

## CONSPECTUS OF ODONATA FAUNA OF CALCUTTA, INDIA

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### INTRODUCTION

The city of Calcutta was established by Job Charnock of British East India Company on August 24, 1690. The city is known by several names—City of Palaces, City of Joy, City of Museums, City of Nobel laureates of India. It remained the capital of British of India up to 1911. This is one of the highly urbanised area of the country with fourteen hundred kilometer metal roads ; metro rails ; aquatic transport system as well as modern sky scrappers. The municipal area has increased from 4600 acres in 1859 to 44,240 acres in 1989. The population, according to 1981 census was 9,194,018 and now it is estimated not less than ten millions excluding the regular commuters from other districts of West Bengal. The city has more than two hundred parks and tanks ; the Maidan lies on the Western fringe of the city. Pollution in the air and water varies from locality to locality, since there are factories for the manufacture of acids and other chemicals, plastic sheets and other articles, tanneries, Bitumen etc. in different parts of the city including its fringes.

### LOCATION

Calcutta lies at latitude  $22^{\circ} 30' N$ , and longitude  $88^{\circ} 22' E$ , in the deltaic West Bengal. Its eastern fringe is guarded by the newly established township Bidhan Nagar, erstwhile a marshy swamp known as Salt Lake, the west is bounded by the river Hooghly.

### METEOROLOGY

The climate is monsoon type. It receives an average annual rainfall about 1580 mm and the temperature varies from the average  $22.1^{\circ} C$ . minimum to the maximum  $31.8^{\circ} C$ .

**Seasons :**

*Winter or cool season* : The city has no real winter, though the period from December to February is called the cool season, when the mercury sometimes descends to 7° C. and the R. H. 24%. In January the cool and dry weather at its highest if there is no rain.

*Summer* : The very hot and dry season usually lasts from March to the first week of June, if there is no early rains. In the hot months the mercury ascends up to 117° F. ( =46° C. ).

*Rains* : The hot wet season is spread over the period from June to November. The north-east monsoon blows from the land, hence it brings little rains in the city. The early rains in dry hot season due to norwester or *kalbaisakhi* is also experienced in the city. In the early hot weather too, there is the season of cyclonic storms and tropical cyclones in the Bay of Bengal. These bring considerable amount of rainfall and often cause havoc. The south-west monsoon bursts over Calcutta in June and heavy rainfall is experienced in the season.

**HISTORICAL REVIEW**

Selys-Longchamps (1891) recorded two species from Calcutta. Later on Ris (1909 & 1910) added two more species and Laidlaw (1915, 1916 a, b, 1917, 1919 & 1922) reported nine species from the city. Fraser (1919 a, b, 1933, 1934 & 1936) recorded some species from the town. After the independence of India Lieftinck (1948), Raychaudhuri & Dasgupta (1949), Bhasin (1953), Dasgupta (1957), Mitra & Mukherjee (1967), Raychaudhuri et al. (1969), Lahiri et al. (1970), Lahiri & Mitra (1972), Mitra & Lahiri (1972), Mitra (1973, 1974 a, b, c, 1975), Mitra & Lahiri (1974 & 1975), Mitra et al. (1975), Lahiri & Mitra (1976), Mitra (1977), Mitra & Lahiri (1980), Peters (1981), Prasad & Ghosh (1982), Ram et al. (1982), Mitra (1983), Prasad et al. (1987), Mitra (1988 a, b) and Mitra (1990) successively contributed on the Odonata fauna of Calcutta.

**SPECIES RECORDED**

The present paper does not include the data on collections of species, since the present report includes collections deposited in the National Zoological Collections at

Zoological Survey of India, Calcutta, and informations available from the published works. The area under consideration includes Calcutta Municipal Corporation jurisdiction.

The city supports fiftyeight species of Odonata spread over thirty six genera, seven families and two suborders. The taxa have been arranged according to Fraser's (1957). *Reclassification*. Subfamilies have been avoided and other taxa viz. families, genera species have been arranged alphabetically. Names present in the Fauna of British India, Odonata, volumes 1-3 (1933, 1934, 1936) by Fraser have been cited in the synonym.

## COENAGRIONIDAE

### *Agriocnemis lacteola* Selys

*Agriocnemis lacteola*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 381-383

The species is visible off and on, but not—very common species. It occurs on grass patches and on floating vegetation.

### *Agriocnemis nana* (Laidlaw)

*Agriocnemis nana*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 386-387

Mitra & Lahiri (1980) and Mitra (1983) reported it as *A. dabreui* Fraser. The species occurs in the wilder regions of Behala. The specimens show characters of both *Agriocnemis* and *Mortonagrion*.

