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Photographer:	Prosenjit Dawn

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DragonflyIndia Meet 2016

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Abstract

The third meeting of DragonflyIndia social group was organized this time in Tiyabon Ecoresort, Gorumara National Park, Jalpaiguri district of West Bengal, India. Activities in the framework of the meeting are briefly outlined. A list of 66 Odonata taxa recorded during the field work is added.

Key words: DragonflyIndia, India, West Bengal, odonatology, meeting, *Agrionoptera insignis* (Rambur, 1842), *Amphithemis vacillans* Selys, 1891, *Coeliccia bimaculata* Laidlaw, 1914, *Ischnura aurora* (Brauer, 1865), *Ischnura rubilio* (Selys, 1876)

Introduction

Brief history of DragonflyIndia: DragonflyIndia as an e-community was created in 2005 on Yahoo groups. Due to change in the social media popularity the community was moved to Facebook later in 2009. Since then the Facebook group has grown to reach 6000+ members worldwide. DragonflyIndia meet is the annual gathering of the willing members and is being organized since 2014. This year the meeting was organized in Gorumara National Park, Jalpaiguri, West Bengal (IFig. 1) on 26th to 29th August, 2016.

The 2016 meeting: 26 participants from eight states of India and one from Sri Lanka participated in this meet (IFig. 2). The meet was held in Tiyabon Ecoresort adjacent to the Gorumara National Park in Jalpaiguri district of West Bengal. The four days meet featured extensive field visits to forest streams, Perennial Lakes, Flooded grassland and crop-fields and Rivers in and around Gorumara National Park (Fig. 3-4). On 28th August there was a trip to the outskirts of Neora Valley National Park in Himalayan foothills where we visited a hilly torrential stream (Fig. 5). Weather was overall sunny with an average temperature range 20-35°C except two hours of heavy rain in Samsing. Apart from the field trips there were presentations and workshop sessions. Two presentations about general biology, field identification and odonates of West Bengal were from the resource person's end associated with hand on training on specimen handling, collection, preservation and identification of odonate specimens both in field and lab (IFig. 6-7). A special session was organized on discussion about larval identification, larval sampling and rearing. A workshop was organized by Mr. A. Pendharkar on popularizing Odonatology study and their conservation among

commons through oureach; and the participants were asked to design insectorium, museum, dragonfly postcards, books, cartoons etc. as part of the workshop.

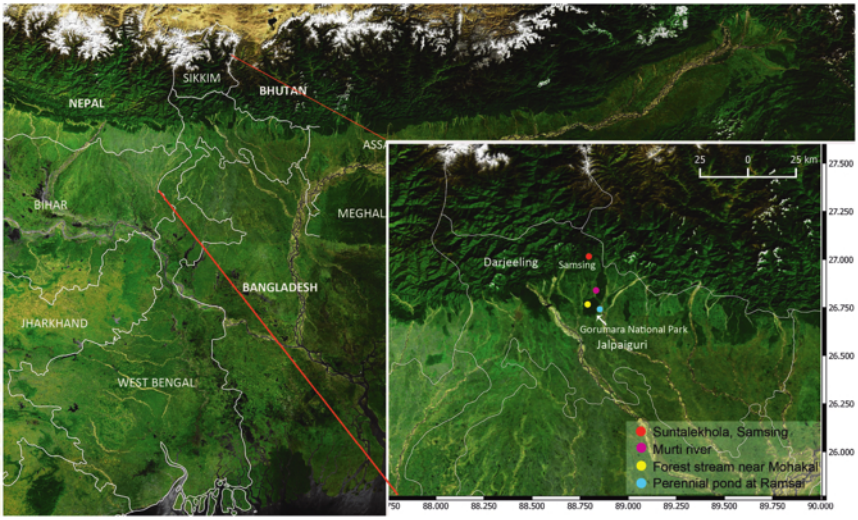

Figure 1: Map showing the sites visited during the meet.

