



## AQUATIC AND SEMIAQUATIC HETEROPTERA (HEMIPTERA : INSECTA) OF GREAT NICOBAR BIOSPHERE RESERVE, ANDAMAN AND NICOBAR ISLANDS, INDIA

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### INTRODUCTION

Aquatic bugs are an integral link in the food chain, forming food for larger organisms, which in turn are consumed by even larger organisms. They are also indicators of water quality. The Great Nicobar Biosphere Reserve having an area of 88,500 ha. is the only island in the Nicobar having five perennial rivers namely, the Galathea, the Jubilee, the Dak Aniang, the Dak Tayal and the Amrit Kaur originate from Mt. Thullier. The Galathea is the longest and widest river flows southward to meet the sea at Galathea Bay. The aquatic Hemiptera are poorly known in this Biosphere Reserve. In the present study 534 aquatic and semi-aquatic Heteroptera of Great Nicobar Biosphere Reserve were collected by the second author from 24<sup>th</sup> October 2010 to 8<sup>th</sup> December 2010, which resulted the identification of 13 species under 8 genera belongs to six families. Of these 5 species were newly recorded to Andaman and Nicobar Islands. It is quite interesting that the representatives of all the three infraorders of aquatic Heteroptera namely Gerromorpha, Nepomorpha and Leptopodomorpha were collected through a single field trip. Through the information from Polhemus and Starmühlner (1990) and Thirumalai (2002 and 2007), 39 species of Gerromorpha and Nepomorpha were already known from Andaman and Nicobar Islands. A checklist of 43 species of aquatic and semiaquatic Hemiptera of Andaman and Nicobar islands is also provided in this paper.

**Abbreviations used:** GNBR – Great Nicobar Biosphere Reserve; mpt. – macropterous form (fully developed winged form); apt. – apterous form

(without wings); bpt. – brachypterous (half developed wings) Is. – Immatures; exs. - Examples.

### Infraorder : GERROMORPHA

Family VELIIDAE

Subfamily MICROVELIINAE

*Microvelia albomaculata* Distant, 1909

1909. *Microvelia albomaculata* Distant, *Ann. Mag. nat. Hist.*, 3(8): 499.

1910. *Microvelia albomaculata* Distant: *Fauna of British India*, 5: 138.

*Material examined* : GNBR, Govind Nagar, 12.xi.2010, (4 mpt. and 5 Is. exs.), 17.xi.2010, (1 mpt. and 1 apt. exs.), 6.xii.2010, (1 ♀ ex.).

*Diagnosis* : Length: 1.5 mm – 2 mm; colour : Dull piceous black; head with inner margin of eyes greyish pubescence more pronounced forming a marginal fascia; anterior margin of pronotum with ochraceous fascia and its lower central margin has incision; hemelytra iridescent with 8 greyish white irregularly shaped spots; eyes sanguineous.

*Distribution* : Andaman and Nicobar Islands (GNBR), Madhya Pradesh and West Bengal. *Elsewhere* : Bangladesh.

*Remarks* : This species is new record to Andaman and Nicobar Islands.

*Microvelia (Microvelia) diluta* Distant, 1909

1909. *Microvelia diluta* Distant, *Ann. Mag. nat. Hist.*, 3(8): 500.

1910. *Microvelia diluta* Distant, *Fauna of British India*, 5: 139-140.

*Material examined* : GNBR, Johinder Nagar, 25.xi.2010, (30 mpt. ♂, 5 mpt. ♀, 25 apt. ♂, 20 apt. ♀, 30 Is. exs.).

*Diagnosis* : Length: 2.1 mm; colour: Piceous; head dull black; anterior marginal fascia of pronotum reddish ochraceous; hemelytra dull greyish white, robust veins piceous; second antennal joint slightly shorter or subequal to first segment, distinctly shorter than the third; pronotum with lateral margin sinuate; connexivum visible from above with densely pilose; hemelytra scarcely reaching the apex of abdomen.

*Distribution* : Andaman and Nicobar Islands (GNBR), Bihar, Delhi, Maharashtra, Meghalaya, Odisha, Tamil Nadu, Tripura and West Bengal. *Elsewhere* : Bangladesh, Indonesia, Myanmar, Singapore and Sri Lanka.