### *Agriocnemis pieris* Laidlaw

*Agriocnemis pieris*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 384-385

Selys-Longchamps (1891) first recorded the species from the city. It is a common species, occurs everywhere, breeds throughout the year. Other dragonflies like *Ischnura senegalensis*. *Ceriagrion coromandelianum* feed on the species.

### *Cercion malayanum* (Selys)

*Enallagma malayanum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 375-376

Lahiri & Mitra (1976) reported it from Calcutta. It occurs near ponds, sometimes rests on floating vegetation. 3 ♂ 4 ♀ were captured in 1966.

### *Ceriagrion cerinorubellum* (Brauer)

*Ceriagrion cerinorubellum*, Fraser 1933, *Fauna Brit. India, Odon.* 1 : 326-328

The species was collected from the bushes near ponds and drains.

*Ceriagrion coromandelianum* (Fabricius)

*Ceriagrion Coromandelianum*, Fraser, 1933, *Fauna of Brit. India, Odon.* 1 : 315-316  
Laidlaw (1916 b) recorded the species from the city. It is one of the commonest dragonflies of India. The species is visible on the roads, ponds, drains ; breeds during June to November.

*Ceragrion olivaceum* Laidlaw

*Ceriagrion olivaceum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 324-325  
Locally very common in many parts of India (Fraser 1933). In Calcutta it is not as common as *C. coromandelianum*. It is visible on the grass patches bordering the aquatic regime and floating vegetation.

*Enallagma parvum* Selys

*Enallagma parvum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 376-378  
It was first reported by Lahiri & Mitra (1976). It has similar habitat of *C. malayanum*.

*Ischnura aurora aurora* (Brauer)

*Ischnura delicata*, Fraser, 1983, *Fauna Brit. India, Odon.* 1 : 360-362  
It is a common species, occurs throughout the year and everywhere ; breeds throughout the year.

*Ischnura elegans* (Van der Linden)

*Ischnura elegans*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 351-354  
It was first reported from Calcutta as well as from the Oriental region by Lahiri and Mitra (1976). It is a rare species.

*Ischnura forcipata* Morton

*Ischnura forcipata*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 354-357  
Rame et al. (1982) reported it from the city. It is not visible off and on.

*Ischnura rufostigma rufostigma* Selys

*Ischnura rufostigma*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 362-364  
This species was first reported by Laidlaw (1916 b). It is usually seen on grass patches bordering the water bodies.

*Ischnura senegalensis* (Rambur)

*Ischnura senegalensis*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 348-351

Laidlaw (1916 b) reported it first from Calcutta. It is a very common species, occurring everywhere. It breeds during the whole year save February to middle of April.

*Onychargia atrocyana* Selys

*Onychargia atrocyana*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 394-395

It occurs everywhere and away from water. Sometimes it enters houses.

*Pseudagrion oustralasiae* Selys

*Pseudagrion bengalense*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 282-284

Laidlaw (1919) reported it from the town. It is visible near edges of the aquatic bodies.

*Pseudagrion decorum* (Rambur )

*Pseudagrion decorum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 286-289

The species was first recorded from Calcutta by Laidlaw (1916 a). It is visible off and on but not a very common species.

*Pseudagrion malabaricum* Fraser

*Pseudagrion malabaricum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 284-286

Lahiri & Mitra (1976) reported first from the city as well as from the gangetic alluvium.

*Pseudagrion microcephalum* (Rambur)

*Pseudagrion microcephalum*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 278-280

Laidlaw (1915) recorded the species from Calcutta. It breeds during June to November ; sometimes follows passerby. It is a very common species.

*Pseudagrion rubriceps rubriceps* Selys

*Pseudagrion rubriceps*, Fraser, 1933, *Fauna of Brit. India, Odon.* 1 : 296-299

It is a very common species. It breeds during June to November and sometimes form tandem pairs with *F. microcephalum*.

## LESTIDAE

*Lestes Platystylus* Rambur

*Platylestes platystyla*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 59-62

A rare species. The only male specimen was collected in 1917 ; after that no specimen could be captured.

## PLATYCNEMIDIDAE

*Copera cilita* (Selys)

*Copera annulata*, Fraser, 1933, *Fauna Brit. India, Odon.* 1 : 203-206

Laidlaw (1917) recorded the species first from Calcutta. It prefers to remain near bushes bordering the water sources.

*Copera marginipes* Rambur

*Copera marginipes*, Fraser, 1933, *Fauna Brit. India, Odon.* 192-197.