Figure 2: Top from Left: Prosenjit Dawn, Parag Rangnekar, Nitin Kumbhar, Megha Sethi, Devsena Roychoudhury. Bottom from left: Kumaran Sathasivam, Amila Prasanna Sumanapala, Shuvendu Das, Sachin Kamble, Sagar Adhurya, Ananya Sarkar, Partha Sarathi Mondal, S. Nazneen, Shubhankar Patra, Dipti Thakuria, Neha Mujumdar, Omkar Dharwarkar, S. Shivakumar, Jignasa Patel, Prasenjit Shome, Monika Devi, Anand Pendharkar, Harkiran Kaur, Viswajit Bansode, Neha Katnoria and behind the camera Arjan Basu Roy. (Photo: Arjan Basu Roy)

Figure 3: Perennial Pond with plenty of aquatic vegetation at Gorumara National Park. (Photo: Prosenjit Dawn)

Figure 4: Field visit to the forest in Gorumara National Park. (Photo: Prosenjit Dawn)

Figure 5: Participants photographing the odonates in the hilly stream at Samsing. (Photo: Neha Mujumdar)

Figure 6: Presentation - Dragonflies of Gorumara National Park, West Bengal. (Photo: Neha Mujumdar)

Figure 7: Hands on training on Odonata specimen preservation and identification by Mr. Parag Rangnekar. (Photo: Neha Mujumdar)

Sampling localities:

Gorumara National Park and Samsing: Being situated in the Indomalayan Ecozone Gorumara National Park hosts Lower Gangetic plains moist deciduous forests mainly dominated by sal, teak, rain tree, silk cotton tree etc. and Terai-Duar savanna and grasslands. This small park covers only 80 km² area and mostly famous for its healthy population of Indian one horned Rhinoceros and Indian Elephant. Other remarkable animals are Gaur, Leopard, Peafowl, Hornbills, King Cobra etc. Samsing on the other hand as a part of the lower Neora Valley National Park has Eastern Himalayan hilly moist deciduous forest.

Status of the regional odonate fauna:

The Odonata fauna of West Bengal is well explored since the British period. This state has a interesting species composition because northern districts have Indo-Malayan elements, Himalayan species; on the other hand the central part of the state share species composition with dry deciduous central Indian forests and the southernmost region comprises the peninsular Indian and coastal species. Fauna of British India by Fraser (1933, 1934 and 1936) included taxonomic descriptions and distribution records of several odonate species from northern part of Bengal. Fraser (1934, 1935a, 1935b, 1935c, 1935d and 1940) separately published dragonfly fauna of Darjeeling and Jalpaiguri districts later. The first compilation of Odonata fauna from the state was done by Srivastava & Sinha (1993) reporting 185 species from the state in which several species were reported from Darjeeling district and Dooars of Bengal. Recent

compilation work by Dawn (in preparation) estimates a list of 230+ species from the state including several new distributional records from the Dooars region.

Material and methods

Sampling in Gorumara National Park and environs took place between 26th to 29th August, 2016: Tiyabon resort and forest (26°51'32.10"N 88°48'14.29"E), Stream near Mohakal (26°46'12.63"N 88°47'35.64"E), Chukchuki lake (26°45'17.45"N 88°50'47.09"E), ponds and grasslands at Ramsai village (26°43'33.19"N 88°51'14.05"E) and Murti river near Murti forest camp (26°50'27.99"N 88°49'41.44"E).

On 28th August there was a trip to the outskirts of Neora Valley National Park in Himalayan foothills to Samsing: Hilly stream in Samsing (27°00'43.75"N 88°47'09.11"E).

Results

The three days field trip during the meet resulted in a list of 66 taxa belonging to 44 genera and 9 families of odonates from the area (Table 1 in appendix). Two of them were unidentified as we couldn't catch them or manage proper photograph. Some interesting behavioural observations were also noted in field (see Fig. 19-20).

Discussion

Some of the records need a brief comment.

