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Diversity and abundance of Dragonflies and Damselflies Of Chatri Lake Region, in Pohara – Malkhed Reserve Forest, Amravati, Maharashtra (India)

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Abstract

The objectives of the present study were to explore the Diversity and abundance of Dragonflies and Damselflies (Class Insecta, phylum Arthopoda) of Chatri Lake region. Diversity and abundance of the Chatri Lake region was investigated. Total 22 species of dragonflies and damselflies belonging to four families were recorded. In our study the most abundant family was Lebellulidae followed by coenogrionidae, while family gomphidae and Platycenemididae was least abundant. Lebellulidae family represents 11 species; coenogrionidae represents 8 species while gomphidae and Platycenemididae represents two and one species respectively. We observed that the station 1 is most diverse in Dragonfly and Damselfly fauna.

Key words: Dragonfly and damselflies, Chatri Lake, Pohara – Malkhed Reserve Forest, Amravati.

1. Introduction:

The order Odonata is one of the most popular insect groups. Dragonflies and damselflies are amongst the most attractive of creatures on earth. According to Silsby, (2001), eight super families, 29 families and some 58 sub-families of dragonflies for approximately 600 genera and 6000 named species have so far been described all over the world. India is also highly diverse with more than 500 known species of Odonata (Subramanian, 2005). They are denizens of many aquatic ecosystems and their distribution covers a great deal of continuum from temporary to permanent water bodies (Corbet 1999; Johansson & Suhling 2004). In the temperate regions of the world, dragonflies 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). In India Odonata status and give us valuable insight about ecosystem health, especially of wetland. 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). There is, however no report on Diversity and abundance of Dragonflies and Damselflies of Chatri Lake. The present work was, therefore, undertaken to make the study on Diversity and abundance of Dragonflies and Damselflies of Chatri Lake region.

2. Study area:

Chatri Lake is situated in Pohara – Malkhed Reserve Forest, Amravati and it is also nearer to Amravati City. The Chatri Lake lies between ($20^0$53'42.6"N & $77^0$46'66.2"E, 372m), covers an area of 111.231934 m^2. Chatri Lake is an artificial lake and was built in 1888. It is situated on the Malkhed Railway Road, 1 km from Dasturnagar Square; the reservoir has its base built on a small spring named Kali Nadi. It is a small reservoir built with the intention to supply drinking water to Amravati City, but now Amravati City gets water from Upper Wardha Dam. A small garden and boating facility is also available, because of beautiful garden and boating facility many tourist visits this place. Human activities, fishing and cattle grazing is also seen on this Lake.

For better study we have divided this area into three different stations. These stations are

1) STATION 1 – Garden site
2) STATION 2 – Most contaminated cattle grazing site
3) STATION 3 – Fish collection site

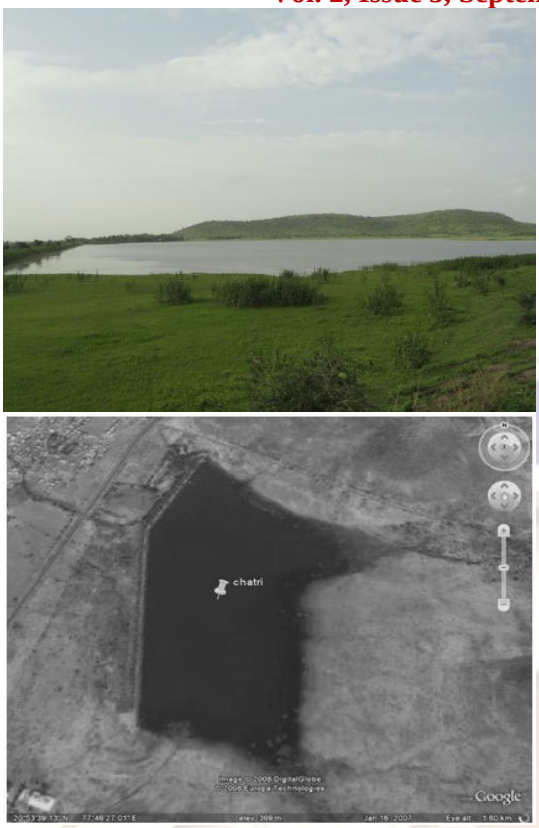

Fig. 1 Study area (Chatri Lake, Amravati)

3. Materials and methods:

The present study was carried out monthly during the year June-Nov 2011. Observations were carried out during morning and evening times in all stations. Collection of specimens was done with the help of specially design insect net. Species were photographed and identified in their natural habitats, but in few cases when it is difficult to assess, then it is collected for further identification. Standard methods were used for collection and observations of species. Species were identified with the help of Fauna of British India of Fraser and field guide of Subramanian.

4. Results:

In our study 22 species of dragonflies and damselflies to four families and 17 genera were recorded. We observed that out of total species recorded 50% are of Lebellulidae family followed by coenogrionidae family with 36% species. Gomphidae and Platycenemididae family showed less species diversity and represented by only two and one species respectively (fig. 2). Station wise status of each species was investigated. Station 1 was very much diverse and almost all species except few are reported in this area. Station 2 was very much contaminated and has very few species at that site, but *Brachythemis contaminata* was seen most abundant. Station 3 was also contaminated but it is less contaminated as compared to station 2 and has some more species diversity than station 2.

