

Diversity And Abundance Of Damselflies Of Saikheda Water Reservoir Of Yavatmal District, Maharashtra (India)

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ABSTRACT

Damselflies are frequently used as indicators of environmental health. Their aquatic larvae constitute a natural biological control over mosquito larvae and thus help to control several epidemic diseases like malaria, dengue, filaria etc. Their life history is closely linked to specific aquatic habitats making them an indicator of wetland health (Andrew *et al.*, 2008). Saikheda water reservoir of Yavatmal district, Maharashtra (India) were studied for rainy season from June 2013 to September 2013 of two station of Saikheda dam. A total of 10 species belonging to three families of Damselfly were identified.

Keywords:

Damselfly, Wetland, Epidemic, Biological Control, etc.

Introduction :

Damselfly assemblages represent sensitive indicators of environmental conditions including the water environment and forest structure, they belong to the order Odonata. In the temperate regions of the world, damselflies are frequently used as indicators of environmental health. Their aquatic larvae constitute a natural biological control over mosquito larvae and thus help to control several epidemic diseases like malaria, dengue, filaria etc. (Mitra, 2002). These are interesting beautifully coloured, hovering aquatic insects. The damselflies (Zygoptera) amphibiotic insects spend a major part of their life cycle in fresh water ecosystem. The adults are generally predacious insects, while the larvae are carnivorous and voracious. Even though the species are usually highly specific to a habitat, some have adapted to urbanization and use man-made water bodies Being primarily aquatic, their life history is closely linked to specific aquatic habitats making them an indicator of wetland health (Andrew *et al.*, 2008) and biocontrol agents (Tiple *et al.*, 2008, Andrew *et al.*, 2009). Laidlaw (1914) described 20 species of dragonflies and damselflies from Assam and Burma after that no significant work was carried out. Subramanian (2005) reported the presence of two prominent damselfly species *Ceriagrion olivaceum* and *Prodasineura verticalis* from Northeast India. Many studies were carried out to access the damselfly diversity and distribution in northeastern India. Fraser (1936) reported that the species *Hydrobasileus croceus* is found only from Western and Southern India and but later Lahiri (1987) confirmed its distribution in Assam and Meghalaya. Similarly, *Brachydiplax chalybea*, a dragonfly species, was also reported earlier from Assam, Guwahati (Fraser, 1936). Damselfly diversity and abundance were studied by Raja *et al.*, in (2012) from Amravati district of Maharashtra. In India Odonata status and give us valuable insight about ecosystem health as 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 forest ecosystem (Vashishth *et al.*, 2002). They tend to reside in flowing as well as in standing waters (Corbet, 1962). This research exercise is to make an inventory of damselfly and to study their Diversity and abundance from Saikheda dam of Yavatmal district of Maharashtra.

Study Area

Saikheda dam is located at 20°-6'-55"N latitude and 78°-28'-4"E

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longitude . It is surrounded by forest on one side with major agriculture land. It is an important water body in area for drinking water, commercial fishing, irrigation purpose.

For better study two sites of wetland with different characteristic features has been selected.

STATION 1 –Back water

STATION 2 – Fish collection site (contaminated)



Satellite image of Saikheda dam

Materials and Methods

Data Collection

Data was collected from two study station with the help of insect net and by handpicking. Specimens were collected from the month of June to September 2013 on (rainy) days between 10.00 and 18.00 hr.

The damselflies were collected from the Saikheda dam, biweekly survey was undertaken from 2013 during the monsoon (June–September).

Specimen Preparation

The collected species were preserved after collection and kept in an insect box. After collection the species were stretched in a stretching box and pinning with the help of entomological pin. Naphthalene and benzoic acid were used for the preservation.

Identification

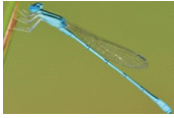








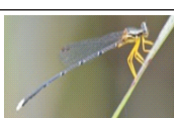
The adult specimens were identified with the help of identification keys provided by Fraser (1933, 1934, 1936), Mitra (2006), Subramanian (2005), Andrew *et al.*, (2009), and Subramanian (2009).

Results and Discussion:

In this study 10 species of damselflies of three families and 7 genera were recorded. It is observed that out of total species recorded 80% are of family coenogronidae followed by Platycnemididae family and Protoneuridae family showed less species diversity and represented by only one species. Station wise status of each species was investigated,

station 1 was very much diverse and almost all species except few are reported at this site. Station 2 was contaminated because of commercial fishing activities and has few species like *Pseudagrion indicum*, *Ceragrion coromandelianum*, *Ischnura senegalensis*, *Disparoneura quadrimacalata*, *Opera marginipes* are missing at this station. Being primarily aquatic, their life history is closely linked to specific aquatic habitats making them an indicator of wetland health (Andrew *et al.*, 2008) and biocontrol agents (Tiple *et al.*, 2008, Andrew *et al.*, 2009). The observations recorded in the present study prove valuable as a reference for assessing the environmental conditions of the wetland of Saikheda dam. Contaminated study site has less diversity of damselfly as compared to the non polluted site. From above citation it is inferred that the abundance and diversity of damselfly is directly proportional to the status of the wetland.