Note on imagines:

Agrionoptera insignis (Rambur, 1842) – This widespread species is not very common and only found in West Benagl within Indian limits. This excellent insect have many subspecies throughout the World, the one available from West Bengal are sometime believed to be *A. insignis dorothea* Fraser, 1927 (Fig. 8).

Amphithemis vacillans Selys, 1891 – After a gap of almost seventy years, recently this species is recorded from West Bengal and Assam. During the meet we came across more than 10 specimens of this species, and also identified the breeding place for this species as newly emerged tenerals were spotted (Fig. 9-10).

Coeliccia bimaculata Laidlaw, 1914 – This species is known to be endemic to North Eastern Himalayas. During the meet we recorded the species second time from West Bengal after Dawn (in preparation) from the same area (Image 11).

Coeliccia renifera (Selys, 1886) – Widespread species throughout the Himalayas. Being a habitant of forest streams, they are not very commonly seen damselflies (Fig. 12).

Aristocypha cuneata (Selys, 1853) – This is one of the cryptic species we encountered during the meet. They are typically found near the fast forest streams of Samsing, associated with *Aristocypha quadrimaculata*. Distinguishable by slightly bigger size, palest blue elongated triangular spot of thorax and typical marking patterns of wing (Fig. 13).

Aristocypha quadrimaculata Selys, 1853 – This species is locally common in the Eastern Himalayas. Smaller in size than *A. cuneata* and have distinct wing markings (Fig. 14).

Figure 8: *Agrionoptera insignis* (Rambur, 1842) male. (Photo: Prosenjit Dawn)

Figure 9: Teneral male of *Amphithemis vacillans* Selys, 1891. (Photo: Prosenjit Dawn)

Figure 10: *Amphithemis vacillans* Selys, 1891 mature male. (Photo: Prosenjit Dawn)

Figure 11: *Coeliccia bimaculata* Laidlaw, 1914 male. (Photo: Prosenjit Dawn)

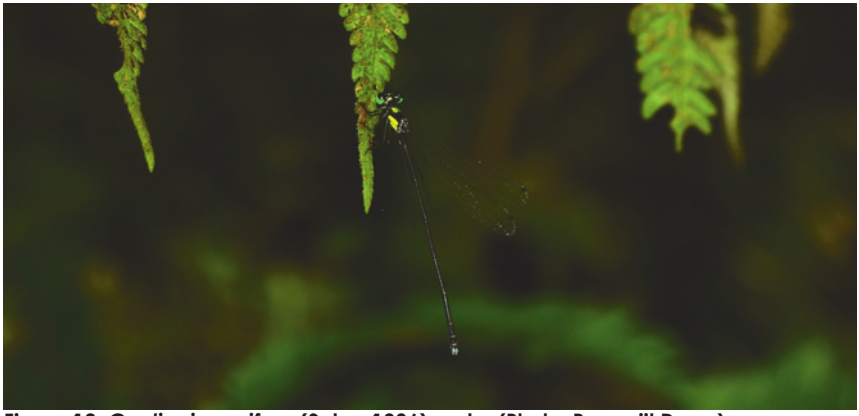

Figure 12: *Coeliccia renifera* (Selys, 1886) male. (Photo: Prosenjit Dawn)

Figure 13: *Aristocypha cuneata* (Selys, 1853) male. (Photo: Prosenjit Dawn)

Figure 14: *Aristocypha quadrimaculata* Selys, 1853 male. (Photo: Prosenjit Dawn)

Figure 15: Exuvia of *Vestalis* sp. (Photo: Prosenjit Dawn)

Figure 16: Emerging individual of *Agriocnemis femina* (Brauer, 1868) female. (Photo: Prosenjit Dawn)

Figure 17: Exuvia of *Hydrobasileus croceus* Brauer, 1867. (Photo: Prosenjit Dawn)

Aciagrion hisopa sensu Fraser nec (Selys, 1876) – Taxonomic note: Oleg Kosterin (in lit., 09-vi-2015) stated that the specimens from India are not *A. hisopa* (see Fig. 23). "Fraser had a misconcept of *A. hisopa*. The true *hisopa* is missing from India. However, Indian *Aciagrion* are not revised,"

Note on the Exuviae studied during the meet:

Generally, knowledge on Indian odonate larvae and exuviae is poor. We therefore decided to collect exuviae to start a more close insight in larval morphology of Indian Odonata which must be intensified at each opportunity.

