



*Research Paper*

**NEW RECORDS OF ODONATA FROM BARPETA DISTRICT, ASSAM,  
INDIA**

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**Abstract**

In a study conducted in the Barpeta district of Assam, India, a total of 47 species of Odonata species were recorded. The Anisopterans were represented by three families viz. Libellulidae, Aeshnidae and Gomphidae and Zygopterans were represented by three families viz. Coenagrionidae, Chlorophidae and Lestidae. The highest number of 24 species was recorded of the family Libellulidae, followed by 15 under Coenagrionidae, 3 each of Aeshnidae and Gomphidae and 1 each of Chlorophidae and Lestidae. Five species of odonates including *Ictinogomphus angulosus*, *Stylogomphus inglisi*, *Bradinopyga geminate*, *Aciagrion hisopa* and *Mortonagrion aborensense* were recorded for the first time from this region.

Key words: Odonata, Anisopterans, Zygopterans, New records.

**INTRODUCTION**

Dragonflies and damselflies are large, diurnal and active predatory insects. They belong to the order Odonata [1]. About 5952 species are known all over the world. India is highly diverse with more than 474 known species and 50 subspecies [2].

Studies on odonate fauna of the eastern region of the country have been done by various workers. Recent significant works include that of Nair [3], who describes 101 species of Odonates from Orissa and Eastern India. Das, *et al.* [4], observed that in sub Himalayan tea plantations of North Bengal, 4% of the predatory insects comprised of odonates. A total of 16 species of Odonates under 14 genera and 6 families were reported from Simlipal Biosphere Reserve [5] and 58 species representing 37 genera from 9 families were recorded from the buffer areas [6]. The Manchabandha Reserve Forest, Baripada, Orissa has a total of 48 Odonate species under 34 genera and 8 families [7].

Studies on Odonate diversity in the North Eastern part of India are very few. Lahiri [8] reported a total of 33 odonate species from Assam, Arunachal Pradesh, Manipur and Mizoram of North Eastern India. Mitra [9] described the geographical distribution and zoogeography of 148 species from the state of Meghalaya. Seven species were recorded from various study sites at the Gauhati University campus [10]. Majumder, *et al.* [11] reported 10 species of Odonata which accounted for 32.25% species richness in urban lakes of Tripura. Devi, *et al.* [12] studied the aquatic insect diversity of Loktak Lake, Manipur and found that Odonata represented by two families viz. Libellulidae and Coenagrionidae. *Tamea* sp., *Leucorrhinia* sp., *Sympetrum* sp. belonging to the family Libellulidae of the suborder Anisoptera, order Odonata were reported from Phumdis (floating island) of Loktak Lake [13].

## MATERIALS AND METHODS:

### Place of study

The study was conducted in the Barpeta district of Assam which extends from 26°5' North to 26°49' North latitudes and from 90°39' East to 91°17' East longitudes. It is almost a riverine plain forming a part of the Lower Brahmaputra valley. The district is surrounded by the Buthan-Himalayas on the north, the plains of the south-western part of the Kamrup district and the south-eastern part of the Goalpara district on the south, the plain of the Nalbari district on the east and the plains of the Goalpara and Korkajhar districts on the west. The general Topography of the Barpeta District varies from low-lying plains to highland having small-hillocks. The river Brahmaputra and eight tributaries form the main river system of the district. The tributaries of this river that flows through the District are Beki, Manah, Pohumara, Kaldia, Palla, Nakhanda, Marachaulkhowa and Bhelengi flowing from North to South. More over there are a large number of lakes, ponds and fisheries which are habitat of odonates along with other aquatic organisms.

The climate of the region is tropical monsoon type. The summer season is form March to May, followed by rainy season from June to September and cool winter from October to February.

## METHODS

### Sampling

Habitats such as areas around water bodies like ponds, lakes and rivers, open tracts of land, paddy fields and forest areas were surveyed. Visual surveys of teneral adults were used to record the species and their abundance [14]. Sampling surveys were conducted during the years 2012, 2013 and 2014.

### Identification

The species were identified with the help of various literatures [3, 15, 16, 17, 18, 19, and 20]. The distributional ranges of the species have been described from IUCN Red List searchable online database ([www.iucnredlist.org](http://www.iucnredlist.org)), and other sources.

