**International Journal of Entomology Research**
**ISSN: 2455-4758; Impact Factor: RJIF 5.24**
**Received: 25-05-2020; Accepted: 10-06-2020; Published: 26-06-2020**
**www.entomologyjournals.com**
**Volume 5; Issue 4; 2020; Page No. 01-06**

# Pyrrhocoroidean (Hemiptera: Heteroptera) fauna from Gorumara National Park and Chapramari Wildlife Sanctuary, - with a new record to West Bengal, India

**Somnath Dhali[1*], Nilay Ray[2]**

[1] Assistant Professor, Department of Zoology, Durgapur Government College, Durgapur, Paschim Burdwan, West Bengal, India

[2] Associate Professor, P. G. Department of Zoology, Hooghly Mohsin College, Chinsurah, Hooghly, West Bengal, India

**Abstract**
The current article is contributed to the biodiversity of superfamily Pyrrhocoroidea for the first time from Gorumara National Park and adjoining forest Chapramari Wildlife Sanctuary. 10 species spread under 7 genera within 2 families namely Largidae containing 4 species and Pyrrhocoridae containing 6 species have been noted down during field study. Of these, *Ectatops indignus* (Walker, 1873) is new for the State. The systematic accounts along with photographs of dorsal habitus, body parts' measurements, distributions and taxonomic keys of the recorded taxa are provided. Furthermore, the morphological description of *E. indignus* Walker is also given.

**Keywords:** pyrrhocoroidea, fauna, new record, Gorumara national park, Chapramari wildlife sanctuary, West Bengal

## 1. Introduction

The Superfamily Pyrrhocoroidea Southwood,1956 are generally diagnosed by having with aposematic colorations, enlarged eyes, keeled meso sternum, reduced meta thoracic scent gland openings, fused abdominal sternal segments 2-6 and lacking of ocelli and inner laterotergites (Henry, 1997) [15]. Amyot & Serville (1843) [2] recognized them with a separate family status under 'Cecigenes' and divided into 2 groups namely 'Largides' and 'Pyrrhocorides'. Fieber, (1861) [10] treated them as sub familial ranks of the family Pyrrhocoridae. Because of close affinities of family Lygaeidae to subfamily Larginae and family Coreidae to subfamily Pyrrhocorinae, these 2 subfamilies have been promoted to 2 separate families by China, (1954) [6] and China & Miller, (1959) [7]. By studying on Heteropteran eggs and other morphological characters Southwood (1956) [30] erected superfamily Pyrrhocoroidea by taking together these families. Schaefer (1964; 1993) [24, 25] affirmed the Southwood's view by reanalyzing the group along with its allies Lygaeoidea and Coroeidea (see Robertson, 2004) [19]. Currently, the family Largidae comprised with 2 subfamilies, Larginae (New world) and Physopeltinae (Old world); the Old world Physopeltinae includes 2 tribes as Lohitini and Physopeltini (Stehlík, 2013) [33].

Furthermore, the concise knowledge on the superfamily has been developed by following the studies of Stål, (1865) [31], Hussy, (1929) [17], Schuh & Slater, (1995) [28], Schaefer & Ahmad, (1999) [27], Stehlík & Jindra, (2008) [34], Stehlík & Kment, (2014) [35], Schaefer, (2015) [26], and Ghahari *et al.*, (2016) [11].

After the Distant's (1903) [9] monograph on the entire group, only Largids as a whole from the country were taken into consideration for study by Zamal & Chopra (1990) [37]. The state wise taxonomic studies on the superfamily have been working out by Mitra *et al.*, (1977) [18] for Arunachal Pradesh; Ghosh *et al.*, 1989 [12] for Orrisa; Sen *et al.*,1994 [29] for West Bengal; Ghosh *et al.*, (1997) [13] for Dehli; Saha & Bal, (2007, 2010) [20, 21] for Andhra Pradesh and Uttaranchal respectively; Stehlík, (2007) [32] for Meghalaya; Chandra *et al.*, (2015) [5] for Madhya Pradesh; Saha *et al.*, (2017) [22] for Chhattisgarh. Beyond these, some notable studies from the protected areas / reserves were of Chakraborty *et al.*, (1994) [3], Ghosh *et al.*, (2006) [14], Chandra, (2009) [4].

Presently, the World Pyrrhocoroidean fauna is enriched with around 56 known genera spreading over 560 species (see Henry, 2009 and Stehlík, 2013) [16, 33]. The biodiversity of Indian Pyrrhocoroids is comprised with 52 species within 16 genera (see Sen *et al*. 1994; Stehlík, 2007; Chandra *et al.*, 2015) [29, 32, 5] including 20 species within 12 genera reported from the state of West Bengal (Sen *et al.*, 1994) [29]. For about last 25 years, perhaps no species of this superfamily has been published from the state of West Bengal apart from *Dysdercus koenigii* (Fabricius), a species on which ecto-parasitic mite occurred (Sarangi *et al*., 2012) [23]. In this article, we have represented 10 Pyrrhocoroidean species under 7 genera including 1 new record from the state and all for the first time from Gorumara National Park and Chapramari Wildlife Sanctuary, West Bengal, India.

