

## Aquatic and Semi-aquatic Heteroptera (Insecta: Hemiptera) of Terai-Dooars Region of West Bengal, India

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### Abstract

Terai and Dooars region of West Bengal is highly diversified area, located in the Darjeeling Himalayan foot hills. A total of 49 species under 30 genera and 13 family of aquatic and semi-aquatic Heteroptera, commonly known as water bugs, were collected from this region of West Bengal during a survey conducted between 2011 - 2013, of which four species were already published as new species and one species is a new report to India. Collection data and their worldwide distribution are provided in this communication. *Aphelocheirus thirumalaii* Basu, Subramanian and Saha, *Onychotrechus dooarsicus* Subramanian, Basu and Zettel, *Pleciobates bengalensis* Jehamalar, Basu and Zettel, *Amemboa bifurcata* Basu, Subramanian and Polhemus and *Amemboa mahananda* Basu, Subramanian and Polhemus have been already described as new species and published elsewhere.

**Key words:** *Aquatic and semi-aquatic Heteroptera, Terai, Dooars, Himalayan foot hills, West Bengal.*

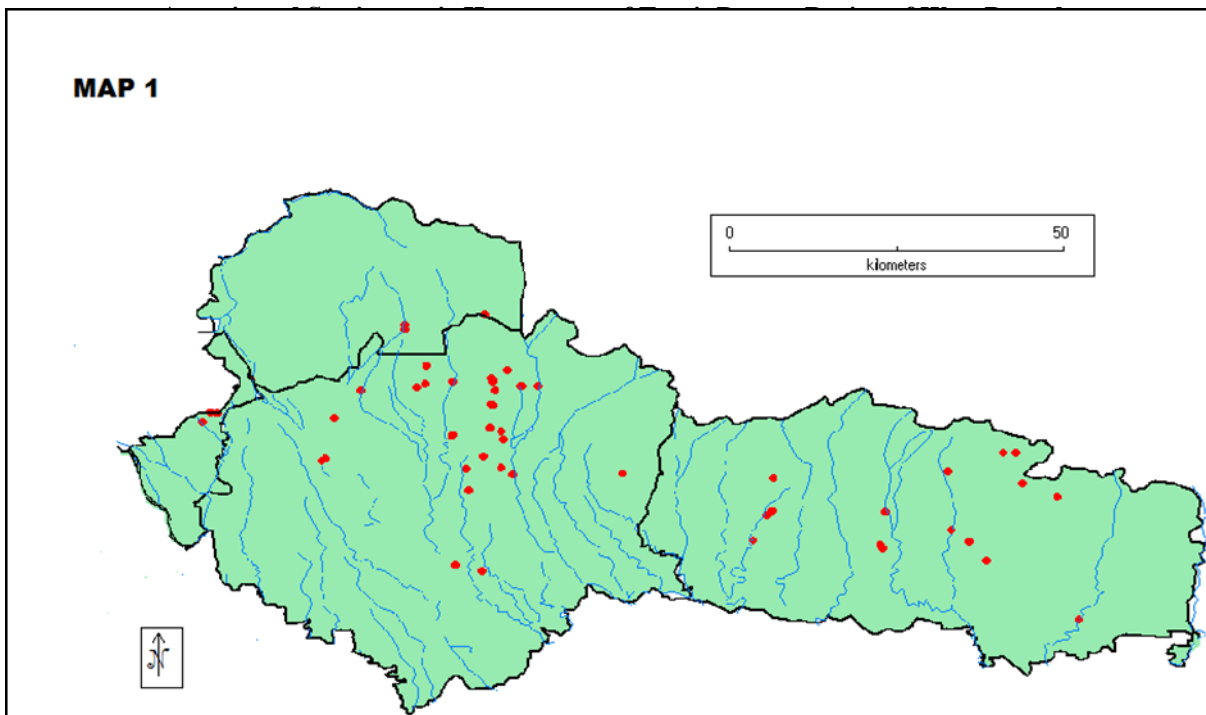
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### Introduction

Eastern Himalayan landscape has been recognized as one of the major 'Biodiversity Hotspots' in India because of its varied landscapes, variety of vegetation types and climatic conditions, as well as its unique flora and fauna with high degree of endemism (Myres *et al.*, 2000) and is receiving global attention for biodiversity conservation in recent times. The Eastern Himalaya is at the crossroads of two continental plates represented by two biogeographical realms: the low-land Indo-Malayan Realm and to the north, the Palaearctic Realm. Although, this inaccessible landscape supports a variety of flora and fauna with good number of new species continuing to be discovered year after year, this area is poorly surveyed for faunal exploration and there are large areas that are still biologically unexplored including Himalayan foothills. The northern part of Bengal, mainly Darjeeling hills and surrounding areas, is criss-crossed by deep gorges of the river Teesta and

its tributaries. It is represented by the flood plains of Teesta and the foot-hills of Himalayas. The other rivers flowing across this region are Mahananda, Torsha, Raidhak, Sankosh and Jaldhaka etc. The terai- dooars region of Bengal comprises various well-known protected areas such as Jaldapara Wildlife Sanctuary, Gorumara National Park, Chapramari Wildlife Sanctuary, Mahananda Wildlife Sanctuary, Buxa Tiger Reserve, and several other forests like Khairabari Reserve forest, Jayanti forest, Chilapata forest etc. These versatile forests varies from riverine to dense-mixed wet forest extending between low to high gradient of altitude and crisscrossed by a number of rivers and their tributaries and this variation supports diverse types of life forms including insects.

The aquatic and semi-aquatic Hemiptera, commonly known as water bugs, are one of the major components of freshwater ecosystem and chiefly consists of two infraorders- Nepomorpha and Gerromorpha. They play a major role in the



**MAP 1.** Terai–Dooars region of West Bengal with rivers and their tributaries (blue lines) and sampling sites (red dots)

food web composition and functioning of aquatic ecosystems and an efficient bio-indicator of freshwater eco-health. The present study was conducted in different protected areas of the study area of West Bengal to explore the diversity of aquatic and semi-aquatic Hemipteran species.

Review of earlier studies suggests that the documentation of water bugs in the Eastern Himalayan zone of West Bengal is still fragmentary. In the year of 1994, Bal and Basu documented the fauna of West Bengal, which also includes the species reported by Distant (1903, 1906, 1910) and it shows only 22 species of aquatic and semi-aquatic Heteroptera were reported from the State of West Bengal. But, the present study reported a total of 49 species under 30 genera of aquatic and semi-aquatic Heteroptera from the study area.

## Material and Methods

### *Study site* (Map 1)

Terai- Dooars region of Bengal is located in the foothills of Himalaya, comprising grasslands, savannas, dense mixed wet forests, moist deciduous forests, Himalayan sub-tropical broadleaf forests, semi evergreen forests. The whole region is crisscrossed by several rivers like Teesta, Mahananda, Jaldhaka, Raidhak,

Sankosh, Torsha etc. and their tributaries. The river Teesta has divided the North Bengal region into two parts: the eastern Dooars and the western Terai. The present survey was carried out in different wetlands of this region. The major conservation areas like Gorumara National Park, Chapramari Wildlife Sanctuary, Mahananda Wildlife Sanctuary, Buxa Tiger Reserve are situated in the study area.

### *Methods*

The present work was carried out in Darjeeling and Jalpaiguri districts of West Bengal during 2011-2013. The specimens were collected using a rectangle-shaped insect net and a long-handled aquatic net from different freshwater ecosystems. The specimens collected were preserved in 70% ethyl alcohol in Borosil® glass vials. The vials were labeled with data pertaining to locality, date and name of the collector in the field. The morphological studies were undertaken using a LeicaM205A Stereozoom binocular microscope. All the measurements are given in millimeters (mm). The male genital segment (VIII) was dissected and immersed in 10% KOH for 30 minutes to dissolve the muscles and soft tissue and to get a clear vision of the chitinised structures. The identifications of species were made using the

works of Hungerford and Matsuda (1958, 1962, 1965), Bal and Basu (1994), Menke (1979) and Thirumalai (1999, 2002, 2007). The material studied is deposited in the National Zoological Collection, Zoological Survey of India, Kolkata.