## RESULTS:

Altogether forty seven species under six families were recorded in the study area during study period (Table 1). The anisopterans were represented by three families viz. Aeshnidae, Gomphidae and Libellulidae and the Zygopterans were represented by three families viz. Chlorophidae, Coenagrionidae and Lestidae. The numbers of species and percentage in each family (Table 2; Figure 1) were Aeshnidae 3 (6.4%), Gomphidae 3 (6.4%), Libellulidae 24 (51%), Chlorophidae 1 (2.1%), Coenagrionidae 15 (3.1%) and Lestidae 1 (2.1%).

### Account of newly recorded species:

Five species of odonates including three anisoptera and two zygoptera were recorded for the first time from this region. Their morphological description, habit and habitat and distributional accounts are given here.



Figure 2: *Ictinogomphus angulosus*



Figure 3: Thoracic markings of *Ictinogomphus angulosus*

1. *Ictinogomphus angulosus* (Selys, 1854)

Sub-order: Anisoptera

Family: Gomphidae

**Morphological characters**

Mouth parts and head were yellow with black sutures. Thorax was black and marked with yellow on dorsal side. Lateral sides of thorax were yellow and the sutures are outlined in black. Abdomen was black in colour with yellow markings.

**Habit and habitat:** Males are seen on tips of branches near water bodies. They make patrolling flights along water bodies, sometimes flying very high. Found near all types of water bodies during the monsoon season.

**Distribution:** *Ictinogomphus angulosus* is known from Himachal Pradesh, West Bengal and Madhya Pradesh in India, and from Nepal [21]. This species has also been reported from the state of Maharashtra [22].



Figure 3: *Stylogomphus inglisi* (dorsal view)



Figure 4: *Stylogomphus inglisi* (lateral view)

2. *Stylogomphus inglisi* (Fraser, 1922)

Sub-order: Anisoptera

Family: Gomphidae

**Morphological characters**

The face was yellow and marked with black. Prothorax was black with yellow margin. Thorax black on dorsal side with yellow markings. Lateral sides of thorax were yellow in colour and sutures black. Abdomen was black in colour and marked with yellow.

**Habit and habitat**

Found flying at medium height near water bodies. The species perched on long reeds or grasses.

**Distribution:** *Stylogomphus inglisi* is found in Nepal, India and Bangladesh. In India the species is reported from Meghalaya and Darjeeling [23].



Figure 5: *Bradinopyga geminata*

3. *Bradinopyga geminata* (Rambur, 1842)

Sub-order: Anisoptera

Family: Libellulidae

**Morphological characters**

The body colour was grey with black and white markings. Its colouration was cryptic and blends with dark objects like rocks or logs.

**Habit and habitat**

Found lying on dark coloured objects such as rocks, logs, wood or walls. Generally found around ponds and also urban areas.

**Distribution**

This species is widespread in India, Sri Lanka and Thailand. In India it is reported from Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh and West Bengal [24].



Figure 6: *Aciagrion hisopa*

4. *Aciagrion hisopa* (Selys, 1876)

Sub-order: Zygoptera

Family: Coenagrionidae

**Morphological characters**

The colour of the thorax was black with blue stripes dorso-laterally. The abdominal segments were black. The last two segments were blue.

**Habit and habitat**

Found along the edges of water bodies including rivers.

**Distribution**

This species is distributed in India, Indonesia, Malaysia, Myanmar, Nepal, Singapore, Thailand, and Viet Nam. In India this species is reported from Karnataka, Kerala and Maharashtra [25].

5. *Mortonagrion aborensis* (Laidlaw, 1914)

Sub-order: Zygoptera

Family: Coenagrionidae

**Morphological characters**

It was a small and slender damselfly nymph with black colour. The males had two dorsal greenish-blue coloured lines on the thorax. The face was azure blue. The last two abdominal segments were blue coloured. In females the abdomen was rusty coloured and the thorax black on dorsal side with grey markings and pale blue laterally.

**Habit and habitat**

Found in dense tree covered shady places around small water logged areas or ponds.

**Distribution**

This species is reported from India, Indonesia, Malaysia and Thailand. In India it is reported from Mizoram and West Bengal [26].



