



ADDITIONAL RECORDS OF AQUATIC AND SEMI-AQUATIC HETEROPTERA (INSECTA : HEMIPTERA) FROM CHHATTISGARH, INDIA

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INTRODUCTION

Aquatic and semi-aquatic Heteroptera of Chhattisgarh have been studied by Jehamalar and Chandra (2013) and recorded 20 species. Chhattisgarh state is poorly surveyed for aquatic bugs due to availability of less number of experts on this group, remoteness of the area and lack of funds to explore the aquatic bugs fauna. A special effort has been made to explore the aquatic bugs as a part of the faunal exploration of Chhattisgarh yielded the addition of 17 species is treated here.

SPECIES LIST OF ADDITIONAL RECORDS FROM CHHATTISGARH

Infraorder GERROMORPHA Popov, 1971

Family MESOVELIIDAE Douglas and Scott, 1867

1. *Mesovelgia horvathi* Lundblad, 1934
Family HEBRIDAE Amyot and Serville, 1843
2. *Timasius fenestratus* Zettel, 2013
Family VELIIDAE Brullé, 1836
3. *Microvelia (Dilutovelgia) leveillei leveillei* (Lethierry, 1877)
4. *Microvelia (Picaultia) douglasi* Scott, 1874
5. *Rhagovelgia (Neorhagovelgia) sumatrensis* Lundblad, 1934
Family GERRIDAE Leach, 1815
6. *Amemboa kumari* (Distant, 1910)

7. *Onychotrechus rhexenor* Kirkaldy, 1903
Infraorder NEPOMORPHA Papov, 1968
Family NEPIDAE Latreille, 1802
8. *Ranatra digitata* Hafiz and Pradhan, 1947
Family OCHTERIDAE Kirkaldy, 1906
9. *Ochterus marginatus marginatus* (Latreille, 1804)
Family NAUCORIDAE Leach, 1815
10. *Heleocoris indicus* Montandon, 1897
Family NOTONECTIDAE Latreille, 1802
11. *Anisops breddini* Kirkaldy, 1901
12. *Anisops nigrolineatus* Lundblad, 1934
13. *Anisops niveus* (Fabricius, 1775)
14. *Anisops paranigrolineatus* Brooks, 1951
15. *Anisops sardeus sardeus* Herrich-Shaffer, 1850
16. *Enithares ciliata* (Fabricius, 1798)
Family PLEIDAE Fieber, 1851
17. *Paraplea frontalis* (Fieber, 1844)

SYSTEMATIC ACCOUNT

- Infraorder GERROMORPHA Popov, 1971
Superfamily MESOVELOIDEA Douglas and Scott, 1867
Family MESOVELIIDAE Douglas and Scott, 1867
Subfamily MESOVELIINAE Douglas and Scott, 1867

Genus *Mesovelia* Mulsant and Rey, 18521. *Mesovelia horvathi* Lundblad, 1934

1934. *Mesovelia horvathi* Lundblad, *Arch. Hydrobiol. Suppl.*, **12**: 190.

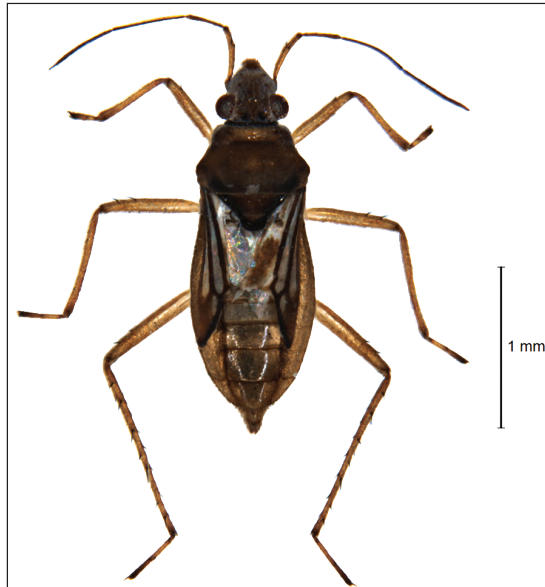


Fig. 1. *Mesovelia horvathi* Lundblad, mac. ♀
(wings broken-off posteriorly)

Material examined: Jashpur district, Badalkhol WLS, Degadegi, 23.iii.2014, (1 mac. ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3485/H15; Korba district, Lemru Range, Tharpakhna nala, 25.iii.2014, (1 mac. ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3516/H15.

Diagnosis: Length: 2.6 mm; colour yellowish; inner margin of mid leg 1-2 black spines on both sexes; subapex of fore femur with 0-1 black spine on flexor margin; apices of rostrum, tibia and tarsi fuscous; tarsi 3 segmented; 8th abdominal sternum of male with a tufts of black bristles on each side of sublateral region.

Distribution: India: Chhattisgarh, Madhya Pradesh and Tamil Nadu. *Elsewhere:* Australia, China, Japan, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand and Vietnam (Andersen and Weir, 2004).