## Results

### Infraorder : Nepomorpha

#### Family Corixidae

##### 1. *Sigara (Tropocorixa) promontoria* (Distant): Plate 1: Fig.1

**Material examined:** 1♀, West Bengal: Kalikhola, border between Gorumara NP and Chapramari WLS, Jalpaiguri, 17.iii.2013, S. Basu; 1♀, West Bengal: Buri Torsha Riverside, south Khairabari Reserve forest, Jalpaiguri, Date: 19.iii.2013, Coll: S. Basu

**Distribution:** India.

**Remarks:** This species can be identified by the presence of six transverse yellowish lines on black pronotum and vertex with rows of obscure punctures throughout the posterior half. This species found in the stagnant forested pool.

##### 2. *Sigara (Vermicorixa) kempi* (Hutchinson): Plate 1: Fig.2

**Material examined:** 1♂, 1nymph, West Bengal: wetland beside Gajaldoba Teesta barrage, Jalpaiguri, 12.iii.2012, Coll. S. Basu.

**Distribution:** India.

**Remarks:** This species can be identified by its dark colour pattern mainly the ectocorium which is dark pitchy brown. It is reported from the Ambari forested area beside the Teesta barrage in Gajaldoba.

#### Family Belostomatidae

##### 3. *Diplonychus annulatus* (Fabricius): Plate 1: Fig.3

**Material examined:** 1♀, West Bengal: Pond (1) near Baradighi, Malbazar, Jalpaiguri, 17.ix.2011, Coll: S. Basu; 3♂, 1f, West Bengal: Pond (2) near Baradighi, Mal Bazar, Jalpaiguri, 17.ix. 2011, Coll: S. Basu; 1♂, West Bengal: Raidhak River, Alipurduar, 19.iv.2013, Coll: S. Basu; 4♂, 3♀, West Bengal: Teesta canal, Teesta barrage, Gajaldoba, Jalpaiguri, 13.iii.2011, Coll: S. Basu.

**Distribution:** India, Bangladesh, Pakistan, Taiwan, China.

**Remarks:** *Diplonychus annulatus* is a large species (body length ranges from 19-22mm) as compared to the other species of *Diplonychus*. Polhemus (1995) pointed out that this species has a much more restricted distribution. It is abundant in the Dooars region of Bengal.

##### 4. *Diplonychus rusticus* (Fabricius): Plate 1: Fig.4

**Material examined:** 1♂, 1♀, 4nymphs, West Bengal: Kalipur Wetland, within Gorumara NP., Jalpaiguri, 17.iii.2012, Coll: S. Basu; 2♀, West Bengal: Pond (2) near Baradighi, Malbazar, Jalpaiguri, 17.ix.2011, Coll: S. Basu.

**Distribution:** India, Australia, Burma, China, Indonesia, Formosa, Japan, Malaysia, New Guinea, New Zealand, Sri Lanka, Thailand.

**Remarks:** They are very common in the fish ponds and are voracious feeders on fish fingerlings. This species is cosmopolitan in distribution. It can be recognized by the presence of single segmented anterior tarsus and a spiny oblong patch on corium of wings.

##### 5. *Lethocerus indicus* (Lepeletier and Serville): Plate 1: Fig.5

**Material examined:** 1♂, West Bengal: Murti River, infront of Murti Banani Bungalow, Jalpaiguri, 8.ix.2013, Coll: M. Chakrabarty.

**Distribution:** Burma, India, Java, Malay Peninsula, Pakistan, Philippines, Sumatra.

**Remarks:** Large species, body length ranges from 65-80mm. This species can be identified by the male genital segment with two strap-like respiratory appendages and the female genital segment broad with two protuberances. It is predaceous in nature, known to prey on fish fingerlings, snails and even frogs (Polhemus, 1982). It is also edible and used as a food in North-eastern India, Thailand and Vietnam. This species is reported from Murti River which is flowing across the Lataguri forested area of Jalpaiguri.

#### Family Notonectidae

##### 6. *Enithares mandalayensis* Distant: Plate 1: Fig.6

**Material examined:** 1♀, West Bengal: Stream in front of Chapramari Wildlife Sanctuary, Jalpaiguri, 18.iii. 2012, Coll: S. Basu.

**Distribution:** India, Burma, Thailand, Malaysia, Vietnam.

**Remarks:** This species is a new record for the State of West Bengal and earlier it was reported from Assam (Thirumalai, 2007). It is identified by its small, robust and dark body colour and by the presence of a pale transverse band medially on pronotum and with the wide synthlipsis, which is less than half the width of pronotum. It was collected from a slow flowing stream across Chapramari Wildlife Sanctuary.

**7. *Enithares unicata* Lundblad: Plate 1: Fig.7**

**Material examined:** 2♀, West Bengal: Pond within Chapramari Wildlife Sanctuary, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** Sumatra, Java, India.

**Remarks:** Small pale species. They can be recognized by the presence of black stripe in the vertex along the inner margin against the eyes. This species is a new record for India. It is reported from a pond situated in the Chapramari Wildlife Sanctuary.

**8. *Anisops breddini* Kirkaldy: Plate 1: Fig.8**

**Material examined:** 4♂, 7♀, 10nymphs, West Bengal: Pond near Baradighi, Malbazar, Jalpaiguri, 17.ix. 2011, Coll: S. Basu; 4♂, 4♀, 1nymph, West Bengal: Pond within Chapramari WLS, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** Sri Lanka, Indochina, Java, Sulawesi, Malaysia (Kedah, Melaka, Johor), Singapore, India.

**Remarks:** A widespread species in India. This is reported from Chapramari WLS of Jalpaiguri Dist. It can be identified by the pale body colour with the elytra pale grayish and by the holoptic eyes.

**9. *Anisops nasutus* Fieber: Plate 1: Fig. 9**

**Material examined:** 14♂, 6♀, West Bengal: Wetland beside Gajaldoba Teesta Barrage, Jalpaiguri, 12.iii.2011, Coll: S. Basu.

**Distribution:** India, Australia, Celebes, New Guinea, Guam.

**Remarks:** This species is closely related to *A. batillifrons* Lundblad and can be differentiated by the frons produced anteriorly into a cephalic horn, apex of which with a median depression. They are abundant in the pond with aquatic vegetation.

**10. *Anisops sardeus sardeus* Herrich- Schäffer: Plate 1: Fig.10**

**Material examined:** 1♂, 1♀, West Bengal: Pond near Domohoni, Jalapaiguri, 23.ix.2012, Coll: M. Chakrabarty.

**Distribution:** India, Turkey, Syria, Albania, Africa, Corfu, Canary Islands, Afghanistan, Myanmar.

**Remarks:** This species can be differentiated by the presence of marginal row of prominent setae on the inner surface of fore tibia of male and presence of narrow synthlipsis. They are mostly confined to polluted stagnant pond.

**11. *Anisops paranigrolineatus* Brooks: Plate 1: Fig.11**

**Material examined:** 1♀, West Bengal: Jayanti forest Bungalow, Jalpaiguri, 6.iii.2011, Coll: S. Basu; 1♀, West Bengal: Jayanti River, Alipurduar, 6.iii.2011, Coll: S. Basu.

**Distribution:** India.

**Remarks:** Fusiform dark coloured species. The identifying features are the presence of wide synthlipsis and rostral prong shorter than third rostral segment. This species was reported from Jayanti forest of Terai-Dooars region.

