Additions to the Odonata (Insecta) Fauna of Asansol-Durgapur Industrial Area, West Bengal, India

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To examine the diversity, occurrence and distribution pattern of dragonflies and damselflies (Odonata) from the selected study sites of Asansol-Durgapur industrial area of Paschim Bardhaman District of West Bengal, India an investigation was conducted by A.K. Nayak from January 2012 to December 2015. A combination of direct search and opportunistic sighting methods was applied to record odonate species (38 dragonflies and 19 damselflies) from the varied region of the study area. On the basis of this study, the first work on the Odonata fauna of Asansol–Durgapur Industrial Area by Nayak & Roy (2016) was reported. The aim of the present study is to update the checklist of Odonata fauna of Asansol-Durgapur Industrial Area.

Study area

The present study conducted at all the same study points along with two new study sites Kalyaneshwari Temple, Asansol & Kumarmangalam Park, Durgapur situated at Asansol-Durgapur area (23.689–23.520 "N & 86.966–87.312 "E), an important industrial urban zone of Paschim Bardhaman District of West Bengal, India (Figure 1). The six odonates are found from six different study points. The details of 13 study points are given in Table 1. Data collection: A combination of direct search technique (Sutherland 1996) and opportunistic sighting methods were applied during the present study (January 2016 to September 2019) to record odonate diversity and abundance. Observations were made by covering each study site twice a month involving different habitat types of odonates. During each sampling, efforts were made to enlist the encounter frequencies of different odonates from different sampling sites. The identification of odonates was done following Fraser (1933, 1934, 1936), Mitra (2006), Subramanian (2005, 2009, 2014), Nair (2011) and Babu et al. (2019). Nikon D5300 DSLR camera and Nikkor 70–300mm VR lens were used for photo documentation of the odonates.

A total of six different odonate species that involved both dragonflies (Anisoptera) and damselflies (Zygoptera) were recorded during the present study which was represented by six genera from four families. Among those reported families, one was represented by damselflies (Zygoptera), viz., Lestidae (one species and one genus). The rest of the three families were represented by dragonflies (Anisoptera), viz., Aeshnidae (one species and one genus), Gomphidae (two species and two genera), and Libellulidae (two species and two genera). The species Gomphidia leonorae Mitra, 1994 is reported for the second time from India in this paper and the range
extended from Susunia Hill, Bankura, West Bengal, India (23.395°N, 86.987°E) to Durgapur Barrage, Paschim Bardhaman, West Bengal, India (23.475°N, 87.302°E). A detailed account of findings on the six species found during the present study (January 2016–September 2019) is given below:

**Suborder: Anisoptera**

**Family: Aeshnidae**

1. *Anax ephippiger* (Burmeister, 1839)  
   31.viii.2019, Study Site – S2 (Image 1), Least Concern (Subramanian 2016)  
   Comment: Only one female species was found from the study area. The species was hovering over a paddy field and the flight was very agile. This species is not commonly seen in southern part of West Bengal.

2. *Gomphidia leonorae* (Mitra, 1994)  
   30.v.2017, Study Site – S4 (Image 2), Data Deficient (Sharma 2010)  
   Comment: Only one adult female of the species was known from Susunia Hill (Mitra et al. 1994). This time also a female species was found from a bushy river side area of Damodar at Durgapur Barrage, West Bengal.

3. *Macrogomphus montanus* (Selys, 1869)  
   26.vii.2014, Study Site – S1 (Image 3), Data Deficient (Subramanian 2010)  
   Comment: This species is not very common in southern Bengal and the author recorded it for the first time from the study area and another species from the same genus *Macrogomphus annulatus* was found in the same study site in 2014. This species was found under a shrub near the shade of a big tree.

**Family: Libellulidae**

4. *Orthetrum taeniolatum* (Schneider, 1845)  
   17.iv.2019, Study Site – S13 (Image 4), Least Concern (Mitra 2013)
Comment: The species was found basking on a rock near a small stream. The day was too hot and the species was followed by various common species of the same genus. It is not very commonly seen in the study area.

5. *Trithemis aurora* (Burmeister, 1839)  
19.iii.2017, Study Site – S9 (Image 5), Least Concern  
(Subramanian & Dow 2010)  
Comment: The species was found in the dense area of Gunjan Ecological Park situated at Asansol. This species is common in West Bengal. The species likes shaded bushy areas.

