



FOUR NEW RECORDS OF GERROIDEA (HEMIPTERA : HETEROPTERA) FROM MADHYA PRADESH, INDIA

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INTRODUCTION

Aquatic insects contribute significantly to freshwater ecosystems, forming food for many organisms, particularly in the food webs associated with wetland environments. Many fishes, amphibians, shorebirds, waterfowl, and other animals forage heavily on both the aquatic and terrestrial stages of aquatic insects, which are essential to their survival. It is estimated that about 3% of the total insects are aquatic, spending at least a part of their life cycles in the water, and these comprise about 25,000 to 30,000 species (Cheng, 1976). Gerroidea is a superfamily of Gerromorpha, commonly called as semi-aquatic bugs or shore-inhabiting bugs, which can be easily recognized by their piercing and sucking mouth parts and the long antennae.

In the present study four species of the superfamily Gerroidea were recorded for the first time from Madhya Pradesh. *Microvelia albomaculata* Distant and *Rhagovelia* (*Neorhagovelia*) *sumatrensis* Lundblad belongs to the family Veliidae and *Rhagadotarsus* (*Rhagadotarsus*) *kraepelini* Breddin and *Naboandelus signatus* Distant were confined to the family Gerridae. *M. albomaculata* Distant, *R. (Neorhagovelia) sumatrensis* Lundblad, *R. (Rhagadotarsus) kraepelini* Breddin and *N. signatus* Distant belong to four different subfamilies namely, Microveliinae, Rhagoveliinae, Rhagadotarsinae and Trepobatinae respectively, of which latter two subfamilies are the new report to the state.

Family VELIIDAE
Subfamily MICROVELIINAE

Genus *Microvelia* Westwood 1834

Microvelia albomaculata Distant, 1909

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

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

1994. *Microvelia albomaculata* Distant: Bal & Basu, *State Fauna Series, 3: Fauna of West Bengal, Part 5*: 511-534.

Material examined : 3 ♂, 2 ♀ exs., Jabalpur, CZRC, ZSI Res. Colony, 25.ix.2010, Coll. E.E. Jehamalar.

Diagnosis : (Fig. 1) Length : male 1.4 mm, female 1.6 mm; Colour: piceous; body with grayish pubescence pronounced to inner margin of eyes; rostrum reaches little beyond the base of prosternum; 1st antennal segment slightly longer than 2nd, 4th antennal segment long, 2nd and 3rd subequal in length; hemelytra largely spotted with grayish white, clavus with a long spot, corium with five spots, two near base in longitudinal manner and three on the apex in a transverse manner, membrane with two spots, a single large spot on subapex and very small spot on inner subapex.

Distribution : Madhya Pradesh (Jabalpur) and West Bengal. *Elsewhere*: Bangladesh.

Remarks : In few specimens the two vertical spots on the corium unites and forms a single long basal spot. The length is shorter than the length mentioned in the original description by Distant, 1909.

Subfamily RHAGOVELIINAE
Genus *Rhagovelia* Mayr, 1865

Subgenus *Neorhagovelia* Matsuda, 1956

Rhagovelia (Neorhagovelia) sumatrensis

Lundblad, 1936

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

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

Material examined : 2 exs., Hoshangabad, Joga, 14.xii.1965 (♂ 1 apt ex.), Coll. H. P. Agrawal, 1.i.1966 (1 apt. ♀ ex.), Coll. H. Khajuria; 3 exs., Hoshangabad, Gupt Mahadev, 5.vi.1999 (1 apt. ♀ & 1 apt. ♂), 12.vi.1999 (1 apt. ♀), Coll. K. Chandra.

Diagnosis : (Fig. 2) Colour Black; Length 2.8 mm; 6th 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 & Nicobar Islands, Madhya Pradesh (Hoshangabad) and Sikkim

Elsewhere : Africa, Indochina, Indonesia, Peninsular Malaysia and South China.

Remarks : These species usually found in forest streams. One specimen with the ochraceous band on anterior pronotum centrally interrupted. Females with the apex of connexivum produced.