**12. *Nychia sappho* Kirkaldy: Plate 1: Fig.12**

**Material examined:** 1♂, 5♀, West Bengal: Sikhiajhora, Alipurduar, 17.iv.2013, Coll: S. Basu.

**Distribution:** India, Australia, Indonesia, Malaysia, New Guinea, Sri Lanka, Africa.

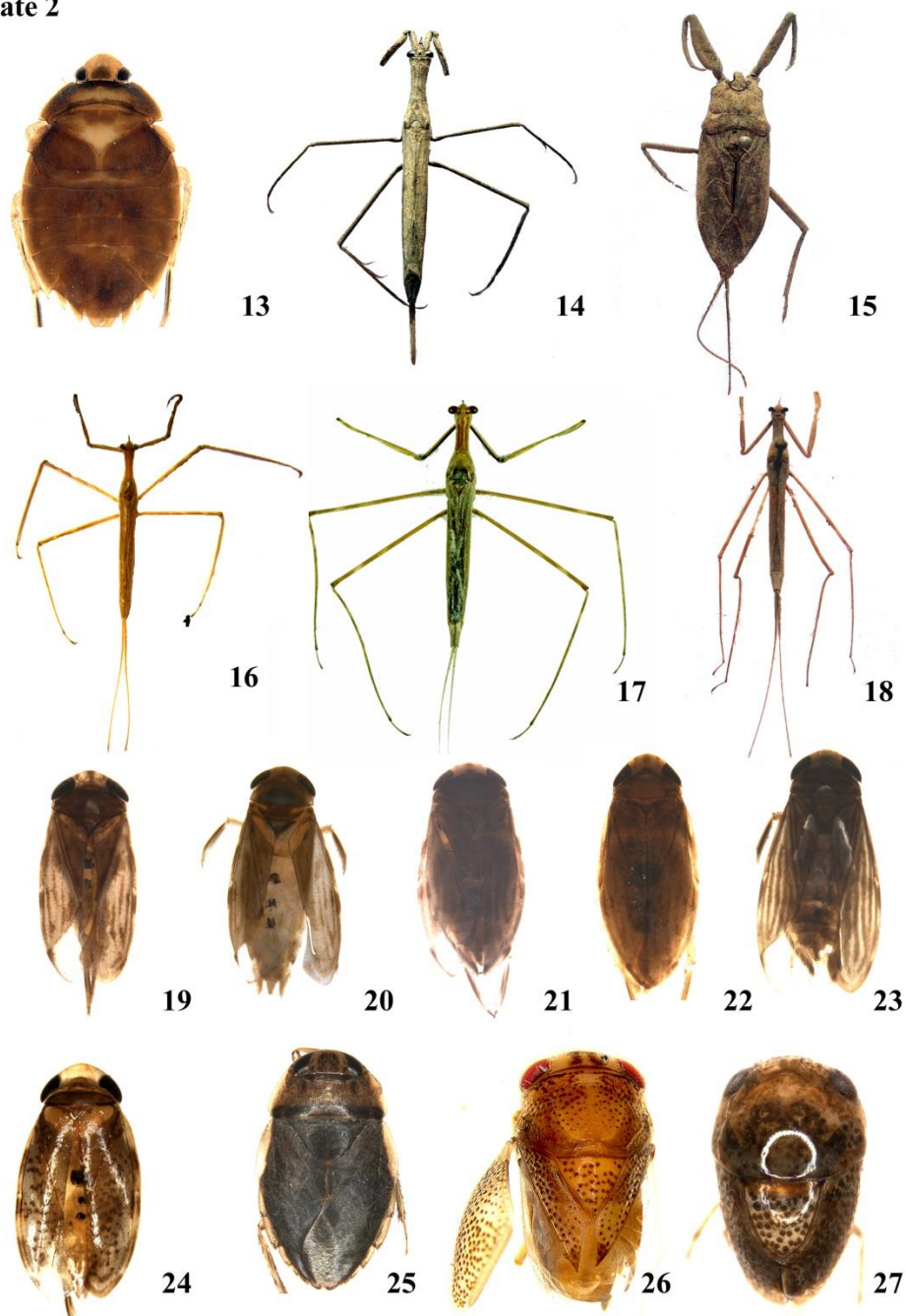
**Remarks:** This genus is known from only a few poorly described species in India.

**Plate 1**



**Plate 1: Figs. 1-12.** Dorsal view of species: 1. *Sigara (Tropocorixa) promontoria* (Distant); 2. *Sigara (Vermicorixa) kemp* (Hutchinson); 3. *Diplonychus annulatus* (Fabricius); 4. *Diplonychus rusticus* (Fabricius); 5. *Lethocerus indicus* (Lepeletier and Serville); 6. *Enithares mandalayensis* Distant; 7. *Enithares unicata* Lundblad; 8. *Anisops breddini* Kirkaldy; 9. *Anisops nasutus* Fieber; 10. *Anisops sardeus sardeus* Herrich- Schäffer; 11. *Anisops paranigrolineatus* Brooks; 12. *Nychia sappho* Kirkaldy

Plate 2



**Plate 2: Figs. 13-27.** Dorsal view of species: 13. *Aphelocheirus thirumalaii* Basu, Subramanian and Saha; 14. *Cercotmetus pilipes* (Dallas); 15. *Laccotrephes griseus* (Guerin-Meneville); 16. *Ranatra varipes varipes* Stal; 17. *Ranatra digitata* Hafiz and Pradhan; 18. *Ranatra filiformis* Fabricius; 19. *Micronecta* (*Basilionecta*) *quadririgata* Breddin; 20. *Micronecta* (*Basilionecta*) *scutellaris scutellaris* (Stal); 21. *Micronecta desertana desertana* Distant; 22. *Micronecta khasiensis* Hutchinson; 23. *Micronecta ludibunda ludibunda* Breddin; 24. *Micronecta haliploides* Horvath; 25. *Heleocoris bengalensis bengalensis* Montandon; 26. *Paraplea frontalis* (Fieber); 27. *Tiphotrephes indicus* (Distant)



They are abundant in the fishing ponds and are predatory in nature. This species can be identified by the holoptic eyes, which is united basally.

**Family Aphelocheiridae**

**13. *Aphelocheirus thirumalaii* Basu, Subramanian and Saha: Plate 2: Fig.13**

**Material examined:** 5♂, 11♀, West Bengal: Dhupjhora, Murti River, within the Gorumara NP., Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India.

**Remarks:** This species was described by the authors Basu, Subramanian and Saha, (2013) from Gorumara NP of Jalpaiguri District. They can be differentiated from all the known species of the nominotypical subgenus by its relatively small, slender, and dark brown appearance and the characters of the male's parameres and the female's subgenital plate.

**Family Nepidae**

**14. *Cercotmetus pilipes* (Dallas): Plate 2: Fig.14**

**Material examined:** 2♂, West Bengal: Pond near Baradighi, Mal Bazar, Jalpaiguri, 17.ix.2011, Coll: S. Basu.

**Distribution:** India, Bhutan.

**Remarks:** This species was found in fish-ponds and is predatory in nature.

**15. *Laccotrephes griseus* (Guerin-Meneville): Plate 2: Fig. 15**

**Material examined:** 2♂, 2♀, West Bengal: Dima River, Damanpur forest, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 2♂, West Bengal: Murti River, Chalsa, Jalpaiguri, 9.iii.2011, Coll: S. Basu; 1♀, West Bengal: Murti River, in front of Murti Banani Bungalow, Jalpaiguri, 9.iii.2011, Coll: S. Basu; 6♂, 6♀, West Bengal: Poro River, Poro beat, Chilapata forest Range, Jalpaiguri, 19.iv.2013, Coll: S. Basu.