*Remarks* : These insects were collected from floating filamentous algae of stagnant water and a new record to Andaman and Nicobar Islands.

#### Subfamily RHAGOVELIINAE

##### *Rhagovelina (Neorhagovelina) sumatrensis*

Lundblad, 1936

1934. *Rhagovelina femorata* var. *sumatrensis* Lundblad, *Arch Hydrobiol. Suppl.*, 4: 287.

1936. *Rhagovelina sumatrensis* Lundblad, *Ark. Zool.*, 28(21): 19.

*Material examined* : GNBR, Govind Nagar, 6.xi.2010, (1 mpt. ♂, 3 mpt. ♀, 8 apt. ♂, 11 apt. ♀, 2 Is. exs.), 9.xi.2010, (8 apt. ♂, 5 apt. ♀, 2 Is. exs.), 10.xi.2010, (29 apt. ♂, 37 apt. ♀, 3 Is. exs.), 12.xi.2010, (1 apt. ♂, 1 apt. ♀ exs.), 15.xi.2010, (18 apt. ♂, 11 apt. ♀, 8 Is. exs.); Johinder Nagar, 25.xi.2010, (1 mpt. ♂, 3 mpt. ♀, 5 apt. ♂, 2 apt. ♀, 7 Is. exs.), 7.xii.2010, (1 apt. ♀ ex.).

*Diagnosis* : Length: 2.8 mm; colour : Black; 6<sup>th</sup> abdominal segment of female shining; mesosternum with slanting curved fascia formed by shining pubescence; anterior region of pronotum with orange brown transverse band; mid coxa ochraceous; basal half of mid femur with 3-4 spines in male; posterior margin of pronotum straight; 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; eyes ash with red tinge.

*Distribution* : Andaman and Nicobar Islands (GNBR), Madhya Pradesh and Sikkim. *Elsewhere*: Africa, Indochina, Indonesia, Peninsular Malaysia and South China.

*Remarks* : Collected from fast flowing streams. In winged form, the basal spines of hind femur are not so clear.

#### Family MESOVELIIDAE

##### Subfamily MESOVELIINAE

##### *Mesovelina vittigera* Horvath, 1895

1895. *Mesovelina vittigera* Horvath., *Revue. ent.*, 14: 160.

2002. *Mesovelina vittigera* Horvath: Thirumalai, *Rec. zool. Surv. India*, 100 (Part 1-2): 73.

*Material examined* : GNBR, Govind Nagar, 6.xii.2010, (1 bpt. ♂ ex.).

*Diagnosis* : Length: 2.6 mm; colour: Luteous; inner margin of mid leg in males with 9 small spines and 5 minute spines; apices of rostrum, tibia and tarsi fuscous; tarsi 3 segmented; inner subapical margin of fore femur with 5 minute spines; 6<sup>th</sup> abdominal sternum of male with a group of median spines and the lateral region longly pilose; eyes reddish brown colour.

*Distribution* : Andaman and Nicobar Islands (GNBR), Arunachal Pradesh, Bihar, Karnataka, Kerala, Maharashtra, Odisha, Puducherry, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere*: Africa, Australia, Bangladesh, Eastern Palearctic, Egypt, Ethiopia, Indonesia, Malaysia, Myanmar, Palestine, Philippines, Solomon Islands, South Europe, Sri Lanka and Syria.

*Remarks* : Most of this species collected from stagnant waters with floating aquatic plants.

#### Family GERRIDAE

##### Subfamily GERRINAE

##### *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)

1775. *Cimex fossarum* Fabricius, *Syst. Ent.*, 727.

2002. *Limnogonus (L.) fossarum* (Fabricius): Thirumalai, *Rec. zool. Surv. India*, 100(1-2): 62.

*Material examined* : GNBR, Chingam Basthi, 8.xi.2010, (3 ♂, 5 ♀, 3 Is. exs.), 7.xii.2010 (1 ♀ ex.); Laxmi Nagar, 25.xi.2010, (5 ♂, 7 ♀, 3 Is. exs.); Govind Nagar, 5.xii.2010, (1 ♂, 6 ♀, 3 Is. exs.), 6.xii.2010, (2 ♂, 2 ♀, 2 Is. exs.).