1. *Vestalis* sp. – An exuvia was found in the vegetation beside a forest stream.

   Diagnosis: Comparatively longer damselfly exuvia; antennae seven segmented with first segment longer than the rest six segments all together (Fig. 15).
2. *Agriocnemis* sp. – Female individuals found to emerge during daytime from pond full of aquatic vegetation (Fig. 16).

   Diagnosis: Small sized larvae, leaflike caudal gills pointed at tip and with black transverse markings.
3. *Pseudagrion* sp. – Exuviae were found over the submerged aquatic vegetation.

   Diagnosis: Medium sized larva with caudal gills rounded at tip and with a node in the middle.
4. *Hydrobasileus croceus* (Brauer, 1867) – Found hanging from low water side vegetation beside the perennial pond.

   Diagnosis: Strong backwardly directed dorsal spines, lateral spines of 9th and 10th segment very long, Eyes protruding backwards and distinctly pointed (Fig.17).

Figure 18: Exuvia of *Epophthalmia vittata* Burmeister, 1839. (Photo: Prosenjit Dawn)

5. *Epophthalmia vittata* Burmeister, 1839 – Found hanging from vegetation and wooden bridge beside a perennial pond.

   Diagnosis: Large exuviae with long spidery legs, antennae seven segmented, distinct dorsal spines present, labium spoon shaped and inner margin of Labial palps armed with strong numerous teeth (Fig. 18).

Note on *Ischnura aurora* (Brauer, 1865) and *Ischnura rubilio* (Selys, 1876):

A confusion issue about the identification of *Ischnura aurora* and *Ischnura rubilio* has aroused. Before the primary review of this manuscript by Martin Schorr we overlooked these two species and identified every single individual as *Ischnura aurora* from the study area. Now after re-examining our old specimens we realize that following the discussion by Papazian et al,. 2007 most individuals present in North Bengal are actually matching with *I. rubilio* rather than *I. aurora*. Result with the specimens in my personal collection from Central India also the same. So, we need a thorough study of the *Ischnura aurora* specimens from India if they are all misidentified and actually are *I. rubilio*.

Acknowledgements

The organizers are thankful to all the active members of DiversityIndia, Dragonfly-India and participants of the Meet 2016 for making the meet a big success. Thanks are also due to the Nature Mates – Nature Club for their support. Special mention for Martin Schorr for his valuable comment on the manuscript; the International Dragonfly Fund and Worldwide Dragonfly Association for their financial support.

