

*Vietnamaptera schaeferi* sp. nov., a new apterous  
Carventinae from South China  
(Hemiptera: Heteroptera: Aradidae)

Ernst HEISS<sup>1)</sup> & Petr BAŇAŘ<sup>2)</sup>

<sup>1)</sup>Tiroler Landesmuseum, Josef-Schraffl-Strasse 2a, A-6020 Innsbruck, Austria; e-mail: aradus@aon.at

<sup>2)</sup>Czech University of Life Sciences, Faculty of Forestry and Wood Sciences, Department of Forest Protection and Entomology, Kamýcká 1176, CZ-165 21 Praha 6 – Suchbát, Czech Republic;  
e-mail: petrbanar@seznam.cz

**Abstract.** A new apterous species of Carventinae (Hemiptera: Heteroptera: Aradidae), *Vietnamaptera schaeferi* sp. nov. from Guangdong province in China, is described and figured. A key to all five species of the genus is presented.

**Key words.** Hemiptera, Heteroptera, Aradidae, Carventinae, *Vietnamaptera*, new species, aptery, China, Oriental Region

### Introduction

The first and also type species of this apterous flat bug genus, *Vietnamaptera bogiessa* Zhang, Bai, Heiss & Cai, 2010 was described from Vietnam (ZHANG et al. 2011). Later, BAI et al. (2011) added three more species: *Vietnamaptera secunda* Bai, Heiss & Cai, 2011, *V. tertia* Bai, Heiss & Cai, 2011, and *V. quarta* Bai, Heiss & Cai, 2011, all from Yunnan province in China. All of them share the same essential characters, e.g., the structure of head and antennae, shape of pronotum, and the median bulbous dorsal elevations on thorax and abdomen, but their exact structure is characteristic for the particular species. Although only one female of the new species is available, its distinctive set of characters which is unique among all the other congeners justifies the description of a new taxon. A key for the five known species of *Vietnamaptera* is presented.

Like many of the apterous Aradidae species with very limited range of distribution, this specimen was also collected from a fallen log beset with fungi (for details see Habitat), the usual substrate they feed on. The most successful collecting methods for apterous taxa is

---

**Dedication.** On behalf of both the authors and the entire editorial board of the *Acta Entomologica Musei Nationalis Pragae*, we would like to dedicate this contribution to the memory of Carl W. Schaefer (1934–2015), professor of entomology at the University of Connecticut (Storrs, USA), a recognized expert on morphology, phylogeny and taxonomy of Heteroptera, and among many other obligations, a member of the Editorial Board of *AEMNP*.

sifting of leaf litter in undisturbed habitats of tropical or subtropical areas. The discovery of several new taxa in Madagascar by the second author by adopting this collecting method, documents its effectiveness (HEISS & BAŇAŘ 2013).

### Material and methods

The specimen described herein belongs to and is preserved in the collection of the National Museum, Prague, Czech Republic (NMPC). For study of the body structures obscured by incrustations, these were removed and cleaned. Colour photographs were taken by using a Leica MSV266.

Measurements were taken with a micrometer eyepiece and are given in millimeters.

A slash (/) separates the lines, a double slash (//) the labels when citing the text of the labels attached to the specimen. Abbreviations used: deltg = dorsal external laterotergite (connexivum), mtg = mediotergite, vltg = ventral laterotergite.

### Taxonomy

#### *Vietnamaptera schaeferi* sp. nov.

(Figs 1–2)