## 2. Materials and Methods

### 2.1 Study area

Gorumara National Park (GNP) extending within the geographical range 26°47'12.5" to 26°43'25.6" North and 88°52'4.2" to 88°47'7.3" East and the contiguous forest, Chapramari Wildlife Sanctuary (CWLS) extending 26° 52′ 28.71″ North, 88° 51′ 18.37″ East are being located in the Dooars region of West Bengal, India. For details please visit: https://en.wikipedia.org/wiki/Gorumara_National_Park and https://en.wikipedia.org/wiki/Chapramari_Wildlife_Sanctuary.

### 2.2 Sampling period

During 2016 to 2019, at least once/twice field visits in each of 3 main seasons namely, summer (March to 14th June), autumn (16th September to October) and winter (November to February) were made except the closing period of the

forest i.e.15th June to 15th September of each calendar year.

**2.3 Collection and Preservation**

The methods - insect net sweeping, beating of shrubs under inverted umbrella and hand picking have been used for collection of the specimens. After collection, the insects were kept in vials containing ethyl alcohol (75%) and labeled the vials with date, collectors' name in the field. After returning to the laboratory of Hooghly Mohsin College, the bugs were stretched, air dried and pinned in the insect cabinet for taxonomic study.

**2.4 Identification of Specimen**

Identification of the Pyrrhocoroidean species have been done on the basis of following literatures – Distant, (1903) [9], Schaefer & Ahmad, (1999) [27], Stehlík & Jindra, (2008) [34], Stehlík, (2013) [33] and Stehlík & Kment, (2014; 2017) [35, 36].

**2.5 Technical supports**

For the studying of insect's taxonomy and capturing the images we have used Zeiss SV 6 Binocular Microscope with necessary aids including Sony Cyber shot camera.

**2.6 Abbreviations and scale used for** body **parts' measurements**

AbL- Abdominal length; AtL- Antennal length total, AtS1-Antennal 1st segment, AtS2-Antennal 2nd segment, AtS3-Antennal 3rd segment, AtS4-Antennal 4th segment; HdL-Head length; HdW- Head width across eyes; IOD- Inter ocular distance; IOcD- Inter ocellar distance; PrL- Pronotal length; PrW- Pronotal width across humeral angles; RsL-Rostral length total, RsS1-Rostral 1st segment, RsS2-Rostral 2nd segment, RsS3-Rostral 3rd segment, RsS4-Rostral 4th segment; ScL- Scutellar length; ScW- Scutellar width at base; ToL- Total length; WnL- Wing length; WnW- Wing width across membrane. All measurements are taken in millimeter scale.

**3. Results and Discussions**

**Systematic Account**

Infraorder: Pentatomorpha Leston, Pendergrast & Southwood, 1954

Superfamily: Pyrrhocoroidea Amyot & Serville, 1843

1. Family: LARGIDAE Amyot & Serville, 1843
1. Subfamily: Physopeltinae Hussey, 1929
1. Tribe: Lohitini Ahmad & Abbas, 1987
1.Genus: *Macroceroea* Spinola, 1840
1. *Macroceroea grandis* (Gray, 1832)
2. Tribe: Physopeltini Hussey, 1929
2.Genus: *Iphita* Stål, 1870
*2. Iphita limbata* Stål, 1870
3.Genus: *Physopelta* Amyot and Serville, 1843
3. *Physopelta gutta* (Burmeister, 1834)
4. *Physopelta schlanbuschi* (Fabricius, 1787)
2. Family: PYRRHOCORIDAE Amyot & Serville, 1843
4. Ectatops Amyot & Serville, 1843
5. *Ectatops indignus* (Walker, 1873)
5. Genus: *Antilochus* Stål 1863
6. *Antilochus coqueberti* (Fabricius, 1803)
7. *Antilochus russus* Stål, 1863
6. Genus: *Dysdercus* Guérin-Méneville, 1831
8. *Dysdercus evanescens* Distant, 1902
9. *Dysdercus koenigii* (Fabricius, 1775)
7. Genus: *Melamphaus* Stål, 1868
10. *Melamphaus rubrocinctus* (Stål, 1863)

**Key to families of Superfamily: Pyrrhocoroidea** Amyot & Serville, 1843

1. Anterior femora usually slender or slightly swollen; 7th abdominal segment split in female; ovipositor lanceolate …… Largidae
- Anterior femora usually swollen; 7th abdominal segment entire in female; ovipositor plate like …….. Pyrrhocoridae

**1. Family: LARGIDAE** Amyot & Serville, 1843

**1. Subfamily: Physopeltinae** Hussey, 1929

**Key to tribes of Subfamily: Physopeltinae** Hussey, 1929

1. Prolonged abdomen in male, anterior wing reaching up to mesotergites V in male; antennae very long; anterior femora without longitudinal furrow at beneath; length of body ranges 28.5-62.5mm (♂) and 26.0-36.0mm (♀) ……. Lohitini
- Never prolonged abdomen in male; antennae much shorter; anterior femora with a longitudinal furrow at beneath; length of body ranges 5.2-20.0mm in both sexes ……. Physopeltini