Superfamily HEBROIDEA Amyot and Serville, 1843

Family HEBRIDAE Amyot and Serville, 1843

Subfamily HEBRINAE Amyot and Serville, 1843

Genus *Timasius* Distant, 19092. *Timasius fenestratus* Zettel, 2013

2013. *Timasius fenestratus* Zettel, *Ann. Naturhist. Mus. Wien, B*, **115**: 32.

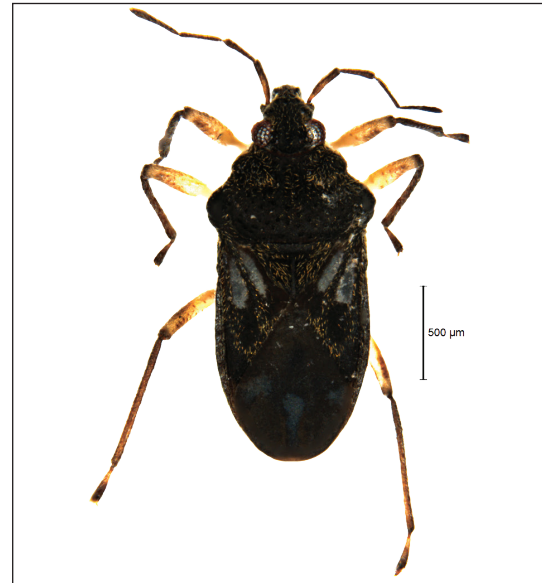


Fig. 1. *Timasius fenestratus* Zettel, ♂

Material examined: Kabirdham district, Bhoremdev WLS, Chapri, Sakri River, 30.iii.2014, (1 ♂, 3 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4533/H15.

Diagnosis: Length: 2.00 -2.40 mm. Buccula with two ovate impressions; ventral thoracic carina each with three small transparent impressions; posteromedian region of sternum V of male with stiff yellow setal tuft which covers the whole sternum VI medially; proctiger of male asymmetrical with left side shrunk posterolaterally.

Distribution: India: Chhattisgarh and Madhya Pradesh.

Superfamily GERROIDEA Leach, 1815

Family VELIIDAE Brullé, 1836

Division MICROVELIIFORMES
Andersen, 1982

Subfamily MICROVELIINAE China and Usinger, 1949

Tribe MICROVELIINI Stys, 1976

Genus *Microvelia* Westwood, 1834

Subgenus *Dilutovelia* Zettel, 2012

3. *Microvelia (Dilutovelina) leveillei leveillei*
(Lethierry, 1877)

1877. *Hydroessa leveillei* Lethierry, Bull. des Séan. de la Soc. Ent. de France, 101.
1909. *Microvelia diluta* Distant, Ann. Mag. nat. Hist., 3(8): 500.
2012. *Microvelia (Dilutovelina) leveillei leveillei* (Lethierry): Zettel, Zeit. der Arbeit. Öst. Ent., 64: 106.

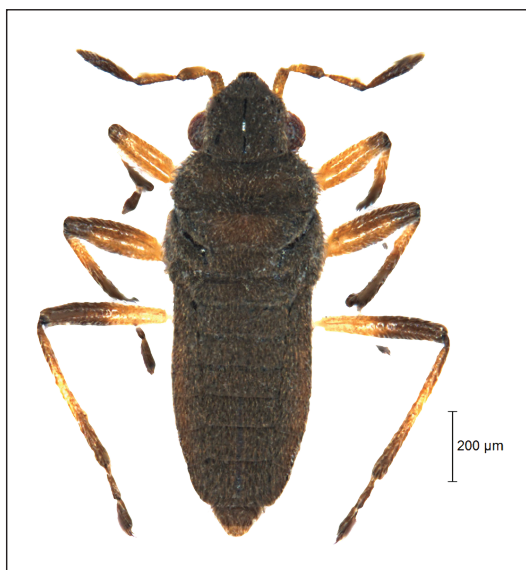


Fig. 3. *Microvelia (Dilutovelina) leveillei*
(Lethierry), apt. ♂

Material examined: Raipur district, Barnawapara Camp, (1 apt. ♂), 20.vii.2013, Coll. S.K. Gupta, Reg. No. 4519/H15.

Diagnosis: Length: 1.2 mm; colour: Piceous; head dull black; anterior marginal fascia of pronotum reddish ochraceous, not prominent when specimen in dry; second antennal joint slightly shorter or subequal to first segment, distinctly shorter than the third; fore and mid femora robust, fore and mid tibia with apical comb in males.

Distribution: India: Andaman and Nicobar Islands, Bihar, Chhattisgarh, Delhi, Karnataka, Maharashtra, Meghalaya, Odisha, Tamil Nadu, Tripura and West Bengal. *Elsewhere:* Bangladesh, China, Indonesia, Myanmar, Philippines, Singapore and Sri Lanka (Andersen and Weir, 2003).

Subgenus *Picaultia* Andersen and Weir, 2003

4. *Microvelia (Picaultia) douglasi* Scott, 1874

1874. *Microvelia douglasi* Scott, Ann. Mag. nat. Hist., 14: 448.
2003. *Microvelia (Picaultia) douglasi* Scott: Andersen and Weir, Invert. Systematics, 17: 339.

