

REVIEW OF RESEARCH

ODONATE DIVERSITY OF SOME OF THE WETLANDS OF YAVATMAL DISTRICT, MAHARASHTRA



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Abstract :

Odonates are ideal models for the investigation of the ecosystem health as they are efficient indicator of habitat degradation. They also play vital role in trophic level management as key component to maintain delicate balance in prey predator relationship. Being predators both at larval and adult stages, they play significant role in the food chain of the wetland ecosystem. Odonate fauna were surveyed from some of the wetlands of Yavatmal district, Maharashtra from July 2013 to May 2014 in pre monsoon, Post monsoon and winter season respectively. 38 species of odonata belongs to 2 Suborders and seven families have been recorded. Maximum diversity were contributed by family Libellulidae and Coenagrionidae followed by Protoneuridae, Platynemididae, Lestidae, Aeshnidae and Gomphidae.

Keywords: Diversity, Distribution, Ecosystem, Wetland, Odonates.

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INTRODUCTION

Odonates are denizens of many aquatic ecosystem and their distribution covers a great deal of continuum from temporary to permanent water bodies (Corbert 1999; Johansson & Suhling 2004). They found especially along the shores and over the waters of marshes, pond, rivers, and lakes. The Odonates are often beautifully coloured insects, spent most of their time on wings. The immature stages are aquatic while adults found usually near the water. Odonata is represented by 6,000 species belonging to 630 genera in 28 families, clubbed under 3 suborders namely, Zygoptera, Anisozygoptera and Anisoptera from all over the world (Prasad, 1998). In India, 499 species and subspecies under 139 genera in 17 families, 32 subfamilies and 7 superfamilies have been documented (Prasad and Varshney, 1995). Fraser (1933, 1934, 1936), Prasad (1996) and Kulkarni and Prasad (2002) have left their impact on systematic of Odonata of India. Prasad and Kulkarni (2001) reported 71 species from Nilgiri Biosphere reserve. Further, Prasad and Kulkarni (2002) reported additional 34 species from Kerala. Shinde and Sathe (2006) recorded a total of 36 species of dragonflies from Koyna dam area (Western Ghats).dam area (Western Ghats). Odonata occupy almost all kinds of habitats along the habitat permanent gradient ranging from permanent running waters and lakes to small temporary rain pools. They are often successfully used as indicators for environmental health and conservation management. This study is attempted to find out diversity of Odonata in relation to different wetland habitats which gives us valuable insight about ecosystem health as they are amongst the dominant invertebrate predators in any ecosystem.

MATERIALS AND METHODS

Monthly surveys were conducted along pre-determined transect in different wetlands between 8-10 hrs in morning. During the course of the survey photographic records of adult individuals of different Odonate species were maintained using a digital SLR camera Nikon D7000 with Nikkor micro lens. The Adult specimens were identified with the help of identification keys provided by Fraser (1933,1934 and 1936);Mitra (2006); Subramanian(2005) and Andrew et al. (2009).

Images 1–3 : Study area showing different wetland types.



1-Saikheda dam,
N 20°07'03" E 78°28'34"

2-Wai dam
N 20°04'46" E 78°38'13"

3-Karanwadi dam
N 20°04'35" E 78°26'15"

RESULT AND DISCUSSION.

In the present investigation, 38 species of odonates belonging to 24 genera and 7 families have been recorded

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(Table 1). The anisopterans are represented by three families- Libellulidae (22), Aeshnidae (1), Gomphidae (1). The zygopterans are represented by the families-Coenagrionidae (11), Lestidae (1) and Platycenemididae (1) Protoneuridae (1).

