New records of aquatic bugs (Insecta: Hemiptera) from Sunderban biosphere reserve, West Bengal, India

Bulganin Mitra, Sankarsan Roy, Olive Biswas, Udipta Chakraborti and E. Eyarin Jehamalar

Abstract

The present study reports six species of aquatic Hemiptera belonging to the families Belostomatidae, Nepidae and Hydrometridae as the new record from Sunderban Biosphere Reserve namely, *Lethocerus indicus* (Lepeletier & Serville, 1825), *Diplonychus annulatus* (Fabricius, 1781), *Diplonychus rusticus* (Fabricius, 1781), *Laccotrephes griseus* (Guerin-Meneville, 1835), *Ranatra digitata* Hafiz & Pradhan, 1947 and *Hydrometra butleri* Hungerford & Evans, 1934. The communication also provides a list of aquatic bugs so far reported from this biosphere reserve.

Keywords: Aquatic insects, Hemiptera, New record, Indian Sunderbans

Introduction

Sundarban mangrove forests (contiguous landmass of both India and Bangladesh) have been considered as one of the seven most important wetlands globally, based on biological diversity [1]. The Indian part of Sundarbans is bounded by the Ichamati - Raimangal River in the east, Hugli River in the west, Bay of Bengal in the south, and the Dampier-I Hodges line drawn in 1829-1830 in the north [2] and lies between the coordinates 21°30’ to 22°15’ N and 88°10’ to 89°10’ E [3]. The human-inhabited islands of Sunderbans delta have lots of fresh water bodies in the form of ponds, pools, marshy land etc., which are the breeding ground of the freshwater-inhabiting insect fauna.

There is very poor information on the aquatic bugs from Sunderbans except the work of Bal and Basu [4, 5]. This present communication provides a list of 18 species of aquatic Hemiptera from Sunderban Biosphere Reserve including six new records from this area.

Methodology

The aquatic bugs were collected from the freshwater bodies of the Sagar Island, Bali Island and Gosaba Island of Sunderban Biosphere Reserve during the period of 2014-2015 and preserved in 70% ethanol. Identification of the materials were done by using different literatures like Bal (2007), Chandra and Jehamalar (2012) and Jehamalar and Chandra (2013). [6-8] Identified insects were photographed by Nikon DSLR D7000 with 105mm macro lens (Fig. 1 - 5) and Leica stereo zoom microscope (M205A) with the help of Leica DFC 500 camera (Fig. 6).

Results and Discussion

Bal and Basu (1994 a & b) reported 12 species of aquatic bugs belong to six families, namely, Mesovelidiae, Veliidiae, Gerridiae, Belostomatidae, Nepidiae and Notonectidiae from the Sunderban Biosphere Reserve in the West Bengal State Fauna Series [4, 5]. The present work reports six more species under three families, namely, Belostomatidiae, Nepidiae and Hydrometridae, which are newly added to the aquatic bug fauna of Sunderban Biosphere Reserve. The family Hydrometridae is reported for the first time from this Biosphere Reserve. Altogether, 18 species under 11 genera of aquatic bugs belong to seven families of order Hemiptera are reported from the Sunderban Biosphere Reserve (table. 1). Of them, the family Gerridiae represents the maximum diversity with 07 species followed by family Belostomatidiae (04 species), Nepidiae (03 species), Mesovelidiae (01 species), Veliidiae (01 species), Notonectidiae (01 species) and Hydrometridae (01 species).

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The following six species of aquatic Hemiptera under five genera and three subfamilies were collected and identified during the present survey from the Sunderban Biosphere Reserve, West Bengal, India. All these six species are reported for the first time from this area.