**Distribution:** Malaysia, Myanmar, Seychelles, Sri Lanka, Japan, Thailand.

**Remarks:** This species is cosmopolitan in distribution. It is a sluggish species found often under weeds or at the bottom of slow flowing or stagnant water or edges of water body. They can be recognized by the acute

process on the prosternum and relatively small size than other species. Male paramere is slightly hooked and typical for the species.

**16. *Ranatra varipes varipes* Stal: Plate 2: Fig.16**

**Materials examined:** 1♂, West Bengal: Murti River, in front of Murti Banani Bungalow, Jalpaiguri, 16.iii.2013, Coll: S. Basu; 1♂, 2♀, 1 nymph, West Bengal: Pond at Mainaguri, Jalpaiguri, 3.x.2013, Coll: S. Basu; 1♂, 1♀, West Bengal: Teesta canal near Odlabari, Jalpaiguri, 19.iii.2012, Coll: S. Basu.

**Distribution:** India, Australia, Indonesia, Malaysia, Myanmar, Taiwan, Sri Lanka, Thailand.

**Remarks:** This species is cosmopolitan in distribution. It is mostly found among aquatic vegetation bordering the shallower parts of water bodies. It can be recognized by the antennal segments with many stout spines, distributed mainly in second and third antennal segments and hatchet shaped male paramere.

**17. *Ranatra digitata* Hafiz and Pradhan: Plate 2: Fig.17**

**Material examined:** 1♀, West Bengal: Murti River, Medla camp, Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♂, 3♀, West Bengal: Pond near Rhino camp, Gorumara NP., Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** Burma, India.

**Remarks:** This species is widespread in stagnant ecosystems of West Bengal and mostly found in fish ponds. This can be distinguished by anterior lobe much darker than and slightly less than twice as long as posterior lobe and by the metasternum which is flat, basally triangular, lateral margins concave.

**18. *Ranatra filiformis* Fabricius: Plate 2: Fig.18**

**Material examined:** 1♂, 2♀, Murti River, in front of Murti Banani Bungalow, Jalpaiguri, 8.xi.2013, Coll: S. Basu; 1♂, 2♀, West Bengal: Pond at Binnaguri, Jalpaiguri, 3.x.2013, Coll: S. Basu; 1♀, West Bengal: Pond near Rhino camp, Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India, Burma, Nepal, Pakistan, Philippines, Sri Lanka.

**Remarks:** This is one of the smaller and slender species and can be distinguished by the male paramere which is distally hook-like and with several stout spines on its inner margin. It is widespread in India. This species was reported from the river or pond within forested area.

**Family Micronectidae**

**19. *Micronecta (Basionecta) quadristrigata* Breddin: Plate 2: Fig.19**

**Material examined:** 2♂, 3♀, West Bengal: Wetland beside Gajaldoba Teesta barrage, Jalpaiguri, 12.iii. 2011, Coll: S. Basu.

**Distribution:** India, Sri Lanka, South east Asia, Hong Kong, Taiwan, Indonesia, Philippines, Australia, Malaysia, Singapore.

**Remarks:** A widespread species. Very common and found abundantly in light trap. This species can be identified by the hemelytra with broken longitudinal stripes and lateral margins of hemelytra with four dark patches.

**20. *Micronecta (Basionecta) scutellaris scutellaris* (Stal): Plate 2: Fig.20**

**Material examined:** 9♂, 1nymph, West Bengal: Pond near Baradighi, Mal Bazar, Jalpaiguri, 17.ix. 2011, Coll: S. Basu; 1♂, 3♀, West Bengal: Raidhak River, Alipurduar, 19.iv.2013, Coll: S. Basu; 3♂, 7♀, West Bengal: Wetland beside Gajaldoba Teesta barrage, Jalpaiguri, 2.iii.2011, Coll: S. Basu.

**Distribution:** Africa, Arabia, India, Sri Lanka, Southeast Asia, China, Malaysia, Johor, Melaka, Singapore.

**Remarks:** This is the largest species of *Micronecta* (upto 4mm) and very widespread in India and other countries. They can be identified by the hemelytra with dark longitudinal stripes which may vary from distinct unbroken to broken stripes.

**21. *Micronecta desertana desertana* Distant: Plate 2: Fig.21**

**Material examined:** 2♂, 7♀, West Bengal: Kalikhola, Jalpaiguri, 17.iii.2013, Coll: S. Basu

**Distribution:** India, Iran, United Arab Emirates and Oriental Region.

**Remarks:** This species is a new report for West Bengal. It can be differentiated by the

pale yellow head with an obscure central orange spot on the vertex and by the male paramere.

**22. *Micronecta khasiensis* Hutchinson: Plate 2: Fig.22**

**Material examined:** 1♀, West Bengal: Jayanti River, Alipurduar, 6.iii.2011, Coll: S. Basu.

**Distribution:** India, Vietnam.

**Remarks:** Dark yellowish orange to brown species with sparse pale pubescence on elytra. This was collected from the slow flowing Jayanti River across Jayanti forest, under Buxa Tiger Reserve.

**23. *Micronecta ludibunda ludibunda* Breddin: Plate 2: Fig.23**

**Material examined:** 1♂, 3♀, West Bengal: Wetland within Chapramari WLS, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India, Sri Lanka, South East Asia, Indonesia, New Guinea, Solomon Islands, Malaysia, Singapore.

**Remarks:** A medium sized dark brown coloured species with distinct stripes on the hemelytra. This species is a new record for West Bengal. It is widespread throughout the World. It was reported from Chapramari forest.

**24. *Micronecta haliploides* Horvath: Plate 2: Fig.24**

**Material examined:** 1♂, West Bengal: Mujnai River, Madarihat, Jalpaiguri, 18.iii.2013, Coll: S. Basu.

**Distribution:** India, Sri Lanka, Southeast Asia, Sumatra, Java, Bali, Singapore, Thailand, Johor, Melaka, Sembilan, Penang.

**Remarks:** This is a widespread species. This species can be collected using light trap. They can be distinguished by the yellowish hemelytra marked with distinct dark dots.

**Family Naucoridae**

**25. *Heleocoris bengalensis bengalensis* Montandon: Plate 2: Fig. 25**

**Material examined:** 2♂, 4♀, West Bengal: Dhupjhora, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 11♂, 13♀, 6nymphs, West Bengal: Dhupjhora, within Gorumara NP., Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♀, 1nymph, West



Bengal: Murti River, Medla camp, Gorumara NP., Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India, Southeast Asia, Sumatra, Java, Sri Lanka.

**Remarks:** This species was collected from Murti River flowing across Gorumara NP of WB. This species can be identified by the metaxyphus which is typical for the species and by the male genital capsule.

#### Family Pleidae

##### 26. *Paraplea frontalis* (Fieber): Plate 2: Fig.26

**Material examined:** 2♂, 3♀, West Bengal: Pond near Baradighi, Mal Bazar, Jalpaiguri, 17.ix.2011, Coll: S. Basu.

**Distribution:** Burma, Sumatra, Java, Sri Lanka, Southeast Asia, Taiwan, Singapore, Thailand, Malaysia.

**Remarks:** They are predators, feeding on mosquito larvae, small crustaceans and water fleas etc. They are very minute bugs with three prominent keels on abdominal sternites.

#### Family Helotrephidae

##### 27. *Tiphotrephes indicus* (Distant): Plate 2: Fig.27

**Material examined:** 2exs, West Bengal: Sikhiakhora, Alipurduar, 8.iii.2011, Coll: S. Basu.

**Distribution:** India, Indonesia, Malaysia, Myanmar, Singapore and Thailand.

**Remarks:** This species was reported from Sikhiakhora forest, which is located within Buxa Tiger Reserve range. It can be distinguished by small oval body, dorsally distinctly punctate and body highly emarginated anteriorly than posteriorly.