*Diagnosis* : Colour: Reddish brown to piceous; body of moderate size; antennae 4-jointed, 2<sup>nd</sup> and 3<sup>rd</sup> joints shortest and nearly subequal in length; 4<sup>th</sup> antennal joint slightly smaller than the 1<sup>st</sup> joint or subequal; pronotum with the mid-longitudinal carination moderately prominent, posterior tip of pronotum remarkably angular; 7<sup>th</sup> abdominal segment with connexival spines.

*Distribution* : Andaman and Nicobar Islands (GNBR), Andhra Pradesh, Assam, Bihar, Delhi, Karnataka, Kerala, Odisha, Rajasthan, Uttar Pradesh, Tamil Nadu, Tripura and West Bengal. *Elsewhere*: Bangladesh, Java, Malay Peninsula, Myanmar, Sri Lanka and Sumatra.

*Remarks* : It is a common species of Gerrinae in Indo-Australian regions, found in wide variety of habitats including hot springs and brackish pools.

#### *Limnometra ciliata* Mayr, 1865

1865. *Limnometra ciliata* Mayr, *Verh. zool-bot. Vereins Wien.*, 15: 444.
1865. *Limnometra inermis* Mayr, *Verh. zool-bot. Vereins Wien.*, 15: 444.
1933. *Limnometra ciliatus* Lundblad, *Archiv. für Hydrobiologie, "Tropische Binnengewässer"*, 4(12): 371.
1964. *Tenagobonus (Limnometra) ciliatus* (Mayr): Andersen, *Entomologische Mitteilungen*, 32: 333.
2002. *Limnometra ciliata* Kirkaldy, *Proc. of Linn. Soc. of N.S. Wales*, 33: 367.

*Material examined* : GNBR, Chingam Basthi, Johinder Nagar, Campbell Bay, 7.xii.2010, (1 apt. ♂ ex.).

*Diagnosis* : Length 14.9 mm; colour: Brown; head with a piceous diamond shaped longitudinal marking; lateral side of the head inside the eyes with piceous fascia; between the anterior region of the eyes and antennae has a piceous stripe; antennae and legs uniformly brown without pale annulations; base of mid femur with a short black streak; foreleg with 1<sup>st</sup> tarsal segment longer than the second; abdominal segments with spindle shaped pale spot in the centre; connexival spines reaches beyond the tip of the abdomen; 8<sup>th</sup> abdominal sternum visible with lower concave margin; pronotum with a central brown line and its adjacent region ochraceous; fore femur not stouter than mid femur; mid femur and tibia fringed with cilia; abdominal sternum with a faint of median longitudinal carina; 1<sup>st</sup> genital segment of male with a triangular projection on both side.

*Distribution* : Andaman & Nicobar Islands (GNBR). *Elsewhere* : Borneo, Celebes, Guams, Java, Fiji, Lesser Sunda Islands, Malay Peninsula, Moluccas, New Britain, New Guinea, Philippines, Solomon Islands, Sumatra and Thailand.

*Remarks* : The species *Limnometra cursitans* is also having cilia on the mid femur. But *Limnometra ciliata* Mayr can easily identified by the presence of cilia, triangular projections on the first genital segment and the black streak on the base of mid femur. The length of the species varies from 13 mm to 19.5 mm. Previously it has been reported from Kar Nicobar and Manila of Nicobar group of islands by Andersen (1964).

#### *Limnometra minuta* Mayr, 1865

1865. *Gerris minuta* Mayr, *Verh. zool-bot. Wien*, 15: 444.
- 1903a. *Gerris minuta* (Mayr): Distant, *Fauna of British India*, 2: 181.
1964. *Tenagobonus (Limnometra) minutus* (Mayr): Andersen, *Entomologische Mitteilungen*, 32: 327.

*Material examined* : GNBR, Govind Nagar, 12.xi.2010, (2 ♂, 1 ♀ exs.), 13.xi.2010, (2 ♀, 2 Is. exs.), 28.xi.2010, (2 ♂ exs.); Chingam Basthi, 7.xii.2010, (1 ♂ ex.).

*Diagnosis* : Length: 8.5 mm; colour: Ochraceous to brown; head with 4 lines between eyes, outer black and inner two pale brown lines, which united in the upper and lower region, and upper united region is black; 4<sup>th</sup> antennal segment very long, 1<sup>st</sup> and 3<sup>rd</sup> segments are more or less subequal, 2<sup>nd</sup> shorter; head with two brown spots, one near to the apex of black line ie., near to the inner anterior margin of eye, and another spot behind the apex of antenna; head and pronotum bright ochraceous; pronotum with a central median line and lateral region with black line which is evanescent to middle; lower margin with white milky white outline; lateral margin of mesosternum with brown fascia; hemelytra cinerous brown.