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

SR.NO.	NAME OF SPECIES	STATION 1	STATION 2	STATION 3
1	*Orthetrum chrysis* (Selys, 1891)	-	-	+
2	*Orthetrum sabina* (Drury, 1770)	+	-	+
3	*Orthetrum glaucaum* (Brauer, 1865)	+	-	-
4	*Orthetrum prinosum* (Rambur, 1842)	+	-	-
5	*Rhyothemis variegata* (Linnaeus, 1763)	+	-	-
6	*Brachythemis contaminata* (Fabricius, 1793)	+	+	+
7	*Anthriamanta brevipennis* (Rambur, 1842)	+	-	-
8	*Trithemis festiva* (Rambur, 1842)	-	+	-
9	*Trithemis pallidinervis* (Kirby , 1889)	+	+	-
10	*Diplocodes trivialis* (Rambur, 1842)	+	-	+
11	*Crocothemis servilia* (Drury, 1770)	-	-	+
12	*Ictinogomphus rapax* (Rambur, 1842)	+	+	+
13	*Paragomphus lineatus* (Selys, 1850)	+	-	+
14	*Acisoma panorpoides* (Rambur, 1842)	+	-	-
15	*Pseudagrion rubriceps* (Selys, 1876)	+	-	-
16	*Pseudagrion microcephalum* (Rambur, 1842)	+	+	-
17	*Aciagrion pallidum* (Selys, 1891)	+	-	-
18	*Ischnura arora* (Brauer, 1865)	+	-	+
19	*Rhodischnura nursei* (Morton, 1907)	+	+	-
20	*Ceriagrion coromandelianum* (Fabricius, 1798)	+	-	-
21	*Mortonagrion varralli* (Fraser, 1920)	-	+	-
22	*Copera marginipes* (Rambur, 1842)	+	-	-

Family: Libellulidae

1) *Orthetrum chrysis* (Selys, 1891) – Found commonly perched arraund marshes, ponds.
2) *Orthetrum sabina* (Drury, 1770) – A common dragonfly of garden and fields.
3) *Orthetrum glaucaum* (Brauer, 1865) – Commonly found in canals.
4) *Orthetrum prinosum* (Rambur, 1842) – A common dragonfly of ponds, ditches, wells, tanks, rivers.
5) *Rhyothemis variegata* (Linnaeus, 1763) – Predominant dragonfly of pond, marshes.
6) *Anthriamanta brevipennis* (Rambur, 1842) – They have adapted to urban environment and could be seen in garden ponds too.
7) *Trithemis festiva* (Rambur, 1842) – Very common in canals, usually perches on boulders and aquatic plants.
8) *Trithemis pallidinervis* (Kirby , 1889) – A dragonfly partial to the marshes and weedy ponds. Usually perch on bare tips of shrubs. The long legs are very noticeable at this time.
9) *Diplocodes trivialis* (Rambur, 1842) – common dragonflies in gardens, fields etc. This dragonfly usually perches on ground and rarely flies above 1m.
10) *Crocothemis servilia* (Drury, 1770) – One of the commonest red dragonflies. This dragonfly perches on aquatic weeds and chases any passing by dragonflies.
11) *Brachythemis contaminata* (Fabricius, 1793) – A dragonfly of polluted waters.

Family: Gomphidae

1) *Ictinogomphus rapax* (Rambur, 1842) – Common dragonfly usually perches on a bare twig facing the water

body.

2) *Paragomphus lineatus* (Selys, 1850) – Commonly found near streams, rivers, ponds and lakes.

Family: Coenagrionidae

1) *Ischnura arora* (Brauer, 1865) – Among marshes on the banks of ponds, canals and rivers.
2) *Pseudagrion rubriceps* (Selys, 1876) – Seen in small groups of 3-4 individuals.
3) *Aciagrion pallidum* (Selys, 1891) - Common in marshes and ponds, flying or perched about 1-2 feet above ground.
4) *Ceriagrion coromandelianum* (Fabricius, 1798) – One of the commonest damselfly of central India, found along banks of pond, garden tanks, rivers and canals. Also found away from the water bodies.
5) *Acisoma panorpoides* (Rambur, 1842) – A species closely associated with water.
6) *Pseudagrion microcephalum* (Rambur, 1842) – Found commonly among vegetation covered banks of ponds, canals and rivers.
7) *Mortonagrion varralli* (Fraser, 1920) – Found among bushes close to marshes.
8) *Rhodischnura nursei* (Morton, 1907) – In marshes and ponds.

Family: Platycenemididae

1) *Copera marginipes* (Rambur, 1842) – Found along ponds, canals and streams. Fly along the ground level.

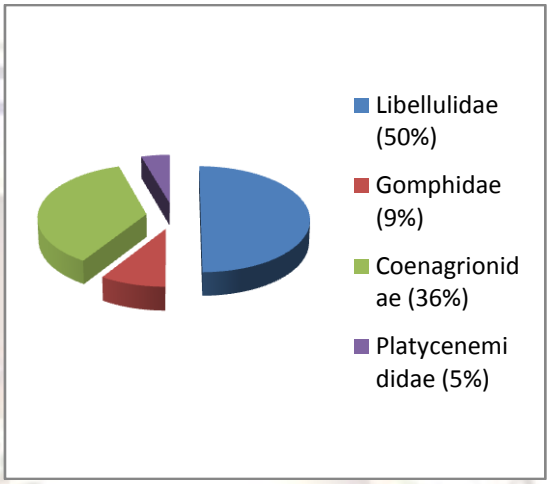

Fig.1 - Distribution of Odonata families from Chatri Lake region.

5. Discussion:

So far, the occurrence of 22 species of dragonflies and damselflies was reported under four families from Amravati. Among these *Brachythemis contaminata* was abundant and hence, indicate that this Lake may be contaminated. Station 1 is most and Station 2 is list diverse in dragonfly and damselfly diversity. From this study we conclude that our study area is very much diverse in dragonfly and damselfly fauna.

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