A male specimen was captured in a house in 1985. This is the first report of the species from Calcutta.

## AESHNIDAE

*Anaciaeschna jaspedia* (Burmeister)

*Anaciaeschna jaspedia*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 152-154

Ram et al. (1982) reported it first from the city.

*Anax guttatus* (Burmeister)

*Anax guttatus*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 140-142

Ram et al. (1982) recorded it first from the city ; it is a rare species.

*Anax imperator imperator* Leach

*Anax imperator*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 ; 136-138

It was first reported by Mitra & Lahiri (1974) ; it is a migratory species.

*Gynacantha bayadera* Selys

*Gynacantha bayadera*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 103-104

The present report is the first record of the species from Calcutta. Only a female specimen was collected in the night near electric lamp.

*Gynacantha dravida* Lieftinck

*Gynacantha hyalina*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 97-100

Lahiri & Mitra (1972) reported the species first from Calcutta. The specimen was collected in the night near electric lamp.

*Gynacantha rammohani* Mitra and Lahiri

*Gynacantha rammohani* Mitra & Lahiri, 1975, *Ent. Rec. J. Var.* 87 : 148-149

The species is known by a female specimen only.

*Gynacantha bainbriggei* Fraser

*Gynacantha bainbriggei* Fraser, 1922, *Mem. Dept. Agric. India (Ent.)* 8 : 75 ; 1936, *Fauna Brit. India, Odon.* 3

Only one male example was collected on 14. VII. 1978. A new record from West Bengal.

*Hemianax ephippiger* (Burmeister)

*Hemianax ephippiger*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 147-149.

It is the commonest aeshnid dragonfly of the city ; it is a migratory form, visible during the summer months.

CORDULIDAE

*Epephalmia vittata vittata* Burmeister

*Epephalmia vittata*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 194-196

The only male specimen was collected from the Indian Museum in 1941 (Ram et al. 1982). After this no collection was available.

## GOMPHIDAE

*Ictinogomphus angulosus* Selys

*Ictinus angulosus*, Fraser, 1934, *Fauna Brit. India, Odon.* 2 : 378-379

Laidlaw (1922) reported it from suburban area of Calcutta. After this Ram et al. (1982) reported it from Calcutta.

*Ictinogomphus rapax* (Rambur)

*Ictinus rapax*, Fraser, 1934, *Fauna Brit. India, Odon.* 2 : 373-376

Laidlaw (1922) recorded the species from Calcutta. It occurs near and away from water. Sometimes it follows running vehicles.

*Macrogomphus montanus* Selys

*Macrogomphus montanus*, Fraser, 1934, *Fauna Brit. India, Odon.* 2 : 345-346

Laidlaw (1922) reported for the first time from the city, after that no further record of capture is available.

## LIBELLULIDAE

*Acisoma panorpoides panorpoides* Rambur

*Acisoma panorpoides panorpoides*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 330-331

Occurs everywhere near and away from water.

*Brachydiplax chalybea chalybea* Brauer

*Brachydiplax chalybea* Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 328-329

A rare species.

*Brachydiplax sobrina* (Rambur)

*Brachydiplax sobrina*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 325-327

First reported by Ris (1910), visible near water.

*Brachythemis contaminata* (Fabricius)

*Brachythemis Contaminata*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 365—366



Very common species ; occurs everywhere, sometimes enter houses in the night. House gecko is one of its common enemy. It breeds during the rainy season.

*Bradionpyga geminata* (Rambur)

*Bradionpyga geminata*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 349-350

It rests on tree trunks and stone walls or metallic roads, the colour of which merges with the cryptic body colour of the species.

*Crocothemis erythrae erythrae* Brulle

*Crocothemis servilia erythrae*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 347  
Peters (1981) reported the species from Calcutta. This is the first report from the city.

*Crocothemis servilia servilia* (Drury)

*Crocothemis servilia servilia*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 345-347  
A common species, visits everywhere, breeds during June to November. Lahiri et al. (1970) reported the species as *Crocothemis indica* Shani.

*Diplacodes nebulosa* (Fabricius)

*Diplacodes trivialis*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 335-336  
Prefers to remain grass patches on the border of ponds.

*Diplacodes trivialis* (Rambur)

*Diplacodes trivialis*, Fraser 1936, *Fauna Brit. India, Odon.* 3 : 336-338  
A common species, visible everywhere. During summer months it remains in 'obelisk' position to avoid sun rays.

*Lathrecista asiatica asiatica* (Fabricius)

*Lathrecista asiatica asiatica*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 281-284  
This is a common species, visible everywhere, sometimes rest on overhead wires.