*Distribution* : Andaman and Nicobar Islands (GNBR) and West Bengal.

*Remarks* : This species mainly found in lentic ecosystem and slow running streams.

Infraorder NEPOMORPHA

Family PLEIDAE

#### *Paraplea frontalis* (Fieber, 1844)

1844. *Ploa frontalis* Fieber, *Entomologische Monographien Leipzig*, 18.

2006. *Paraplea frontalis* (Fieber): Thirumalai & Sureshkumar, *Rec. zool. Surv. India*, 105: 9.

*Material examined* : GNBR, Govind Nagar, 17.xi.2010, (2 exs.); Chingam Basthi, 7.xii.2010, (109 exs.).

*Diagnosis* : Length: 2 mm; colour: Ochraceous; head of front with 3 dashes, i.e., one median stripe, behind that 2 dashes; two spots above the neck; eyes reddish brown; apex of clavus and corium darker; body punctured, most punctures with brown spots and few are empty; tegmina obliquely truncate behind.

*Distribution* : Andaman and Nicobar Islands (GNBR), Andhra Pradesh, Arunachal Pradesh, Bihar, Chandigarh, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punducherry, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

*Elsewhere* : China, Moluccas, South East Asia, Sri Lanka, Sumatra, Taiwan, Thailand and West Malaysia.

*Remarks* : Few specimens with indistinct head marking were observed in this species.

Family NOTONECTIDAE

Subfamily NOTONECTINAE

*Anisops barbatus* Brooks, 1951

1951. *Anisops barbata* Brooks, *Kan. Univ. Sci. Bull.*, 34: 387.

2004. *Anisops barbatus* Brooks: Nieser, *Raff. Bull. Zoology*, 52: 84.

*Material examined* : GNBR, Govind Nagar, 6.xii.2010, (1 mpt. ♀ ex.).

*Diagnosis* : *Female*: Length: 8.9; head width five to six times the anterior width of vertex; tylus slightly swollen, without tufts of hairs; scutellum milky white; clavus yellowish white.

*Distribution* : Andaman and Nicobar Islands (GNBR), Bihar, Chandigarh, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere* : China, Java, Perak, Singapore, South East Asia and Sumatra.

*Remarks* : Collected from undisturbed pond.

*Anisops naustus* Fieber, 1851

1851. *Anisops nausta* Fieber, *Abhandl. Konigl. Bohm. Ges. Wiss.*, 7: 484-485.

2004. *Anisops naustus* Fieber: Nieser, *Raff. Bull. Zoology*, 52: 87.

*Material examined* : GNBR, Govind Nagar, 5.xii.2010, (1 ♂ exs.).

*Diagnosis* : *Male*: Dorsal view of male head has a cephalic projection with a broadly indented apex, in lateral view less than half the total length of the frons anteriorly of eyes ; tylus has a median depression; frons is narrowed in the middle and dorsally with a median depression forming a spoon shaped appearance; rostral prong slightly shorter than the third rostral segment; fore femur apically narrowed, stridulatory comb of fore tibia with about 14 teeth which are longest in the middle; scutellum milky white.

*Distribution* : Andaman and Nicobar Islands (GNBR), Andhra Pradesh, Assam, Madhya Pradesh, Odisha, West Bengal. *Elsewhere* : Australia, Indonesia, Melaka, Pacific Islands, Singapore, Southern China and West Malaysia.

*Remarks* : A single specimen was collected from an area with less anthropogenic activity.

*Anisops niveus* (Fabricius, 1775)

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

2001. *Anisops niveus* (Fabricius): Nieser, *Raff. Bull. Zoology*, 52: 88.

*Material examined* : GNBR, Govind Nagar, 17.xi.2010, (2 ♂ exs.).

