

# Five new species of the Halobatinae genus *Metrocoris* MAYR, 1865 (Insecta: Hemiptera: Gerridae) from continental Asia

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## Abstract

Five species of *Metrocoris* MAYR, 1865 from continental Asia are newly described: *Metrocoris nieseri* sp.n. (from North Thailand) of the *M. strangulator* group; *M. shepardi* sp.n. (from North Thailand) provisionally placed in the *M. bilobatus* group; *M. heineri* sp.n. (from South China) of the *M. lituratus* group; *M. bui* sp.n. (from Southwest China) close to *M. sichuanensis* CHEN & NIESER, which has been provisionally classed in the *M. stali* group; *M. dembickyi* sp.n. (from South India) of the *M. malabaricus* group. The dorsal process of the male pygophore has, for the first time, been emphasized as a diagnostic character for specific identification in the genus *Metrocoris*; it is especially important for separating sibling species of difficult complexes.

**Key words:** Hemiptera, Gerridae, *Metrocoris*, new species, Asia, India, Thailand, China, Malaysia.

## Zusammenfassung

Fünf Arten der Gattung *Metrocoris* MAYR, 1865 aus dem kontinentalen Asien werden neu beschrieben: *Metrocoris nieseri* sp.n. (aus Nord-Thailand) aus der *M. strangulator*-Gruppe; *M. shepardi* sp.n. (aus Nord-Thailand), vorläufig der *M. bilobatus*-Gruppe zugeordnet; *M. heineri* sp.n. (aus Süd-China) aus der *M. lituratus*-Gruppe; *M. bui* sp.n. (aus Südwest-China) aus der Verwandtschaft des *M. sichuanensis* CHEN & NIESER, der provisorisch in die *M. stali*-Gruppe gestellt ist; und *M. dembickyi* sp.n. (aus Süd-Indien) aus der *M. malabaricus*-Gruppe. Der dorsale Fortsatz des Pygophors des Männchens wird erstmals als ein wichtiges diagnostisches Merkmal zur Artabgrenzung innerhalb der Gattung *Metrocoris* erkannt; er hat besondere Bedeutung für die Unterscheidung von Zwillingarten.

## Introduction

Since the recent taxonomic revision of the genus *Metrocoris* MAYR, 1865 by CHEN & NIESER (1993), more new species of this Oriental genus have been constantly described (CHEN 1994, 1995, CHEN & NIESER 1996, POLHEMUS 1998, ZETTEL & CHEN 1996). Presently 56 *Metrocoris* species are known; *Metrocoris* is by far the most diverse genus of the True Water Striders (Gerridae) in the Oriental Realm. Five more new species have been found through recent expeditions to several countries in the Asian mainland. Once again, they proved the proposed active specific divergency of the genus, especially in Southeast Asia and in South and Southwest China; more than half of the described *Metrocoris* species occur in these areas. The allopatric distribution of sibling or closely related species may contribute to a better understanding of the complicated zoogeographical patterns in these regions in future.

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Measurements in the descriptions are in millimetres and refer to the holotype and allotype, or express the variability in all specimens examined. The tables of measurements (Tabs. 1 - 3) give the means of measurements of at least five (or all available) specimens studied.

#### Abbreviations of repositories:

CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang, China
CMUT	Chiang Mai University, Faculty of Sciences, Department of Biology, Chiang Mai, Thailand
CSS	Coll. William D. Shepard, California State University, Sacramento, U.S.A.
KKUA	Khon Kaen University, Faculty of Agriculture, Department of Entomology, Khon Kaen, Thailand
NCTN	Coll. Nico Nieser, Tiel, The Netherlands
NHMW	Naturhistorisches Museum in Wien, Vienna, Austria
PPCC	Coll. Pingping Chen, Beijing, China
ZSIC	Zoological Survey of India, National Collection, Calcutta, India

#### *Metrocoris nieseri* sp.n. (Figs. 1 - 3, 5 - 9, 12, 14, 30, 31, 35)

**Holotype**, apterous ♂, and **allotype**, apterous ♀, Thailand: Chiang Mai Prov., Doi Suthep, Hui Kaew waterfall, 2.12.1994, leg. P. Chen (PPCC); **paratypes** (all from Thailand, Chiang Mai Prov.): 2 ♂♂ 2 ♀♀ apterous, 8 ♂♂ 22 ♀♀ macropterous, Doi Suthep NP, Montatharn Falls, 750 - 800 m, 2.11.1995, leg. H. Zettel (4) (NHMW, PPCC, CMUT, KKUA, NCTN, CSS); 2 ♂♂ 1 ♀ apterous, Doi Suthep NP, Montatharn Falls, 24.3.1994, leg. W.D. Shepard (1044) (CSS, NHMW); 2 ♀♀ apterous, Doi Suthep NP, Wang Hua Boon, 24.3.1994, leg. W.D. Shepard (1042) (CSS); 1 ♂ macropterous, Doi Inthanon NP, Mae Klang Falls, 4.11.1995, leg. H. Zettel (6) (NHMW); 2 ♂♂ 2 ♀♀ macropterous, Doi Inthanon, stream near entrance, 1.11.1994, leg. P. Chen & R. Thapa (PPCC).

#### Description:

**Apterous form:** size: ♂ (Fig. 1, 2), length 4.95 - 5.80 mm, width 2.53 - 2.88 mm; apterous ♀, length 4.52 - 5.26 mm, width 2.80 - 3.06 mm.

Colour: Dark dorsal markings prominent. Interocular dark mark rectangular, shallowly bifid posteriorly, along inner margin of eye with a narrow brownish line. First antennal segment mainly blackish, only yellowish at basal 1/4; remaining segments blackish. Dark marks on dorsal part of thorax blackish, width of sublateral stripes of mesonotum roughly as broad as yellowish part, separate from posterior oblique dark band; longitudinal dark stripe of mesopleura blackish, in some specimens very thin. Metanotum blackish, with two subtriangular yellowish marks; metacetabula stripe black and short, running through its length. Dark stripes of forefemur not confluent, except the inner one confluent with the apical dark ring; with external face of foretibia dark in male, brownish in female. Abdomen mainly blackish dorsally, tergite II - III blackish, tergites IV - VI blackish anteriorly and yellowish posteriorly, tergite VII mainly yellowish posteriorly, with two blackish marks anteriorly, tergite VIII large, with a large rectangular blackish mark anteriorly, which slightly bifid posteriorly. Genital segments yellowish, covered with dark pilosity posteriorly. Venter yellowish.

Structural characters: Head width 1.55 (♂ and ♀); width of an eye 0.50 (♂ and ♀), about the same as its posterior width; posterior half of eye covering anterior half of propleura.

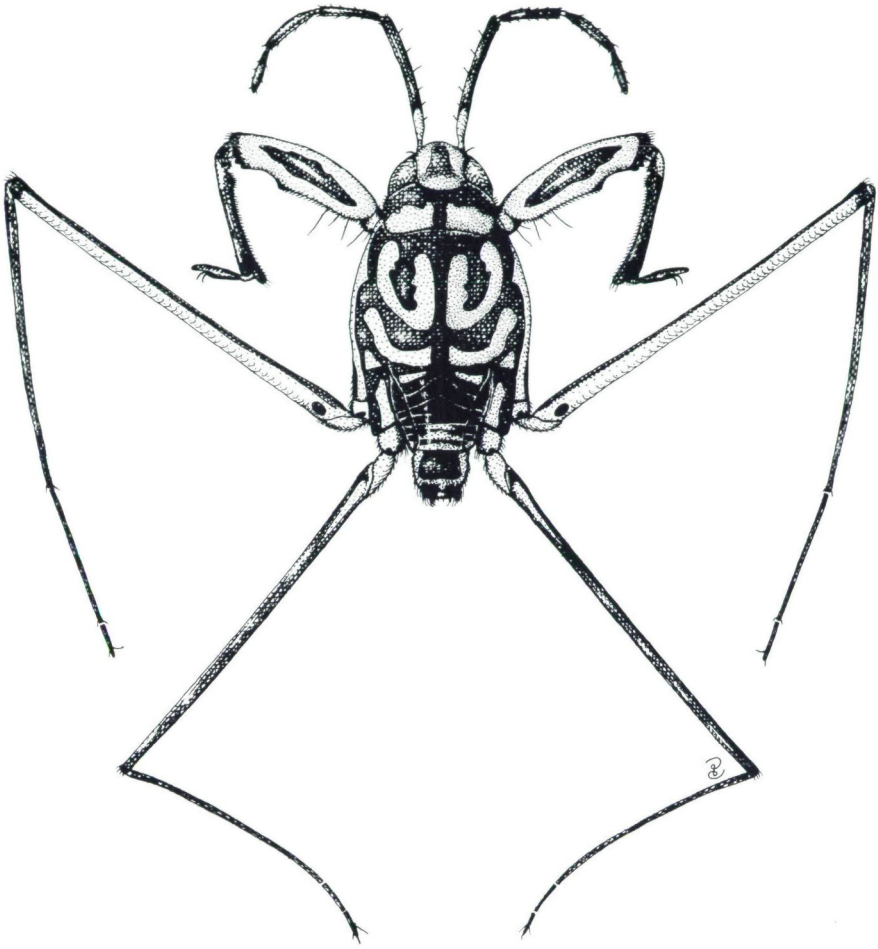
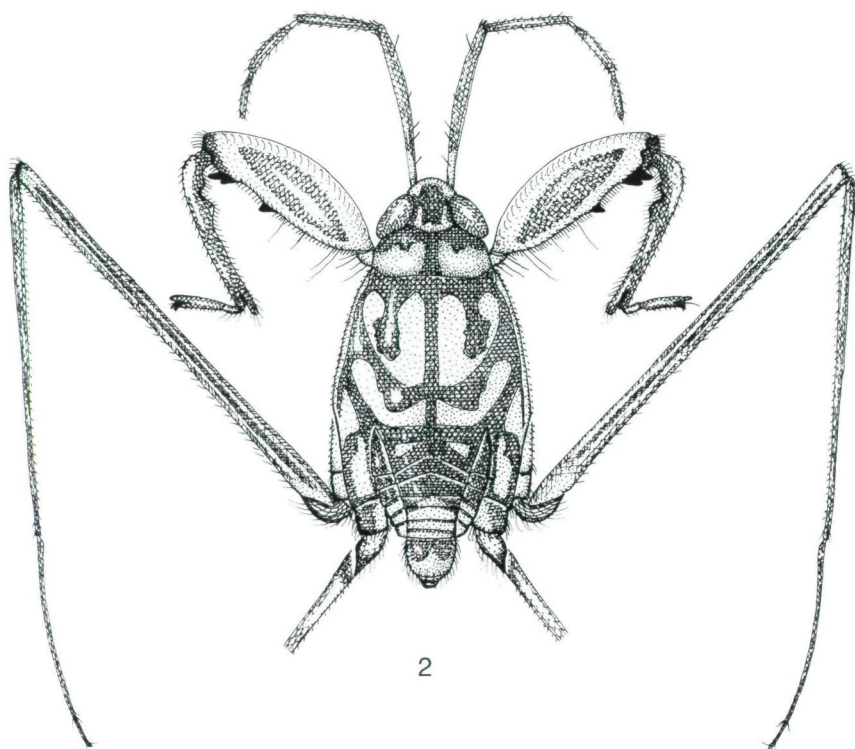