**1. Tribe: Lohitini** Ahmad & Abbas, 1987

**1. Genus: *Macroceroea*** Spinola, 1840

1840. *Macroceroea* Spinola, *Ess. Hem.*: 177

**1. *Macroceroea grandis*** (Gray, 1832) (Plate I, Fig. 1)

1832. *Lygaeus grandis* Gray, *In Griff. An. King. 15, Ins. 2*: 242, pl. 92, f.3

1913. *Macroceroea grandis* (Gray) Bergroth, *Mem. Soc. Ent. Belg. 22*: 166

**Measurements (mm):** ♀ **:** ToL= 30.5 ( ♂ 54.00); HdL= 2.81, HdW= 2.14; AtL= 26.75 ( ♂ 76.54); AtS1= 9.51 ( ♂ 31.00);, AtS2= 8.13 ( ♂ 22.31), AtS3= 5.72 ( ♂ 18.11);, AtS4= 3.39 ( ♂ 5.12); IOD= 1.32; RsL= 14.54 ( ♂ 17.30), RsS1= 3.42 ( ♂ 4.51), RsS2= 4.23 ( ♂ 5.76), RsS3= 3.94 ( ♂ 4.92), RsS4= 2.95 ( ♂ 2.11); PrL= 3.64, PrW= 4.93; ScL= 2.54, ScW= 2.36; WnL= 19.00, WnW= 5.63; AbL= 16.15 ( ♂ 38.70).

**Material examined:** 1♀, I♂, Badhuram (GNP), 16.iv.2016, coll. N. Ray; 2♀♀, 1♂, Gorumara (GNP), 20.v.2017, coll. S. Dhali; 1♀, 1♂ Chapramari (CWLS), 08.vi.2018, coll. S. Dhali.

**Distribution:** India: Andhra Pradesh, Assam, Chhattisgarh, Meghalaya, Uttarakhand, Uttar Pradesh, West Bengal; Indonesia, Myanmar, Philippines (Distant, 1903; Sen *et al.*, 1994; Saha *et al.*, 2017) [9, 29, 22].

**2. Tribe: Physopeltini Hussey**, 1929

**Key to genera of Tribe: Physopeltini** Hussey, 1929

1. Anterior area of pronotal disc convex, the convexity well separated from the anterior margin which is concavely sinuate; lateral pronotal margins strongly reflexed…….. *Iphita* Stål
- Anterior area of pronotal disc convex, the convexity reaching the anterior margin; lateral pronotal margins slightly reflexed …….. *Physopelta* Amyot & Serville

**2. Genus: *Iphita*** Stål, 1870

1870. *Iphita* Stål, *En. Hém. 1*: 91, 99

**2. *Iphita limbata*** Stål, 1870 (Plate I, Fig. 2**)**

1870. *Iphita limbata* Stål, *En. Hém. 1*: 99
**Measurements (mm):** ♀ **:** ToL= 18.26; HdL= 2.54, HdW= 2.39; AtL= 11.26, AtS1= 3.00, AtS2= 3.27, AtS3= 2.11, AtS4= 2.88; IOD= 1.53; RsL= 7.71, RsS1= 2.23, RsS2= 2.68, RsS3= 1.43, RsS4= 1.37; PrL= 3.82, PrW= 5.07; ScL= 2.31, ScW= 2.91; WnL= 14.17, WnW= 4.79; AbL= 8.32.
**Material examined:** 2♀♀, Dhupjhora (GNP), 17.iv.2016, coll. S. Dhali; 1♀, Chapramari (CWLS), 08.vi.2018, coll. S. Dhali; 1♀, Murti (GNP), 18.iv.2019, coll. A. Kurmi.
**Distribution:** Andhra Pradesh, Assam, Chhattisgarh, Kerala, Maharashtra, Meghalaya, West Bengal; Bangladesh, Myanmar, Philippines, Sri Lanka (Distant, 1903; Sen *et al.*, 1994; Saha *et al.*, 2017) [9, 29, 22].

**3. Genus: *Physopelta*** Amyot & Serville, 1843
1843. *Physopelta* Amyot and Serville, *Hist. Nat. Hém.*: 271
**Key to species of Genus:** *Physopelta* Amyot & Serville, 1843
1. Body reddish ochraceous; jugum shorter than tylus; antennae with basal and apical segments subequal; paramere weakly bifid with inner arm narrower than outer…… *gutta* (Burmeister)
- Body sanguineous; jugum as long as tylus; antennae with basal segment shorter than apical; paramere deeply bifid with dissimilar arms……. *schlanbuschi* (Fabricius)