*Diagnosis* : *Male*: Length: 4.8 mm – 5.1 mm; colour: Milky white; eyes piceous to reddish brown colour; 2<sup>nd</sup> antennal segment piceous; prosternum brown colour; labrum with long white hairs; tylus and frons are excavated; outer margin of fore femur blackish; stridulatory comb with 13 teeth in equal length; rostral prong shorter than the 3<sup>rd</sup> rostral segment, originating near its proximal margin; wings surpassing the last abdominal segment.

*Distribution* : Andaman and Nicobar Islands (GNBR), Assam, Bihar, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. *Elsewhere* : Indonesia, Johar, Malaka, Singapore and South East Asia.

*Remarks* : Collected from lentic ecosystem.

*Anisops tahitiensis* Lundblad, 1934

1934. *Anisops tahitiensis* Lundblad, *Bull. Bishop. Mus. Honolulu*, 113: 121.

2005. *Anisops tahitiensis* Lundblad: Nieser, Chen & Young, *Raff. Bull. Zoology*, 53: 206.

*Material examined* : GNBR, Govind Nagar, 6.xii.2010, (1 ♀, 1 I. exs.), 12.xi.2010, (1 ♂, 3 ♀ exs.), 17.xi.2010, (6 ♂, 12 ♀, 3 Is. exs.); Laxmi Nagar, 25.xi.2010, (17 ♂, 13 ♀, 8 Is. exs.); Chingam Basthi, 7.xii.2010, (9 ♂, 6 ♀ exs.).

*Diagnosis* : Length: 5.1mm – 6.0 mm; colour: Yellowish white; synthipsis about one third the anterior width of vertex; tylus swollen with carina; rostral prong longer than third rostral segment, originating middle of the segment; stridulatory comb of males with 23-34 teeth; middle of last abdominal sternum of female with black longitudinal stripe.

*Distribution* : Andaman and Nicobar Islands (GNBR). *Elsewhere* : Australia, Guadalcanal, Johor, Malaysia, Okinawa, Pahang, Perak, Selangor, Singapore, Tahiti, Terengganu and Vietnam.

*Remarks* : This species found only in lentic ecosystem. Scutellum of male mainly ochraceous but in female piceous and also few with milky white. Last abdominal segment of female with black stripe on the median ridge.

Infraorder LEPTOPODOMORPHA

Family LEPTOPODIDAE

*Valleriola cicindeloides* (Distant, 1908)

1908. *Leptopus cicindeloides* Distant, *Ann. Mag. nat. Hist.*, 8(3): 140.

1910. *Leptopus cicindeloides* (Distant): *Fauna of British India*, 5: 224.

*Material examined* : GNBR, Johinder Nagar, 3.xii.2010, (1 ♂, 4 ♀ exs.).

*Diagnosis* : Length: 5.5 mm; colour: Greyish ochraceous; body with pale pilosity; head with ocelli and median tubercle; first antennal segment

stout, small and the 3<sup>rd</sup> segment very longer; pronotum with four dark brownish grey fascia, which is not reached upto the apex of pronotum; base, postero-lateral margin and apex of pronotum ochraceous; scutellum and wings fuscous; clavus with two ochraceous spots, one at the apex and another at the base; middle and apex of the corium with two ochraceous spots; membrane greyish ochraceous.

*Distribution* : Andaman and Nicobar Islands (GNBR), Bihar, Madhya Pradesh and West Bengal.

*Remarks* : Anterior central longitudinal line and the fascia on the posterior region of pronotum not prominent in all specimens. Sometimes the fascia united and only leaving the central prominent apical and obscure postero sub lateral ochraceous patch.

#### SUMMARY

In the present study 7 species of Gerromorpha, 5 species of Nepomorpha and 1 species of Leptopodomorpha were recorded. *Microvelia albomaculata* Distant, *Microvelia diluta* Distant from the family Veliidae., *Anisops naustus* (Fieber), *Anisops barbatus* Brooks from the family Notonectidae and *Valleriola cicindeloides* Distant from the family Leptopodidae were the five new records to Andaman and Nicobar Islands. *Limnometra minuta* Mayr previously reported from (Little) Nicobar, Galathea by Andersen (1964), now has been recorded for the first time from Great Nicobar.

#### ACKNOWLEDGEMENT

The authors are thankful to the Director, Dr. K. Venkataraman, Zoological Survey of India Kolkata for facilities and encouragements.

