

New Reports

FRESHWATER GERRIDAE (HEMIPTERA: HETEROPTERA: GERROMORPHA) WITH TWO NEW RECORDS FROM SOUTH ANDAMAN, INDIA

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INTRODUCTION

Aquatic insects play a major role in food web and nutrient recycling in freshwater ecosystem. The family Gerridae includes water striders belonging to the superfamily Gerroidea, which dwells on surface of water and usually most frequent in late summer. These are predatory bugs, which sucks body fluids of live and partly dead insects. The secretions from the thoracic scent gland protect the water striders from predation by other organisms. They occur in diverse habitats both in lentic (lakes, ponds, pools, reservoirs, agricultural fields and temporary waters due to rain) and lotic ecosystems (streams, seepage, springs, rivers and irrigation canals), however the genus *Halobates* inhabit on open sea. Gerridae is characterized by the hind femur surpassing the apex of abdomen. According to Polhemus and Polhemus (2008) there are about 67 genera and 751 species known from the world. Polhemus and Starmühlner (1990) and Thirumalai (2002) recorded twelve species of Gerridae from Andaman Islands, of which seven species belong to the genus *Halobates* and five species of freshwater species belong to genera *Calyptobates*, *Limnogonus*, *Ptilomera* and *Tenagogonus*. The present study reports the occurrence of six species of Gerridae, *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775), *Limnogonus nitidus* (Mayr, 1865), *Limnometra ciliate* Mayr, 1865, *Tenagogonus nicobarensis* Andersen, 1964, *Ptilomera (Ptilomera) tigrina* Uhler, 1860 and *Calyptobates andaman* Polhemus & Polhemus, 1994, from South Andaman, including two new additions to the fauna of the island.

METHODOLOGY

South Andaman Islands having an area of about 2980 km² and the temperature of the island vary between 23°C

and 31°C and relative humidity 70 - 90 per cent. Freshwater bodies in South Andaman Islands are very less. The man made pond is temporary and depends on rainwater to fill up and during summer it will get dry up. Farmers of this area depend on this pond for the irrigation purpose. There are several streams on foot hills of Mount Harriet. The water of these streams is being used by the local people for drinking and bathing purpose. The insects were collected using D-frame aquatic net and preserved in 80 percent ethanol. All the water striders were collected from both lentic and lotic systems in South Andaman by the first author. The specimens were studied under Leica Stereozoom Microscope (M205 A).

RESULTS

Subfamily GERRINAE

Genus *Limnogonus* Stål, 1868

Subgenus *Limnogonus* Stål, 1868

1. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)

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

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

Material examined: Recorded from literature: Polhemus and Starmühlner (1990) and Thirumalai (2002).

Distribution: Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Puducherry, Rajasthan, Tamil Nadu and West Bengal. **Elsewhere:** Bangladesh, China, Hong Kong, Indonesia, Japan, Malay Peninsula, Myanmar, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam.

2. *Limnognonus (Limnognonus) nitidus* (Mayr, 1865)

1865. *Hydrometra nitida* Mayr, *Verh. Zool.-bot. Ges. Wien*.15: 443.

2002. *Limnognonus (Limnognonus) nitidus* (Mayr): Thirumalai, *Rec. zool. Surv. India*, **100**(1-2): 62.

Material examined: South Andaman, Manjery, 3.iii.2012, (1 mac. @& ex.), Mongulton, 6.iii. 2012, (1 apt. @& ex.).

Diagnosis: Dark brown to black colour; base of the head with orange mark; pronotal lobe with two linear yellow stripes on the anterior region, little depressed; lateral margin of pronotum with yellow fascia; mesopleura with very broad black stripe; connexival spines in female very prominent and surpassing the abdomen.

Distribution: Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Karnataka, Kerala, Madhya Pradesh, Odisha, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. **Elsewhere:** China, Indonesia, Malaysia, Maldives Islands, Myanmar, Nepal, Singapore, Sri Lanka, Thailand and Vietnam.

Genus *Limnometra* Mayr, 1865

3. *Limnometra ciliate* Mayr, 1865

1865. *Limnometra ciliata* Mayr, *Verh. zool.-bot. Vereins Wien*. 15: 444.

2012. *Limnometra ciliate* Mayr: Chandra, Jehamalar & Ragunathan, *Rec. zool. Surv. India*, 112(Part-2): 79-89.

Material examined: South Andaman, Wandoor, 5.iii.2012, (1 apt. @& ex.).