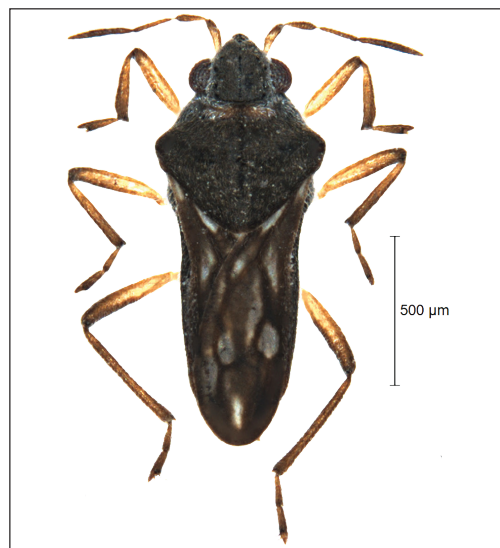


Fig. 4. *Microvelia (Picaultia) douglasi* Scott, mac. ♂

Material examined: Durg district, Baddhum FRH, 4.ii.2014, (1 mac. ♂ ex.), Coll. Sunil Gupta and Rajan Gupta, Reg. No. 4029/H15; Jashpur district, Balalkhol WLS, Awra Nala, 22.iii.2014, (8 mac. ♂, 14 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3457/H15; Degadegi, 23.iii.2014, (4 mac. ♂, 4 mac. ♀), Coll. E.E. Jehamalar, Reg. No. 3484/H15; Kabirdham district, Bhozemdev WLS, Durduri River, 29.iii.2014, (13 mac. ♂, 14 mac. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4030/H15; Koriya district, Guru Ghasidas NP, Tura Nala, 20.iii.2014, (14 mac. ♂, 13 mac. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4031/H15.

Diagnosis: Brown; anterior region of pronotum with a transverse yellow mark, with lower margin medially concave or interrupted medially; male fore tibial apical comb short, linear and mid tibia with minute comb on apex with varied shapes; mid tibia distinctly shorter than mid femur; right paramere sickle-shaped and visible from outside; gonocoxae and proctiger of female mostly retracted into abdominal segment VII.

Distribution: India: Andaman and Nicobar Islands, Arunachal Pradesh, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere:* Australia, Indonesia, Japan, Malaysia, Marianna Islands, New Guinea, Philippines, Samoa, Sri Lanka, Taiwan (Andersen and Weir, 2003).

Division VELIIFORMES Andersen, 1982
Subfamily RHAGOVELIINAE China and
Usinger, 1949

Genus *Rhagovelia* Mayr, 1865

Subgenus *Neorhagovelia* Matsuda, 1956

5. *Rhagovelia (Neorhagovelia) sumatrensis*
Lundblad, 1934

1934. *Rhagovelia femorata* var. *sumatrensis* Lundblad, *Arch Hydrobiol. Suppl.*, 4: 287.
1936. *Rhagovelia sumatrensis* Lundblad, *Ark. Zool.*, 28(21): 19.



Fig. 5. *Rhagovelia (Neorhagovelia) sumatrensis*
Lundblad, apt. ♂

Material examined: Jashpur district, Badalkhol WLS, Awra Nala, 22.iii.2014, (2 apt. ♂, 4 apt. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3464/H15; Kabirdham district, Kudai Dhona Forest, 15.xi.2011, (1 mac. ♀ ex.), Coll. Sunil Gupta and Party, Reg. No. 4037/H15; Kawardha, Bolda, 8.vi.2012, (4 apt ♂, 5 apt. ♀ exs.), Coll. A. Raha and Party, Reg. No. 4036/H15; Bhoremdev WLS,

Durduri River, 30.iii.2014, (4 apt. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4034/H15; Chilpi, Bagbil, 1.iv.2014, (5 mac. ♂, 8 apt. ♂, 3 mac. ♀, 8 apt. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4039/H15; Korba district, Lemru Range, Telema Nala, 3.vi.2012, (1 apt. ♂ ex.), Coll. K. Chandra and Party, Reg. No. 4038/H15; Tharpakhna nala, 25.iii.2014, (6 apt. ♂, 4 apt. ♀, 2 nymphs exs.), Coll. E.E. Jehamalar, Reg. No. 3518/H15; Bijakhara Nala, 27.iii.2014, (5 apt. ♂, 12 apt. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 4035/H15.

Diagnosis: Length 2.8 mm; Black; 6th abdominal segment of female shining; mesosternum with slanting shining brown setae; anterior region of pronotum with orange brown transverse band; posterior margin of pronotum straight; mid coxa ochraceous; basal half of mid femur with 3-4 spines in male; basal inner margin of hind femur of males with 14-18 teeth and females with 3-6 teeth and distal region of hind femur with 7-8 teeth in males and 5-6 teeth in females after long curved middle spine; hind trochanter with 4-6 denticles.