**3. *Physopelta gutta*** (Burmeister, 1834) (Plate I, Fig. 3)
1834. *Pyrrhocoris gutta* Burmeister, *Nov. Act. Acad. Leop. 16, Suppl.*: 300, pl. xli, f. 10
1903. *Physopelta gutta* (Burmeister) Distant, *Fauna Brit. India, Rhynch. 2*: 97
**Measurements (mm):** ♀ **:** ToL= 13.36; HdL= 1.67, HdW= 1.92; AtL= 6.78, AtS1= 1.72, AtS2= 1.92, AtS3= 1.32, AtS4= 1.82; IOD= 0.99; RsL= 4.35, RsS1= 1.12, RsS2= 1.21, RsS3= 0.98; RsS4= 1.04; PrL= 2.64, PrW= 3.64; ScL= 1.76, ScW= 2.11; WnL= 9.72, WnW= 3.22; AbL= 6.98.
**Material examined:** 2♀♀ Bichabhanga (GNP), 19.v.2017, coll. A. Kurmi; 1♀, 1♂, Gorumara (GNP), 20.v.2017, coll. S. Dhali.
**Distribution:** India: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Madhya Pradesh, Meghalaya, Uttarakhand, West Bengal; Afghanistan, Australia, China, Indonesia, Japan, Myanmar, Papua New Guinea, Philippines, Sri lanka, Taiwan (Distant, 1903; Chakraborty *et al.*, 1994; Sen *et al.*, 1994; Chandra *et al.*, 2015; Saha *et al.*,2017) [9, 3, 29, 5, 22].

**4. *Physopelta schlanbuschi*** (Fabricius, 1787) (Plate I, Fig. 4)
1787. *Cimex schlanbuschi* Fabricius, *Mat. Ins. 2*: 299
1903. *Physopelta schlanbuschi* (Fabricius) Distant, *Fauna Brit. India, Rhynch. 2*: 99
**Measurements (mm):** ♀ **:** ToL= 11.26; HdL= 2.25, HdW= 2.29; AtL= 11.41, AtS1= 3.36, AtS2= 2.92, AtS3= 2.34, AtS4= 2.79; IOD= 1.13; RsL= 3.56, RsS1= 1.14, RsS2= 0.99, RsS3= 0.78, RsS4= 0.65; PrL= 3.88, PrW= 5.63; ScL= 2.43, ScW= 2.50; WnL= 15.22, WnW= 5.18; AbL= 4.67.
**Material examined:** 1♂, Chapramari (CWLS), 22.v.2017, coll. S. Dhali; 1♀, Jatraprasad (GNP), 29.xii.2018, coll. N. Ray; 2♀♀, Dhupjhora (GNP), 17.iv.2019, coll. N. Ray.
**Distribution:** India: Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Madhya Pradesh; Meghalaya, Orissa, Uttarakhand, West Bengal; China, Hong- Kong, Japan, Myanmar (Distant, 1904; Ghosh *et al.*, 1989; Chakraborty *et al.*, 1994; Sen *et al.*, 1994; Chandra *et al.*, 2015; Saha *et al.*,2017) [9, 12, 3, 29, 5, 22].

**2. Family: PYRRHOCORIDAE** Amyot & Serville, 1843
1843. Pyrrhocoridae Amyot & Serville, *Hist. Nat. Hém.*: 265 (Pyrrhocorides)
**Key to genera of family:** PYRRHOCORIDAE Amyot & Serville, 1843
1. Eyes pedunculate; pronotal transverse impression much nearer to its anterior margin…..... Ectatops Amyot & Serville
- Eyes sessile; pronotal transverse impression little beyond of its anterior margin or nearer to its middle ……. 2
2. Head transversely constricted or impressed beneath near base; femora moderately thickened ……. *Antilochus* Stål
- Head not transversely constricted or impressed beneath near base; femora not as above…… 3
3. Eyes prominent, considerably touching pronotal margin at anterior; head immersed to eyes; pronotum laterally ampliated and reflexed ……. *Dysdercus* Guérin-Méneville
- Eyes prominent, never touching pronotal margin at anterior; head not immersed to eyes; pronotum laterally acute and sometimes reflexed …….. *Melamphaus* Stål

