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Diversity and abundance of Dragonflies in Harsul and Salim Ali Lake Region, in Aurangabad, Maharashtra (India)

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Abstract

The current study aimed to investigate the variety and number of dragonflies (Phylum Arthropoda, class Insecta) in the Harsul and Salim Ali Lake regions. The region around the Harsul and Salim Ali Lakes was examined for diversity and abundance. Three families and a total of nine different species of dragonflies were identified. Libellulidae was the family with the greatest abundance in our study, followed by Gomphidae, while Coenagrionidae had the lowest abundance. Gomphidae and coenagrionidae each have one species, while the Libellulidae family contains seven different species. We found that the dragonfly diversity is greatest in Area 1.

Keywords: Dragonfly, Harsul lake, Salim Ali lake, Aurangabad

Introduction

One of the most well-known insect orders is Odonata. Among all living things on earth, dragonflies and damselflies are among the most beautiful. Eight superfamilies, 29 families, and roughly 58 subfamilies of dragonflies, representing roughly 600 genera and 6000 identified species, have so far been described globally, according to Silsby (2001) ^[21]. With more than 500 Odonata species known to exist, India is likewise very diversified (Subramanian, 2005) ^[23]. They live in a variety of aquatic habitats, and the range of their distribution ranges from transient to permanent water bodies (Corbet 1999; Johansson & Suhling 2004) ^[1, 2, 10]. Dragonflies are commonly utilized as environmental health indicators in temperate parts of the world. Their aquatic larvae provide a natural biological barrier against mosquito larvae, aiding in the prevention of various epidemic diseases like dengue, filaria, and malaria, among others (Mitra, 2002) ^[12]. Odonata status in India provides us with important information on the health of the ecosystem, particularly the wetland. In any habitat, they are among the most important invertebrate predators. In the food chain of the forest ecosystem, they play a crucial role as predators in both the larval and adult stages (Vashishth *et al*, 2002). However, there is no information available regarding the variety and abundance of dragonflies in Harsul and Salim Ali Lake. In order to research the diversity and quantity of dragonflies in the Harsul and Salim Ali Lake region, the current effort was done.

Study area

The Harsul and Salim Ali Lake are located in the city of Aurangabad. Salim Ali is located between (19.8992° N, 75.3423° E) and Harsul lake (19.9282° N, 75.3368° E), respectively. Both have lovely gardens, and a lot of tourists come here. On this lake, one may also see fishing and livestock grazing.

We selected two areas to facilitate our studies. This region is

1. AREA 1 – Harsul Lake
2. AREA 2 – Salim Ali Lake

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Fig 1: Study area 1 (Harsul lake)



Fig 2: Study area 2 (Salim Ali lake)

Table 1: Species names and status in various areas (plus signs (+) denote presence, minus signs (-) denote absence).

SR. No.	Name of species	Area 1	Area 2
1	<i>Orthetrum sabina</i> (Drury, 1770)	+	-
2	<i>Orthetrum glaucaum</i> (Brauer, 1865)	+	-
3	<i>Brachythemis contaminata</i> (Fabricius, 1793)	+	+
4	<i>Aethriamanta brevipennis</i> (Rambur, 1842)	+	-
5	<i>Trithemis pallidinervis</i> (Kirby, 1889)	+	+
6	<i>Diplocodes trivialis</i> (Rambur, 1842)	+	-
7	<i>Crocothemis servilia</i> (Drury, 1770)	-	-
8	<i>Ictinogomphus rapax</i> (Rambur, 1842)	+	+
9	<i>Acisoma panorpoides</i> (Rambur, 1842)	+	-

Family: Libellulidae

1. A typical dragonfly of gardens and fields is *Orthetrum sabina* (Drury, 1770). 2]
2. Commonly found in canals is *Orthetrum glaucaum* (Brauer, 1865).
3. A dragonfly of contaminated waterways is called *Brachythemis contaminata* (Fabricius, 1793).
4. *Aethriamanta brevipennis* (Rambur in 1842). They could be found in garden ponds as well because they have acclimated to urban environments.
5. *Trithemis pallidinervis*, described by (Kirby in 1889). a dragonfly that prefers weedy ponds and marshes. typically sit on plants' naked tips. At this point, the long legs are clearly visible.
6. Common dragonflies in gardens, fields, etc. are called *Diplocodes trivialis* (Rambur, 1842). This dragonfly typically rests on the ground and flies no higher than one meter.
7. One of the most prevalent red dragonflies is called *Crocothemis servilia* (Drury, 1770). This dragonfly hovers on aquatic plants and chases any other dragonflies that fly past.

Family: Gomphidae

1] The common dragonfly, *Ictinogomphus rapax* (Rambur, 1842), typically rests on a bare branch facing the water.

Family: Coenagrionidae

1] The species *Acisoma panorpoides* (Rambur, 1842) is intimately related to water.

Materials and methods

The current investigation was conducted on a monthly basis from April to September 2022. In all areas, observations were made in the morning and the evening. With the aid of Fraser's Fauna of British India and Subramanian's field guide, species were photographed and identified in their native settings.

Results

Nine species of dragonflies belonging to three families and eight genera were identified in our study. Out of all the species that have been recorded, 90% belong to the Libellulidae family, with 8% belonging to the Gomphidae family. Less species diversity was shown by the Coenagrionidae family, which only had two and one species, respectively (Table. 1). Each species' situation was looked into on an area-by-area basis. Nearly all species, with the exception of a handful, have been reported in Area 1, which was quite varied. Area 2 had relatively few species and was highly contaminated, however *Brachythemis contaminata* was the most prevalent species there.

Discussion

Nine species of dragonflies, divided into three families, have so far been found in Aurangabad. *Brachythemis contaminata* was prevalent among these, indicating the possibility of contamination in this lake. The diversity of dragonflies is greatest in Area 1 and least in Area 2. We draw the conclusion from this study that the dragonfly flora in our study area is quite diversified.

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