Distribution: India: Andaman and Nicobar Islands, Chhattisgarh, Madhya Pradesh, Sikkim and West Bengal. *Elsewhere:* Indonesia, Myanmar, Peninsular Malaysia and South China (Yang and Polhemus, 1994).

Family GERRIDAE Leach, 1815

Subfamily EOTRECHINAE Matsuda, 1960

Genus *Amemboa* Esaki, 1925

Subgenus *Amemboa* Esaki, 1925

6. *Amemboa kumari* (Distant, 1910)

1910. *Onycotrechus kumari* Distant, *Ann. Mag. nat. Hist.*, 5(8): 145.
1950. *Amemboa pervati* Pradhan, *Rec. Indian Mus.*, 48 (3 and 4): 12.
1984. *Amemboa (Amemboa) kumari* (Distant): Plohemus and Andersen, *Streestrupia*, 10(3): 85.

Material examined: Jashpur district, Badalkhol WLS, Awra Nala, 22.iii.2014, (5 apt. ♂, 9 apt. ♀, 3 Nymphs exs.), Coll. E.E. Jehamalar, Reg. No. 3454/H15; Degadegi, 23.iii.2014, (5 apt. ♂, 5 apt. ♀, 3 nymphs exs.), Coll. E.E. Jehamalar, Reg.

No. 3483/H15; Korba district, Bijakhara Nala, 27.iii.2014, (2 apt. ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3434/H15., Lemru Range, Tharpakhna nala, 25.iii.2014, (8 apt. ♂, 3 apt. ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3519/H15.

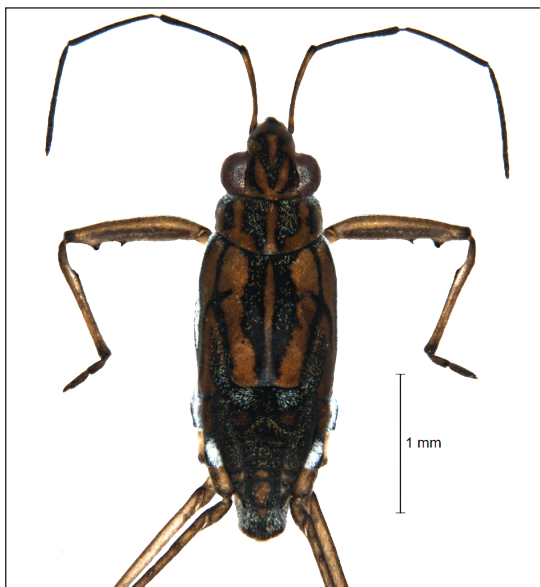


Fig. 6. *Amemboa (Amemboa) kumari* (Distant), apt. ♂

Diagnosis: Body venter with three black stripes, paler in males; fore femur of male slender with two hair tufts beyond middle, basal tuft blunted tip and the distal tuft with pointed tip; basal third of fore tibia of male thickened.

Distribution: India: Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Odisha, Tamil Nadu and West Bengal.

Genus *Onychotrechus* Kirkaldy, 1903

7. *Onychotrechus rhexenor* Kirkaldy, 1903

1903. *Onychotrechus rhexenor* Kirkaldy, *Entomologist*, **36**: 44.

Material examined: Korba district, Lemru Range, Tharpakhna Nala, 25.iii.2014, (1 apt. ♂ ex.), Coll. E.E. Jehamalar, Reg. No. 4517/H15.

Diagnosis: Basal half of male fore femur with a patch of minute black pegs on its flexor region; abdominal sternites 5-7 of male deeply grooved medially, sternum 5 partly retracted into sternum four medially.

Distribution: India: Chhattisgarh, Karnataka, Kerala, Maharashtra, Rajasthan and Tamil Nadu. *Elsewhere:* Socotra Island (Andersen, 1980).

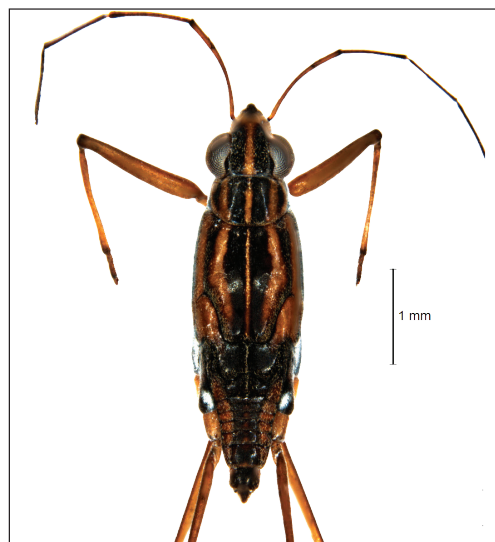


Fig. 7. *Onychotrechus rhexenor* Kirkaldy, apt. ♂
 Infraorder NEPOMORPHA Papov, 1968
 Superfamily NEPOIDEA Latreille, 1802
 Family NEPIDAE Latreille, 1802
 Subfamily RANATRINAE Douglas and Scott, 1865

Tribe RANATRINI Douglas and Scott, 1865

Genus *Ranatra* Fabricius, 1790

8. *Ranatra digitata* Hafiz and Pradhan, 1947
 1947. *Ranatra digitata* Hafiz and Pradhan, *Rec. Indian Mus.*, **45**: 371.