**4. Genus: *Ectatops*** Amyot & Serville, 1843
1843. *Ectatops* Amyot & Serville, *Hist. Nat. Hém.*: 273
**5. *Ectatops indignus*** (Walker, 1873) (Plate I, Fig. 5)
1873. *Dindymus indignus* Walker, *Cat. Het. 6*: 10
1902. *Ectatops indigna* (Walker) Distant, *Ann. Mag. Nat. Hist. 9(7)*: 36
2017. *Ectatops indignus* (Walker) Stehlík & Kment, Acta *Musei Moraviae, Scientiae biologicae (Brno) 102(1)*: 8
**Measurements:** ♀ **:** ToL= 14.36; HdL= 1.69, HdW= 2.86; AtL= 7.77, AtS1= 2.60, AtS2= 1.69, AtS3= 1.56, AtS4= 1.92; IOD= 1.04; RsL= 8.34, RsS1= 2.81, RsS2= 2.61, RsS3= 1.62, RsS4= 1.30; PrL= 2.92, PrW= 5.33; ScL= 2.47, ScW= 2.73; WnL= 12.09, WnW= 3.77; AbL= 7.54.
**Description:** Body somewhat ovate, piceous with small hairs. Head with eyes broader than long and anterior pronotal margin, centrally longitudinally depressed, tylus longer than jugum, almost triangular; antennae 4 segmented, piceous, 1st segment basally sanguineous, pilose; eyes large, pedunculate, reddish; rostrum piceous, reaching apex of 2nd abdominal segmen. Pronotum trapezoidal, transverse impression much before than middle, anterior lobe black with punctures, posterior lobe sparingly punctate, lateral and posterior pronotal margins distinctly reflexed; scutellum triangular, its apex sanguineous; hemelytra – clavus and corium fuscous, lateral corial margin sanguineous, membrane blackish fuliginous; sternal plates piceous, laterally sanguineous; legs of moderate size, femora thickened and spined beneath, anterior femora with 2 short spines at apex, tarsi 3 segmented, basal tarsal segment longer than apical 2 segments taken together. Abdominal dorsum ochraceous, venter luteous, and connexivum reddish ochraceous.
**Material examined:** 2♀♀, Khunia (GNP), 18.iv.2016, coll. A. Kurmi.

**Distribution:** India: Arunachal Pradesh, Assam, Meghalaya, Nagaland, **New record for West Bengal**; Bangladesh, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam (Distant, 1903; Mitra *et al*., 1977; Ahmad & Parveen, 1990; Stehlík & Kment, 2017) [9, 18, 1, 36].

**5. Genus: *Antilochus*** Stål 1863
1863. *Antilochus* Stål, *Berl. Ent. Zeitschr. 7*: 393
**Key to species of Genus:** *Antilochus* Stål 1863

1. Membrane black without any spot; femora thickened …… *coqueberti*, (Fabricius)
- Membrane pale brownish ochraceous with black rounded spot near base; femora much thickened than *A. coqueberti* ……. *russus*, Stål,

**6. *Antilochus coqueberti*** (Fabricius, 1803) (Plate I, Fig. 6)
1803. *Lygaeus coqueberti* Fabricius, *Syst. Rhyng*.: 222
1903. *Antilochus coqueberti* (Fabricius) Distant, *Fauna Brit. India, Rhynch. 2*: 101
**Measurements:** ♀ **:** ToL= 16.11; HdL= 2.09, HdW= 2026; AtL= 12.45, AtS1= 2.89, AtS2= 3.11, AtS3= 2.56, AtS4= 3.89; IOD= 1.22; RsL= 3.90, RsS1= 1.41, RsS2= 1.41, RsS3= 0.63, RsS4= 0.45; PrL= 3.91, PrW= 5.54; ScL= 2.45, ScW= 3.54; WnL= 13.44, WnW= 5.00; AbL= 9.67.
**Material examined:** 2♀♀, 1♂, Jatraprasad (GNP), 17.iv.2016, coll. S. Dhali; 1♀, Chukchuki (GNP), 19.v.2017, coll. S. Dhali; 1♀, Chapramari (CWLS), 08.vi.2018, coll. N. Ray.
**Distribution:** India: Andaman Island, Andhra Pradesh, Assam, Chhattisgarh, Delhi, Jammu & Kashmir, Kerala, Madhya Pradesh, Meghalaya, Nagaland, Uttarakhand, Uttar Pradesh, West Bengal; Bhutan, China, Myanmar, Sri Lanka (Distant, 1903; Sen *et al.*, 1994; Ghosh *et al.*, 1997; Chandra, 2009; Chandra *et al.*, 2015; Saha *et al.*,2017) [9, 29, 13, 4, 5, 22].

**7. *Antilochus russus*** Stål, 1863 (Plate I, Fig. 7)
1863. *Antilochus russus* Stål, *Berl. Ent. Zeitschr. 7*: 394
**Measurements:** ♂ **:** ToL= 16.42; HdL= 2.39, HdW= 2.57; AtL= 8.93, AtS1= 2.36, AtS2= 2.14, AtS3= 1.86, AtS4= 2.57; IOD= 1.48; RsL= 4.99, RsS1= 1.82, RsS2= 1.82, RsS3= 0.83, RsS4= 0.52; PrL= 4.09, PrW= 5.82; ScL= 2.71, ScW= 3.91; WnL= 13.44, WnW= 4.67; AbL= 8.89.
**Material examined:** 2♀♀, Gorumara (GNP), 07.vi.2018, coll. A. Kurmi.
**Distribution:** Assam, Kashmir, Karnataka, Meghalaya, Sikkim, West Bengal; Bhutan (Distant, 1903; Sen *et al.*, 1994; Ghosh *et al.*, 2006) [9, 29, 14].