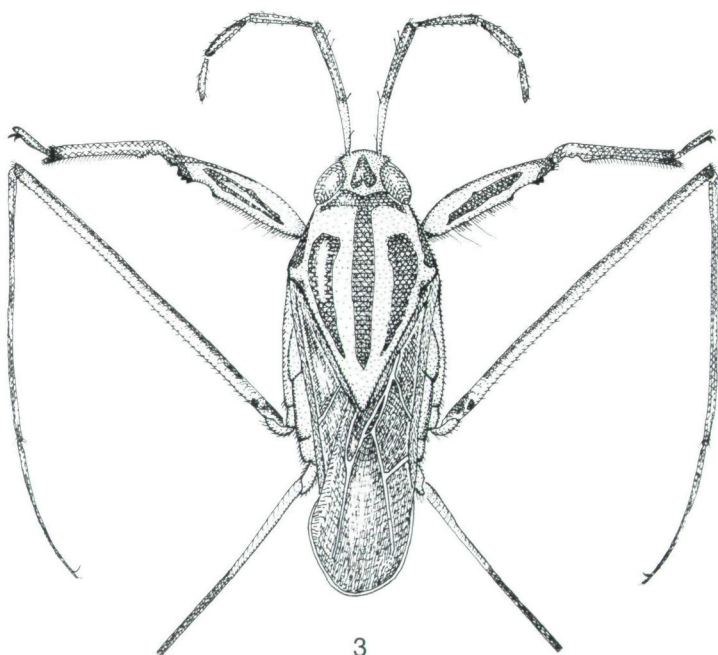
Fig. 1: *Metrocoris nieseri* sp.n., paratype, large apterous ♂ (body length 5.3 mm).

Length of antennae 4.16 (♂) or 3.38 (♀), (Tab. 1). Pronotum moderately bulbous in male, slightly broader than width of head. Male forefemur strongly incrassate, ratio length/width (except tooth) about 3.8 in holotype, 2.9 - 3.2 in paratypes, on half way of inner side with a distinct small tooth, distal 1/3 slightly constricted, with two subapical teeth; inner surface of male foretibia with a basal blunt and a subbasal sharp toothlike elevation (Figs. 1, 2). Female forefemur slender, ratio length/width about 5.2; inner side with dense hair fringe and long pilosity. Middle femur slightly longer than hind femur, length of hind trochanter 0.61 (♂) or 0.58 (♀).

Male genitalia: Segment VIII more or less square, length 1.0 and basal width 0.9. Pygophore in ventral view subovate, in lateral view (Fig. 14) raised posteriorly, posterior margin smooth, with lateral process truncate. Proctiger elongate. Paramere (Figs. 5 - 9) very stout, curved upwards, extending beyond genital segments, strongly broadened at



2



3

Figs. 2 - 3: *Metrocoris nieseri* sp.n., (2) holotype, apterous ♂ (body length 5.2 mm), with strongly enlarged forefemur and (3) paratype, macropterous ♂ (length incl. wings 6.0 mm), hind legs shortened.

