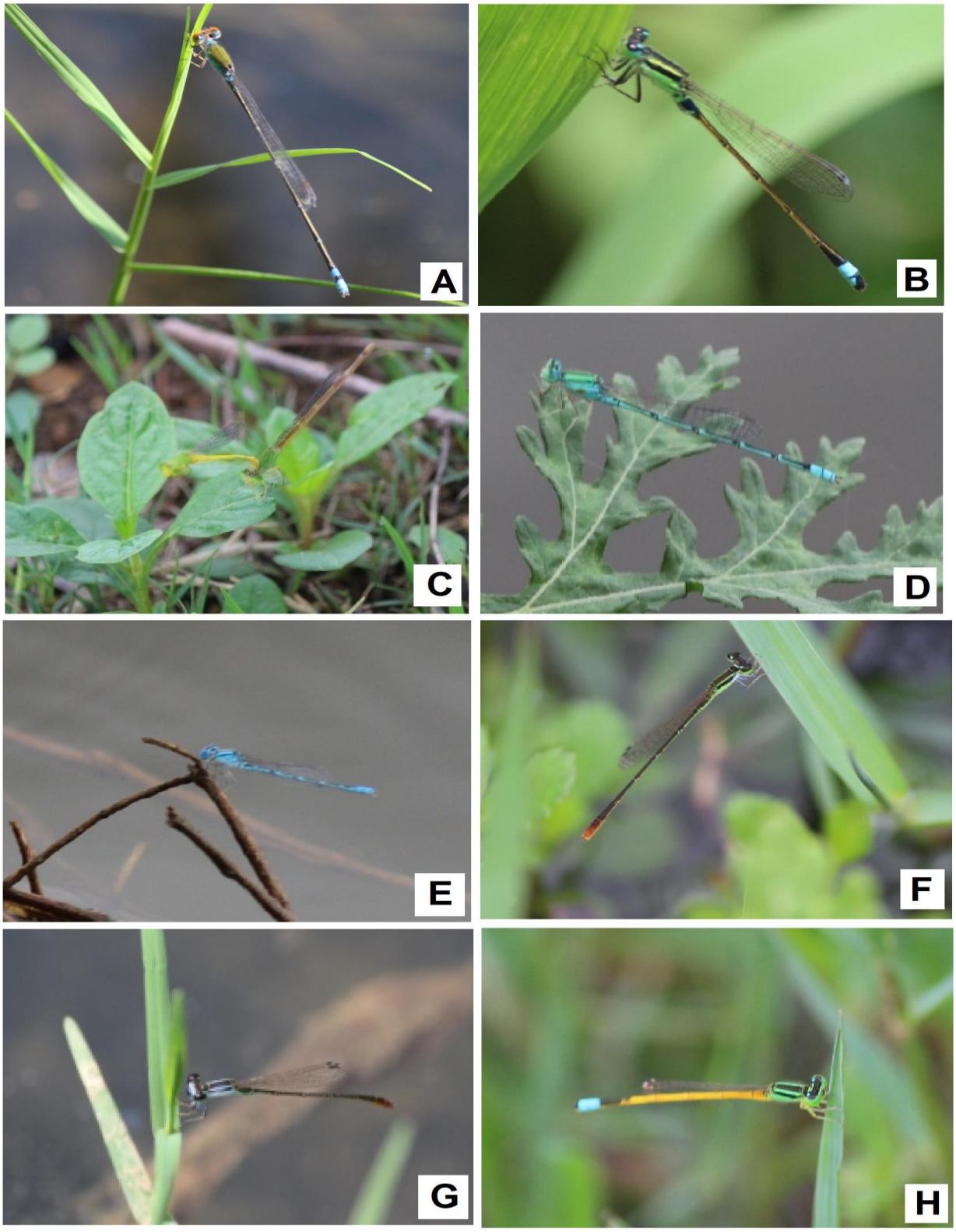


PHOTO 1: A: *Crocothemis servilia* (Ruddy Marsh Skimmer) **B:** *Brachythemis contaminate* (Ditch Jewel)
C : *Diplacodes trivilis* (Ground skimmer) **D:** *Trithemis pallidinervis* (Male) (Long Legged Marsh Glider)
E: *Orthetrum sabina (*green marsh hawk) **F:** *Bradinopyga geminate,* **H:** *Ictinogomphus rapax* (common club tail)



PHOTOPLATE 2 : A: *Pseudagrion rubriceps* **B:** ***Ischnura senegalensis*** **(male) C:** *Pseudogrion coromandelian* (Male) (coromandel marsh dart) **D:** *Pseudagrion decorum* (male) three-lined dart **E:** *Pseudagrion microcephalum* (male) **F:** *Agriocnemis pygmea (f*emale) Pigmy dartlet **G :** *Agriocnemis femina* (male) (pruinosed dartlet) **H :** *Ischnura aurora* (golden dartlet)

Table 1: Dragonflies and damselflies recorded from four survey sites

S. No.	Genus and Species of Odonata	Family	Site 1	Site 2	Site 3	Site 4
1.	*Crocothemis servilia*	Libellulidae	Y	Y	N	Y
2.	*Brachythemis contaminata*	Libellulidae	Y	Y	Y	Y
3.	*Diplocodes trivilis*	Libellulidae	Y	Y	Y	Y
4.	*Trithemis pallidinervis*	Libellulidae	Y	Y	Y	Y
5.	*Orthetrum sabina*	Libellulidae	Y	Y	Y	Y
6.	*Bradinopyga geminata*	Libellulidae	Y	Y	Y	Y
7.	*Ictinogamphus rapax*	Gomphidae	N	N	N	Y
8.	*Pseudagrion rubriceps*	Coenagrionidae	N	N	N	Y
9.	*Ischnura senegalansis*	Coenagrionidae	N	N	N	Y
10.	*Pseudogrion coromandelian*	Coenagrionidae	Y	Y	Y	Y
11.	*Pseudogrion decorum*	Coenagrionidae	N	N	N	Y
12.	*Pseudogrion microcephalum*	Coenagrionidae	N	N	N	Y
13.	*Agrionemis pygmea*	Coenagrionidae	N	N	Y	Y
14.	*Agrionemis femina*	Coenagrionidae	N	N	Y	Y
15.	*Ischnura aurora*	Coenagrionidae	Y	Y	Y	Y

CONCLUSION

From the present study in the four study sites Pt. Ravishankar Shukla University, Raipur, Chhattisgarh 15 species of dragonflies and damselflies were found, belonging to a three family Libellulidae, Gomphidae and Coengrionidae Odonates are good indicators of the quality of environment. Their distribution and abundance depicts the changing environment. These species are at the least concern category according to IUCN red list, but due to loss of habitat and various anthropogenic activities they could be in danger in near future. So, far, very less study has been done on these beautiful creatures, especially in central India. Effort to study the diversity and abundance of these species should be made, to keep these species in the near future.

Conflicts of Interest: The author declares no conflict of interest

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