**Table 1:** List of Aquatic bugs (Insecta: Hemiptera) from Sunderban Biosphere Reserve (*marked are new records from Sunderban Biosphere Reserve)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the species</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Mesovelia</em> vittigera* Horvath, 1895</td>
<td>Mesoveliidae</td>
</tr>
<tr>
<td>2.</td>
<td><em>Microvelia (Microvelia) annandalei</em> Distant, 1909</td>
<td>Veliidae</td>
</tr>
<tr>
<td>3.</td>
<td><em>Halobates</em> flaviventris* Eschscholtz, 1822</td>
<td>Gerridae</td>
</tr>
<tr>
<td>4.</td>
<td><em>Asclepios annandalei</em> Distant, 1915</td>
<td>Gerridae</td>
</tr>
<tr>
<td>5.</td>
<td><em>Limolomia anadyomene</em> (Kirkaldy, 1901)</td>
<td>Gerridae</td>
</tr>
<tr>
<td>6.</td>
<td><em>Limnognus (Limnognus) nitudes</em> (Mayr, 1865)</td>
<td>Gerridae</td>
</tr>
<tr>
<td>7.</td>
<td><em>Limnognus (Limnognus) fossarum</em> fossarum (Fabricius, 1775)</td>
<td>Gerridae</td>
</tr>
<tr>
<td>8.</td>
<td><em>Neogerris parvula</em> (Stal, 1859)</td>
<td>Gerridae</td>
</tr>
<tr>
<td>9.</td>
<td><em>Aquarius adelaidis</em> (Dohrn, 1860)</td>
<td>Gerridae</td>
</tr>
<tr>
<td>10.</td>
<td><em>Diplonychus moestum</em> (Dufour, 1863)</td>
<td>Belostomatidae</td>
</tr>
<tr>
<td>11.</td>
<td><em>Diplonychus annalatus</em> (Fabricius, 1781)*</td>
<td>Belostomatidae</td>
</tr>
<tr>
<td>12.</td>
<td><em>Diplonychus rusticus</em> (Fabricius, 1781)*</td>
<td>Belostomatidae</td>
</tr>
<tr>
<td>13.</td>
<td><em>Lethocerus indicus</em> (Lepeletier &amp; Serville, 1825)*</td>
<td>Belostomatidae</td>
</tr>
<tr>
<td>14.</td>
<td><em>Laccotrephes griseus</em> (Guerin-Meneville, 1835)*</td>
<td>Nepidae</td>
</tr>
<tr>
<td>15.</td>
<td><em>Ranatra varipes</em> Stal, 1861</td>
<td>Nepidae</td>
</tr>
<tr>
<td>16.</td>
<td><em>Anisops sardeo</em> Herrich-Shaffer, 1850</td>
<td>Notonectidae</td>
</tr>
<tr>
<td>17.</td>
<td><em>Hydrometra butleri</em> Hungerford &amp; Evans, 1934*</td>
<td>Hydrometridae</td>
</tr>
</tbody>
</table>

**Order Hemiptera**
**Family Belostomatidae**

1. *Lethocerus indicus* (Lepeletier & Serville, 1825)  


**Distribution**: India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Himachal Pradesh, Kerala, Maharashtra, Mizoram, Orissa, Uttar Pradesh, West Bengal

**Elsewhere**: China, Hong Kong, Ryukyu Islands, Myanmar, Thailand, Vietnam, Philippines, Indonesia, Borneo, Sulawesi, Singapore, Peninsular Malaysia [9-11].

2. *Diplonychus annulatus* (Fabricius, 1781)


**Distribution**: Andhra Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Gujarat, Himachal Pradesh, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Manipur, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

**Elsewhere**: Bangladesh, Pakistan.

3. *Diplonychus rusticus* (Fabricius, 1781)

**Material Examined**: 1 ex., Bali Island: Vidya forest, Sunderbans, West Bengal, India, 12.xii.2014; coll. B. Mitra & Party.

**Distribution**: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Puducherry, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.


**Family Nepidae**

4. *Laccotrephes griseus* (Guerin-Meneville, 1835)

**Material Examined**: 2 ex., Gosaba Island: Pakhirala, Sunderbans, West Bengal, India, 11.xii.2014; coll. B. Mitra & Party.

**Distribution**: Throughout India.

**Elsewhere**: Malaysia, Myanmar, Seychelles, Sri Lanka, Thailand.

5. *Ranatra digitata* Hafiz & Pradhan, 1947

**Material Examined**: 1 ex., Gosaba Island: Pakhirala, Sunderbans, West Bengal, India, 11.xii.2014; coll. B. Mitra & Party.

**Distribution**: Bihar; Haryana; Himachal Pradesh; Madhya Pradesh; West Bengal

**Family Hydrometridae**

6. *Hydrometra butleri* Hungerford & Evans, 1934

**Material Examined**: 1 ex., Gosaba Island: Pakhirala, Sunderbans, West Bengal, India, 11.xii.2014; coll. B. Mitra & Party.

**Distribution**: Assam, Himachal Pradesh, Madhya Pradesh, Orissa, Karnataka, Kerala, Tamil Nadu, West Bengal.

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