**6. Genus: *Dysdercus*** Guérin-Méneville, 1831
1831. *Dysdercus* Guérin-Méneville, *Voy. Mon. Corve. Coq*
**Key to species of Genus:** *Dysdercus* Guérin-Méneville, 1831

1. Body elongate, pale ochraceous; antennae with basal and apical segments subequal; basal margin of pronotum convex; scutellum reddish ochraceous with apex pale; corium with a small black spot near middle; membrane pale brown……. *evanescens* Distant

Body oblong, reddish ochraceous; antennae with basal segment shorter than apical one; basal margin of pronotum nearly straight; scutellum black with apex sanguineous; corium with a large black spot, almost touching the membrane; membrane black with margin ochraceous …… *koenigii* (Fabricius)

**8. *Dysdercus evanescens*** Distant, 1902 (Plate I, Fig. 8)
1902. *Dysdercus evanescens* Distant, *Ann. Mag. Nat. Hist. 9(7)*: 43
**Measurements:** ♂ **:** ToL= 18.10; HdL= 1.91, HdW= 2.13; AtL= 10.78, AtS1= 3.33, AtS2= 2.56, AtS3= 1.33, AtS4= 3.56; IOD= 0.97; RsL= 5.56, RsS1= 1.57, RsS2= 1.57, RsS3= 1.42, RsS4= 1.00; PrL= 2.86, PrW= 3.86; ScL= 1.48, ScW= 1.61; WnL= 13.33, WnW= 4.22; AbL= 7.67.
**Material examined:** 1♀, Bichabhanga (GNP), 16.iv.2016, coll. S. Dhali; 1♀ Chapramari (CWLS), 08.vi.2018, coll. S. Dhali.
**Distribution:** Assam, Bihar, Maharashtra, Meghalaya, Punjab, Sikkim, Uttarpradesh, West Bengal; Bangladesh, Myanmar, Nepal (Distant, 1903; Sen *et al.*, 1994) [9, 29].

**9. *Dysdercus koenigii*** (Fabricius, 1775) **(Plate I, Fig. 9)**
1775. *Cimex koenigii* Fabricius, *Syst. Ent.*: 719
1914. *Dysdercus koenigii* (Fabricius) Bergroth, *Ent. Mitt. 3*: 355
**Measurements:** ♀ **:** ToL= 12.13; HdL= 1.83, HdW= 2.09; AtL= 7.66, AtS1= 2.33, AtS2= 1.66, AtS3= 0.89, AtS4= 2.78; IOD= 1.34; RsL= 5.79, RsS1= 1.81, RsS2= 1.58, RsS3= 1.23, RsS4= 1.17; PrL= 2.17, PrW= 3.22; ScL= 0.91, ScW= 1.13; WnL= 9.09, WnW= 3.27; AbL= 5.11.
**Material examined:** 2♀, Bichabhanga (GNP), 16.iv.2016, coll. S. Dhali; 1♀, Murti (CWLS), 22. x.2016, coll. N. Ray; 1♂, Gorumara (GNP), 20.v.2017, coll. A. Kurmi; 1♀, Chapramari (CWLS), 08.vi.2018, coll. S. Dhali.
**Distribution:** India: Widely distributed throughout the country including West Bengal; Australia, Malayan Archipelago, Myanmar, Sri Lanka (Distant, 1903; Sen *et al.*, 1994; Ghosh *et al.*, 2006; Chandra *et al.*, 2015; Saha *et al.*,2017) [9, 29, 14, 5, 22].

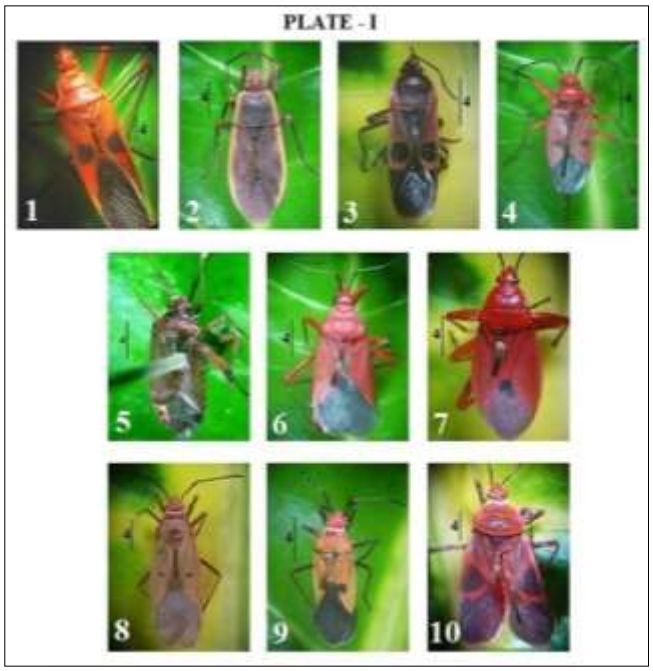


**Fig 1-10:** *1. Macroceroea grandis* (Gray); 2. *Iphita limbata* Stal; 3. *Physopelta gutta* (Burmeister); 4. *Physopelta schlanbuschi* (Fabricius); *5. Ectatops indignus* (Walker); 6. *Antilochus coqueberti* (Fabricius); *7. Antilochus russus* SCSI; 8. *Dysdercus evanescens* Distant; 9. *Dysdercus koenigii* (Fabricius); 10. *Melamphaus rubrocinctus (Stip*