**Suborder: Zygoptera**  
**Family: Lestidae**  

6. *Lestes viridulus* (Rambur, 1842)  
22.xii.2017, Study Site – S12 (Image 6), Least Concern  
(Dow 2010)  
Comment: The species is common and prefers to live under dense bushes and shaded area. The species was found from the new study site and this study site reported high Odonata diversity

With the addition of these six new records, the total number of odonates stand at 63. Out of these six species, *Gomphidia leonora* Mitra, 1994 is a very important finding and the author is further involved in searching for the male. Considering the previous study of odonates (recorded 57 species) from the same study area, the present species count is surely an underestimation. The author strongly believes that sustained and co-ordinated efforts are necessary for documenting the odonate diversity of the entire state. This is possible through networking between the amateurs and professional researchers. Furthermore, since odonates are considered as biological indicator species, it is necessary that long-term monitoring needs to be taken up for major water
bodies in the study sites as well as in the state. Future investigations covering more study areas will certainly enrich our knowledge and understanding of odonate diversity and ecology from this important industrial region.

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Review

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– Nan E. Schaffer, Muhammad Agil & Zainal Z. Zainuddin, Pp. 15279–15288

Communications

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– Krishnendu Basak, Moiz Ahmed, M. Suraj, B.V. Reddy, O.P. Yadav & Krishnendu Mondal, Pp. 15289–15300

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– Tithi Kagathara & Erach Bharucha, Pp. 15301–15310

Taxonomic and ecological notes on some poorly known bats (Mammalia: Chiroptera) from Meghalaya, India
– Uttam Saikia, AdoraThabah & Manuel Ruedi, Pp. 15311–15325

Angiosperm diversity in Bhadrak region of Odisha, India
– Taranisen Panda, Bikram Kumar Pradhan, Rabindra Kumar Mishra, Srusti Dhar Rout & Raj Ballav Mohanty, Pp. 15326–15354

Short Communications

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– Priscilla Miard, Mohd Nur Arfuddin, Izereen Mukri, Siti Syuhada Sapno, Hafiz Yazid, Nadine Ruppert & Jayaraj Vijaya Kumaran, Pp. 15355–15358

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– Sourabh Ranjan Hota, Sonali Sahoo, Manojita Dash, Avisek Pahari, Bijayendranath Mohanty & Niranjan Mohanta, Pp. 15359–15364

Parasite commonality at Swamp Deer (Mammalia: Artiodactyla: Cervidae: Rucervus duvaucelli duvaucelli) and livestock interface
– Animesh Talukdar, Bivash Pandav & Parag Nigam, Pp. 15364–15369

Prevalence and seasonal variation of gastrointestinal parasites among captive Northern Pig-tailed Macaque Macaca leonina (Mammalia: Primates: Cercopithecidae)
– Phoebe Lalremruati & G.S. Solanki, Pp. 15370–15374

Notes

An account of a first record of the Common Goldeneye Bucephala clangula Linnaeus, 1758 (Aves: Anseriformes: Anatidae) in Bhutan
– Sangay Nidup, Gyeiltsen & Tshering Tobgay, Pp. 15382–15384

First record of the hawkmoth Theretra lycetus (Cramer, 1775) (Sphingidae: Macroglossinae) from Bhutan
– Sangay Nidup & Jatishwor Singh Irungbam, Pp. 15385–15386

Occurrence and association of the Scarce Lilacfork Lethe dura gammiei (Moore, [1892]) (Lepidoptera: Nymphalidae: Satyrinae) with Woolly-leaved Oak Quercus lanata Smith, 1819 (Fabaceae) forest in the Kumaon region of the Indian Himalaya
– Arun P. Singh & Tribhuvan Singh, Pp. 15387–15390

Additions to the Odonata (Insecta) fauna of Asansol-Durgapur Industrial Area, West Bengal, India
– Amar Kumar Nayak, Pp. 15391–15394

Gynochthodes cochinchinensis (DC.) Razafim. & B. Bremer (Morindeae: Rubioideae: Rubiaceae): an addition to the woody climbers of India
– Pradeep Kumar Kamila, Prabhat Kumar Das, Madhusmita Mallia, Chinnamadasamy Kalidass, Jagayandatt Pati & Pratap Chandra Panda, Pp. 15395–15399

Record of Oldenlandia hygrophila Bremek. (Spermacoceae: Rubiaceae), a lesser known herb from Palghat Gap of Western Ghats, Kerala, India
– Vadakkeveedu Jagadesh Aswani, Vasudevan Ambat Rekha, Pathiyil Arabhi, Manjakulam Khadershara Jabeena, Kunnamkumarath Jisha & Maya Chandrashekharan Nair, Pp. 15400–15404

Book Review

The State of Wildlife and Protected Areas in Maharashtra: News and Information from the Protected Area Update 1996-2015
– Reviewed by L.A.K. Singh, Pp. 15405–15406