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Appendix 1

No.	Name of species	Gorumara National Park			Ponds and grasslands at Ramsai village	Murti river near Murti forest camp	Hilly stream in Samsing
		Tiyabon resort and forest	Stream near Mohakal	Chukchuki lake			
	Lestidae						
1	*Lestes* cf. *garoensis* Lahiri, 1987	•					
	Calopterygidae						
2	*Neurobasis chinensis* (Linnaeus, 1758)		•				
3	*Vestalis* sp.		•				
	Chlorocyphidae						
4	*Aristocypha cuneata* (Selys, 1853)						•
5	*Aristocypha quadrimaculata* Selys, 1853						•
6	*Heliocypha biforata* Selys, 1859 [Fig. 21]		•				
	Euphaeidae						
7	*Anisopleura* sp. [Fig. 22]						•
	Coenagrionidae						
8	*Aciagrion* sp. (*Aciagrion hisopa* sensu Fraser nec (Selys, 1876)). [Fig. 23]	•					
9	*Agriocnemis clauseni* Fraser, 1922	•	•	•			
10	*Agriocnemis femina* (Brauer, 1868) [Fig. 24]				•		
11	*Agriocnemis lacteola* Selys, 1877				•		
12	*Agriocnemis pygmaea* (Rambur, 1842)	•		•	•		
13	*Amphiallagma parvum* (Selys, 1876) [Fig. 26]			•			
14	*Ceriagrion coromandelianum* (Fabricius, 1798)	•		•	•	•	
15	*Ceriagrion cerinorubellum* (Brauer, 1865) [Fig. 25]			•	•		
16	*Ceriagrion olivaceum* Laidlaw, 1914	•					
17	*Ischnura* cf. *rubilio* (Selys, 1876)				•	•	
18	*Mortonagrion aborense* (Laidlaw, 1914)				•		
19	*Paracercion calamorum* (Ris, 1916) [Fig. 27]			•	•		
20	*Pseudagrion australasiae* Selys, 1876			•	•		
21	*Pseudagrion decorum* (Rambur, 1842)			•	•		
22	*Pseudagrion microcephalum* (Rambur, 1842)			•	•		
23	*Pseudagrion rubriceps* Selys, 1876	•	•	•	•		
	Platycnemididae						
24	*Coeliccia renifera* (Selys, 1886)						•
25	*Coeliccia bimaculata* Laidlaw, 1914		•				•
26	*Copera marginipes* (Rambur, 1842) [Fig. 28]		•				
27	*Copera vittata* Selys, 1863 [Fig. 29]		•				
28	*Elattoneura campioni* (Fraser, 1922) [Fig. 30]		•				
29	*Onychargia atrocyana* (Selys, 1865)				•		
	Aeshnidae						
30	*Gynacantha dravida* Lieftinck, 1960	•					
	Gomphidae						
31	*Burmagomphus* cf. *sivalikensis* Laidlaw, 1922		•			•	
32	*Ictinogomphus rapax* (Rambur, 1842)			•	•		
33	*Nychogomphus* cf. *duaricus* (Fraser, 1924) [Fig. 31]					•	

No.	Name of species	Gorumara National Park					
		Tiyabon resort and forest	Stream near Mohakal	Chukchuki lake	Ponds and grasslands at Ramsai village	Murti river near Murti forest camp	Hilly stream in Samsing
34	*Unidentified Gomphidae1*						•
35	*Unidentified Gomphidae2*						•
	Libellulidae						
36	*Acisoma panorpoides* Rambur, 1842				•		
37	*Aethriamanta brevipennis* (Rambur, 1842)			•			
38	*Agrionoptera insignis* (Rambur, 1842)		•				
39	*Amphithemis vacillans* Selys, 1891		•				
40	*Brachydiplax chalybea* Brauer, 1868				•		
41	*Brachythemis contaminata* (Fabricius, 1793)	•	•	•	•	•	
42	*Bradinopyga geminata* (Rambur, 1842)	•					•
43	*Crocothemis servilia* (Drury, 1770)	•		•	•		
44	*Diplacodes trivialis* (Rambur, 1842)	•		•	•	•	
45	*Hydrobasileus croceus* Brauer, 1867				•		•
46	*Lathrecista asiatica* (Fabricius, 1798)	•					
47	*Neurothemis fulvia* (Drury, 1773)	•			•		
48	*Neurothemis intermedia* (Rambur1842)	•					
49	*Neurothemis tullia* (Drury, 1773)				•		
50	*Orthetrum chrysis* (Selys, 1891)		•				
51	*Orthetrum glaucum* (Brauer, 1865)		•				•
52	*Orthetrum luzonicum* (Brauer, 1868)						•
53	*Orthetrum pruinosum* (Burmeister, 1839)	•	•				•
54	*Orthetrum sabina* (Drury, 1770)	•	•	•	•	•	•
55	*Orthetrum taeniolatum* (Schneider, 1845)						•
56	*Pantala flavescens* (Fabricius, 1798)	•	•	•	•	•	•
57	*Potamarcha congener* (Rambur, 1842)		•				
58	*Rhodothemis rufa* (Rambur, 1842)			•			
59	*Rhyothemis variegata* (Linnaeus, 1763)	•		•	•		
60	*Tholymis tillarga* (Fabricius, 1798)	•					
61	*Tramea basilaris* (Palisot de Beuvois, 1805)						•
62	*Trithemis aurora* (Burmeister, 1839)					•	•
63	*Trithemis festiva* (Rambur, 1842)		•			•	•
64	*Trithemis pallidinervis* (Kirby, 1889)			•	•		
65	*Urothemis signata* (Rambur, 1842)			•	•		
	Macromiidae						
66	*Epophthalmia vittata* Burmeister, 1839 [Fig. 32]				•		