#### Infraorder Gerromorpha Popov

#### Family Gerridae

##### 28. *Amemboa bifurcata* Basu, Subramanian and Polhemus: Plate 3: Fig.28

**Material examined:** 5♂, 10♀, 4nymphs, West Bengal: Kalikhola, stream flowing between Chapramari WLS and Gorumara NP, Jalpaiguri, 17.iii.2013, coll. S. Basu; 2♂, West Bengal: Chilapata forest, Bania River, Jalpaiguri, 19.iv.2013, coll. S. Basu.

**Distribution:** India.

**Remarks:** This species was newly described in the year 2014 from forested zone of

Terai- Dooars (Basu *et al.*, 2014). This species can be distinguished by the bifurcated lateral projection of pygophore and proctiger and by the male fore leg.

##### 29. *Amemboa mahananda* Basu, Subramanian and Polhemus: Fig.29

**Material examined:** 9♂, 3♀, West Bengal: Mahananda WLS, stagnant pool, Darjeeling, 20.iii.2012, Coll: S. Basu; 5♂, 3♀, 2nymphs, West Bengal: Mahananda WLS, Panchanoi River, Darjeeling, 20.iii.2012, Coll: S. Basu.

**Distribution:** India.

**Remarks:** This was newly described from Mahananda WLS of the Terai-Dooars region (Basu *et al.*, 2014). This species can be identified by the distinct three patches on male fore leg.

##### 30. *Amemboa kumari* (Distant): Plate 3: Fig.30

**Material examined:** 2♀, West Bengal: Sikhiakhora, Alipurduar, 8.iii.2011, Coll: S. Basu.

**Distribution:** India.

**Remarks:** This species is a new record to the State of West Bengal and can be differentiated by the distinct male and female genital structure.

##### 31. *Ptilomera (Proptilomera) himalayensis* Hungerford and Matsuda: Plate 3: Fig.31

**Material examined:** 1♂, 1♀, West Bengal: Buxa Jhora, near Buxa fort, Buxa Tiger Reserve Forest, Jalapiguri, 19.iv.2013, Coll: S. Basu; 1♂, 1♀, West Bengal: Gourjanjhora, near Mal Bazar, Jalpaiguri, 1.x.2013, Coll: S. Basu.

**Distribution:** India.

**Remarks:** They are best fitted for survival in the torrential streams during the entire monsoon. The members of this species can be distinguishable from other *Ptilomera* species by the absence of metacoxal spine.

##### 32. *Ptilomera (Ptilomera) laticaudata* (Hardwicke): Plate 3: Fig.32

**Material examined:** 1♂, 3nymphs, West Bengal: Bajekhola, Jayanti forest, Buxa Tiger Reserve, Jalpaiguri, 19.iv.2013, Coll: S. Basu; 1♂, West Bengal: Buri Torsha riverside,

South Khairabari Reserve Forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 1♂, 3♀, West Bengal: Chel River, Gorubathan, Darjeeling, 1.x.2013, Coll: S. Basu; 1♂, 3♀, West Bengal: Chel River, near Ranichera tea garden, Malbazar, Jalpaiguri, 19.iii.2012, Coll: S. Basu; 1♂, 1♀, 2nymphs, West Bengal: Jhora near Bagrakote tea garden, Jalpaiguri, 11.ix.2011, Coll: S. Basu; 2♂, West Bengal: Jhora near Chilapata forest, Mendabari beat, Jalpaiguri, 18.iv.2013, Coll: S. Basu; 1♂, 2nymphs, West Bengal: Kalikhola, between Gorumara and Chapramari WLS, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 1♂, 1♀, West Bengal: Mal River, Mal Bazar, Jalpaiguri, 11.ix.2011, Coll: S. Basu; 3♂, 1♀, 3nymphs, West Bengal: Murti River, near Murti rail bridge, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 2♂, 1♀, 8nymphs, West Bengal: Murti River, Samsing, Jalpaiguri, 9.xi. 2013, Coll: M. Chakrabarty; 1♂, 1♀, 1nymph, West Bengal: Neora River, near rail bridge, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 2♂, 3♀, 4nymphs, West Bengal: Raimatang River, Raimatang, Buxa Tiger Reserve range, Jalpaiguri, 20.iv.2013, Coll: S. Basu.

**Distribution:** Nepal, India.

**Remarks:** This species is found in the lotic ecosystems of Terai- Dooars region of Bengal. It is a successful survivor in the high altitudinal cascades. They are very similar to *Ptilomera assamensis*, but can be distinguished by male paramere and genital segment.

**33. *Ptilomera (Ptilomera) assamensis* Hungerford and Matsuda: Plate 3: Fig.33**

**Material examined:** 1♂, 1♀, West Bengal: Bajekhola, Jayanti forest, Buxa Tiger Reserve forest, Jalpaiguri, 19.iv.2013, Coll: S. Basu; 2♀, 4nymphs, West Bengal: Chel River, Gorubathan, Darjeeling, 1.x.2013, Coll: S. Basu; 1♂, 3nymphs, West Bengal: Stream near Chilapata forest, Mendabari beat, Jalpaiguri, 18.iv.2013, Coll: S. Basu; 1♂, 1♀, 1nymph, West Bengal: Stream in front of Chapramari rail gate, Jalpaiguri, 10.iii.2011, Coll: S. Basu; 1♂, 1♀, West Bengal: Murti River, near Murti rail bridge, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 1♂, 6♀, West Bengal: Murti River, on the way to Chalsa, Jalpaiguri, 24.ix.2012, Coll: S. Basu; 2♂, 1nymph, West Bengal: Sukhahjhora, Mal Bazar, Jalpaiguri, 11.ix.2011, Coll: S. Basu.

**Distribution:** India.

**Remarks:** This species is closely related to *Ptilomera (Ptilomera) laticaudata* (Hardwicke) and can be differentiated by the male pygophore and proctiger which are broad and surpassing the lateral wings caudally. They are very common species found in this region.

**34. *Heterobates rihandi* (Pradhan): Plate 3: Fig.34**

**Material examined:** 5♂, 4♀, West Bengal: Dhupjhora, Gachbari, Murti River, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♂, 3♀, 1nymph, West Bengal: Dhupjhora, Murti River, Within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 4♂, 5♀, 3nymphs, West Bengal: Jaldhaka River, Nagrakata, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 10♂, 2♀, 21 nymphs, West Bengal: Mahananda River, within Mahananda WLS, Darjeeling, 20.iii.2012, Coll: S. Basu; 2♂, West Bengal: Mal River, Jalpaiguri, 11.ix.2011, Coll: S. Basu; 4♂, 5♀, 3nymphs, West Bengal: Murti River, Chalsa, Jalpaiguri, 9.iii.2011, Coll: S. Basu; 3♂, 3♀, West Bengal: Murti River, in front of Murti Banani Bungalow, Jalpaiguri, 10.iii. 2011, Coll: S. Basu; 4♀, West Bengal: Murti River, Medla camp, Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♂, 1♀, West Bengal: Sukhahjhora near Mal Bazar, Jalpaiguri, 11.ix.2011, Coll: S. Basu.

**Distribution:** India

**Remarks:** This species is a new record for the State of West Bengal. It is well-distributed in the riffles and streams of Terai-Dooars region. They can be identified by the first antennal segment much longer than the other three segments together and black pronotum with an inverted “T” shaped yellowish brown margin touching posterior margin.