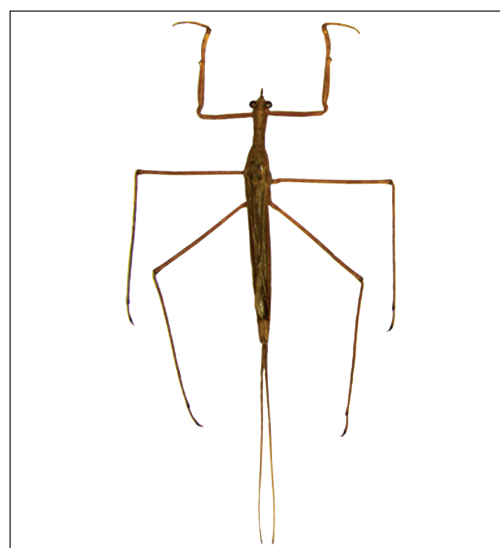


Fig. 8. *Ranatra digitata* Hafiz and Pradhan, ♂

Material examined: Korba district, Lemru Range, Tharpakna Nala, 25.iii.2014, (1 ♂ ex.), Coll. E.E. Jehamalar and Party, Reg. No. 3515/H15.

Diagnosis: Body length 27.5 mm; head without tubercle, interocular space slightly narrower than eye width, second joint of antenna finger-like, third joint longer than second and curved; abdominal appendage little shorter than the body; male paramere broad beyond broad

Distribution: India: Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Madhya Pradesh and West Bengal.

Superfamily OCHTEROIDEA Kirkaldy, 1906

Family OCHTERIDAE Kirkaldy, 1906

Genus *Ochterus* Latreille, 1807

9. *Ochterus marginatus marginatus*

(Latreille, 1804)

1804. *Acanthia marginata* Latreille, *Hist. Nat. Crust. Ins. Paris*, 12: 242.

1807. *Ochterus marginatus* Latreille, *Gen. Crust. Ins. Paris*, 3: 143.

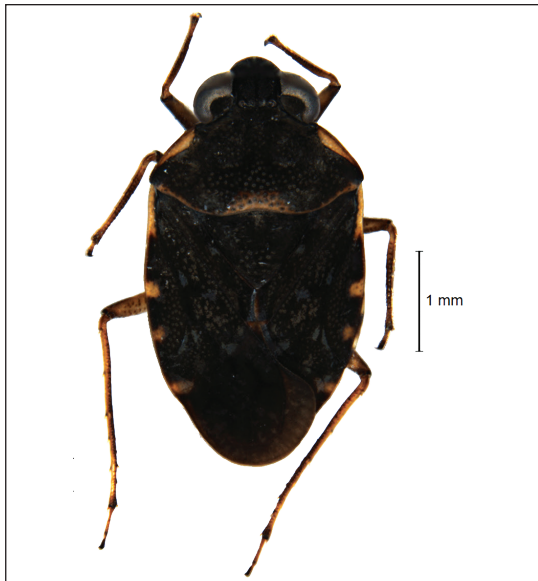


Fig. 9. *Ochterus marginatus marginatus* (Latreille), ♀

Material examined: Durg district, Balod Beat, Compartment-98, 25.ix.2012, (2 ♂, 7 ♀ exs.), Coll. A. Raha and Party, Reg. 4518/H15; Jashpur district, Badalkhol WLS, Degadegi, 23.iii.2014, (1 ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3480/H15;

Korba district, Bijakhara Nala, 27.iii.2014, (1 ♂, 3 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3433/H15; Lemru Range, Tharpakhna nala, 25.iii.2014, (1 ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3517/H15; Koriya district, Sonahat FRH, 19.iii.2014, (1 ♀ ex.), Coll. E.E. Jehamalar and Party, Reg. No. 3511/H15.

Diagnosis: Length 4-5mm; black to brown colour; vertex of head with striations; ocelli placed close to eyes; fattened margins of pronotum yellow; appendices of right paramere long and apically with indentation.

Distribution: India: Assam, Bihar, Chhattisgarh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Puducherry, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere:* Afghanistan, Africa, Borneo, China, Europe, Iran, Japan, Korea, Malay Peninsula, Philippines, Saudi Arabia, Taiwan, Thailand, Turkmenistan, United Arab Emirates and Vietnam (Linnavuori *et al.*, 2011).

Superfamily NAUCOROIDEA Leach, 1815

Family NAUCORIDAE Leach, 1815

Subfamily LACCOCORINAE Stål, 1876

Genus *Heleocoris* Stål, 1876

10. *Heleocoris indicus* Montandon, 1897

1897. *Heleocoris indicus* Montandon, *Verh. Zool.-bot. Ges. Wien*, 47: 450.



Fig. 10. *Heleocoris indicus* Montandon, ♂

Material examined: Kabirdham district, Bhoreshdev WLS, Durduri River, 30.iii.2014, (1 ♂, 1 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3428/H15.