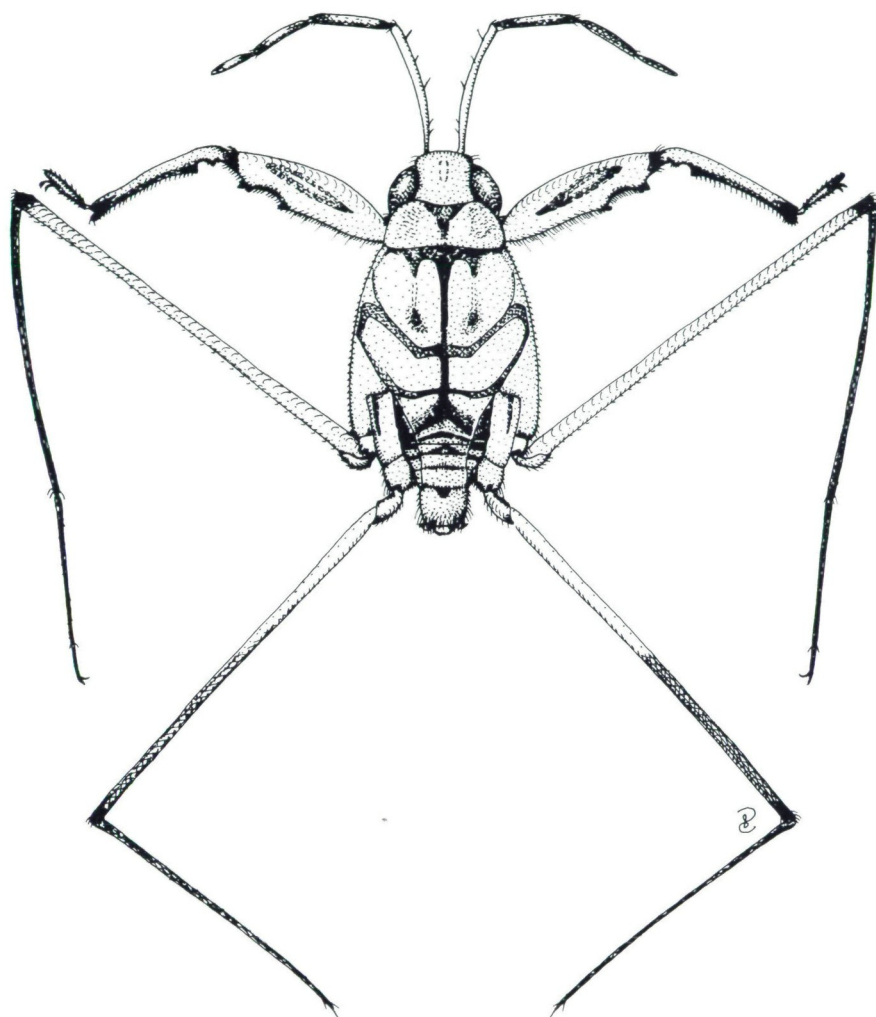


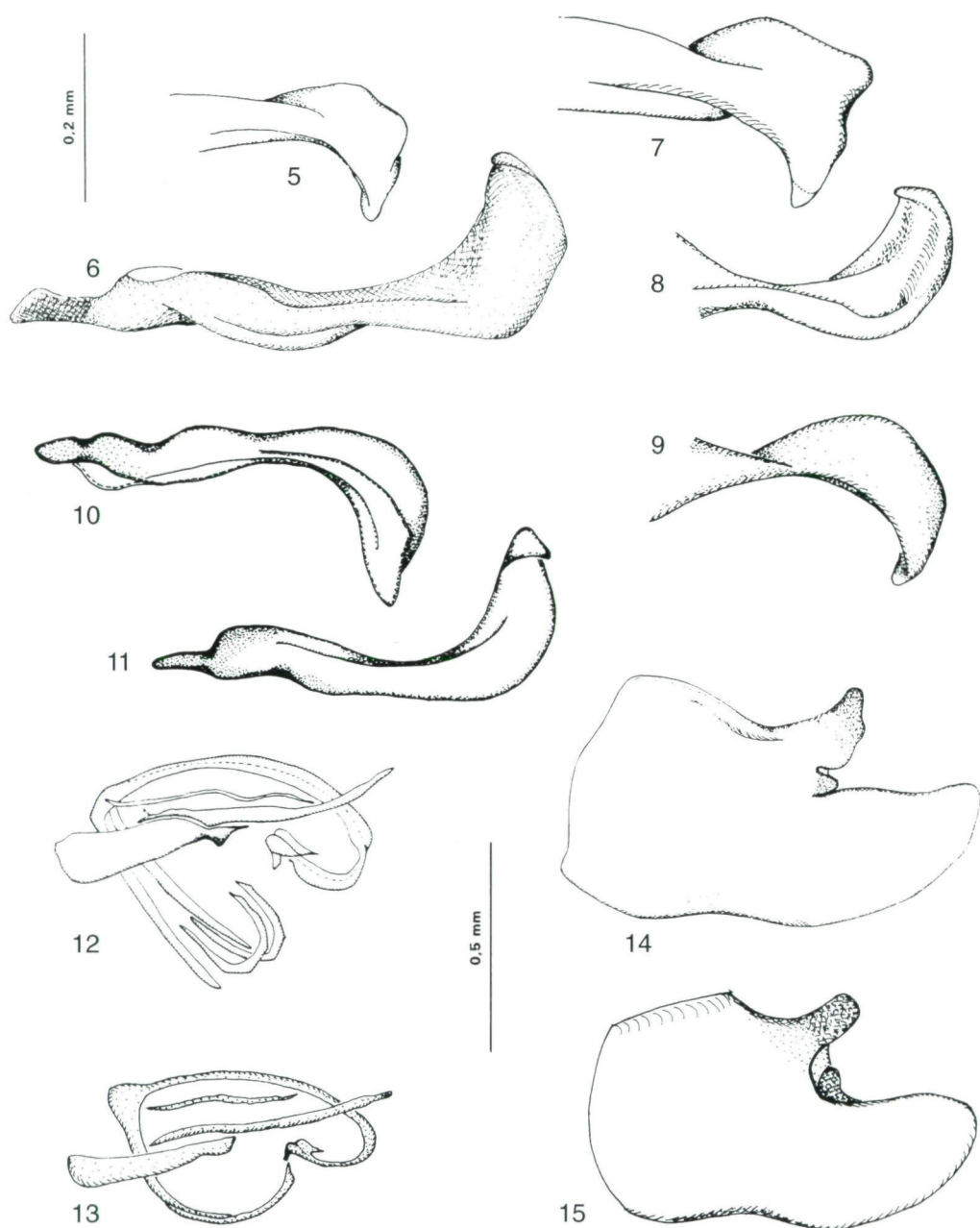
Fig. 4: *Metrocoris malayensis* CHEN & NIESER, apterous male, paratype (body length 5.3 mm).

distal part, with tapering apex curved externally. Endosoma (Fig. 12): dorsal sclerite long and recurved proximally, apical accessory sclerites indistinct, lateral sclerites straight and broad, ventral sclerites short, with a distal wishbone-shaped sclerite.

Female genitalia: Abdominal sternite VII large (0.6), slightly longer than preceding abdominal sterna together (0.5), posterior margin with a median notch, laterally constricted, so apical half forming a broad lobe, not completely covering apex of abdomen in ventral view, lateral margin of middle lobe with short, inconspicuous pilosity.

**Macropterous form:** as apterous with the following exceptions: size: ♂ (Fig. 3), length (without wings) 5.45 - 6.18 mm, width 2.40 - 2.86 mm; ♀, length (without wings) 4.76 - 5.22 mm, width 2.52 - 2.90 mm.





Figs. 5 - 15: Male genitalia: 5 - 11: left parameres of (5 - 9) *M. nieseri* sp.n. and (10, 11) *M. malayensis* (5, 7, 10: internal view of apex, 6, 11: external view; 8: apex in dorsoanterior view) (10, 11 from CHEN & NIESER 1993; not same scale); 12, 13: endosoma of *M. nieseri* sp.n., (12) dorsolateral view and (13) lateral view; 14, 15: lateral view of pygophores of (14) *M. nieseri* sp.n. and (15) *M. malayensis*.

Colour: pronotum at anterior margin blackish, lateral dark stripes broader than yellowish part, separated from median dark stripe; lateral margin between anterior angle and humeri totally black.

Structure: pronotum (Fig. 30) posteriorly pointed, but apex slightly rounded (measurements, see Tab. 3); length of forewings from humeri to apex 4.4 - 5.2, numerous specimens dealate. Forewings dark brown, anterior margin with dense hairs and posterior margin with a narrow yellowish stripe. Forefemur of male in average less incrassate, ratio length/width (without tooth) 3.5 - 4.7.

**Comparative notes and discussion:** According to the structure of the forefemur (Figs. 1 - 3), the large male genital segments, and the broad median lobe of the female sternite VII, this new species falls into the *M. strangulator* group as defined by CHEN & NIESER (1993). CHEN & NIESER (1993) described *M. malayensis* CHEN & NIESER, 1993, based on the shape of the male foreleg, a very characteristic paramere, and the wishbone-shaped endosomal distal sclerite. However, the typical *M. malayensis* specimens from the Malay Peninsula (Pahang, Perak) were confused with the new species, which occurs in North Thailand (Chiang Mai). *Metrocoris malayensis* has a light colour pattern (Fig. 4); the whole body is prominently yellowish and the dorsal dark stripes are very thin; antennal segment 1 is completely yellowish. *Metrocoris nieseri* sp.n. is much darker; the blackish marks are very prominent, and the first antennal segment only yellowish basally (Fig. 1 - 3). These differences in colouration could be demonstrated in the large series now is available. The parameres of both species look roughly the same, showing only minute differences in the width of the distal part and in the shape of their apices (comp. Figs. 5 - 9 with Figs. 10, 11). However, the lateral process of the pygophore serves as a very reliable character: it is broad and rounded in *M. malayensis*, but narrower and truncate in *M. nieseri* sp.n. (comp. Figs. 14 and 15). Females of *M. nieseri* sp.n. are distinguishable from *M. malayensis* in the colour pattern and in a small, but more distinct notch in the middle of the hind margin (due to the more truncate hind margin of sternite VII, this notch is weakly developed in *M. malayensis*), which is slightly more pronounced than that of *M. armatus* CHEN & NIESER, 1993, from Phrae and Phetchabun Provinces in North Thailand. In *M. nieseri* sp.n. the lateral pilosity of the middle lobe of sternite VII is less developed than in *M. malayensis*.

**Distribution:** Doi Suthep and Doi Inthanon, Chiang Mai Prov., Thailand (Fig. 35).

**Etymology:** The species is named in honour of Dr. Nico Nieser (Tiël) for his outstanding contributions to the study of aquatic and semiaquatic Heteroptera, especially for his excellent knowledge of the Oriental genus *Metrocoris*.

***Metrocoris shepardi* sp.n.** (Figs. 16, 29, 32, 35)

**Holotype**, apterous ♀, Thailand: Phetchabun Prov, Phu Hin Rong Kla NP, Waterwheel Falls, 27.III.1994, leg. W.D. Shepard (1047) (NHMW); **paratypes**: 4 ♂♂ apterous, same locality data as holotype (NHMW, PPCC, CSS).

**Description:**

**Apterous female** (Fig. 16): size: length 4.85 - 5.23 mm, width 2.60 - 2.91 mm.

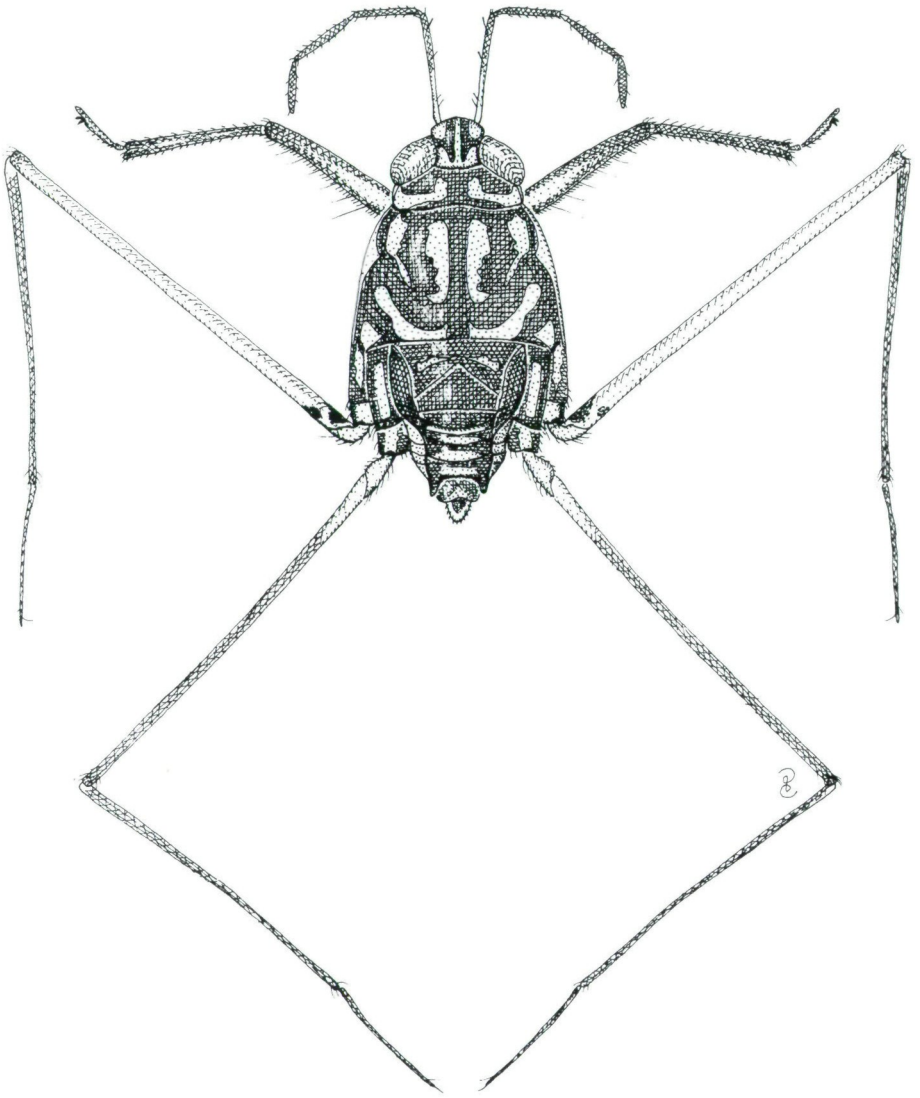


Fig. 16: *Metrocoris shepardi* sp.n., apterous ♀, holotype (body length 4.9 mm).