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- Thirumalai, G. 2002. A check list of Gerromorpha (Hemiptera) from India. *Rec. zool. Surv. India*, 100(1-2): 55-97.
- Thirumalai, G. 2007. A synoptic list of Nepomorpha (Hemiptera: Heteroptera) from India. *Rec. zool. Surv. India. Occ. Paper No.*, 273: 1-84.



*Microvelia albomaculata* Distant



*Microvelia (Microvelia) diluta* Distant



*Rhagovelia (Neorhagovelia) sumatrensis* Lundblad



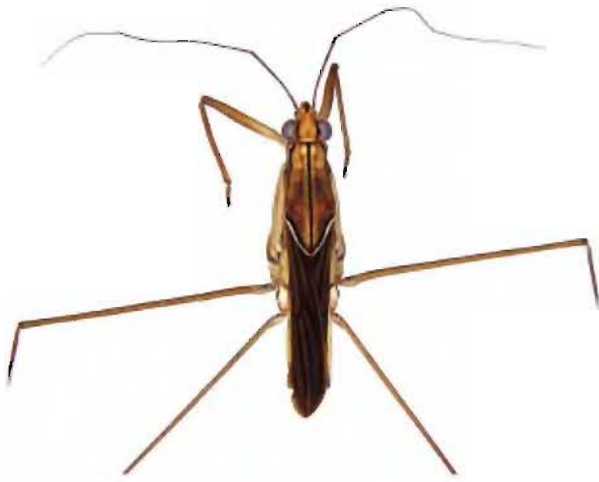
*Mesovelia vittigera* Horvath



*Limnogonus (Limnogonus) fossarum fossarum* (Fabricius)



*Limnometra ciliata* Mayr



*Limnometra minuta* Mayr



*Paraplea frontalis* (Fieber)



*Anisops barbatus* Brooks



*Anisops naustus* Fieber



*Anisops niveus* (Fabricius)



*Anisops tahitiensis* Lundblad



*Valleriola cicindeloides* (Distant)





A pond behind the Govind Nagar, Tsunami shelter



A pond on Chingam Basthi



A water pit on Chingam Basthi



A water pit on Ring road



Rain water drainage on Laxmi Nagar



Rain water drainage on Ring road





A stream adjacent to 16th km bridge, Govind Nagar



A stream on Chingam Basthi



A stream on Johinder Nagar



A stream on agricultural field, Ring road



A stream on Laxmi Nagar



A concrete wall near a stream on Johinder Nagar, where *Valleriola cicindeloides* were collected

**A CHECKLIST OF AQUATIC AND SEMIAQUATIC HEMIPTERA (INSECTA) OF ANDAMAN AND NICOBAR ISLANDS**

- Order HEMIPTERA
- Suborder HETEROPTERA
- Infraorder GERROMORPHA Popov, 1971
- Superfamily GERROIDEA Reuter, 1910
- Family GERRIDAE Leach, 1815
- Subfamily GERRINAE Bianchi, 1896
- Genus *Limnogonus* Stål, 1868
- Subgenus *Limnogonus* Stål, 1868
1. *Limnogonus (Limnogonus) fossarum fossarum* Fabricius, 1775
  2. *Limnogonus (Limnogonus) hungerfordi* Andersen, 1975
  3. *Limnogonus (Limnogonus) nitidus* (Mayr, 1865)
 

Genus *Limnometra* Mayr, 1865
  4. *Limnometra minuta* Mayr, 1865
  5. *Limnometra ciliata* Mayr, 1865
 

Genus *Tenagogonus* Stål, 1854
  6. *Tenagogonus nicobarensis* Andersen, 1964
 

Subfamily PTILOMERINAE Bianchi, 1896

Genus *Ptilomera* Amyot & Serville, 1843

Subgenus *Ptilomera* Amyot & Serville, 1843
  7. *Ptilomera (Ptilomera) laticaudata* (Hardwicke, 1823)
  8. *Ptilomera (Ptilomera) tigrina* Uhler, 1860
 

Subfamily HALOBATINAE Bianchi, 1896

Genus *Halobates* White, 1883
  9. *Halobates elephanta* Andersen & Foster, 1992
  10. *Halobates formidabilis* Distant, 1910
  11. *Halobates frauenfeldnus* Buchanan,
  12. *Halobates germanus* White, 1883
  13. *Halobates hayanus* White, 1883
  14. *Halobates micans* Eschscholtz, 1822
  15. *Halobates proavus* White, 1883
  16. *Halobates trynae* Herring, 1964

- Subfamily TREPOBATINAE Matsuda, 1960
- Genus *Calyptobates* Polhemus & Polhemus, 1994
17. *Calyptobates andaman* Polhemus & Polhemus, 1994
 

Family VELIIDAE Amyot & Serville, 1843

Subfamily HALOVELIINAE Esaki, 1930

Genus *Strongylovelia* Esaki, 1924
  18. *Strongylovelia* sp. \*Polhemus & Starmuhlner, 1990
 

\*Remarkd as new to science but not yet described.