Diagnosis: Female sub-genital plate with a median ridge; basal dark mark of embolium upto yellow notch less than 4 times the width of adjacent yellow margin (0.8); left laterosternite VI of male excavated.

Distribution: India: Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Maharashtra and Tamil Nadu.

Superfamily NOTONECTOIDEA

Latreille, 1802

Family NOTONECTIDAE Latreille, 1802

Subfamily ANISOPINAE Hutchinson, 1929

Tribe ANISOPINI Hutchinson, 1929

Genus *Anisops* Spinola, 1837

11. *Anisops breddini* Kirkaldy, 1901

1901. *Anisops breddini* Kirkaldy, *Entomologist*, London, **34**: 5.



Fig. 11. *Anisops breddini* Kirkaldy, ♀

Material examined: Koriya district, Guru Ghasidas NP, Devsil, 22.ix.2013, (1 ♂, 1 ♀ exs.), Coll. A. Raha and Party, Reg. No. 3213/H15.

Diagnosis: Male: Length, Length, 5.7-6.6., holoptic eyes, distal outgrowth on second rostral segment, irregular teeth on fore tibial comb,

can easily be differentiate it from other known species from India. *Female:* Length, 5.4-6.8, distal outgrowth on the second rostral segment short.

Distribution: Andaman and Nicobar Islands, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Kerala, Madhya Pradesh, Odisha, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal *Elsewhere:* Indonesia, Myanmar, New Guinea, Singapore, Southwest China, Sri Lanka, Thailand, Vietnam and West Malaysia (Nieser *et al.*, 2005).

12. *Anisops nigrolineatus* Lundblad, 1934

1934. *Anisops nigrolineata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12**: 160.

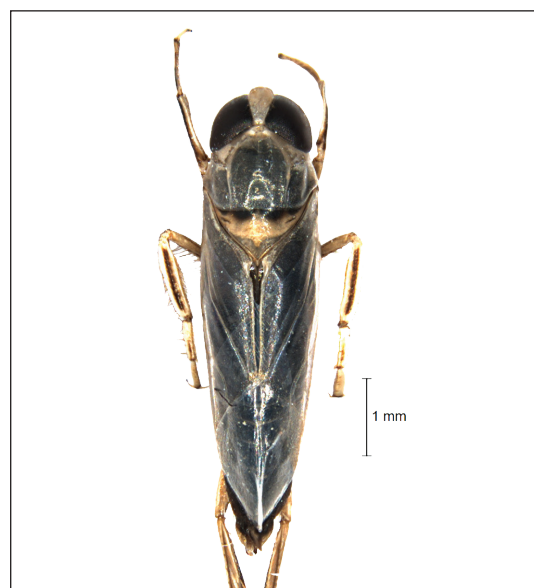


Fig. 12. *Anisops nigrolineatus* Lundblad, ♂

Material examined: Jashpur district, Badalkhol WLS, Degadegi, 23.iii.2014, (1 ♂, 1 ♀ exs.), Reg. No. 3479/H14, Coll. E.E. Jehamalar; Awra Nala, 22.iii.2014, (2 ♂, 3 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3460/H15; Surguja district, Tamor Pingla WLS, Ramkola, Debijharia, 15.v.2013, (1 ♀ ex.), Coll. A. Raha and Party, Reg. No. 4041/H15; Jajawal, 17.v.2013, (1 ♂ ex.), Coll. A. Raha and Party, Reg. No. Reg. No. 4040/H15.

Diagnosis: Males: length 5.4-6.3 mm; vertex, pronotum dark brown; synthlipsis wide; scutellum black; hemelytra hyaline, but appears black due to black dorsal abdomen; legs brown; abdominal venter black, except segmental margins of connexivum, brown; vertex of head slightly

extending in front of eyes; posterior margin of pronotum convex, except medially emarginated; interocular space of venter convexed; labrum very short; rostral prong slightly shorter than the third rostral segment and truncate apically; stridulatory comb with 22 teeth.

Distribution: India: Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere:* Indonesia (Java), Malaysia, Myanmar, Philippines and Thailand (Nieser, 2004).

13. *Anisops niveus* (Fabricius, 1775)

1775. *Notonecta nivea* Fabricius, *Systema Entomologiae Flensburgi et Lipsiae*, 690.

1851. *Anisops niveus* (Fabricius): Fieber, *Abhandl. Konigl. Bohm. Ges. Wiss.*, 7: 484.