Family GERRIDAE

Subfamily TREPOBATINAE

Genus *Naboandelus* Distant 1910

Naboandelus signatus Distant 1910

1910a. *Naboandelus signatus* Distant, *Ann. Mag. nat. Hist.*, 5(8): 150.

1994. *Naboandelus signatus* Distant: Bal & Basu, *State Fauna Series 3: Fauna of West Bengal*, Part 5: 511-534.

2002. *Naboandelus signatus* Distant : Thirumalai, *Rec. zool.Surv. India*, 100(1-2) : 71.

Materials examined : 2 exs., Sehore District, Gond Raja Kila about 28 km west of Budni, 30.xii.1964, Coll. H. Khajuria & Party.

Diagnosis : (Fig. 3) Length: 2.3 mm; Width: 1.2 mm (across middle of mesonotum) lateral margins of head ochraceous or stramineous; pronotum with a stramineous or ochraceous spot; apex of pronotum convex; 1st antennal segment longer than head.

Distribution : Chandigarh, Karnataka, Madhya Pradesh (Sehore); Pondicherry, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Remarks : This species found in lentic and lotic ecosystems. This species is found to be very small than the already reported gerrid species from the state. It is note the species showed in the photograph with wings broken and not a brachypterous form.

Subfamily RHAGADOTARSINAE

Genus *Rhagadotarsus* Breddin, 1905

Rhagadotarsus (Rhagadotarsus) kraepelini

Breddin, 1905

1905. *Rhagadotarsus kraepelini* Breddin, *Mitt. Naturhist. Mus. Hamb.*, 22: 137.

1910a. *Nacebus dux* Distant, *Ann. Mag. nat. Hist.*, 5(8): 152-153.

1910b. *Nacebus dux* Distant: *Fauna of British India, Rhynchota*, 5: 166.

1993. *R. (Rhagadotarsus) kraepelini* Breddin: Polhemus & Karunaratne, *Bull. Raffles Mus. (Zoology)*, 41(1): 100.

2002. *R. (Rhagadotarsus) kraepelini* Breddin: Thirumalai, *Rec. zool. Surv. India*, 100(1-2): 70.

Materials examined : 1 ♂ Mactopterous ex., Sehore District, 28 Km west of Budni, 30.xii.1964, Coll. H. Khajuria & Party.

Diagnosis : (Fig. 4) Length: 4.2 mm (male); Colour: piceous black; Coxa trochanter and base of femur ochraceous; lateral margin of fore coxa with tuft of short thick hairs; apex of 7th abdominal segment excavated; base of head reddish brown; anterior lobe of pronotum with a central ochraceous horizontal band; base of corium ochraceous; subapex of pronotal plate convexed; body beneath black and covered with grayish white pubescence; pronotum with obscure longitudinal ridge and subapex with horizontal ridge.

Distribution : Andhra Pradesh, Arunachal Pradesh, Karnataka, Kerala, Madhya Pradesh (Sehore), Pondicherry, Tamil Nadu and West Bengal.



1

Microvelia albomaculata Distant

2

Rhagovelia (N.) sumatrensis Lundblad

3

Naboandelus signatus Distant

4

Rhagadotarsus (R.) kraepelini Breddin

Elsewhere : China, Indonesia, Malaysia, Myanmar, Philippines and Taiwan.

Remarks : This species found on fresh and brackish water bodies. Base of its head is reddish brown, which has not been mentioned in the earlier literature.

SUMMARY

In the present study, four species of superfamily Gerroidea are reported from the backlog collections and local collection of Central Zone Regional Centre, Zoological Survey of India, Jabalpur. Thirumalai *et al.* (2007) have reported 15 species of Gerroidea pertaining to 8 subfamilies under 3 families from the state of Madhya Pradesh. By the present record of four species, two subfamilies are also added to the superfamily Gerroidea to the

state. The present record is the best example to the scientific community that how the collection and preservation of zoological specimens were important, because two species recorded here were collected during the year 1964, after that these species have not been encountered from further surveys. Thirumalai and Sharma (2008) and Chandra *et al.* (2010) have reported only one species of *Microvelia* from Jabalpur District and presently one more species *Microvelia albomaculata* Distant has been added to the fauna of Jabalpur.

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