Figure 7: *Mortonagrion aborensis* (Male)

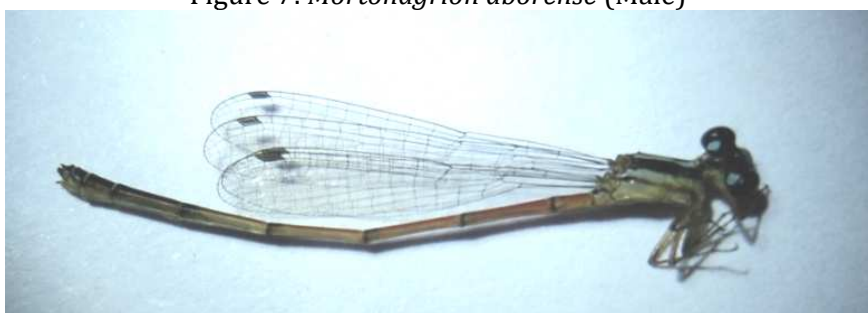


Figure 7: *Mortonagrion aborensis* (Female)

## DISCUSSION

Recording of forty seven species of Odonata species from the study region indicates that the region is rich in odonate diversity. Two anisopteran species of Gomphidae family viz. *Ictinogomphus angulosus*, and *Stylogomphus inglisi*, one of Libellulidae family viz. *Bradinopyga geminate*, and two zygopteran species *Aciagrion hisopa* and *Mortonagrion aborensis* of Coenagrionidae family were recorded for the first time from the study region.

*Ictinogomphus angulosus* was earlier recorded from Himachal Pradesh, West Bengal and Maharashtra in India and from Nepal. *Stylogomphus inglisi* was recorded from Meghalaya and Darjeeling. *Bradinopyga geminate*, though a wide spread species and reported from many parts of India is recorded for the first time from this study region. *Aciagrion hisopa* earlier recorded in Karnataka, Kerala and Maharashtra and *Mortonagrion aborensis* reported from Mizoram and West Bengal are also first records from this part of the country.

Dragonflies are an ancient group, and present day distribution reflects the distribution of the families before the break-up of Pangaea and subsequent super-continental schisms. Today's pattern of dragonfly diversity corresponds largely with the present climatological zones. Temperature accounts for a sharp increase of diversity from the poles to the equator, while precipitation obscures this pattern by reducing diversity in areas of low precipitation, resulting in 'gaps' in diversity [27]. Barpeta district of Assam, lies on the bank of river Brahmaputra in Northeast India which is one of the richest biodiversity region of the world.

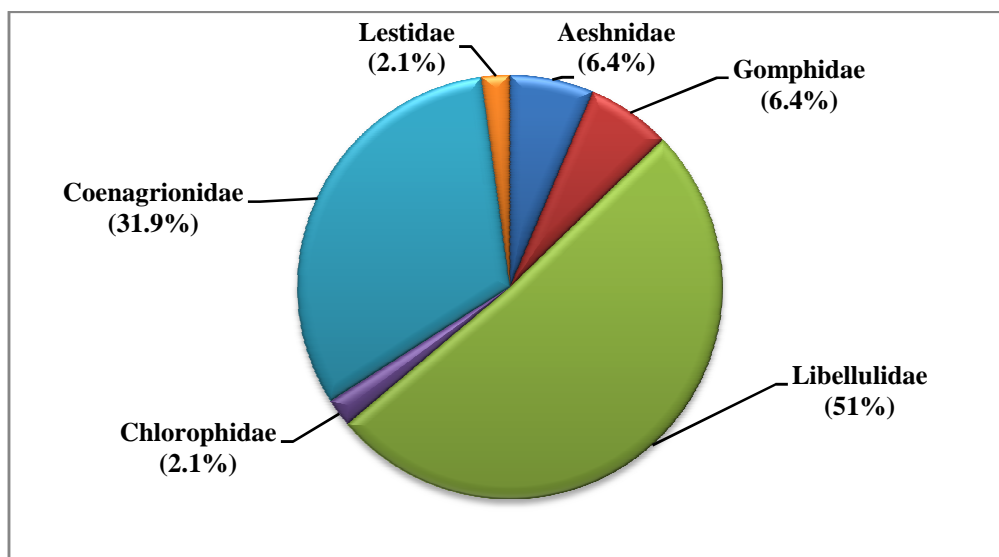
**Table 1: Comprehensive list of Odonate species in Barpeta district of Assam with five newly recorded species (\*)**