Diagnosis: Dark brown colour; head with a piceous diamond longitudinal mark; pronotum with a brown stripe at the center; base of mid femur with a short black stripe; first tarsal segment of foreleg longer than the second; abdominal tergites with elongated yellow mark along the middle.

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

Genus *Tenagognonus* Stål, 1854

4. *Tenagognonus nicobarensis* Andersen, 1964

1964. *Tenagognonus nicobarensis* Andersen, *Ent. Medd.*,**32**: 322.

2013. *Tenagognonus nicobarensis* Andersen: Jehamalar & Chandra, *Zootaxa*, 3616(4): 378-386.

Materials examined: South Andaman, Manjery, 3.iii.2012, (1 mac. B&, 3 mac. @& exs.), Wandoor, 5.iii.2012, (3 apt. B&, 6 apt. @& exs.), Humphrygunj, 6.iii.2012, (3 apt., 3 mac. B&, 2 apt., 2 mac @& exs.), Mongulton, 6.iii.2012, (3 apt., 4 mac. B&., 10 apt. @& exs.), Guptapara, 6.iii.2012, (1 mac. B& ex.), Bambooflat, 7.iii.2012, (3 apt. B&, 4 apt. @& exs.), Shoalbay – 9, 14.iii.2012, (6 apt. B&, 3 mac. B&, 3 apt. @&, 1 mac. @& exs.).

Diagnosis: Yellowish brown colour; four stripes on head and two stripes on mesopleuron black; mesosternum with an interrupted black stripe on its lateral region; females have well developed connexival processes; but it is absent in males; posterior margin of seventh abdominal sternum of males with a V- Shaped impression; two sheath like structures leaving a median longitudinal depression widened anteriorly on ninth sternum of males.

Distribution: Andaman & Nicobar Islands.

Subfamily PTILOMERINAE

Genus *Ptilomera* Amyot & Serville, 1843

Subgenus *Ptilomera* Amyot & Serville, 1843

5. *Ptilomera (Ptilomera) tigrina* Uhler, 1860

1860. *Ptilomeratigrina* Uhler, *Proc. Acad. nat. Sci. Philadelphia*, 12: 230.

2002. *Ptilomera (Ptilomera) tigrina* Uhler: Thirumalai, *Rec. zool. Surv. India*, 100(1-2): 70.

Materials examined: South Andaman, Wimberlygunj, 2.iii.2012, (4 apt. B&, 7 apt. @& exs.), Shoalbay-8, 12.iii.2012, (3 apt. B&, 6 apt. @& exs.) Shoalbay – 9, 14.iii.2012, (1 apt. B&, 1 apt. @& exs.).

Diagnosis: Length 14 mm to 17.5 mm; females having both dorsolateral and ventrolateral lobes and incision between these two lobes are not deep; proctiger with median lobe small, lateral wings not surpassing; posterior

region of pygophores slender with pointed apex; parameres long and curved.

Distribution: Andaman and Nicobar Islands (Andaman). **Elsewhere:** Cambodia, China, Hong Kong, Laos, Macao, Malaysia, Myanmar, Singapore, Thailand and Vietnam.

Subfamily TREPOBATINAE

Genus *Calyptobates* Polhemus & Polhemus, 1994

6. *Calyptobates andaman* Polhemus & Polhemus, 1994

1994. *Calyptobates andaman* Polhemus & Polhemus, *Ent. Scand.*, 25(3): 338.

2002. *Calyptobates andaman* Polhemus & Polhemus: Thirumalai, *Rec. zool. Surv. India*, 100(1-2): 71.

Materials examined: Recorded from literature Polhemus and Polhemus (1994) and Thirumalai (2002).

Distribution: Andaman and Nicobar Islands (Andaman).

DISCUSSION

Total of six species of freshwater striders are known from South Andaman Island through the study of Polhemus and Starmühlner (1990), Thirumalai (2002) and also the present contribution. Of which two species namely *Limnometra ciliata* and *Ptilomera (Ptilomera) tigrina* are recorded from South Andaman for the first time. Andersen (1964) recorded *Limnometra ciliata* from Nicobar group of islands, but, Zettel (2001) and Thirumalai (2002) have not included this species in their publications and this is the first time record from Andaman Islands. *Ptilomera (Ptilomera) tigrina* was earlier recorded by Polhemus and Starmühlner (1990) from North Andaman, and present study records this species for the first time from South Andaman. Both apterous and macropterous forms occur in a same population of *Tenagogonus nicobarensis*. This species is endemic to Andaman and Nicobar groups of Islands and have been collected from well shaded, cool, slow flowing streams, where the stream bed is muddy. Some more freshwater striders are expected to occur from south Andaman including few new species.

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