Colour: General impression of the body prominently darkened by the thick black marks. Interocular dark mark rectangular, bifid posteriorly, with lateral arms reaching inner margin of eye, along inner margin of eye with a narrow dark line. First antennal segment yellowish at basal half, the apical half blackish, remaining segments black. Dark marks on dorsal part of thorax blackish, width of sublateral stripes of mesonotum as thick as the yellowish part, not confluent with posterior oblique dark band; longitudinal dark stripe of mesopleura blackish and thick, running over its whole length. Metanotum blackish, with two hook-shaped yellowish marks; metacetabula stripe black and broad, running throughout its length. Dark stripes of forefemur confluent with dark apex; external



face of foretibia dark. Abdomen blackish dorsally, tergites II - III blackish, the remaining tergites and genital segments blackish anteriorly and yellowish posteriorly, the two finger-like projection at posteriolateral corners black. Venter (Fig. 29) more or less darkened at lateral sides; external side of forecoxal cleft dark; anterior margin of mesosternum with a pair of blackish marks at external side of foretrochanters; laterally of the median line of mesosternum with a pair of brownish marks; along external side of coxal cleft blackish. Abdominal sternites moderately darkened laterally.

Structural characters: Head width 1.58; width of an eye 0.54 about the same as its posterior width; posterior half of eye covering anterior 3/5 of propleura. Length of antenna 3.88 (Tab. 1), shorter than body length without genital segments. Pronotum not bulbous, as broad as width of head. Forefemur slender, ratio length/width about 6.7, inner side of forefemur and foretibia not modified. Middle femur longer than hind femur, length of hind trochanter 0.58. Abdominal tergite VII modified, each posteriolateral corner with one fingerlike projection (Fig. 32).

Female genitalia: Abdominal segment VII longer than the length of preceding abdominal sterna together, not constricted laterally, apical half not forming a distinct lobe, in middle of hind margin with two small corners separated by a shallow emargination (Fig. 32), almost completely covering apex of abdomen in ventral view.

**Male and macropterous form** unknown.

**Comparative notes and discussion:** The unique shape of the female abdominal tergite VII (Fig. 32) separates *M. shepardi* sp.n. distinctly from all congenierics. According to its moderate darkened venter (Fig. 29), this species seems superficially close to species of the *M. compar* group. However, the bilobed abdominal sternite VII is a strong argument for classing *M. shepardi* sp.n. in the *M. bilobatus* group. A final conclusion about the phylogenetic position of *M. shepardi* sp.n. must wait till male individuals are found and a cladistic analysis of the *Metrocoris* species groups is carried out.

Phetchabun Province is located in the lower north of Thailand. Although recently the field survey of Thai Heteroptera has been carried out quite intensively by Thai and foreign scientists, the fauna of aquatic and semiaquatic bugs in Phetchabun Province is poorly known and results are mainly concentrated on the Nam Nao National Park, the Khao Pue-Ya and the Khao Kho district. The water bug fauna of the Phu Hin Rong Kla National Park is influenced by the high altitude of the area and was so far only studied by Prof. W.D. Shepard in 1994. Only female individuals of this new species have been found; the description of males is badly needed.

**Distribution:** Phetchabun Province, Thailand (Fig. 35).

**Etymology:** The species is named in the honour of Prof. Dr. William D. Shepard (California State University, Sacramento) who provided the authors with numerous new species of water bugs from Thailand.

### *Metrocoris heineri* sp.n. (Figs. 17 - 19, 35)

**Holotype**, apterous ♂, China: NW-Hunan, Bez. Dayong (29.1N, 110.4E), Wulingyuan, Zhangjiajie Forest NP, Shuiraosimen, 30.10.1993, 500 m, leg. Schönmann (3) (NHMW); **allotype**, apterous ♀, same locality data, leg. H. Schillhammer (NHMW); **paratypes**: 2 ♂♂, 2 ♀♀ apterous, same locality data, leg. Schillhammer

(NHMW, PPCC); 2 ♀♀ apterous, Zhangjiajie Forest NP, Pipaxi, 29.10.1993, 650 m, leg. H. Schillhammer (1) (NHMW, CASS).

### Description:

**Apterous form:** size: ♂ (Fig. 17), length 7.15 - 7.70 mm, width 3.05 - 3.11 mm; ♀, length 5.38 - 5.92 mm, width 3.08 - 3.28 mm.

**Colour:** Generally dull yellowish. Dark markings thin. Dark interocular mark arrow-head-shaped, bifid posteriorly, with lateral arms reaching inner margin of eye, along inner margin of eye with or without a narrow dark line. First antennal segment yellowish at basal half, the apical half darkened by denser dark pilosity; remaining segments black. Dark marks on dorsal part of thorax blackish, width of sublateral stripes of mesonotum more slender than yellowish part, separate from posterior oblique dark band; longitudinal dark stripe of mesopleura brownish and very thin. Metanotum blackish, with two hook-shaped yellowish marks; metacetabula stripe black and broad, running throughout its length. Dark stripes of forefemur not confluent, except the inner one confluent with the apical dark ring; external face of foretibia dark in male, yellowish or brownish in female. Abdomen blackish dorsally, tergite II blackish, tergites III - VI blackish anteriorly and yellowish posteriorly, tergite VII relatively larger, with two separate blackish marks anteriorly, tergite VIII large, with a large rectangular blackish mark anteriorly, this slightly bifid posteriorly. Genital segments yellowish. Venter yellowish.

**Structural characters:** Head width 1.73 (♂), 1.60 (♀); width of an eye 0.52 (♂) or 0.50 (♀), about the same as its posterior width; posterior half of eye covering anterior 2/5 of propleura. Length of antennae 5.79 (♂) or 4.38 (♀), (Tab. 1), longer than body length without genital segments. Pronotum not bulbous in male, slightly broader than width of head. Male forefemur incrassate, ratio length/width 4.4 - 4.8, inner side not modified, with a subapical indentation, and a single apical sharp tooth; inner surface of male tibia not modified. Female forefemur slender, ratio length/width about 7.1 - 7.8. Middle femur slightly longer than hind femur, length of hind trochanter 0.8 (♂) or 0.65 (♀).

**Male genitalia:** Segment VIII more or less square, length 1.0 and basal width 0.9. Pygophore in ventral view subovate, in lateral view raised posteriorly, posterior margin (in posterior view) with a median notch, which forms two cone-shaped projections, each with dark long hairs. Proctiger elongate. Paramere (Fig. 19) very stout, curved upwards, extending beyond genital segments, apex blunt, along 3/5 of its length from base, the external margin with a sharp upcurved angle. Endosoma (Fig. 18): dorsal sclerite long and recurved proximally, apical accessory sclerites indistinct, lateral sclerites straight, ventral sclerites short.

**Female genitalia:** Abdominal segment VII about as long as length of preceding abdominal sterna together, laterally constricted and with smooth caudal margin, apical half not forming a distinct lobe, not completely covering apex of abdomen in ventral view.

**Macropterous form** unknown.

**Comparative notes and discussion:** The general appearance of this species sets it into the *M. lituratus*-group as defined by CHEN & NIESER (1993) and CHEN (1994). It is similar to several other species of this group. The important diagnostic characters of *M. heineri* sp.n. are: male abdominal tergite VII more developed than in other species, posterior