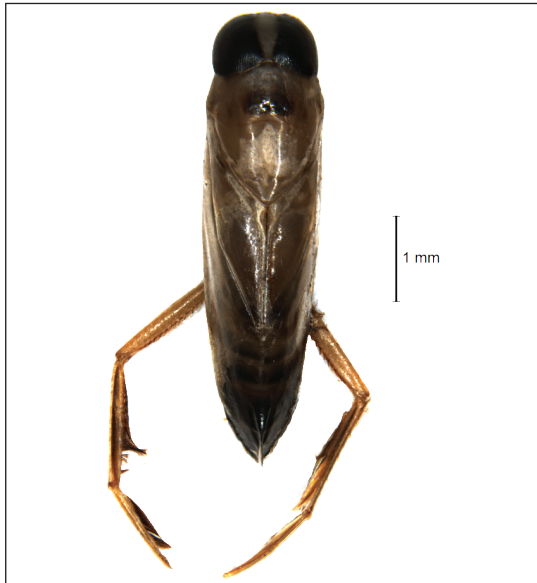


Fig. 13. *Anisops niveus* (Fabricius), ♂

Material examined: Jashpur district, Badalkhol WLS, Degadegi, 23.iii.2014, (1 ♂, 3 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3478/H15.

Diagnosis: Male: Length, 4.8 mm – 5.7 mm; labrum with long white hairs; tylus and frons are excavated; stridulatory comb with 13 teeth in equal length; rostral prong shorter than the 3rd rostral segment, originating near its proximal margin; wings surpassing the last abdominal segment. **Female:** Length, 5.4-6.5 tylus flat; vertex of head slightly extending in front of eyes.

Distribution: India: Andaman and Nicobar Islands, Assam, Bihar, Chhattisgarh, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere:* Africa, Indonesia, Malaysia, Myanmar, Philippines, Seychelles, Sri Lanka, Thailand and Vietnam (Brooks, 1951; Fernando and Cheng, 1974).

14. *Anisops paranigrolineatus* Brooks, 1951
1951. *Anisops paranigrolineatus* Brooks, *Kans. Univ. Sci. Bull.*, 34: 407.

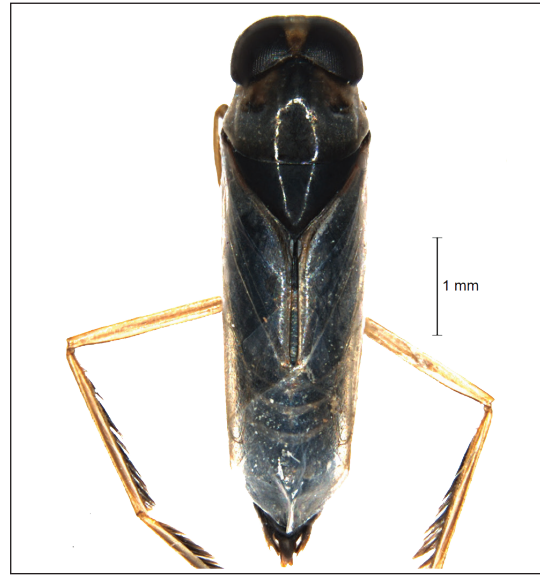


Fig. 14. *Anisops paranigrolineatus* Brooks, ♂

Material examined: Jashpur district, Badalkhol WLS, Awra Nala, 22.iii.2014, (2 ♂, 4 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3461/H15.

Diagnosis: Male: Length: 6.0 mm; pronotum yellow, posterior margin looks black due to the underlying black scutellum; hemelytra hyaline, but appears black due to black abdomen; outline of head rounded and not extending in front of eyes; labrum very short; rostral prong shorter than third rostral segment with rounded apex; stridulatory comb with 18 teeth.

Distribution: India: Chhattisgarh, Kerala, Maharashtra, Tamil Nadu and Uttar Pradesh.

15. *Anisops sardeus sardeus*

Herrich-Shaffer, 1850

1850. *Anisops sardeus* Herrich-Shaffer, *Die wanzenartigen Insecten*, 9: 41.

1995. *Anisops sardeus sardeus* Herrich-Shaffer: Polhemus, *Cat. Het. Palaerctic region*, 1: 66.

Material examined: Raipur district, Barnawapara WLS, 20.vii.2013, (1 ♂ ex.), Coll. S.K. Gupta and Party, (specimen not registered due to damage).

Diagnosis: Male length 7.5-8.4, cephalic projection long and acuminate, triangularly produced in lateral aspect, in ventral view with a deep groove on lateral sides but not reaching upto apex, apex indistinctly acuminate, base with a pair of tuft of hairs forming a loop; rostral prong slightly shorter than the third rostral segment with acuminate tip; stridulatory comb of fore tibia with 18 teeth.

Distribution: India: Andaman and Nicobar Islands, Andhra Pradesh, Bihar, Chandigarh, Chhattisgarh, Delhi, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur; Odisha, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. *Elsewhere:* Africa, Albania, Canary Islands, Corfu, Hungary, North Caucasus, Romania, Syria and Turkey, Turkmenistan, United Arab Emirates (Linnavuori, 2011).

Subfamily NOTONECTINAE Latreille, 1802

Tribe NOTONECTINI Latreille, 1802

Genus *Enithares* Spinola, 1837

16. *Enithares ciliata* (Fabricius, 1798)

1798. *Notonecta ciliata* Fabricius, *Suppl. Ent. Syst.*, 524.

1959. *Enithares ciliata* (Fabricius): Baid, *J. Bombay nat. Hist.*, 56: 362.

