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Further contribution to terrestrial true bugs (Heteroptera: Insecta) from Chilapata Forest of Dooas, with a new record to West Bengal, India

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Abstract
The present communication deals with the taxonomic attributes on terrestrial true bugs which was yielding of our second visit to Chilapata forest of Dooars during 26th to 31st October 2020. We filed 9 species spreading in 2 infra-orders and under 7 families. A Coreidaean bug, *Prismatocerus sigillatus* (Stål) has been reported first time from the state. Furthermore, we have detailed the body parts' measurements, morphological features, drawings, and image of dorsal habitus of the newly recorded species.

Keywords: Chilapata forest, Dooas, new record, West Bengal

Introduction

The Heteropterans are removed afar from other insects as they possess rostrum, hemelytron, meta-thoracic and dorsal scent glands, and gula (Schuh & Slater, 1995) [26]. They feed on almost all plants, small arthropods and vertebrates' blood including humans. And some speies can transmit pathogens. For these reasons, the insects are economically much important (Schaefer & Panizzi, 2000) [25]. Literatures like Distant (1902-1918) [13], (China & Miller (1959) [9], Dolling (1991) [14], Forero (2008) [16], Weirauch & Schuh (2011) [28], and Salini & Viraktamath (2015) [24] are fruitful for us to develop our knowledge on that group.

Till date, there are more than 40,000 species and 91 families have been known from the globe (Henry, 2017) [22]. Approximately 2000 true bugs spreading in 31 families were known from the country (Ghosh, 1998) [20], and only 344 species were listed in state fauna series 3.0 (West Bengal) (Ghosh, 1994; Basu *et al.*, 2016) [19, 6].

Actually this was our second tour to Chilapata forest of dooars for collecting the bugs. Our first tour was conducted during summer season of the same year. At that time we listed 11 species spreading in 7 families (Dhali, 2020) [10]. Altogether 20 species of true bugs are represented by the forest spreading in 9 families under 2 infra-orders.

Materials and methods

1. **Study area:** The Chilapata forest spreading with approximately 19.75 square kilometres is located in Alipurduar district and for detail please goes through https://alipurduar.gov.in/tourist-place/chilapata.

2. **Collection & preservation:** During 26th to 31st October, 2020 we sampled the specimen randomly within the forest. For collection, we used variety of methods like net sweeping, bush beating and hand and preserved them in 70% alcohol in the area of collection. We dried, stretched and pinned the collected specimens in insect cabinet of the laboratory of first author's college for future study.

3. **Identification:** We followed Distant (1902-1918) [13] for identification of the samples and also followed Schuh & Slater (1995) [26], Aukema & Rieger (1999, 2006) [2, 3], Aukema *et al.*, (2013) [4] and GBIF (2021) [18] for their current systematics.

4. **Technical support:** We used GPS for locating the geographical co-ordinates of the occurrences. During study, we used Zeiss Stemi SV 6 binocular which compatible to Sony cyber shot camera for taking images and drawing tube for camera lucida drawing of the body parts. In millimetre (mm) scale, all measurements were taken.

Results & Discussion

Systematics of the collected specimens

1. Infra-order: Cimicomorpha
Family: Reduviidae Latreille, 1807
Subfamily: Harpactorinae Amyot & Serville, 1843
Genus: ***Epidaus*** Stål, 1859
Epidaus atrispinus Distant, 1904
1904. *Epidaus atrispinus* Distant, Fauna Bri. India, Rhync. 2: 372

Material examined: 2♀, 26°38'40.4"N 89°21'59.3"E, 26.x.20, coll. N. Ray; 2♀, 26°36'84.2"N 89°21'59.3"E, 29.x.20, coll. S. Dhali.

Distribution: In India: Sikkim, West Bengal; China, USSR (Distant, 1904; Ambrose, 2006; GBIF, 2021) [13, 1, 18].