Table 1 – Name of species and their status in different station
(+ indicate presence while – indicate absence)

Damselfly (Zygoptera)					
Sr. No	Common name	Scientific name	Photo	Station1	Station2
	Family-coenagrionidae				
1	Blue grass dartlet	<i>Pseudagrion microcephalum</i> (Rambur, 1842)		-	+
2	Yellow striped blue dart	<i>Pseudagrion indicum</i> (Fraser, 1924)		+	-
3	Golden dartlet	<i>Ischnura aurora</i> (Brauer, 1865)		+	+
4	Pixie dartlet	<i>Rhodischnura nursei</i> (Morton, 1907)		+	+
5	Coromandel marsh dart	<i>Ceragrion coromandelianum</i> (Fabricius, 1798)		+	-
6	Senegal golden dartlet	<i>Ischnura senegalensis</i> (Rambur, 1842)		+	-
7	Senegal golden dartlet	<i>Pseudagrion spencei</i> Fraser, 1922		+	+
8	Saffron faced blue dart	<i>Pseudagrion rubriceps</i> (Selys, 1876)		+	-
Family-Protoneuridae					
9	Black winged bamboo tail	<i>Disparoneura quadrimacalata</i> (Rambur, 1842)		+	-
Family-Platytenemididae					
10	Yellow blush dart	<i>Opera marginipes</i> (Rambur, 1842)		+	-

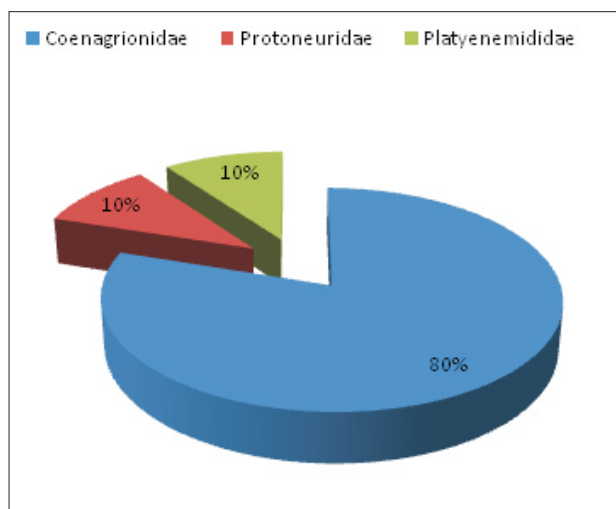


Fig.1 – Abundance of damselfly from wetland of Saikheda

References

- Andrew, R.J., K.A. Subramaniam & A.D. Tiple (2009).** *A Handbook on Common Odonates of Central India*. South Asian Council of Odonatology, 65pp.
- Corbet, P.S., 1962.** *A biology of dragonflies*, Wither by, London.
- Fraser, F.C. (1933).** *Fauna of British India Odonata 1*. Taylor and Francis Ltd. London, 423pp.
- Fraser, F.C. (1934).** *Fauna of British India Odonata 2*. Taylor and Francis Ltd. London, 398pp.
- Fraser, F.C. (1936).** *Fauna of British India Odonata 3*. Taylor and Francis Ltd. London, 461pp.
- Lahiri, A.R. 1987.** Studies on the Odonate fauna of Meghalaya. *Records of Zoological Survey of India*. Occasional Paper no. 99: 1-402, figs. 1-539.
- Laidlaw, F.F. 1914.** Zoological Results of the Abor Expedition, 1911-12. XXV. Odonata. *Records Indian Museum*. 8: 335-349, incl. pl. 16-16.
- Mitra, T.R., 2002.** Geographical Distribution of Odonata (Insecta) of Eastern India. *Memories of the Zoological Survey of India*. 19(1): 17
- Mitra, T.R. 2005.** Evolutionary Adaptations in Morphology and Ecology of *Tholymis Tillyard* (Faricius) and *Bradinopyga geminata* (Rambur) (Insecta : Odonata). *Records of Zoological Survey of India* 104(1-2): 300
- Mitra, T.R. (2006).** *Handbook of Common Indian Dragonflies (Insecta: Odonata)*. Zoological Survey of India, 124pp.
- N.A. Manwar, P.P. Rathod and I. Ahmad Raja(2012).** 1Shri Shivaji College of Arts, Commerce and Science, Akola - 444001 2Government Vidarbha Institute of Science and Humanities, Amravati – 444604

N. Vashishth, P.C. Joshi & A. Singh(2002). Odonata community dynamics in Rajaji National Park, India *Fraseria* 7: 21-25.

Subramanian, K.A. (2005). *Damselflies and dragonflies of peninsular India-A field Guide*. E-book of the Project Lifescape. Indian Academy of Sciences and Centre for Ecological Sciences, Indian Institute of Science, Bangalore, India, 118pp.

Subramanian, K.A. (2009). *A Checklist of Odonata of India*. Zoological Survey of India, 36pp.

Tiple, A.D., A.M. Khurad & R.J. Andrew (2008). Species Diversity of Odonata in and around Nagpur City, Central India. *Fraseria* (Proceeding of the 18th International Symposium of Odonatology, Nagpur) 7: 41-45