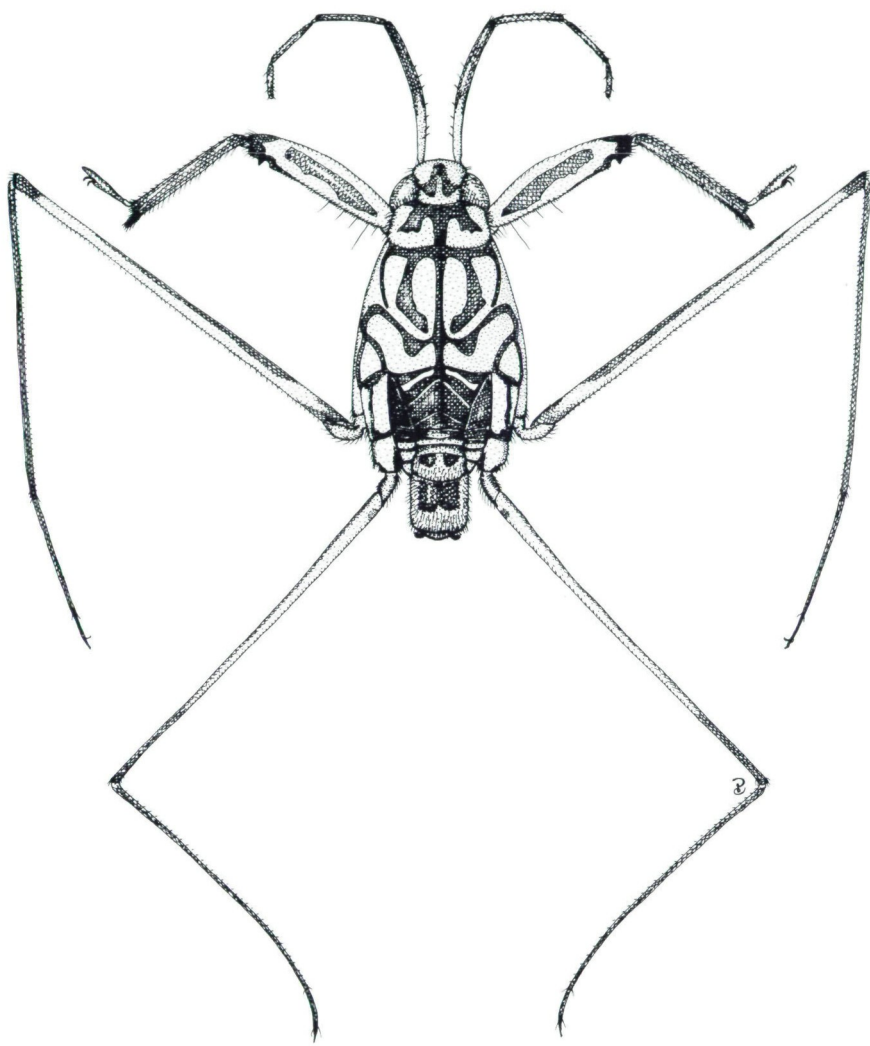
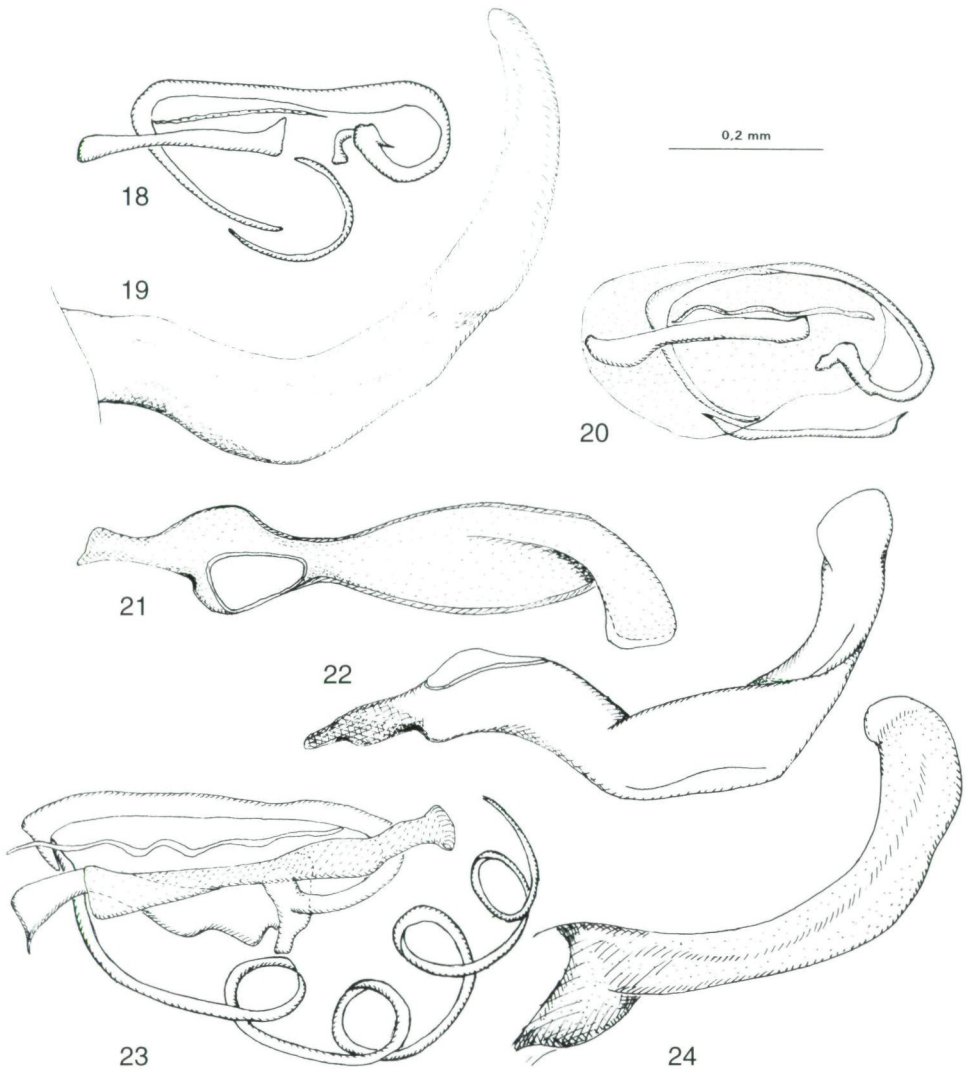


Fig. 17: *Metrocoris heineri* sp.n., apterous ♂, holotype (body length 7.5 mm).

yellowish half covered with dark long hairs. Posterior margin of pygophore with a median notch which forms two cone-shaped projections, each with dark longer pilosity externally. The paramere is the most reliable character for species identification and also diagnostic for *M. heineri* sp.n. (Fig. 19).

So far eight species belonging to the *M. lituratus* group have been found on the mainland of China and in Taiwan. In the eastern, central, and southern parts of China, this group shows a highly specific diversity; former records are from the provinces Zhejiang, Hubei, Guangdong, Jiangxi, and Fujian. The finding of this new species has filled in the distributional gap of this species group between Hubei and Guangdong Provinces. Morphologically, all the species in this group look very much alike in the structure of



Figs. 18 - 24: Male genitalia: 18, 19: *M. heineri* sp.n., (18) lateral view of endosoma sclerites, (19) left paramere in lateral view; 20 - 22: *M. bui* sp.n., (20) lateral view of endosoma sclerites, (21) left paramere in dorsoanterior view (22) same in lateral view; 23, 24: *M. dembickyi* sp.n., (23) lateral view of endosoma sclerites, (24) left paramere in lateral view;

the male foreleg and in body colour pattern. Species are mainly identified by the different shapes of the parameres. In the females, the lateral constrictions of the sternite VII exist in all species, varying among species in the shape of posterior lobe.

**Distribution:** Northwest Hunan, China (Fig. 35).

**Etymology:** The species is named in honour of Dr. Heinrich Schönmann for his great contribution to the better understanding of the aquatic insect fauna of China.

*Metrocoris bui* sp.n. (Figs. 20 - 22, 25, 35)

**Holotype**, apterous ♂, China: Sichuan Prov., Emei Shan, Wanjian Temple, stream, 2.VIII.1989, leg. Bu Wenjun (PPCC).

**Description:**

**Apterous male** (Fig. 25): size: length 6.3 mm, width 2.95 mm.

**Colour:** Generally dull yellowish. Dark markings relatively thin. Interocular dark mark arrowhead-shaped, bifid posteriorly, with lateral arms reaching inner margin of eye, along inner margin of eye with a narrow dark line. First antennal segment yellowish, the second segment brownish at basal half, remaining segments blackish. Dark marks on dorsal part of the thorax dark brown, width of sublateral stripes of mesonotum more slender than yellowish part, separate from posterior oblique dark band; longitudinal dark stripe of mesopleura brownish and long, close to its anterior margin. Metanotum blackish, with two hook-shaped yellowish marks; metacetabula stripe black and broad, running throughout its length. Dark stripes of forefemur not confluent, except the inner side one confluent with the apical dark ring; foretibia blackish, external surface of foretibia brownish in male. Abdomen blackish dorsally, tergites II - III blackish, tergites IV - VI blackish anteriorly and yellowish posteriorly, tergite VII relatively larger, with two separate blackish marks anteriorly, tergite VIII large, with a large rectangular blackish mark anteriorly, this slightly bifid posteriorly. Genital segments yellowish. Venter yellowish.

**Structural characters:** Head width 1.62; width of an eye 0.50, about the same as its posterior width; posterior half of eye covering anterior half of propleura. Length of antennae 5.45 (Tab. 1), longer than body length without genital segments. Pronotum not bulbous in male, slightly broader than width of head. Male forefemur incrassate, ratio length/width 6.2, inner side not modified, with a subapical indentation, and a small single apical tooth; inner surface of male foretibia not modified. Middle femur slightly longer than hind femur, inner side of middle tibia with comb-like pilosity; length of hind trochanter 0.85.

**Male genitalia:** Segment VIII more or less square, length 0.75 and basal width 0.8. Pygophore in ventral view subovate, in lateral view raised posteriorly, posterior margin smooth. Paramere (Figs. 21, 22) very stout, curved upwards, extending beyond genital segments, apex truncate, middle part broadened. Endosoma (Fig. 20): dorsal sclerite long and recurved proximally, apical accessory sclerites indistinct, lateral sclerites straight, ventral sclerites short.