Subfamily MICROVELIINAE China & Usinger, 1949

Genus *Microvelia* Westwood, 1834

Subgenus *Microvelia* Westwood, 1834
  19. *Microvelia albomaculata* Distant, 1909
  20. *Microvelia diluta* Distant, 1909
  21. *Microvelia (Microvelia) douglasi* Scott, 1874
 

Genus *Neoalardus* Distant, 1912
  22. *Neoalardus typicus* (Distant, 1903)
 

Subfamily RHAGOVELIINAE China & Usinger, 1949

Genus *Rhagovelia* Mayr, 1865

Subgenus *Neorhagovelia* Matsuda, 1956
  23. *Rhagovelia (Neorhagovelia) andaman* Polhemus, 1990
  24. *Rhagovelia (Neorhagovelia) sumatrensis* Lundblad, 1936
 

Superfamily MESOVELIOIDEA Douglas & Scott, 1867

Family MESOVELIIDAE Douglas & Scott, 1867

Subfamily MESOVELIINAE Douglas & Scott, 1867

Genus *Mesovelia* Mulsant & Rey, 1852
  25. *Mesovelia vittigera* Horvath, 1895
 

Superfamily HYDROMETROIDEA Billberg, 1820

Family HYDROMETRIDAE Billberg, 1820

Genus *Hydrometra* Latreille, 1796
  26. *Hydrometra greeni* Kirkaldy, 1898

27. *Hydrometra maindroni* Hungerford & Evans  
 Infraorder NEPOMORPHA Popov, 1968  
 Superfamily NEPOIDEA Latreille, 1802  
 Family NEPIDAE Latreille, 1802  
 Genus *Laccotrephes* Stål, 1866
28. *Laccotrephes ruber* (Linnaeus, 1764)  
 Subfamily RANATRINAE Douglas & Scott, 1865  
 Genus *Ranatra* Fabricius, 1790
29. *Ranatra distanti* Montandon, 1910
30. *Ranatra parmata* Mayr, 1865  
 Family BELOSTOMATIDAE Leach, 1815  
 Genus *Diplonychus* Laporte, 1833
31. *Diplonychus rusticus* (Fabricius, 1781)  
 Subfamily LETHOCERINAE Lauck & Menke, 1961  
 Genus *Lethocerus* Mayr, 1853  
 Subgenus *Lethocerus* Mayr, 1853
32. *Lethocerus indicus* (Lepeletier & Serville, 1825)  
 Superfamily NOTONECTOIDEAE Latreille, 1802
- Family NOTONECTIDAE Latreille, 1802  
 Genus *Anisops* Spinola, 1837
33. *Anisops barbatus* Brooks, 1951
34. *Anisops bouvieri* Kirkaldy, 1904
35. *Anisops naustus* Fieber, 1851
36. *Anisops niveus* (Fabricius, 1775)
37. *Anisops sardeus sardeus* Herrich-Shaffer, 1850
38. *Anisops tahitiensis* Lundblad, 1934
39. *Anisops* sp. Polhemus & Starmuhlner, 1990  
 Genus *Enithares* Spinola, 1837
40. *Enithares ciliata* (Fabricius, 1798)
41. *Enithares rogersi* Distant, 1910  
 Superfamily PLEOIDEA Fieber, 1851  
 Family PLEIDAE Fieber, 1851  
 Genus *Paraplea* Esaki & China, 1928
42. *Paraplea frontalis* (Fieber, 1844)  
 Infraorder LEPTOPODOMORPHA Popov, 1971  
 Family LEPTOPODIDAE Brulle, 1836  
 Genus *Valleriola* Distant, 1904
43. *Valleriola cicindeloides* (Distant, 1908)