2. Infra-order: Pentatomorpha
Family: Coreidae Leach, 1815
Subfamily: Coreinae Leach, 1815
Tribe: Acanthocorini Amyot & Serville, 1843
Genus: *Acanthocoris* Amyot & Serville, 1843
Acanthocoris scabrator (Fabricius, 1803)
1803. *Coreus scabrator* Fabricius, *System. Rhyngotorum*: 195
1902. *Acanthocoris scabrator* (Fabricius) Distant, Fauna Brit. India, Rhynchota 1: 385

Material examined: 1♀, 26°37'40.2"N 89°21'59.8"E, 28.x.2020, coll. S. Dhali; 1♀, 26°37'40.1"N 89°21'59.8"E, 30.x.2020, coll. S. Dhali.

Distribution: India: Assam, Karnataka, Maharashtra, Manipur, Meghalaya, Sikkim, Tamil Nadu, West Bengal; Malayasia, Malayan Archipelago, Madagascar, Myanmar, Nepal, Sri Lanka (Distant, 1902; Basu and Mitra, 1994; Hegde, 1995; Dolling, 2006; Prabakar, 2013) [13, 5, 21, 15, 23].

3. Genus: *Physomerus* Burmeister, 1835
Physomerus grossipes (Fabricius, 1794)

Material examined: 1♂, 26°38'41.3"N 89°21'58.9"E, 28.x.2020, coll. S. Dhali; 1♀, 26°37'40.4"N 89°21'58.8"E, 30.x.2020, coll. S. Dhali.

Distribution: India: Andaman and Nicobar Island, Assam, Jharkhand, Kerala, Maharashtra, Manipur, West Bengal; Southeast Asia (Distant, 1902; Dolling, 2006; Prabakar, 2013) [13, 15, 23].

Tribe: Homoeocerini Amyot & Serville, 1843

4. Genus: *Prismatocerus* Amyot & Serville, 1843
Prismatocerus sigillatus (Stål, 1873)
1873. *Homoeocerus sigillatus* Stål, Enum. Hemipterorum, Kong. Svensk. Vete. -Akade. Handlingar 11(2): 59
2013. *Prismatocerus sigillatus* (Stål) Prabakar, Reco. zoologi, Surve. India: 113(Part-4): 112

Measurements: ♀**:** Total body length=16.87; Head length=1.44; Head width=1.80; Ante-ocular length=0.72, Post-ocular length= 0.18; Antennal total length= 12.55, antennal segmental length: 1st=3.55, 2nd=3.66, 3rd=2.33 and 4th= 3.11; Rostral length (total)= 3.78, rostral segmental length: 1st=0.67, 2nd=0.89, 3rd=1.33 and 4th= 0.89; Pronotal length=3.42; Pronotal width= 4.32; Scutellar length=1.89; Scutellar width= 1.62; Forewing length= 11.52; Wing width= 3.06; Abdominal length= 8.28.

Description: Body (Fig. 1) elongated and ochraceous; antennae slender; inner angle of corium with a small luteous spot. Head: Head (Fig. 2a) ochraceous with a soprano brownish band on either side of eyes, coarsely punctate, sub quadrate, mid-longitudinally depressed, central lobe (tylus) slightly longer than lateral lobes (juga), before ocelli a small groove present; antennae (Fig. 2b) reddish excepting basal ⅔ rd of the apical segment, 4 segmented, antennal formula 2>1>4>3; eyes (2a) pale reddish ochraceous and globose; ocelli transparent and nearer to eyes; rostrum ochraceous, apically reddish, 4 segmented, rostral formula 3>2=4>1. Thorax: Pronotum (Fig. 2c) with a reddish brown band between humeral angles, thickly and coarsely punctate, anterior angles obtuse, lateral margins straight and crenulate, basal margin sinuate, humeral angles sub-acute. Scutellum (Fig. 2d) ochraceous, coarsely punctures, triangular, apically pointed, lateral margins reflexed, frena extending to apex; hemelytra (Fig. 2e) – clavus and corium ochraceous, with a broad mid-longitudinally extended reddish brown fascia, inner angle of corium with a small rounded luteous spot, thick and coarsely punctate, membrane fuliginous, basally piceous; sternal plates luteous, meso-sternum and meta-sternum with a black spot on either lateral side, pro-sternum centrally impressed, meta-thoracic scent gland osteioles oblique; legs reddish ochraceous, tarsi 3 segmented, 1st tarsal segment almost equals to 2 apical segments taken together, hind leg (Fig. 2f) much elongated than others. Abdomen: Dorsum reddish ochraceous, connexivum smooth, venter (Fig. 2g) pale fuscous, pilose, sub lateral area with obscure brown spots; female genital plates – 1st gonocoxae triangular, 2nd gonocoxae transverse, 8th paratergites broadly triangular, 9th paratergites narrowed apically.