**Female and macropterous form** unknown.

**Comparative notes:** *Metrocoris bui* sp.n. fits the diagnostic male characters of the *M. stali* group as defined by CHEN & NIESER (1993), i.e., general structure of the male foreleg, prominent parameres, and more developed pilosity of body. The new species is similar to *M. sichuanensis* CHEN & NIESER, 1993 (also from Sichuan Prov., China) by the size, the colour pattern, and the not very incrassate male forefemur, but differs in the shape of the paramere, which is apically more or less truncate (tapering in *M. sichuanensis*) and more strongly broadened in the middle of its length (Figs. 21, 22). Further, the external part of the endosoma of *M. bui* sp.n. has a pair of extra darkened broad pieces at the external sides, which enclose the sclerites (Fig. 20); this pair of extra pieces is much less



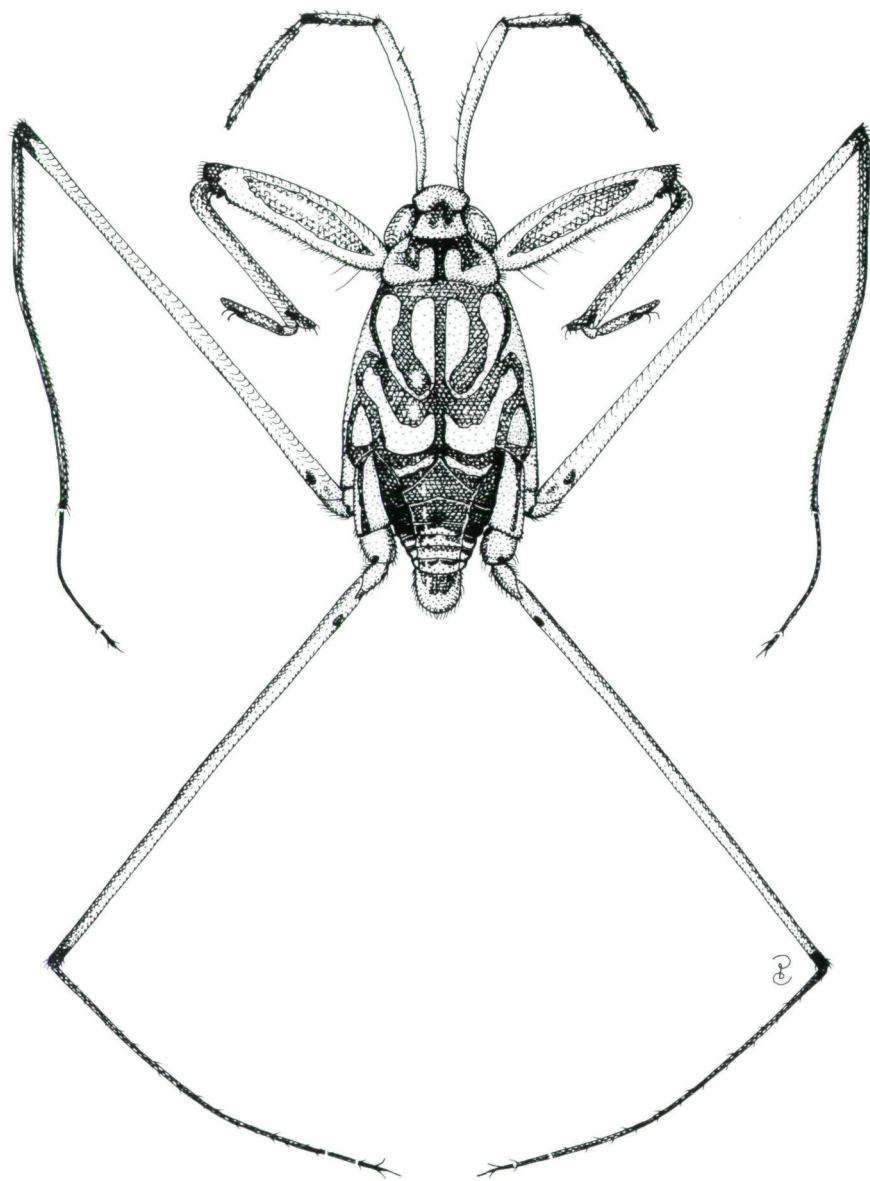


Fig. 25: *Metrocoris bui* sp.n., apterous ♂, holotype (body length 6.3 mm).

developed in *M. sichuanensis*. The male forefemur of *M. sichuanensis* is slightly more incrassate than that of *M. bui* sp.n. (Fig. 25).

**Distribution:** Mt. Emei (29.5°N, 103.3°E), Sichuan Province, Southwest China (Fig. 35).

**Etymology:** The species is named in honour of Dr. Bu Wenjun (Nankai University, China) for his constant enthusiasm in the field collecting in China, which has contributed a significant importance to a better understanding of the semiaquatic Heteroptera of China.

*Metrocoris dembickyi* sp.n. (Figs. 23, 24, 26 - 28, 33, 34)

**Holotype**, apterous ♂, and **allotype**, apterous ♀, South India: Kerala, 1250 m, 12 km SW Munnar, 1-9.V.1997, 10°02'N, 76°58'E, Kallar Valley, leg. Dembicky & Pacholátko (NHMW); **paratypes**: 32 ♂♂ 39 ♀♀ apterous, 2 ♂♂ 5 ♀♀ macropterous, same locality data (NHMW, NCTN, PPCC, ZSIC).

**Description:**

**Apterous morph:** size: ♂ (Fig. 26), length 5.51 - 6.35 mm, width 2.87 - 3.22 mm; ♀, length 4.79 - 5.55 mm, width 2.89 - 3.22 mm.

**Colour:** Dark markings on dorsum developed. Interocular dark mark rectangular, bifid posteriorly, with lateral arms reaching inner margin of eye, along inner margin of eye dark. First antennal segment blackish, only at base yellowish, the remaining segments blackish. Dark marks on dorsal part of thorax blackish, width of sublateral stripes of mesonotum slightly broader than yellowish part, separate from posterior oblique dark band; longitudinal dark stripe of mesopleura blackish and very broad, which confluent with lateral stripes. Metanotum blackish, with one small subtriangular yellowish mark at each upper corner; metacuticula stripe black and broad, running throughout its length. Forefemur prominently blackish, yellowish at base; external face of foretibia dark in both sexes. Abdomen blackish dorsally, tergites II - III blackish, tergites IV - VI blackish and with triangular yellowish marks posteriorly, tergite VII with two large separate blackish marks anteriorly, tergite VIII blackish dorsally. Venter yellowish.

**Structural characters:** Head width 1.66 (♂), 1.60 (♀); width of an eye 0.56 (♂) or 0.53 (♀), about the same as its posterior width; posterior half of eye covering anterior half of propleura. Length of antennae 4.83 (♂) or 3.94 (♀), (Tab. 1), longer than body length without genital segments. Pronotum not bulbous in male, slightly broader than width of head. Male forefemur weakly incrassate, ratio length/width 5.8 - 6.3, at inner side with a distinct constriction on 1/3 length from base, without tooth; inner surface of male tibia not modified. Female forefemur slender, ratio length/width about 6.1. Middle femur slightly longer than hind femur, length of hind trochanter 0.69 (♂) or 0.61 (♀).

**Male genitalia:** Segment VIII more or less semicircular, length 0.8 and basal width 0.9. Pygophore in ventral view subovate, in lateral view raised posteriorly, posterior margin smooth. Proctiger elongate. Paramere (Fig. 24) curved upwards, not extending beyond genital segments, apex blunt. Endosoma (Fig. 23): dorsal sclerite short, not recurved proximally, apical accessory sclerites large, lateral sclerites sinuated, ventral sclerites very long, with distal wishbone-shaped sclerite.

**Female genitalia:** Abdominal segment VII about 1.4 times length of preceding abdominal sterna together (Fig. 33), without lateral constriction and with smooth caudal margin, apical half not forming a distinct lobe, not completely covering apex of abdomen in ventral view.

**Macropterous form:** similar to apterous morph, with the following exceptions: size: ♂ length (without wings) 6.20 - 6.35 mm, width 3.08 - 3.16 mm, ♀, length (without wings) 5.54 mm - 6.01 mm, width 3.08 - 3.28 mm.

**Colour:** lateral stripes of pronotum as broad as yellowish part, connected with medial dark stripe, posterior 2/3 of lateral margin between anterior angle and humeri black (Fig. 27).

**Structural characters:** pronotum posteriorly pointed, but apex weakly rounded (measurements Tab. 3); length of forewings from humeri to apex 5.2 - 5.5, only one specimen