**35. *Pleciobates bengalensis* Jehamalar, Basu and Zettel: Plate 3: Fig.35**

**Material examined:** 15♂, 1♀, West Bengal: Raidak River, Alipurduar, 19.iv.2013, Coll: S. Basu; 2♀, West Bengal: Dima River, Buxa Tiger Reserve, Damanpur Forest, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 4♂, 1♀, West Bengal: Sikhiajhora stream, Alipurduar, 17.iv. 2013, Coll: S. Basu.

**Distribution:** India

**Remarks:** This is a new species described in 2014 from this region (Jehamalar *et al.*, 2014). It can be distinguished by a prominent silvery white fascia on each side of the sublateral region of the mesonotum and by the male endosomal sclerite.

**36. *Chimarrhometra orientalis* Distant: Plate 3: Fig. 36**

**Material examined:** 2♂, 3♀, West Bengal: Buxa Jhora, near Buxa fort, Buxa Tiger Reserve, Jalpaiguri, 19.iv.2013, Coll: S. Basu; 1♂, 1♀, West Bengal: Jhora near Gorubathan, Darjeeling, 1.x.2013, Coll: S. Basu.

**Distribution:** Pakistan, India.

**Remarks:** This species is mostly found in the shallow edges of streams or between rocks in the streams. It can be easily identified by its modified male genital segment, which is typical for that species.

**37. *Onychotrechus dooarsicus* Subramanian, Basu and Zettel: Plate 3: Fig.37**

**Material examined:** 2♂, 1♀, West Bengal: Buxa Jhora near Buxa fort; Buxa Tiger Reserve, Jalpaiguri, 19.iv.2013, Coll: S. Basu.

**Distribution:** India

**Remarks:** This was recently described from the Buxa Tiger Reserve of Dooars region (Subramanian *et al.*, 2014). It can be differentiated by the male fore tibia, which bears a patch of few short hairs basally on flexor side and a soft spinous structure protruding outwards from the base of the curvature.

**38. *Gerris (Gerris) nepalensis* Distant: Plate 3: Fig.38**

**Material examined:** 1♂, 2♀, 4nymphs, West Bengal: Kalipur Wetland, within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♂, West Bengal: Sikhiajhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu.

**Distribution:** Nepal, China, Japan, Korea, East of Russia.

**Remarks:** This species is dorsally black with a curved yellow marking on head. It is reported from Gorumara NP and Sikhiajhora forest of Buxa Tiger Reserve.

**39. *Aquarius adelaides* (Dohrn): Plate 3: Fig.39**

**Material examined:** 1♂, 2♀, West Bengal: Dima River, Damanpur forest, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 2♂, 3nymphs, West Bengal: Pond near Rhino camp, Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 5♂, 7♀, West Bengal: Sikhiajhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 3♀, 1nymph, West Bengal: Small jhora within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** Australia, Burma, China, Java, Malacca, Philippines, Sumatra, Thailand, India.

**Remarks:** This species is widely distributed in the lentic ecosystems like ponds or lakes of this region. It can be identified by long and stout connexival spines almost reaching abdominal end in male.

**40. *Aquarius paludum* (Fabricius): Plate 3: Fig.40**

**Material examined:** 1♂, 2 nymphs, West Bengal: Dhupjhora, near Murti River, Jalpaiguri, 10.ix.2011, Coll: S. Basu.

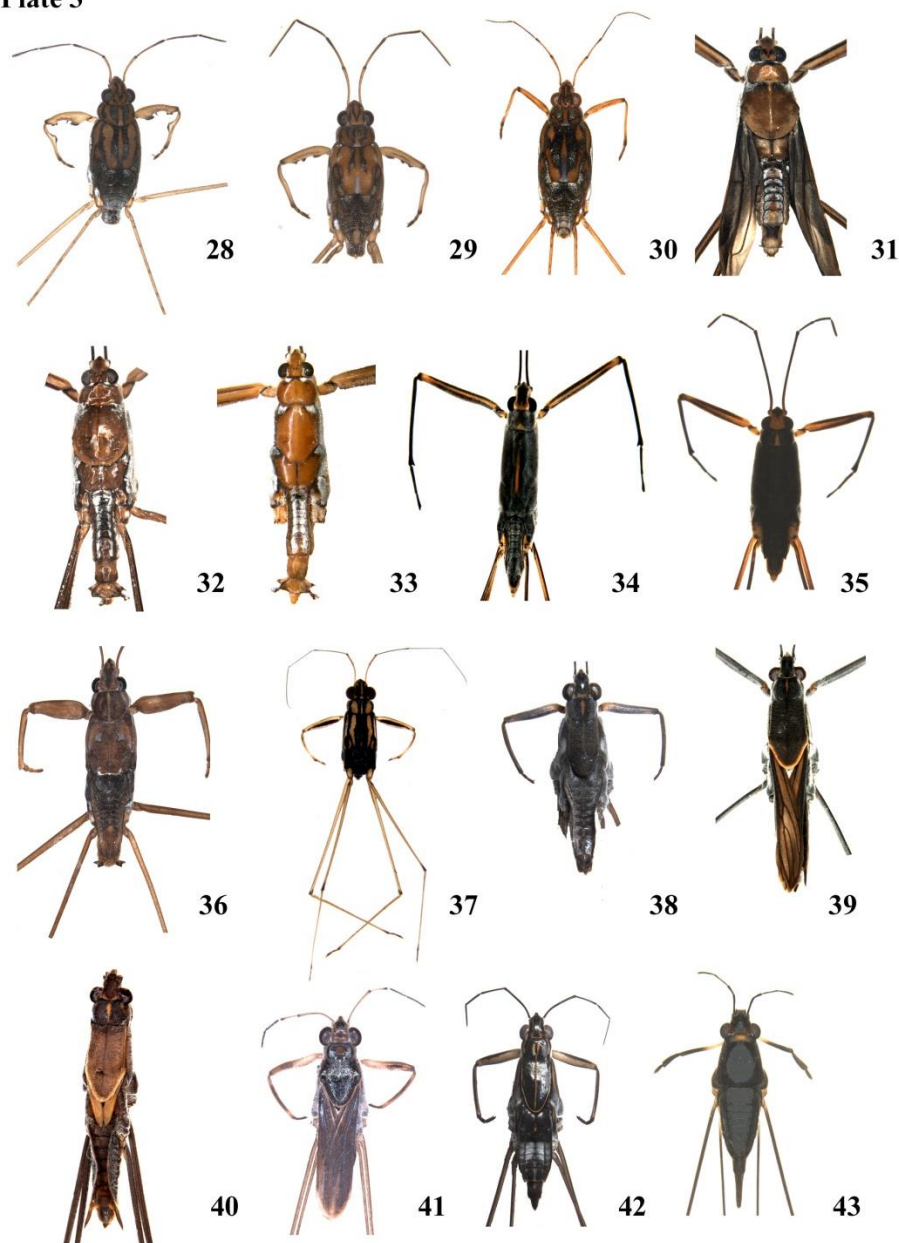
**Distribution:** Burma, Thailand, Vietnam, Denmark, France, Iran, Japan, China, Jordan.

**Remarks:** This species is closely related to *A. adelaides* (Dohrn), but can be distinguished by the male connexival spines which is long and slightly surpassing the abdominal end.