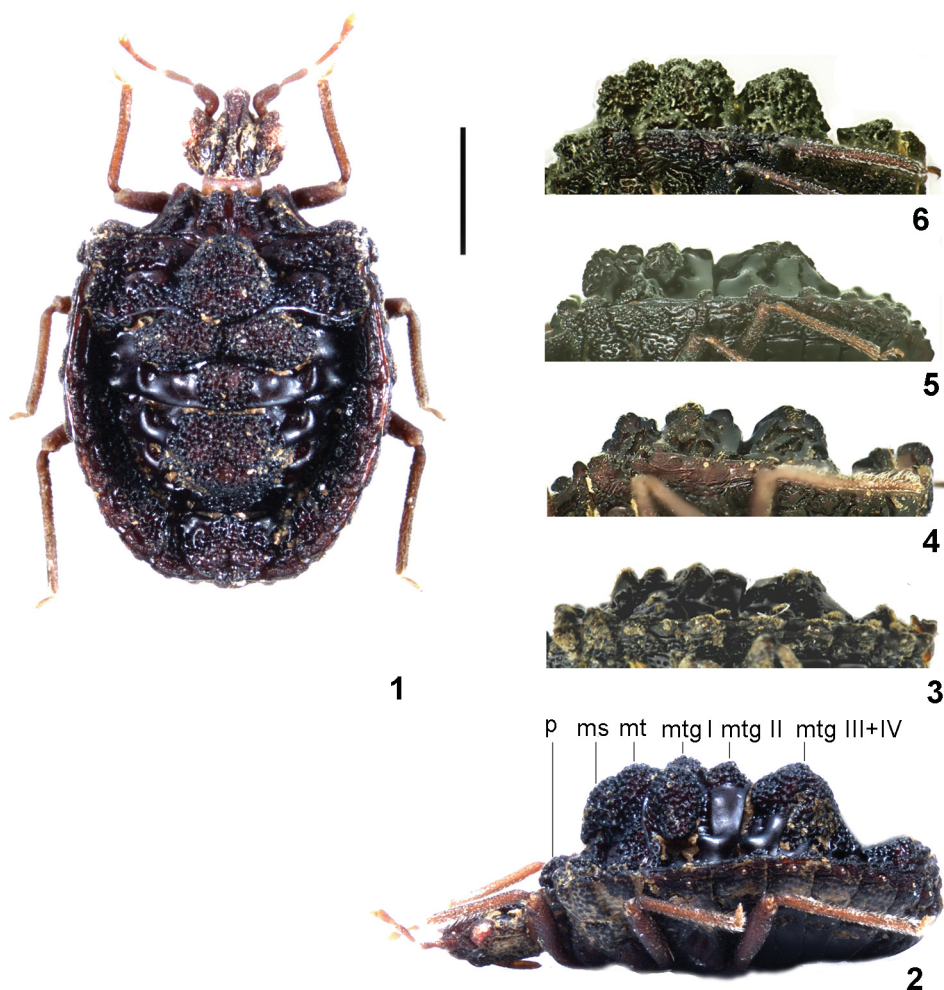
**Type material.** HOLOTYPE: ♀, 'China, Guangdong Prov. / Nanling National Nature Reserve / Dadongshan 18-21 IV 2013 / (border of mixed forest) / 24°56.0'N, 112°42.9'E, 690m / J. Hájek & J. Růžicka leg.' [printed label] // 'COLLECTIO / NATIONAL MUSEUM / PRAHA, CZECH REPUBLIC' [printed label] // 'Holotype ♀ / *Vietnamaptera* / *schaeferi* sp.nov. / des.E.HEISS & P. BANAR 2015' [printed red label] (NMPC).

**Description.** Apterous female; colouration black, head, legs and antennae lighter reddish brown; thorax and abdomen with bulbous dorsal elevations, their surface finely granulate; lateral parts smooth, deltg II–VI and tergite VII rugose.

**Head.** Wider than long (0.975 / 0.775); clypeus shorter than antennal segment I, its apex narrowly rounded and projecting over lateral genae; antenniferous lobes short and blunt; antennae 1.33× as long as width of head (1.3 / 0.975), segment I thickest, strongly bent at base, II thinner and as long as I, III thinnest and longest, IV as long as III and fusiform; length of antennal segments I / II / III / IV = 0.3 / 0.3 / 0.35 / 0.35; eyes oval, inserted in head; post-ocular lobes roundly converging towards constricted collar; vertex with median longitudinal ridge flanked by 2 (1+1) carinae and ovate depressions laterally. Rostrum arising from slit-like atrium, as long as head, lateral margins of rostral groove carinate.

**Pronotum.** Pro-, meso-, and metanota and mtg I+II fused but separated by transverse grooves or sutures. About 6× as wide as long (2.5 / 0.4); anterolateral angles rounded and carinate, produced over lateral projections of ring-like collar from which they are separated by deep incisures; lateral margins slightly concave and carinate, posterolateral lobes raised and granulate, their lower edge visible from above; disk anteriorly with a bilobed granular elevation, the two lobes separated by a median longitudinal groove, surface posteriorly depressed, lateral areas rugose.