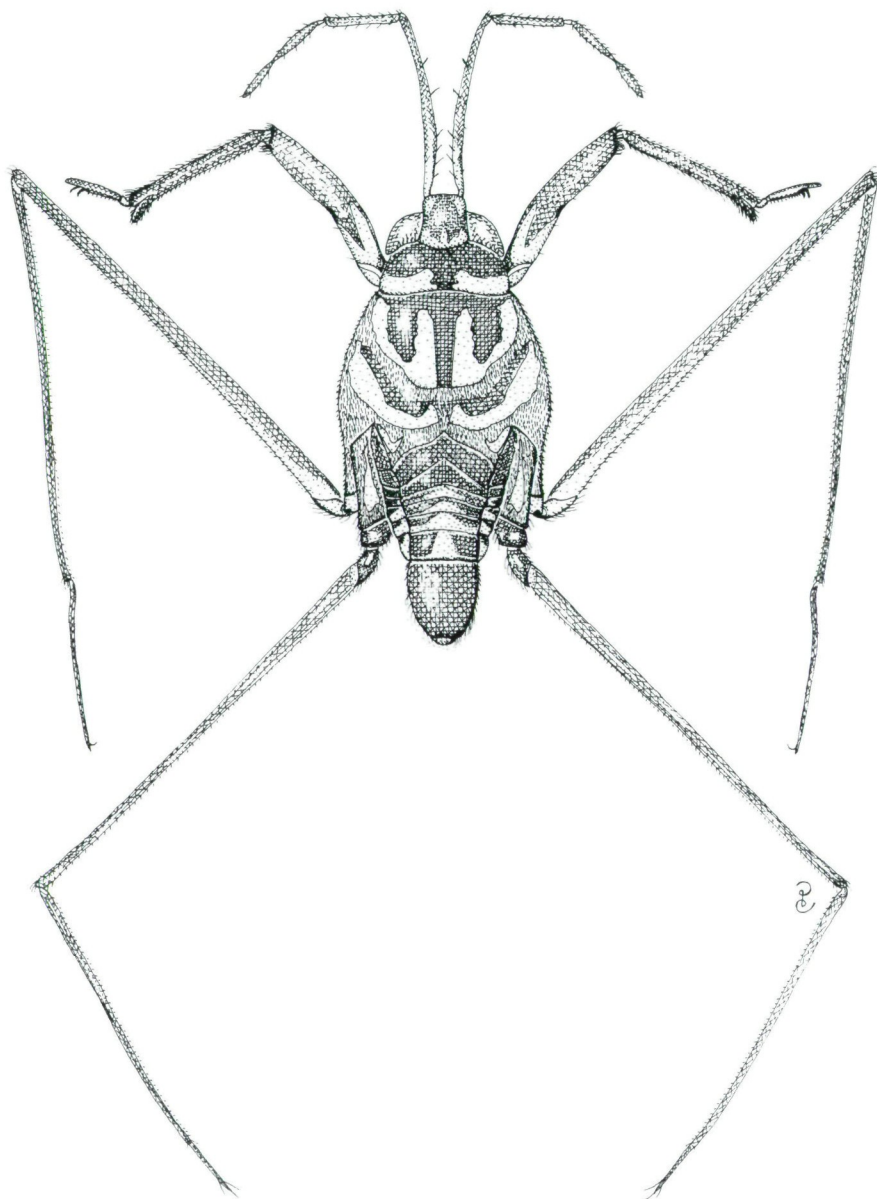
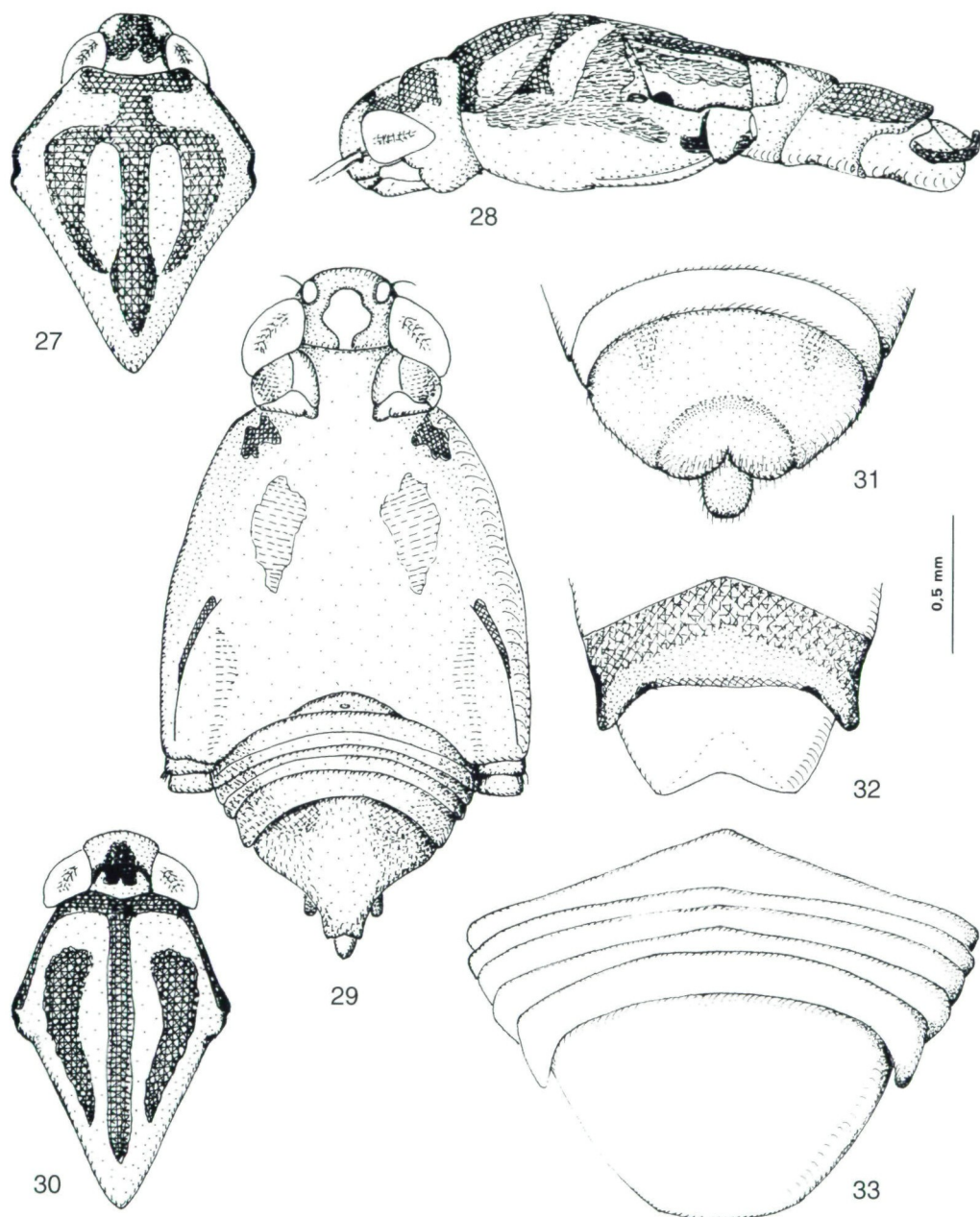


Fig. 26: *Metrocoris dembickyi* sp.n., apterous ♂, holotype (body length 6.3 mm).

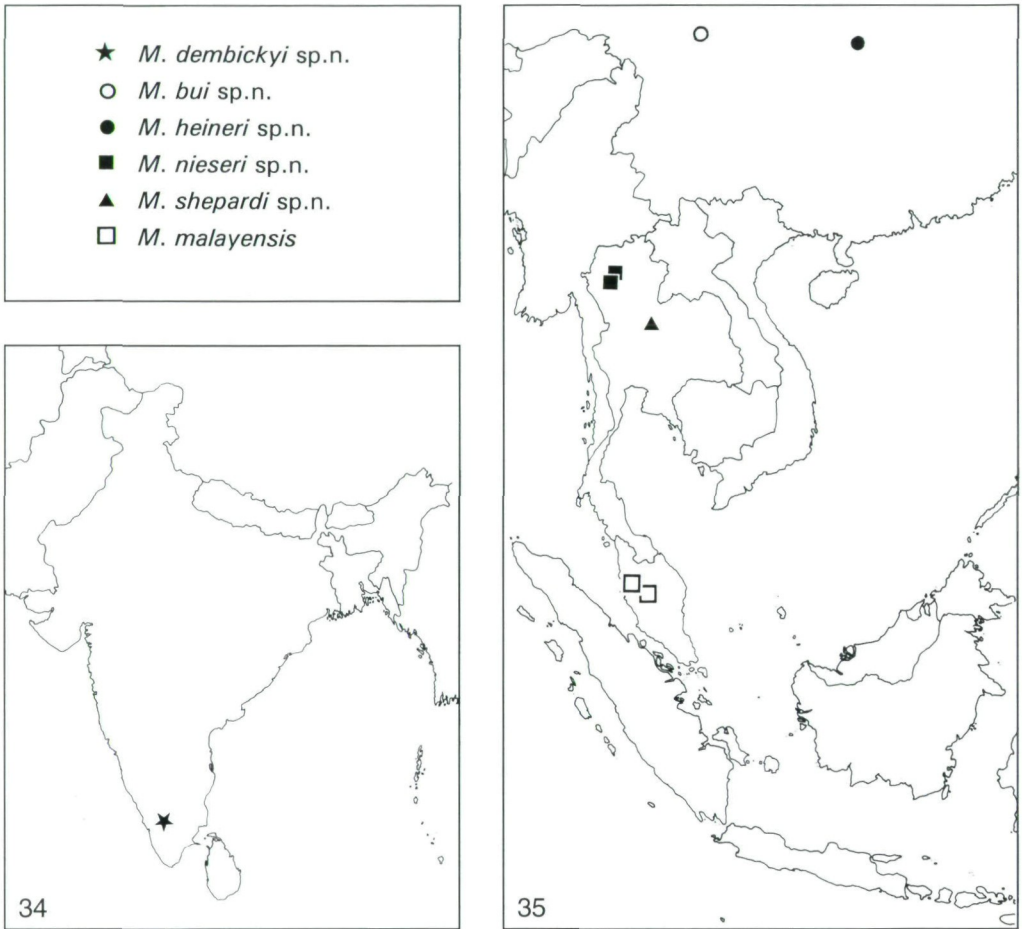
dealate. Legs slightly longer than those of the apterous form. Male forefemur in average less incrassate, ratio length/width 6.0 - 6.2, in one specimen weakly curved.

**Comparative notes and discussion:** The classification of *Metrocoris dembickyi* sp.n. in the *M. malabaricus* group is based on the following characters: 1) meso- and metapleura of male (especially the dark marks) covered with velvety pilosity; 2) male forefemur slender and unarmed. 3) male genital segments moderate in size, segment VIII



Figs. 27 - 33: 27, 28: *M. dembickyi* sp.n., (27) head and pronotum of macropterous ♂, dorsal view, (28) apterous ♂, lateral view (appendages omitted; genital segments pulled out); (29) *M. shepardi* sp.n., apterous ♀, ventral view (appendages omitted); (30) *M. nieseri* sp.n., head and pronotum of macropterous ♂, dorsal view; (31) *M. nieseri* sp.n., ventral view of female terminalia; (32) *M. shepardi* sp.n., female tergite VII; (33) *M. dembickyi* sp.n., ventral view of female terminalia.