**41. *Neogerris parvulus* (Stal): Plate 3: Fig. 41**

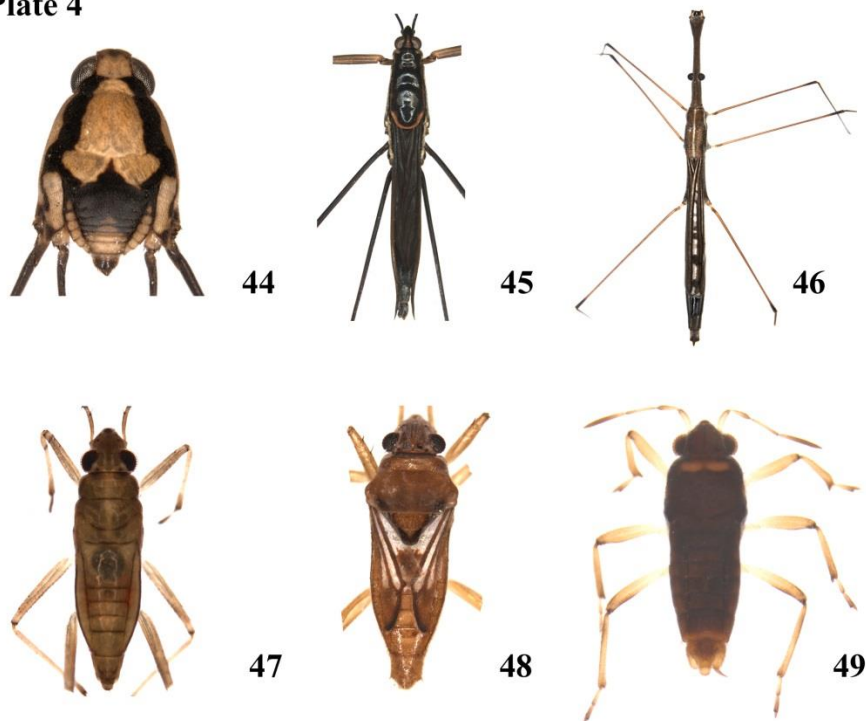
**Material examined:** 4♂, 5♀, West Bengal: Bania River, Chilapata forest, Jalpaiguri, 19.iv.2013, Coll: S. Basu; 1♂, 2♀, West Bengal: Buri Torsha River, Bish Khutia, between South Khairabari and North Khairabari Reserve forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 1♂, 2♀, West Bengal: Buri Torsha Riverside, South Khairabari Reserve Forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 1♂, 1♀, 2nymphs, West Bengal: Dima River, Damanpur forest, Buxa Tiger Reserve, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 1♂, West Bengal: Jayanti Forest Bungalow, Jalpaiguri, 6.iii.2011, Coll: S. Basu; 1♂, 1♀, West Bengal: Jayanti River, Alipurduar, 6.iii.2011, Coll: S. Basu; 5♂,

Plate 3



**Plate 3: Figs. 28-43.** Dorsal view of species: 28. *Amemboa bifurcata* Basu, Subramanian and Polhemus; 29. *Amemboa mahananda* Basu, Subramanian and Polhemus; 30. *Amemboa kumari* (Distant); 31. *Ptilomera (Proptilomera) himalayensis* Hungerford and Matsuda; 32. *Ptilomera (Ptilomera) laticaudata* (Hardwicke); 33. *Ptilomera (Ptilomera) assamensis* Hungerford and Matsuda; 34. *Heterobates rihandi* (Pradhan); 35. *Pleciobates bengalensis* Jehamalar, Basu and Zettel; 36. *Chimarrhometra orientalis* Distant; 37. *Onychotrechus dooarsicus* Subramanian, Basu and Zettel; 38. *Gerris (Gerris) nepalensis* Distant; 39. *Aquarius adelaides* (Dohrn); 40. *Aquarius paludum* (Fabricius); 41. *Neogerris parvulus* (Stal); 42. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius); 43. *Rhagadotarsus (Rhagadotarsus) kraepelini* Breddin

Plate 4



**Plate 4: Figs. 44-49.** Dorsal view of species: 44. *Ventidius (Ventidius) sushmae* Gupta; 45. *Cylindrostethus productus* (Spinola); 46. *Hydrometra greeni* Kirkaldy; 47. *Mesovelgia vittigera* Horváth; 48. *Mesovelgia horvathi* Lundblad; 49. *Microvelia (Microvelia) douglasi* Scott

6♀, West Bengal: Kalikhola, between Gorumara and Chapramari forest, Jalpaiguri, 17.iii. 2013, Coll: S. Basu; 8♂, 5♀, West Bengal: Kalipur wetland, within Gorumara N Park, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 10♂, 14♀, West Bengal: Sikhiakhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 5♂, 4♀, 5nymphs, West Bengal: Teesta canal, near Odlabari, Jalpaiguri, 19.iii.2012, Coll: S. Basu; 3♂, 2♀, West Bengal: Wetland beside Gajaldoba Teesta barrage, Jalpaiguri, 12.iii.2011, Coll: S. Basu; 1♂, 3nymphs, West Bengal: Wetland within Chapramari WLS, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India, Burma, Oman, Iran, Thailand, Vietnam, Malay Peninsula, China, Taiwan, Java, Philippine, Solomon Island, New Guinea.

**Remarks:** This is a widespread species. This species can be caught easily by light trap. It can be identified by the yellowish round spot on its black pronotum.

**42. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius): Plate 3: Fig.42**

**Material examined:** 1♂, 1♀, West Bengal: Buri Torsha River, Bish Khutia, border between South Khairabari and North Khairabari Reserve forest, Jalpaiguri, 19.iii.2011, Coll: S. Basu; 5♂, 3♀, 14nymphs, West Bengal: Kalipur wetland, within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 1♂, 1♀, West Bengal: Pond near Domohoni, Jalpaiguri, 23.ix.2012, Coll: M. Chakrabarty; 1♀, West Bengal: Poro River, Poro beat, Chilapata forest range, 19.iv.2013, Coll: S. Basu; 5♂, 5♀, 1nymph, West Bengal: Sikhiakhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu; 1♀, West Bengal: Teesta Canal, near Odlabari, Jalpaiguri, 19.iii.2012, Coll: S. Basu; 4♂, 13nymphs, West Bengal: Wetland beside Gajaldoba Teesta barrage, Jalpaiguri, 13.iii.2011, Coll: S. Basu.

**Distribution:** Burma, India, Thailand, Laos, Vietnam, China, Macao, Hong Kong, Hainan, Amoy, Singapore, Sumatra, Philippine, Taiwan, Borneo.

**Remarks:** This species is widespread globally and very common in Terai- Dooars region of Bengal. This can be distinguished by the long yellowish stripe on pronotum reaching up to posterior margin of pronotum.

**43. *Rhagadotarsus (Rhagadotarsus) kraepelini* Breddin: Plate 3: Fig.43**

**Material examined:** 2♂, West Bengal: Sikhiajhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu.

**Distribution:** Malaysia, Singapore, Java, Indonesia, Sri Lanka, Thailand, Vietnam, China, Myanmar, Taiwan, India.

**Remarks:** This species is widespread. But, it was collected from only one locality of Terai- Dooars region. They can be identified by their small size and black colour and by the abdominal tergite which is narrowly elongated.

**44. *Ventidius (Ventidius) sushmae* Gupta: Plate 4: Fig. 44**

**Material examined:** 1♂, 4♀, 5nymphs, West Bengal: Sikhiajhora, Jalpaiguri, 8.iii.2011, Coll: S. Basu; 6♂, 15♀, West Bengal: Sikhiajhora, Jalpaiguri, 17.iv.2013, Coll: S. Basu.

**Distribution:** India.

**Remarks:** Yellowish to greenish species with black markings. They can be identified by the triangular median spot and a pair of black stripes in the head. This species is found in good numbers in the Sikhijhora forest of Buxa Tiger Reserve forest.

**45. *Cylindrostethus productus* (Spinola): Plate 4: Fig.45**

**Material examined:** 1♂, 2♀, West Bengal: Jhora in front of Chapramari WLS, Jalpaiguri, 18.iii.2012, Coll: S. Basu; 1♂, 1♀, West Bengal: Jhora in front of Chapramari rail gate, Jalpaiguri, 10.iii.2011, Coll: S. Basu; 3♀, West Bengal: Khunia more, Chapramari WLS, Jalpaiguri, 9.iii.2013, Coll: M. Chakrabarty; 5♂, 6♀, West Bengal: Small jhora within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu.