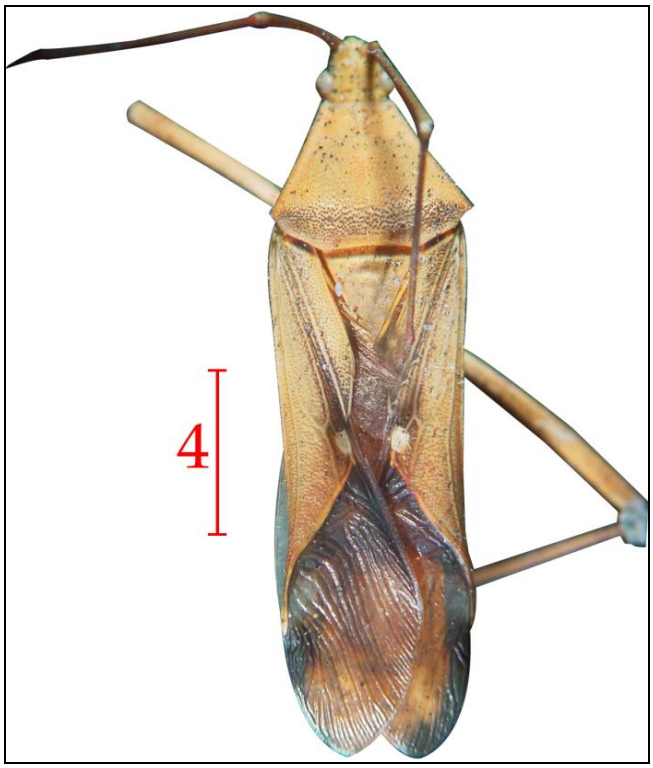

Fig 1: *Prismatocerus sigillatus* (Stål), dorsal habitus

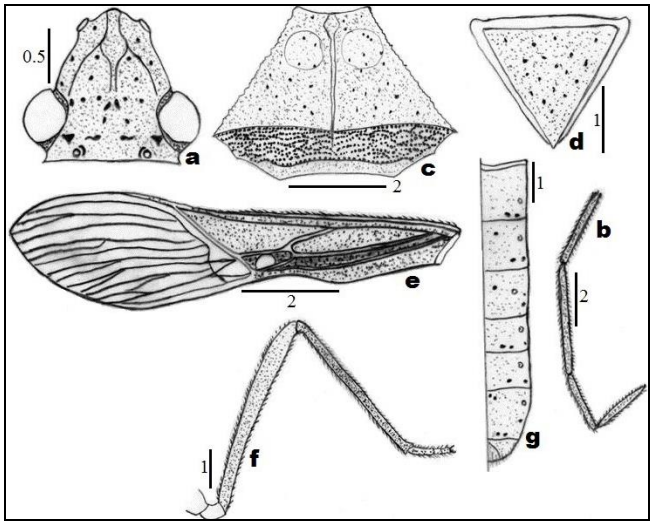

Fig 2 (a-g): *Prismatocerus sigillatus* (Stål): **a.** Head, dorsal view; **b.** Antenna; **c.** Pronotum; **d.** Scutellum; **e.** Forewing; **f.** Hind leg; **g.** Abdomen, ventral view

Material examined: 1♀, 26°38'38.8"N 89°21'58.7"E, 27.x.20, coll. N. Ray.

Distribution: India: Sikkim, Uttarakhand, new to West Bengal (Distant, 1902; Prabakar, 2013) [13, 23].