Figs. 34 - 35: Distribution of newly described *Metrocoris* species and revised distribution of *M. malayensis* CHEN & NIESER.

semicircular in dorsal view; 4) paramere relatively prominent and curved upwards; 5) endosoma with very long ventral sclerite; 6) female sternum VII large, without lateral constrictions, caudal margin smooth and arched, not distinctly lobed. The *M. malabaricus* group presently contains three additional species, *M. malabaricus* THIRUMALAI, 1986, *M. variegans* THIRUMALAI, 1986, and *M. velamentus* CHEN & NIESER, 1993, all endemic in South India (THIRUMALAI 1986, CHEN & NIESER 1993). *Metrocoris dembickyi* sp.n. differs clearly from all three species in the male forefemur, which is distinctly arched by a constriction of the inner face (Fig. 26). The paramere of *M. dembickyi* sp.n. (Fig. 24) has a different shape than that of the other species in *M. malabaricus* group. The endosoma sclerites (Fig. 23) of *M. dembickyi* sp.n. share many similarities with those of *M. malabaricus* and *M. velamentus*.

In India, only in the southern parts does the specific divergency seem to be active. There are now seven *Metrocoris* species reported from South India: *Metrocoris communis*



(DISTANT, 1910) (widespread), *M. communoides* CHEN & NIESER, 1993 (Tamil Nadu), *M. indicus* CHEN & NIESER, 1993 (Kerala, Tamil Nadu), *M. malabaricus* (Kerala, Karnataka), *M. variegatus* (Kerala, Karnataka), *M. velamentus* (Kerala, Tamil Nadu), and *M. dembickyi* sp.n. (Kerala). The first three species fall into the *M. stali* group (which is further distributed up to Oman, Sri Lanka, and China), the latter four species form the endemic *M. malabaricus* group.

**Distribution:** Kerala, South India (Fig. 34).

**Etymology:** The species is named in the honour of our colleague Lubos Dembicky, who discovered this new species in a relatively well-known place.

Tab. 1: Measurements of lengths of antennal segments I - IV (in mm) of *Metrocoris* spp.

species		I	II	III	IV
<i>nieseri</i>	♂	2.12	0.99	0.79	0.61
	♀	1.55	0.77	0.79	0.61
<i>shepardi</i>	♀	1.83	0.75	0.78	0.63
<i>heineri</i>	♂	2.74	1.24	1.09	0.70
	♀	1.96	0.88	0.91	0.65
<i>bui</i>	♂	2.48	1.15	1.10	0.72
<i>dembickyi</i>	♂	2.50	1.05	0.86	0.67
	♀	1.81	0.80	0.73	0.61

Tab. 2: Measurements of lengths of leg segments (in mm) of *Metrocoris* spp. (length of tarsus = lengths of segments 1 + 2).

species		foreleg:			middle leg:			hind leg:		
		femur	tibia	tarsus	femur	tibia	tarsus	femur	tibia	tarsus
<i>nieseri</i>	♂	2.5	2.1	0.9	6.5	4.7	2.4	6.1	3.8	0.6
	♀	2.0	1.9	0.8	5.5	4.0	2.3	5.2	3.5	0.6
<i>shepardi</i>	♀	2.1	1.9	0.7	5.7	3.9	1.7	5.5	2.9	0.6
<i>heineri</i>	♂	3.1	2.7	1.1	8.0	6.0	2.9	7.8	5.3	0.8
	♀	2.5	2.2	0.9	6.4	4.8	2.5	6.1	4.4	0.7
<i>bui</i>	♂	3.1	2.6	1.2	7.6	5.1	2.7	7.3	5.1	0.9
<i>dembickyi</i>	♂	2.5	2.3	0.9	6.4	5.3	2.3	6.3	4.2	0.6
	♀	2.2	1.9	0.8	5.6	4.4	2.2	5.5	3.6	0.7

Tab. 3: *Metrocoris* spp., macropterous form: measurements of pronotum (in mm); for terminology see CHEN & NIESER (1993).

species		median length	humeral width	lateral length-1	lateral length-2
<i>nieseri</i>	♂	3.19	2.33	0.94	2.38
	♀	3.08	2.19	1.01	2.42
<i>dembickyi</i>	♂	3.24	2.74	1.11	2.53
	♀	3.35	2.80	1.15	2.60

### Acknowledgements

Our sincere gratitude to our colleagues Lubos Dembicky (Brno, Czech Republic), Petr Pacholátko (Brno, Czech Republic), Harald Schillhammer (NHMW), Heinrich Schönmann (NHMW), and William D. Shepard (Sacramento, U.S.A.) for their generosity in offering their material for our study. Special thanks are due to Nico Nieser (Tiel, The Netherlands) for discussing the manuscript and for the practical help during the processing of this work as well; and to Carl W. Schaefer (Storrs, Connecticut) for a linguistic review. The senior author would like to express her great gratitude to Dr. R. Contreras-Lichtenberg (director of the Department of Entomology in NHMW) for arranging the working facilities and financial support for the senior author during her visit to the Department of Entomology, Natural History Museum, Vienna, in 1997, which enabled this study. For logistic help or company during our field studies in Thailand we are most grateful to Dr. T. Jamjanya, Dr. Y. Hanboonsong, Dr. N. Sangpradub (all Khon Kaen University), Prof. Dr. S. Wongsiri, S. Leepitakrat, R. Thapa (all Chulalongkorn University, Phitsanulok), Virode Naknan (Nam Nao NP), Prof. Dr. Porntip Chantaramongkol, Dr. Jinda, Dr. Tongchai (all Chiang Mai University), and Dr. P. Schwendinger (Innsbruck and Chiang Mai University).

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# **The Philippine Water Bug Inventory Project**

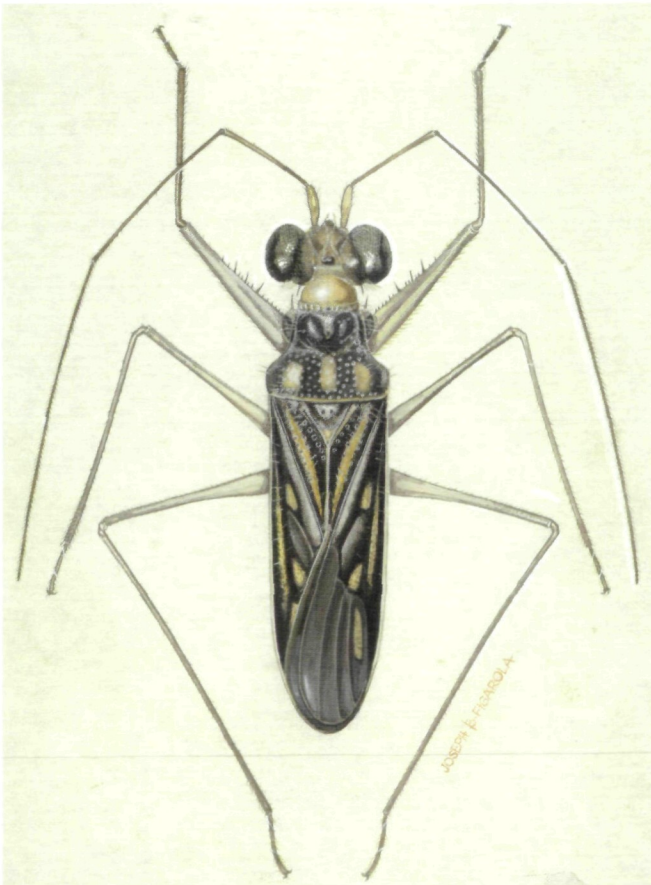
## **aims and results**

by

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Department of Entomology, Natural History Museum Vienna



*Valleriola mindorana* DRAKE, 1956 (Leptopodidae)

## Contents

GAPUD, V.P. & ZETTEL, H.: The Philippine Water Bug Inventory Project (PWBIP) and a bibliography for Philippine Nepomorpha, Gerromorpha, and Leptopodomorpha (Insecta: Heteroptera).....	35
SUMALDE, A.C.: The Museum of Natural History, University of the Philippines Los Baños, and the Philippine Water Bug Inventory Project. ....	41
ZETTEL, H., NIESER, N. & POLHEMUS, D.A.: The Naucoridae (Insecta: Heteroptera) of the Philippine Islands. ....	43
ZETTEL, H.: Two new Philippine <i>Aphelocheirus</i> WESTWOOD, 1833 (Heteroptera: Aphelocheiridae) and a key to the Philippine species.....	107
NIESER, N. & ZETTEL, H.: The <i>Enithares</i> SPINOLA, 1837 (Insecta: Heteroptera: Notonectidae) of the Philippines, with descriptions of two new taxa. ....	123
ZETTEL, H. & GAPUD, V.P.: A new species group of Oriental <i>Microvelia</i> s.l. (Insecta: Heteroptera: Veliidae), with descriptions of three new species. ....	135
SEHNAL, C.: Two new species of <i>Pseudoveliea</i> HOBERLANDT, 1950 (Insecta: Heteroptera: Veliidae) from Palawan and Busuanga, Philippines.....	147
ZETTEL, H.: Notes on Philippine <i>Potamometropsis</i> LUNDBLAD, 1933 (Insecta: Heteroptera: Gerridae).....	155