Material examined: Jashpur district, Badalkhol WLS, Awra Nala, 22.iii.2014, (5 ♂, 4 ♀, 1 Nymph exs.), Coll. E.E. Jehamalar, Reg. No. 3455/H15; Degadegi, 23.iii.2014, (1 ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3477/H15; Korba district, Lemru Range, Telema Nala, 3.vi.2012, (1 ♀ ex.), Coll. K. Chandra and Party, Reg. No. 3309/H15; Tharpakhna Nala, 25.iii.2014, (1 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3514/H15; Kabirdham district, Bhoramdev WLS, Akalpharia Forest, 30.xi.2011, (1 ♂ ex.), Coll. Anil and Angshuman, Reg. No. 3311/H15; Durduri River, 29.iii.2014,

(1 ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3521/H15; Surguja district, Jajawal, Tamor Pingla WLS, 17.v.2013, (1 ♂ ex.), Coll. A. Raha and Party, Reg. No. 3310/H15.



Fig. 15. *Enithares ciliata* Herrich-Shaffer, ♂

Diagnosis: Length: 8.4-9.57 mm; dorsal margin of pronotal fovea directed straight caudad before turning laterad; first mid tarsal segment hidden, second mid tarsal segment of male broad almost triangular in lateral view, parameres small and round.

Distribution: India: Andaman and Nicobar Islands, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. *Elsewhere:* Bhutan, continental SE Asia, Indonesia, Malaysia, Mauritius, SE and SW China, Sri Lanka and Vietnam (Nieser, 2004).

Superfamily PLEOIDEA Fieber, 1851

Family PLEIDAE Fieber, 1851

Genus *Paraplea* Esaki and China, 1928

17. *Paraplea frontalis* (Fieber, 1844)

1844. *Ploa frontalis* Fieber, *Entomologische Monographien*, Leipzig, 10.

1898. *Plea frontalis* Fieber: Kirkaldy, *Wien. Ent. Zeit.*, 17: 141.

1995. *Paraplea frontalis* (Fieber): Polhemus *et al.*, *Cat. Het. Palaerctic region*, 1: 74.

Material examined: Jashpur district, Badalkhol WLS, Degadegi, 23.iii.2014, (4 ♂, 4 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3482/H15; Awra Nala, 22.iii.2014, (2 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3463/H15; Kabirdham district, Bhoremdev WLS, Durduri River, 29.iii.2014, (1 ♀ ex.), Coll. E.E. Jehamalar, Reg. No. 3440/H15; Koriya district, Sonahat FRH, 19.iii.2014, (5 ♂, 12 ♀ exs.), Coll. E.E. Jehamalar, Reg. No. 3509/H15.

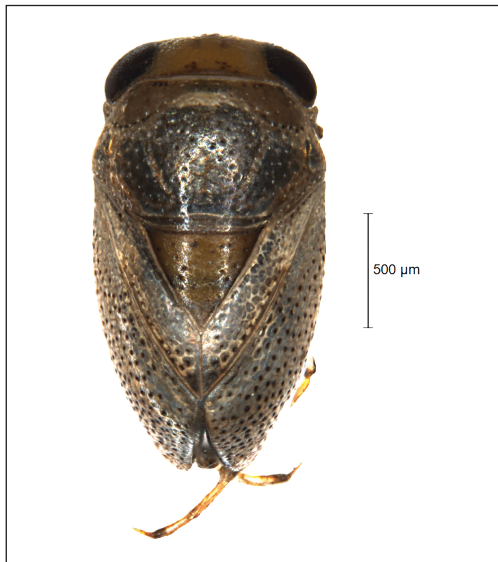


Fig. 16. *Paraplelea frontalis* (Fabricius), ♀

Diagnosis: Length: 2 mm. Head with two pairs of brown spots dorsally to a median stripe and these spots indistinct in some specimens of the same population.

Distribution: India: Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Bihar, Chandigarh, Chhattisgarh, Karnataka,

Madhya Pradesh, Maharashtra, Odisha, Puduchery, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere:* China, Moluccas, Sri Lanka, Sumatra, Taiwan, Thailand and West Malaysia (Nieser, 2004).

SUMMARY

Jehamalar and Chandra (2013) reported 20 species of aquatic and semi-aquatic bugs based on the collections housed in CZRC, ZSI, Jabalpur and also the materials collected through Chhattisgarh CAMPA Project. The present study reports 17 species of aquatic and semi-aquatic Heteroptera under 12 genera and 9 families, from seven districts (Durg, Jashpur, Kabirdham, Korba, Koriya, Raipur and Surguja) and five protected areas (Badalkhol Wild Life Sanctuary, Barnawapara WLS, Boramdev WLS Guru Ghasidas National Park and Tamor Pingla WLS) of Chhattisgarh. Presently, 37 species of aquatic and semi-aquatic Heteroptera including the present records are known from Chhattisgarh, this number is too less when compared to the aquatic bugs (67 species) reported from the mother state Madhya Pradesh (see Chandra and Jehamalar, 2011 and Zettel, 2013). A thorough study by the aquatic bug experts are needed to explore the complete aquatic Heteroptera fauna of Chhattisgarh.

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