

## ***Limnometra thirumalaii* sp.n. (Heteroptera: Gerridae) from South India**

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Abstract. *Limnometra thirumalaii* sp.n. from Kerala, South India, is described and illustrated. A key to the Indian species of *Limnometra* MAYR, 1865, is presented.

Key words. Heteroptera, Gerridae, *Limnometra*, new species, key, India.

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### INTRODUCTION

Approximately thirty species of the water strider genus *Limnometra* MAYR, 1865, are widely distributed from Reunion to Australia and to the western Pacific islands. Many species are endemic to a certain region or a single island. The highest diversity is found in the rain forests of the Malay Archipelago, especially on the islands Sulawesi and Borneo. Species of *Limnometra* inhabit various kinds of stagnant water or the most lentic parts of streams in tropical forests. Only some of them are adapted to live in secondary habitats, which have been disturbed by man, and are frequently collected.

These usually large and beautifully coloured water striders attracted the attention of taxonomists since early times of entomology. For the first time, *Limnometra* has been taxonomically revised by HUNGERFORD & MATSUDA (1958). NIESER & CHEN (1992) reviewed and keyed the species of Malesia (except the Philippines), ANDERSEN & WEIR (1997) those of Australia, and ZETTEL & CHEN (2000) those of the Philippine Islands. Occasionally still new species are discovered and described (see, e.g. POLHEMUS & POLHEMUS 1997; ZETTEL, in press). This paper presents the description of a new species from South India, from where so far only two other species have been known. Terminology follows earlier papers of the author (e.g. ZETTEL & CHEN 2000).

**A c k n o w l e d g e m e n t s.** The author thanks Dr. David BOUKAL (České Budějovice, Czech Republic) for the type material and other specimens of Indian *Limnometra* used for comparison.

*Limnometra thirumalaii* sp.n.

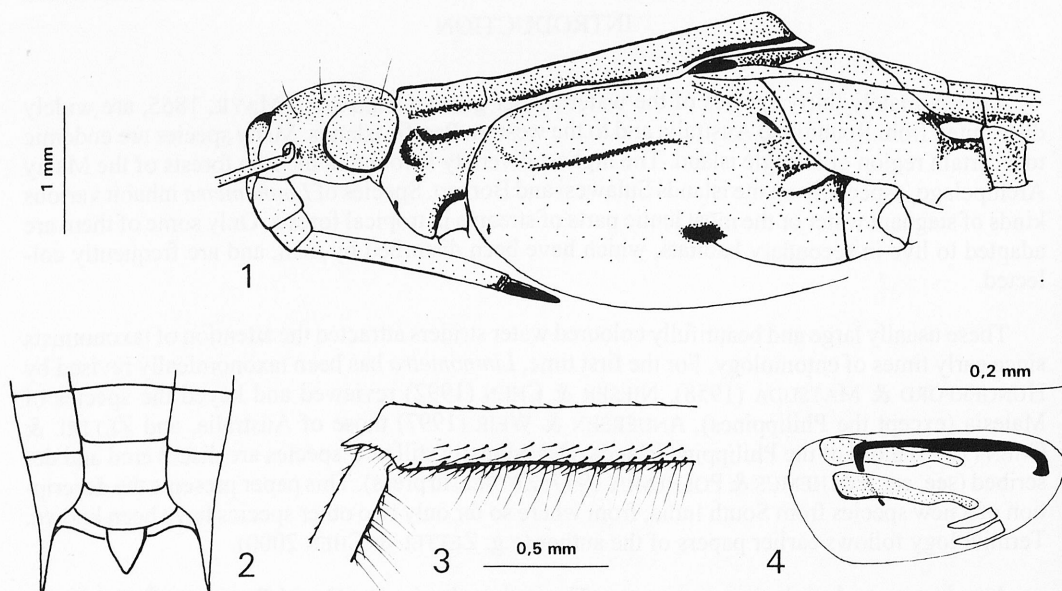
(Figs 1-4)

Holotype (macropterous male) and allotype (micropterous female): "INDIA: Kerala, 31.12.1998\ 30km NNE Trivandrum, 400m\ Kallar Bridge, 08°45'N 77°05'E\ leg. D. BOUKAL (31)" (both in Natural History Museum Vienna).