Sub-order	Family	Species	
Anisoptera	Aeshnidae	18. <i>Anaciaeschna jaspidea</i> (Burmeister, 1839)	
		19. <i>Anax guttatus</i> (Burmeister, 1839)	
		20. <i>Gynacantha bainbriggei</i> (Fraser, 1922)	
	Gomphidae	21. <i>Ictinogomphus angulosus</i> (Selys, 1854)*	
		22. <i>Paragomphus lineatus</i> (Selys, 1850)	
		23. <i>Stylogomphus inglisi</i> (Fraser, 1922)*	
	Libellulidae	24. <i>Acisoma panorpoides</i> (Rambur, 1842)	
		25. <i>Aethriamanta brevipennis</i> (Rambur, 1842)	
		26. <i>Brachydiplax chalybea</i> (Brauer, 1868)	
		27. <i>Brachydiplax farinosa</i> (Kruger, 1902)	
		28. <i>Brachydiplax sobrina</i> (Rambur, 1842)	
		29. <i>Brachythemis contaminata</i> (Fabricius, 1793)	
		30. <i>Bradinopyga geminata</i> (Rambur, 1842)*	
		31. <i>Crocothemis servilia</i> (Drury, 1770)	
		32. <i>Diplacodes nebulosa</i> (Fabricius, 1793)	
		33. <i>Diplacodes trivialis</i> (Rambur, 1842)	
		34. <i>Neurothemis fulvia</i> (Drury, 1773)	
		35. <i>Neurothemis intermedia</i> (Rambur, 1842)	
		36. <i>Orthetrum glaucum</i> (Brauer, 1865)	
		37. <i>Orthetrum pruinosum neglectum</i> (Rambur, 1842)	
		38. <i>Orthetrum sabina</i> (Drury, 1770)	
		39. <i>Pantala flavescens</i> (Fabricius, 1798)	
		40. <i>Potamarcha congener</i> (Rambur, 1842)	
		41. <i>Rhodothemis rufa</i> (Rambur, 1842)	
		42. <i>Rhyothemis variegata</i> (Linnaeus, 1763)	
		43. <i>Tholymis tillarga</i> (Fabricius, 1798)	
		44. <i>Tramea basilaris burmeisteri</i> (Kirby, 1889)	
		45. <i>Trithemis pallidinervis</i> (Kirby, 1889)	
		46. <i>Urothemis signata</i> (Rambur, 1842)	
		47. <i>Zyxomma petiolatum</i> (Rambur, 1842)	
	Zygoptera	Lestidae	1. <i>Lestes praemorsus</i> (Hagen in Selys, 1862)
		Chlorocyphidae	2. <i>Libellago lineata</i> (Burmeister, 1839)
		Coenagrionidae	3. <i>Aciagrion hisopa</i> (Selys, 1876)*
			4. <i>Aciagrion pallidum</i> (Selys, 1891)
			5. <i>Agriocnemis femina</i> (Brauer, 1868)
			6. <i>Agriocnemis lacteola</i> (Selys, 1877)
			7. <i>Agriocnemis pygmaea pygmaea</i> (Rambur, 1842)
			8. <i>Ceriagrion cerinorubellum</i> (Brauer, 1865)
			9. <i>Ceriagrion coromandelianum</i> (Fabricius, 1798)

	10. <i>Ceriagrion olivaceum</i> (Laidlaw, 1914)
	11. <i>Enallagma parvum</i> (Selys, 1876)
	12. <i>Ischnura aurora</i> (Brauer, 1865)
	13. <i>Ischnura forcipata</i> (Morton, 1907)
	14. <i>Mortonagrion aborense</i> (Laidlaw, 1914)*
	15. <i>Onychargia atrocyana</i> (Selys, 1865)
	16. <i>Pseudagrion microcephalum</i> (Rambur, 1842)
	17. <i>Pseudagrion rubriceps</i> (Selys, 1876)

**Table 2: Table showing total number of genera and species indifferent families of Odonates in the study area.**

Sub order	Family	Genera	Species	Total
Anisoptera	Aeshnidae	3	3	30
	Gomphidae	3	3	
	Libellulidae	18	24	
Zygoptera	Chlorophidae	1	1	17
	Coenagrionidae	9	15	
	Lestidae	1	1	



**Figure 1: Pie diagram showing percentage composition of species occurrence under different families of Odonata in the study area.**

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