Table 1 :Odonate diversity of studied wetlands from July 2013 to May 2014

S.No	Family	Scientific Name	Common Name	Status	SD	WD	KD
1	Coenagrionidae	<i>Agriocnemis femina</i>	White blacked wisp	VC	10	7	9
2		<i>Agriocnemis pygmaea</i>	Pigmy dartlet	C	7	9	8
3		<i>Ceragrion coromandelianum</i>	Coromandel marsh dart	VC	13	9	11
4		<i>Ischnura aurora</i>	Golden darlet	NR	5	3	6
5		<i>Ischnura senegalensis</i>	Senegal golden dartlet	C	10	8	9
6		<i>Mortonagrion varralli</i>	Brown Dartlet	R	2	0	2
7		<i>Pseudagrion rubriceps</i>	Saffron-faced blure dart	VC	13	7	10
8		<i>Pseudagrion microcephalum</i>	Blue grass dartlet	C	6	9	7
9		<i>Pseudagrion indicum</i>	Yellow striped bluedart	C	10	6	8
10		<i>Rhodischnara nursei</i>	Pixie dartlet	VC	13	10	14
11		<i>Pseudagrion spencei</i>	-	C	8	6	7
12	Protoneuridae	<i>Disparoneura qudrimacalata</i>	Black winged bambootail	C	8	5	9
13	Platycenemididae	<i>Copera marginipes</i>	Yellow blue dart	C	9	8	5
14	Lestidae	<i>Lestes umbrinus</i>	Brown spreadwing	R	0	3	0
15	Aeshnidae	<i>Anax immaculifrons</i>	Blue damer	C	10	9	5
16	Gomphidae	<i>Ictinogomphus rapax</i>	Common clubtail	VC	8	12	9
17	Libellulidae	<i>Aethriamanta brevipennis</i>	Scarlet marsh hawk	C	9	7	6
18		<i>Brachythemis contaminata</i>	Ditch jewel	VC	22	14	11
19		<i>Bradinopyga geminate</i>	Granite Ghost	VC	13	12	8
20		<i>Crocothemis servilia</i>	Ruddy marsh skimmer	NR	2	3	4
21		<i>Diplocodes bipunctata</i>	-	VC	13	6	7
22		<i>Diplocodes germinate</i>	-	NR	3	2	0
23		<i>Diplacodes nebulosa</i>	Blacktipped Ground Skimmer	C	11	8	9
24		<i>Diplocodes trivialis</i>	Ground Skimmer	NR	3	2	4
25		<i>Neurothemis tullia</i>	Pied Paddy Skimmer	R	0	2	0
26		<i>Orthetrum chrysis</i>	Brown-backed Red Marsh Hawk	VC	7	5	10
27		<i>Orthetrum glaucum</i>	Blue marsh hawk	C	9	7	6
28		<i>Orthetrum luzonicum</i>	Tricoloured Marsh Hawk	NR	3	0	3
29		<i>Orthetrum pruinosum</i>	Crimson tailed Marsh Hawk	C	8	9	9
30		<i>Orthetrum Sabina</i>	Green Marsh Hawk	R	2	0	0
31		<i>Orthetrum triangulare</i>	Blue-tailed Forest Hawk	R	1	3	0
32		<i>Pantala flavescens</i>	Wandering Glider	NR	3	5	5
33		<i>Potamarcha congener</i>	Yellow-tailedAshy Skimmer	R	2	0	2
34		<i>Rhyothemis variegata</i>	Common picture wing	VC	7	5	12
35		<i>Trithemis aurora</i>	Crimson Marsh Skimmer	R	1	1	0
36		<i>Trithemis festiva</i>	Black stream glider	VC	13	10	6
37		<i>Trithemis pallidinervis</i>	Long legged marsh glider	NR	3	1	4
38		<i>Tholymis tillarga</i>	Coral-tailed cloud wing	NR	3	3	5
					270	216	230

VC-Very Common,C-Common, R-Rare, NR-Not Rare. SD-Saikheda dam, WD-Wai dam, KD-Karanwadi dam.

The odonates belonging to the family Libellulidae sub order anisoptera and Coenagrionidae from zygoptera dominate the studied wetlands. 22 species belongs to the family Libellulidae represent 59% and 11 species (28%) were contributed by Coenagrionidae. One species each (2.6%) were contributed from the Family Lestidae, Platycenemidide Protoneuridae, Aeshnidae, Gomphidae respectively. Only species *Anax immaculifrons* from family Aeshnidae is

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regularly found patrolling along the water edge. *Ictinogomphus rapax*, belonging to family Gomphidae is commonly observed perched on emerging vegetation. A comparative account on the richness of Odonata fauna is presented in Table 1.