3. Family: LARGIDAE Amyot & Serville, 1843
Subfamily: Physopeltinae Hussey, 1929
Tribe: Physopeltini Hussey, 1929

5. Genus: *Physopelta* Amyot & Serville, 1843
Physopelta schlanbuschi (Fabricius, 1787)
1787. *Cimex schlanbuschi* Fabricius, Rhyngota, *In Mantis. Insectorum* 2: 299
1903. *Physopelta schlanbuschi* (Fabricius) Dist., Fauna Bri. India, Rhynchota 2: 99

Material examined: 1♀, 26°38'39.8"N 89°21'59.8"E, 28.x.20, coll. S. Dhali; 1♂, 26°37'40.5"N 89°21'59.5"E, 29.x.20, coll. N. Ray.

Distribution: India: Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Tripura, West Bengal; China, Japan, Myanmar (Distant, 1903; Chakraborty *et al.*, 1994; Sen *et al.*, 1994; Dhali and Ray, 2020) [13, 8, 27, 11].

4. Family: LYGAEIDAE Shilling, 1829
Subfamily: Lygaeinae Stål, 1862

6. Genus: *Spilostethus* Stål, 1868
Spilostethus hospes (Fabricius, 1794)
1794. *Lygaeus hospes* Fabricius, Entomologi. Systematica 4: 150
1914. *Spilostethus hospes* (Fabricius) Bergroth, Mitteilung. Schweizerisch. Entomologi. Gesellschaft 3: 356

Material examined: 1♂, 26°37'41.2"N 89°21'59.4"E, 28.x.2020, coll. N. Ray; 1♀, 26°37'40.3"N 89°21'59.4"E, 30.x.2020, coll. S. Dhali.

Distribution: India: Assam, Chhattisgarh, Delhi, Orissa, Karnataka, Madhya Pradesh, Maharashtra, Uttaranchal, Tamil Nadu, West Bengal; Southeast Asia, Australia, New Zealand (Distant, 1903; Dhali and Ray, 2021) [13, 12].

5. Family: Pentatomidae Leach, 1815
Subfamily: Podopinae Amyot & Serville, 1843
Tribe: Podopini Dallas, 1851
Subtribe: Podopina Stål, 1872

7. Genus: *Stysiellus* Gapon, 2008
Stysiellus dentatus (Distant, 1902)
1902. *Podops dentata* Distant, Fauna Brit. India, Rhynchota 1: 75
2008. *Stysiellus dentatus* (Distant) Gapon, Acta Entomolgi. Muse. Nation. Pragae 48(2): 531

Material examined: 1♀, 26°37'41.3"N 89°21'59.2"E, 26.x.2020, coll. S. Dhali; 1♀, 26°37'38.7"N 89°21'59.8"E, 28.x.2020, coll. S. Dhali.

Distribution: India: West Bengal; Nepal (Distant, 1902; Gapon, 2008) [13, 17].

6. Family: PYRRHOCORIDAE Amyot & Serville, 1843

8. Genus: *Dysdercus* Guérin-Méneville, 1831
Dysdercus koenigii (Fabricius, 1775)
1775. *Cimex koenigii* Fabricius, System. Entomologiae: 719
1914. *Dysdercus koenigii* (Fabricius) Bergroth, Mitteilung. Schweizerisch. Entomologi. Gesellschaft 3: 355

Material examined: 2♀, 26°37'40.6"N 89°21'59.7"E, 27.x.2020, coll. N. Ray.

Distribution: India: Widely distributed throughout the country including West Bengal; Australia and Southeast Asia (Distant, 1903; Sen *et al.*, 1994; Dhali and Ray, 2020) [13, 27, 11].

7. Family: Rhyparochromidae Amyot & Serville, 1843
Tribe: Myodochini Stål, 1872

9. Genus: *Pseudopachybrachius* Malipatil, 1978
Pseudopachybrachius guttus (Dallas, 1852)

Material examined: 1♀, 26°37'40.5"N 89°21'59.7"E, 26.x.2020, coll. S. Dhali; 1♀, 26°37'39.6"N 89°21'59.2"E, 28.x.2020, coll. S. Dhali.

Distribution: India: Bihar, Chhattisgarh, Madhya Pradesh, West Bengal; Australia, China, Japan, Marianas, Myanmar, Samoa, Sri Lanka (Distant, 1903; Dhali and Ray, 2021) [13, 12].

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