**Distribution:** India, Sri Lanka, Nepal.

**Remarks:** Very large species, dark and elongated. It can be distinguished by a prominent vertical keel medially in the meso and metasternum. This species is abundant in two of the conservation areas namely, Gorumara

National Park and Chapramari WLS of this region.

### Family Hydrometridae

**46. *Hydrometra greeni* Kirkaldy: Plate 4: Fig.46**

**Material examined:** 1♂, West Bengal: Buri Torsha River, Bish Khutia, border between South Khairabari and North Khairabari Reserve forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 2♂, 1♀, West Bengal: Jayanti River, Jayanti forest Bungalow, Alipurduar, 6.iii.2011, Coll: S. Basu; 1♂, West Bengal: Jayanti River, Alipurduar, 6.iii.2011, Coll: S. Basu; 1♂, 2♀, West Bengal: Jhora in front of Chapramari WLS, Jalpaiguri, 18.iii.2012, Coll: S. Basu; 3♂, West Bengal: Jhora in front of Chapramari railgate, Jalpaiguri, 10.iii. 2011, Coll: S. Basu; 5♂, 3♀, West Bengal: Kalikhol, between Gorumara and Chapramari forest, Jalpaiguri, 17.iii.2013, Coll: S. Basu; 4♂, 4♀, West Bengal: Murti River, Chalsa, Jalpaiguri, 9.iii.2011, Coll: S. Basu; 2♀, West Bengal: Poro River, Poro beat, Chilapata forest range, Jalpaiguri, 19.iv.2013, Coll: S. Basu; 1♂, 1♀, West Bengal: Raidhak River, Alipurduar, 19.iv.2013, Coll: S. Basu; 2♀, West Bengal: Sikhiajhora, Jalpaiguri, 8.iii.2011, Coll: S. Basu; 3♂, 3♀, West Bengal: Small jhora within Gorumara NP, Jalpaiguri, 17.iii.2012, Coll: S. Basu; 2♂, 2♀, West Bengal: stagnant pool, North Khairabari Reserve forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 10♂, 15♀, West Bengal: Stagnant pool within Mahananda WLS, Darjeeling, 20.iii. 2012, Coll: S. Basu; 1♂, West Bengal: Teesta canal, near Odlabari, Jalpaiguri, 19.iii. 2012, Coll: S. Basu; 1♀, West Bengal: Teesta canal, Teesta barrage, Gajaldoba, Jalpaiguri, 13.iii.2011, Coll: S Basu; 2♂, 2♀, West Bengal: Wetland beside Gajaldoba, Teesta barrage, Jalpaiguri, 13.iii.2011, Coll: S. Basu; 2♂, 2♀, West Bengal: Dima River, Damanpur forest, Jalpaiguri, 17.iv.2013, Coll: S. Basu.

**Distribution:** Bangladesh, China, Nepal, Sri Lanka, Sumatra, Thailand, Vietnam.

**Remarks:** A widespread species found throughout the World. This is very common in the aquatic ecosystems of this region and mostly found on the algal bloom. It can be distinguished by the male seventh sternite which is transversely depressed and hairy and by the long

slender brownish yellow body with a narrow white stripe extends midway of the body.

#### Family Mesoveliidae

##### 47. *Mesovelia vittigera* Horváth: Plate 4: Fig. 47

**Material examined:** 2♂, 1♀, West Bengal: Buri Torsha River, Bish Khutia, border between South Khairabari and North Khairabari Reserve Forest, Jalpaiguri, 19.iii.2013, Coll: S. Basu; 1♂, West Bengal: Pond at Binnaguri, Jalpaiguri, 3.x.2013, Coll: S. Basu; 5♂, 3♀, West Bengal: Pond at Mainaguri, Jalpaiguri, 3.x.2013, Coll: S. Basu.

**Distribution:** Malaysia, Singapore, Africa, Australia, Egypt, Indonesia, Palestine, Philippines, Syria, Sri Lanka, Samoa Island, China, Japan, India.

**Remarks:** They are found in the lentic ecosystems mainly pond, lake, river bank within floating vegetation. This small greenish bug can be identified by the male genital segment which is with a stout black hair tufts on the middle and a pair of brush like hairs laterally.

##### 48. *Mesovelia horvathi* Lundblad: Plate 4: Fig. 48

**Material examined:** 1♂, West Bengal: Pond near Baradighi, Mal Bazar, Jalpaiguri, 17.ix.2011, Coll: S. Basu.

**Distribution:** India, Indonesia, Malaysia, Sri Lanka, Thailand, Vietnam.

**Remarks:** They are small, slender, greenish bugs and carnivorous in nature. They can be identified by the male genital segment which is without median spine, but with lateral groups of brush-like hairs.

#### Family Veliidae

##### 49. *Microvelia (Microvelia) douglasi* Scott: Plate 4: Fig.49

**Material examined:** 1♂, 2♀, West Bengal: Sikhiajhora, Jalpaiguri, 8.iii.2011, Coll: S. Basu; 1♀, West Bengal: Teesta canal near Odlabari, Jalpaiguri, 19.iii.2012, Coll: S. Basu; 12♀, 8♂, West Bengal: wetland beside Gajaldoba Teesta Barraige, Jalpaiguri, 12.iii.2012, Coll: S. Basu.

**Distribution:** India, Australia, Japan, Indonesia, Sri Lanka.

**Remarks:** This species is reported from the stagnant ecosystems of Terai region of West Bengal and can be easily identified with the structure of male genital segment. They can be identified by the male genital segment with one paramere extending outward.

#### Discussion

The present study documented a total of 49 species and 30 genera of aquatic and semi-aquatic Heteroptera from Terai- Dooars region of West Bengal. *Hydrometra greeni* Kirkaldy, *Neogerris parvulus* (Stal), *Heterobates rihandi* (Pradhan), *Ptilomera (Ptilomera) laticaudata* (Hardwicke), *Ptilomera (Ptilomera) assamensis* Hungerford and Matsuda, *Diplonychus annulatus* (Fabricius) are the more common species found in freshwater ecosystems like ponds, streams, rivers etc. The species *Enithares mandalayensis* Distant, *Aphelocheirus thirumalaii* Basu, Subramanian and Saha, *Ventidius (Ventidius) sushmae* Gupta, *Cylindrostethus productus* (Spinola), *Onychotrechus dooarsicus* Subramanian, Basu and Zettel, *Amemboa mahananda* Basu, Subramanian and Polhemus, *Amemboa kumari* (Distant), *Ptilomera (Proptilomera) himalayensis* Hungerford and Matsuda, *Pleciobates bengalensis* Jehamalar, Basu and Zettel, *Amemboa bifurcata* Basu, Subramanian and Polhemus, *Heleocoris bengalensis bengalensis* Montandon, *Micronecta ludibunda ludibunda* Breddin, *Micronecta khasiensis* Hutchinson are exclusively found in forest habitats. The species *Microvelia (Microvelia) douglasi* Scott, *Mesovelia vittigera* Horvath, *Mesovelia horvathi* Lundblad, *Hydrometra greeni* Kirkaldy, *Aquarius adelaides* (Dohrn), *Paraplea frontalis* (Fieber), *Micronecta (Basilionecta) scutellaris scutellaris* (Stal), *Ranatra varipes varipes* Stal, *Laccotrephes griseus* (Guerin-Meneville), *Anisops sardeus sardeus* Herrich- Shaffer, *Anisops breddini* Kirkaldy, *Diplonychus annulatus* (Fabricius) are reported from agricultural habitats. Three species collected from this region are new reports to the State of West Bengal.

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