In similar kind of survey, A. S. Kulkarni and K. A. Subramanian (2013) sampled in twelve sampling localities in the Mula Mutha River Basins between Tamhini Reserve Forest and Ujani wetland in Pune district of Maharashtra to understand the habitat and seasonal distribution studied the odonate diversity. According to the study, total of 46 odonate species in 26 genera and eight families was recorded. Tiple., et al. (2011) reports detailed entomological survey on the dragonfly and damselfly (odonata) diversity in Kanha National Park, Madhya Pradesh for a period 2004-2006 during the monsoon (May-September) and post monsoon (October-December). This habitat attracted 36 species of odonates belonging to 34 genera and 7 families. They concluded that, Odonata are good indicators of environment as they are sensitive and directly affected by micro level changes in the habitats in relation to the weather condition.

Odonates and their habitats are under threat due to large scale habitat fragmentation and loss, habitat alterations due to uncontrolled encroachment, part time agriculture and commercial fishing in these wetlands results in irreversible damage to their breeding habitats by draining of the swamps. The present study gives valuable information about odonate fauna of these selected wetlands as a baseline data which will be useful to assess the changes in the environmental conditions. It will be helpful in formulating future conservation strategies to protect these wetland ecosystems.

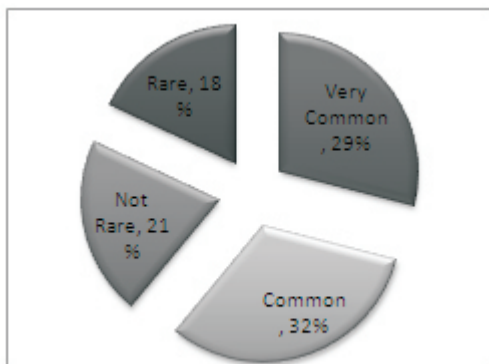


Fig 1: Status of Odonate species in studied wetland

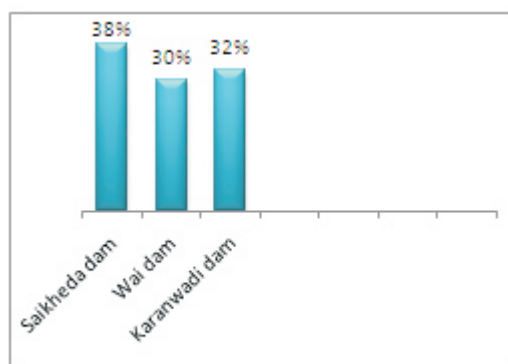


Fig 2: Species distribution in SD, WD, and KD

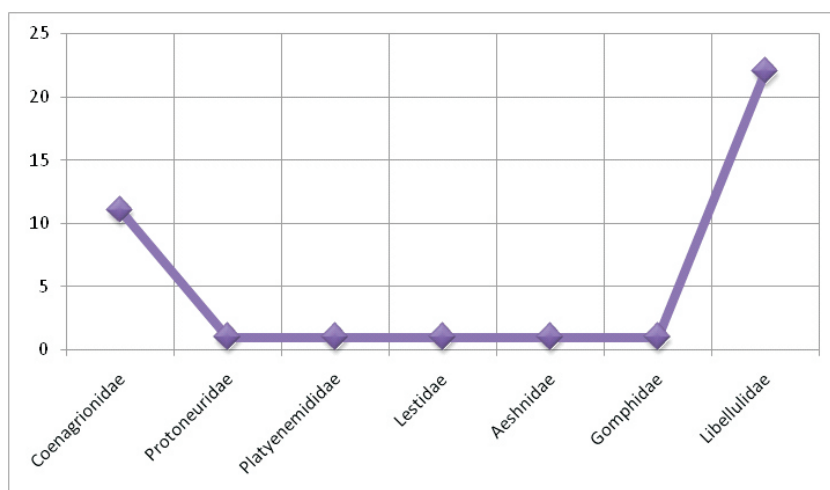


Fig 3: Availability of all family groups recorded from different wetlands in the present study.

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