*Neurothemis tullia tullia* (Drury)

*Neurothemis tullia tullia*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 360-362  
Fraser (1919 a) first reported the species from the city. The species is visible off and on and everywhere.

*Orthetrum glaucum* (Brauer)

*Orthetrum glaucum*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 307-309

It is a rare species in the city.

*Orthetrum sabina sabina* (Drury)

*Orthetrum sabina*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 300-302

Ris (1909) first reported from Calcutta, a common species. It breeds during the cool season. Sometimes feed on *Ceriatrion coromandelianum* (Fabr.).

*Orthetrum triangulare triangulare* Selys

*Orthetrum triangulare triangulare*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 305-307

It is a rare species in the city.

*Pantala flavescens* (Fabricius)

*Pantala flavescens*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 414-416

Migratory species, migration is visible during September-October.

*Potamarcha congener* (Rambur)

*Potamarcha obscura*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 289-291

Ram et al. (1982) recorded it from Calcutta. It occurs near aquatic body and bushes.

*Rhyothemis variegata variegata* (Linne)

*Rhyothemis variegata variegata* Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 423-424

First reported by Fraser (1919 b) from the city. Fly in swarms over open space, sometimes reaches three to four metres above the ground.

*Sympetrum hypomelas* (Selys)

*Sympetrum hypomelas*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 373-374,

Ram et al. (1982) reported it from the town, it is a rare species.

*Tholymis tillarga* (Fabricius)

*Tholymis tillarga*, Fraser, 1936, *Fauna Brit. India*, *Odon.* 3 : 411-413

It is a common species, occurs everywhere. It breeds during the monsoon.

*Tramea basilaris burmeisteri* Kirby

*Tramea basilaris burmeisteri*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 432-434  
A rare species in the city.

*Trithemis aurora* (Burmeister)

*Trithemis aurora*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 383-385  
Ram et al. (1982) recorded it from the city.

*Zyxomma petiolatum* Rambur

*Zyxomma petiolatum*, Fraser, 1936 *Fauna Brit. India, Odon.* 3 : 407  
Visible during the rainy season, sometimes enter houses.

MACRODIPLACTIDAE

*Aethriamanta brevipennis brevipennis* (Rambur)

*Aethriamanta brevipennis brevipennis*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 445-447

A rare species occurs in the gardens and open spaces. Selys-Longchamps (1891) reported it first from the city.

*Macrodiplax cora* (Brauer)

*Macrodiplax cora*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 448-450

One example of each sex was captured in 1967. After that no example has yet been captured from the city. It is often visible in the suburban areas. It is a migratory species.

*Urothemis signata signata* (Rambur)

*Urothemis signata signata*, Fraser, 1936, *Fauna Brit. India, Odon.* 3 : 442-444

It is the commonest macrodiplactid dragonfly ; it occurs everywhere some times enters houses, breeds during the monsoon and post-monsoon period.

## DISCUSSION

The city supports fiftyeight species and subspecies. Among them *Agriocnemis nana* (Laidlaw), *A. pieris* Laidlaw, *Cercion malayanum* Selys, *Enallagma parvum* Selys, *Ischnura elegans* (V. d. Linden), *I. forcipata* Mortan, *Pseudagrion malabaricum* Fraser, *Anaciaeschna jaspedia* (Burmeister) *Anax guttatus* (Burmeister), *A. imperator* Leach, *Orthetrum glaucum* (Brauer) and *Macrodiplex cora*. (Brauer) are rare species in the city. It is presumed that those species reached the town accidently either being borne by the air currents or due to their migratory habit, since none of them could be collected after the first report of their occurrence in the city.

Three species viz. *Platylestes platystyla* (Rambur), *Epopthalmia vittata* Burmeister and *Macrogomphus montanus* Selys were captured before fifty years and more and no further record is available from the city. Mitra (1990), reported *Agriocnemis pygmaea* (Rambur), *Ceriagrion coromandellianum* (Fabr.), *Ischnura senegalensis* (Ramb.), *Brachythemis contaminata* (Fabr.) *Diplacodes trivialis* (Rambur), *Crocothemis servilia* (Dr.) and *Trithemis pallidinervis* Kerby as common species.

## SUMMARY

E. De. Selys-Longchamps reported two species of dragonflies from Calcutta in 1891. The present paper reports fiftyeight species of Odonata spread over thirtysix genera and seven families viz. Coenagrionidae, Lestidae, Platycnemididae, Aeshnidae, Gomphidae, Libellulidae and Macrodiplactidae recorded during the last one hundred years from the city of Calcutta.

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