**7. Genus: *Melamphaus*** Stål, 1868
1868. *Melamphaus* Stål, *Hem. Fabr. 1*: 83
**10. *Melamphaus rubrocinctus*** (Stål, 1863) **(**Plate I, Fig. 10)
1863. *Dysdercus rubrocinctus* Stål, *Berl. Ent. Zeitschr. 7*: 403
1903. *Melamphaus rubrocinctus* (Stål) Distant, *Fauna Brit. India, Rhynch. 2*: 108
**Measurements:** ♀ **:** ToL= 24.56; HdL= 2.72, HdW= 2.94; AtL= 10.27, AtS1= 3.21, AtS2= 2.57, AtS3= 2.07, AtS4= 2.42; IOD= 1.33; RsL= 4.43, RsS1= 1.12, RsS2= 1.08, RsS3= 1.23, RsS4= 1.00; PrL= 4.22, PrW= 7.00; ScL= 2.86, ScW= 2.50; WnL= 17.33, WnW= 5.33; AbL= 12.11.
**Material examined:** 2♀♀, Murti (GNP), 18.iv.2016, coll. S. Dhali.
**Distribution:** India: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Meghalaya, Nagaland, Uttarakhand, West Bengal; Borneo, Myanmar, Philippines (Distant, 1903; Mitra *et al.*, 1977; Sen *et al.*, 1994; Saha *et al.*,2017) [9, 18, 29, 22].

**4. Acknowledgements**
Authors are grateful to the West Bengal forests officials for giving permission to carry out the project. Special thank is given to A. Kurmi, forest guard for helping in sample collection.

**5. References**
1. Ahmad I, Parveen R. A revision of the genus Ectatops Amyot and Serville (Hemiptera: Pyrrhocoridae) from Indo-Pakistan subcontinent with a note on phylogeny. Proceedings of the Pakistan Congress of Zoology, 1990; 10:179-193.
2. Amyot CJB, Serville A. Histoire Naturelle des Insectes—Hémiptères. In “Suites à Buffon.” Fain et Thunot. Paris, 1843; Lxxvi + 675 + 8 [Atlas] + 12 plates.
3. Chakraborty SP, Ghosh LK, Basu RC. On a collection of Hemiptera from Namdapha Biosphere Reserve in Arunachal Pradesh, India. Rec. Zool. Surv. India, Occ. Paper 161. Zool. Surv. India, 1994, 42.
4. Chandra K. Fauna of Pachmarhi Biosphere Reserve, Conservation Area Series, Zool. Surv. India, 2009; 39: 247-257.
5. Chandra K, Biswas B, Kushwaha K. Diversity of Pyrrhocoroidea (Hemiptera: Heteroptera) of Madhya Pradesh, India, Munis Entomology & Zoology. 2015; (1):169-171.
6. China WE. Notes on the nomenclature of the Pyrrhocoridae (Hemiptera Heteroptera). Entomologists Monthly Magazine 90, 1954; 15:188-189.
7. China WE, Miller NCE. Check list and keys to the families and subfamilies of the Hemiptera - Heteroptera. Bulletin of the British Museum (Natural History) Entomology. 1959; 8(1):1-45.
8. Distant WL. Rhynchotal notes. - 12. Heteroptera: Fam. Pyrrhocoridae. Annals and Magazine of Natural History. 1902; 9(7):34-45.
9. Distant WL. Rhynchota. - Vol. 2. (Heteroptera). In: Blanford, W. T. (ed.): The fauna of British India including Ceylon and Burma. Taylor and Francis, London, 1903; xvii + 1-242, 1903.
10. Fieber FX. Die europäischen Hemiptera Halbflügler (Rhynchota Heteroptera). Carl Gerold's Sohn, Wien, 1861, 444.
11. Ghahari H, Moulet P, Ostovan H. An annotated catalog of the Iranian Cimicidae and Largidae (Hemiptera: Heteroptera) and in memoriam Carl Walter Schaefer (1934–2015), Zootaxa. 2016; 4111(2):194-200.
12. Ghosh LK, Biswas B, Chakraborty SP, Sen GC. Insecta: Hemiptera. Fauna Orissa, State Fauna Series, Zool. Surv. India. 1989; 1(2):181-224.
13. Ghosh LK, Biswas B, Ghosh M, Chakraborty SP. Fauna Delhi, State Fauna Series 6, Zool. Surv. India, 1997, 215-260.
14. Ghosh M, Biswas B, Bal A. Insecta: Hemiptera, Fauna Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series, Zool. Surv. India, 2006; 27:35-57.
15. Henry TJ. Phylogenetic analysis of family groups within the infraorder Pentatomomorpha (Hemiptera: Heteroptera), with emphasis on the Lygaeoidea. Annals of the Entomological Society of America. 1997; 90(3):275–301.
16. Henry TJ. Biodiversity of Heteroptera in Insect Biodiversity Science and Society/ Edt. By Robert, G. Foottit and Piter, H. Adler. John Wiley & Sons, 2009, 224-263.
17. Hussey F. Fascicle 3. Pyrrhocoridae. In: Horvath G. & Parshley HM. (eds.): General Catalogue of the Hemiptera. Smith College, Northampton, 1929, 144.
18. Mitra SC, Sen GC, Muraleedharan N. On a small collection of Pyrrhocoridae (Heteroptera: Insecta) from Arunachal Pradesh. Newsletter of the Zoological Survey of India, 1977; 3:30-32.
19. Robertson IAD. The Pyrrhocoroidea (Hemiptera – Heteroptera) of the Ethiopian region. Journal of Insect Science. 2004; 4(14):44.
20. Saha PC, Bal A. Insecta: Hemiptera: Pyrrhocoridae. In: Zoological Survey of India (Ed.), Fauna of Andhra Pradesh. Part–3: Insects. State Fauna Series. Vol. 5. Zoological Survey of India, 2007, 321-329.
21. Saha PC, Bal A. Pyrrhocoroidea: Heteroptera. Fauna of Uttaranchal: State Fauna Series, Zool. Surv. India, 2010; 18 (2): 245- 253.
22. Saha PC, Biswas B, Hassan ME, Chandra K, Kushwaha S, Praveen K. On an account of superfamily Phyyrocoroidea (Hemiptera: Heteroptera) from Chhattisgarh, India. Rec. zool. Surv. India. 2017; 117(2):146-153.
23. Sarangi P, Gupta SK, Saha GK. Seasonal occurrence of the ectoparasitic mite Hemipteroseius indicus on the red cotton bug Dysdercus koenigii (Hemiptera: Pyrrhocoridae) in West Bengal. Munis Entomology & Zoology. 2012; 7(1):292-297.
24. Schaefer CW. The Morphology and Higher Classification of the Coreoidea (Hemiptera - Heteroptera): Pt. 1. Annals of the Entomological Society of America, 1964; 57:670-680.
25. Schaefer CW. The Pentatomorpha (Hemiptera: Heteroptera): an annotated outline of its systematic history. European Journal of Entomology, 1993; 90:105-122.
26. Schaefer CW. Cotton Stainers (Pyrrhocoridae) and Bordered Plant Bugs (Largidae). In “True bugs of the Neotropics” edited by Antônio R. Panizzi and Jocélia Grazia, Springer, 2015, 515-535.
27. Schaefer CW, Ahmad I. A key to the genera of Southeast Asian and Malesian Largidae (Hemiptera:

Pyrrhocoroidea). Amemboa, 1999; 3:2-5.
28. Schuh RT, Slater JA. True bugs of the world. Cornell University Press, U.S.A, 1995, 336.
29. Sen GC, Biswas B, Basu RC. Insecta: Hemiptera: Heteroptera: Pyrrhocoridae. In: Ghosh, A.K. (Ed.), Fauna of West Bengal. Part 5. (Insecta: Hemiptera). Zoological Survey of India, 1994, 433-447.
30. Southwood TRE. The structure of the eggs of the terrestrial Heteroptera and its relationship to the classification of the group. Transactions of the Royal Entomological Society of London, 1956; 108:163-221.
31. Stål C. Hemiptera Africana. Norstedtiana, Stokholm, 1865, 3:200.
32. Stehlík JL. Largidae and Pyrrhocoridae (Heteroptera) of Meghalaya state, India. Acta Musei Moraviae, Scientiae Biologicae, 2007; 92:115-129.
33. Stehlík JL. Review and reclassifi cation of the Old-World genus Physopelta (Hemiptera: Heteroptera: Largidae). Acta Entomologica Musei Nationalis Pragae. 2013; 53(2):505-584.
34. Stehlík JL, Jindra Z. New taxa of the Largidae and Pyrrhocoridae (Hemiptera: Heteroptera) from the Oriental Region. Acta Entomologica Musei Nationalis Pragae. 2008; 48(2):611-648.
35. Stehlík JL, Kment P. Riegeriana, a new genus for Physopelta apicalis, and checklist of the genus Iphita (Hemiptera: Heteroptera: Largidae) with description of one new species. Zootaxa. 2014; 3860(2):167-183.
36. Stehlík JL, Kment P. Ectatops grandis sp. nov. from Vietnam and an annotated list of the genus Ectatops (Hemiptera: Heteroptera: Pyrrhocoridae). Acta Musei Moraviae, Scientiae biologicae (Brno). 2017; 102(1):1-20.
37. Zamal S, Chopra NP. A taxonomic [sic!] studies on Indian Largidae (Hemiptera: Heteroptera). Journal of Research Assam Agricultural University, 1990; 11:1-15.
38. Purohit CS, Singh M, Bharti A. New addition of two IUCN Red listed bird species of order: Gruiformes for todgarh-raoli wildlife sanctuary, Rajasthan, India. Journal of Current Research. 2017;9(1):45397-400.