**D i a g n o s i s.** Small, light coloured species with one thin mesopleural stripe (Fig. 1) and unicolourous antenna and legs (without white parts); connexival spines long in both sexes (female: Fig. 2); dimorphic micropterous and macropterous; pronotal lobe of micropterous morph posteriorly elevated (Fig. 1), close to apex with blunt median carina; forewing with orange-brown costal margin; male with simple, slender pro- and metafemora, with mesofemur set with fringe of thin long setae in distal three fourths (Fig. 3), but without row of peg-like setae or spines subapically, with similarly long pilosity at base of mesotibia, and with vesicula sclerites as in Figure 4; female with comparatively short and broad abdomen (Fig. 2).

**D e s c r i p t i o n.** Macropterous male. Dimensions: body length 9.8 mm (measured until tip of connexival spine); maximum body width 2.9 mm; head width 1.6 mm; length of first antennomere 2.3 mm; length of mesofemur 9.5 mm.

**Colour:** ground colour dorsally light brown, laterally and ventrally yellowish; head with antennal tubercles, stripes along inner eye margin, and two submedial stripes enclosing ovate light spot dark brown; anteclypeus dorsally black, shining; pronotum with five narrow black longitudinal stripes: median stripe, sublateral stripes, and lateral stripes; pronotal lobe with narrow median stripe not reaching posterior margin, with sublateral stripes interrupted at humeri and posteriorly connected, without lateral stripes; pronotum and pronotal lobe laterally (respectively caudally) of sublateral stripe yellow; proacetabula with narrow black mark; thorax laterally yellowish to very light brown, ventrally lighter than dorsally; mesopleura with dorsal margin hardly infuscated, with one narrow mesopleural stripe, and with small black mark postero-ventrally; mes- and metacetabula with black marks nearly completely surrounding relatively small, yellow spots, which ovate at mesacetabula and circular at metacetabula (see female: Fig. 1); forewing blackish, with costal mar-



Figs 1-4. *Limnometra thirumalaii* sp.n.: 1, 2 - female allotype; 3, 4 - male holotype: 1 - colour pattern of head and thorax, lateral view; 2 - end of abdomen, dorsal view; 3 - distal part of mesofemur; 4 - vesicula sclerites, "oblique" view.

gin orange-brown, and with veins yellowish brown; antennomeres 1-2 (dark) brown, 3-4 black; coxae and trochanters yellowish; femora, tibiae, and tarsi brown to blackish.

Structural characteristics: lengths of antennomeres 1-4 (in mm): 2.3, 1.9, 2.0, 2.6; antennomere 2 distinctly longer than width of head; pronotal lobe apically with small groove; relative lengths of leg segments (in relation to length of mesofemur = 100): profemur 35, protibia 33, protarsus 6+6, mesofemur 100, mesotibia 86, mesotarsus 25+6, metafemur 107, metatibia 53, metatarsus 8+5; profemur of male without subapical indentation, more slender than mesofemur (0.9 times), with inconspicuous dense short pilosity on ventral surface; mesofemur distally without spine or prominent row of peg-like spines, in distal three fourth with fringe of long fine setae, whose maximum length slightly longer than femur width (1.1 times) (Fig. 3); abdomen rather short, apex of pronotal lobe exactly at mid-point of body length; connexival spines pointing straight backwards, distance between their tips slightly greater than their length at medial margin (ca. 1.3 times).

Male genitalia: segment 8 relatively small, distinctly depressed; pygophore simple; proctiger pointed; paramere vestigial; vesicula sclerites (Fig. 4) of diagnostic importance: dorsal sclerite proximally curved, medially subparallel (slightly widened distally), apically hardly widened, not branched, but truncate; lateral sclerite basally widest, tapered towards apex, weakly undulate, not hooked; ventral sclerites present, although weakly sclerotized, short and broad.

Micropterous female. Dimensions: body length 9.0 mm, maximum body width 2.9 mm; head width 1.5 mm; length of first antennomere 2.0 mm; length of mesofemur 7.8 mm.

Colour: similar as in male; tergites yellowish brown, with two indistinct submedial stripes; sternites at dorsal margin slightly brownish infuscated.