Table 1: List of Species observed during the Meet
(• denotes the presence of the species).

Figure 19: More than 50 *Hydrobasileus croceus* were found to swarm together at a height of about 20-25m. (Photo: Prosenjit Dawn)

Figure 20: Two male individuals of *Heliocypha biforata* exhibiting the territorial display in flight. (Photo: Prosenjit Dawn)

Figure 21: *Heliocypha biforata* Selys, 1859 male. (Photo: Prosenjit Dawn)

Figure 22: *Anisopleura* sp. female. (Photo: Prosenjit Dawn)

Figure 23: *Aciagrion* sp. male. (Photo: Prosenjit Dawn)

Figure 24: *Agriocnemis femina* (Brauer, 1868) male. (Photo: Prosenjit Dawn)

Figure 25: *Ceriagrion cerinorubellum* (Brauer, 1865) male. (Photo: Prosenjit Dawn)

Figure 26: *Amphiallagma parvum* (Selys, 1876) male. (Photo: Prosenjit Dawn)

Figure 27: *Paracercion calamorum* (Ris, 1916) male. (Photo: Prosenjit Dawn)

Figure 28: *Copera marginipes* (Rambur, 1842) male. (Photo: Prosenjit Dawn)

Figure 29: *Copera vittata* Selys, 1863 male. (Photo: Prosenjit Dawn)

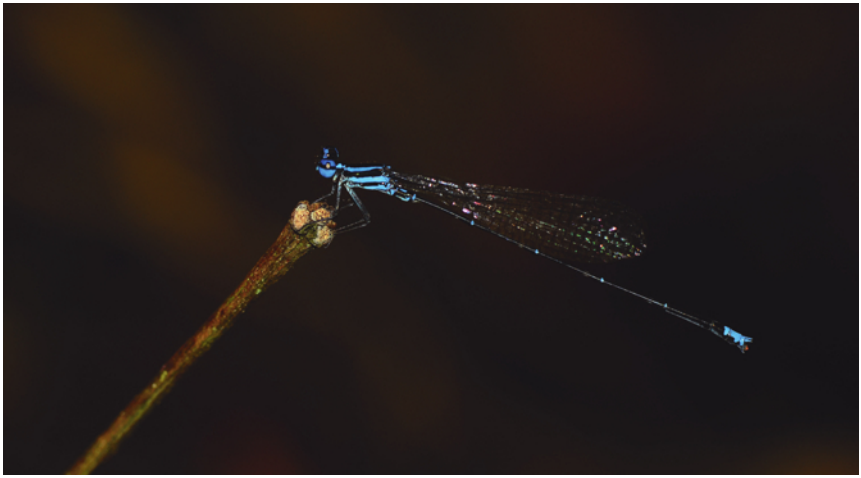

Figure 30: *Elattoneura campioni* (Fraser, 1922) male. (Photo: Prosenjit Dawn)

Figure 31: *Nychogomphus cf. duaricus* (Fraser, 1924) male. (Photo: Prosenjit Dawn)

Figure 32: *Epophthalmia vittata* Burmeister, 1839 male. (Photo: Prosenjit Dawn)

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