Structural characteristics: lengths of antennomeres 1 - 4 (in mm): 2.0, 1.5, 1.7, 2.5; length of antennomere 2 subequal to width of head; pronotal lobe posteriorly elevated (Fig. 1), subapically bluntly keeled; relative lengths of leg segments (in relation to length of mesofemur = 100): profemur 37, protibia 35, protarsus 6+6, mesofemur 100, mesotibia 89, mesotarsus 28+7, metafemur 105, metatibia 55, metatarsus 9+? (apex of second metatarsomere broken); all femora without modifications; abdomen very short, apex of pronotal lobe slightly behind mid-point of body length; tergites broad, tergite 7 approximately 1.8 times as wide as long, tergite 8 even broader and very short; connexival spines shorter than in male, distance between their tips approximately 2.5 times their length at medial margin (Fig. 2); in lateral view abdomen regularly tapered caudad, at segment 7 very low, ventrally with straight outline, posteriorly with straight hind margin.

**Comparative notes.** *Limnometra thirumalaii* sp.n. can be very easily distinguished from the other two species, which are so far known from India, *L. fluviorum* (FABRICIUS, 1798) and *L. anadyomene* (KIRKALDY, 1901), by the characteristics given in the key (below). Using the key by HUNGERFORD & MATSUDA (1958) *Limnometra thirumalaii* sp.n. runs to *L. anadyomene* and *L. insularis* HUNGERFORD & MATSUDA, 1958 (a species from Southeast Asia, Sumatra, Java, and Borneo), fitting none of the combinations of characteristics of these two species. *Limnometra thirumalaii* sp.n. resembles strongly *L. bruneiensis* MIYAMOTO, 1967, – to which it runs also in the key by NIESER & CHEN 1992 – but in this Bornean species the mesofemur of the male has a subapical row of peg-like setae (lacking in *L. thirumalaii* sp.n.) and a short fringe of ciliae (hair length approximately half of femur width), the dorsal margin of the mesopleura is black, and the antenna is partly whitish (as it is in most species, which possess a long hair fringe). From *L. ciliata* MAYR, 1865, which is widely distributed from Thailand to the Mariana Islands, *L. thirumalaii* sp.n. can be easily distinguished by much lighter colour, smaller size, and simple segment 8 of the male (ventrally with two corners in *L. ciliata*). The natural relationship of *L. thirumalaii* sp.n. is presently unclear.

**Distribution and habitat.** India: Kerala (only known from the type locality). Collected in a small, 0.5-1 m wide (but bed up to 10 m wide), slowly flowing, partly shaded stream with large rock boulders (Boukal, pers. comm.). Collected together with three specimens of *Tenagogonus ceylonensis* HUNGERFORD & MATSUDA, 1962., and single macropterous specimens of *Jucundus custodiendus* DISTANT, 1910, and *Cryptobates raja* (DISTANT, 1910).

**E t y m o l o g y.** This species is dedicated to Prof. Dr. G. THIRUMALAI, Chennai, India, for his valuable contributions to the knowledge of Indian Gerridae.

### Key to the species of *Limnometra* occurring in India

1. Mesocoxa at dorsolateral posterior margin with spine-like projection; mesopleura predominately black, especially with very large black mark ventrally . . . . . ***L. fluviorum***
- Mesocoxa without spine-like projection; mesopleura with one or two black stripe in dorsal half, ventrally completely yellowish . . . . . 2
2. Mesopleura with one thin faded stripe, dorsal margin indistinctly infuscated; pronotal lobe of micropterous morph (with extremely small wing rudiments) posteriorly elevated (Fig. 1), close to posterior margin with short, blunt keel; male: mesofemur in distal three fourth and mesotibia close to base with fringe of erect hairs slightly longer than mesofemur width (Fig. 3); female: connexival spines clearly surpassing apex of abdomen, tergite 7 wider than long (Fig. 2). . . . . ***L. thirumalaii*** sp.n.
- Mesopleura dorsally with two broad stripes; pronotal lobe of apterous morph posteriorly flat; male: mesofemur and mesotibia without fringe of erect hairs; female: connexival spines not surpassing apex of abdomen, tergite 7 longer than wide. . . . . ***L. anadyomene***  
(= *L. longispinulus* THIRUMALAI, 1986, syn. ANDERSEN 1995)

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