**Mesonotum.** About 9× as wide as long (2.7 / 0.3) consisting of large round granulate median elevation, anteriorly declivous and overlapping pronotum; mesonotal elevation confluent with



Figs 1–6. *Vietnamaptera* species. 1 – *V. schaeferi* sp. nov., holotype female, dorsal habitus. 2–6 – outline of dorsum of thorax and abdomen, lateral view: 2 – *V. schaeferi* sp. nov.; 3 – *V. bogiessa* Zhang, Bai, Heiss & Cai, 2010; 4 – *V. quarta* Bai, Heiss & Cai, 2011; 5 – *V. secunda* Bai, Heiss & Cai, 2011; 6 – *V. tertia* Bai, Heiss & Cai, 2011. Abbreviations for dorsal elevations: p = pronotum, ms = mesonotum, mt = metanotum, mtg I = mediotergite I, mtg II = mediotergite II, mtg III+IV = mediotergites III+IV. Scale bar = 1 mm.

metanotal elevation and extending to posterior margin of the latter; lateral transverse sclerites rugose, raised to granulate ovate lobes laterally.

**Mediotergites I+II.** Median granulate elevation of mtg I consisting of 2 (1+1) large transverse ovate humps, these fused to smaller rounded median granulate hump of mtg II, fusion line marked by transverse furrow, lateral portions deeply depressed and smooth.

**Abdomen.** Tergal plate with large rounded granular elevation, this highest on mtg IV; lateral parts smooth and shiny with deep depressions marking apodemes; deltg I+II fused to triangular sclerite anteriorly reaching mesonotum; lateral margins of deltg II–VII doubled by reflexed vltg II–VII visible from above, surface with deep punctures and carinae, posterolateral angles raised and granulate; tergite VII longitudinally raised in middle; spiracles II–VII lateral, placed on reflexed vltg II–VII but hardly visible from above, tergite VIII terminating on thin strongly transverse paratergites VIII.

**Venter.** Surface of median parts of meso- and metasternum and sternites II–VII smooth and subglabrous, that of prosternum, pleura and vltg II–VII granulate and rugose.

**Legs.** Slender and unarmed, femora and tibiae straight and cylindrical; claws with thin long pseudopulvilli.

**Measurements.** Total body length 4.4 mm; width of abdomen across tergite III 3.0 mm; length of antennae 1.3 mm; height of dorsal elevations including body in lateral view: pronotum 1.1 mm, mesonotum 1.7 mm, metanotum 1.8 mm, mtg I 1.85 mm, mtg II 1.8 mm, mtg IV 1.8 mm, tergite VII 1.0 mm.

**Differential diagnosis.** Head and abdominal structures of the new species resemble *Vietnamaptera secunda* and *V. tertia* respectively, but it differs from both in the outline and fine granulate structure of dorsal elevations, and the extension of smooth depressed lateral parts of mtg I+II and tergal plate (Figs 5–6).

**Etymology.** It is a pleasure to dedicate this conspicuous species to our friend, the late Carl Schaefer (Storrs, Connecticut, USA), recognizing his contributions to heteropterology and his advice and continuous efforts reviewing articles submitted by the authors for publication.

**Habitat.** The specimen was collected on a dead branch of the tree, lying on a footpath in a mixed secondary forest and bamboo shrubs. The branch was about 15 cm in diameter and 1 m long, overgrown with tree fungi. A single female of *V. schaeferi* sp. nov. was collected (together with other aradids, which have not been identified yet) among the fruiting bodies of fungi (J. Hájek, pers. comm.).

**Distribution.** China: Guangdong.

### Revised key to species of *Vietnamaptera*

- 1(2) Larger species, 6.5 mm (♂); clypeus much longer than antennal segment I; outline of dorsal elevations as Fig. 3 (Vietnam). .... *V. bogiessa* Zhang, Bai, Heiss & Cai, 2010
- 2(1) Smaller species, 4.0–5.0 mm (♂), 5.8 (♀); clypeus shorter than antennal segment I; outline of dorsal elevations different. .... 3
- 3(4) Antennae longer, about 1.45× as long as width of head; outline of dorsal elevations as Fig. 6 (China: Yunnan). .... *V. tertia* Bai, Heiss & Cai, 2011
- 4(3) Antennae shorter, 1.22–1.36× as long as width of head, outline of dorsal elevations different. .... 5
- 5(6) Larger species, 4.9–5.8 mm; antennal segment II shortest; outline of dorsal elevations as in Fig. 5 (China: Yunnan). .... *V. secunda* Bai, Heiss & Cai, 2011
- 6(5) Smaller species, antennal segment I shortest, outline of dorsal elevations different. ... 7

- 7(8) Median fused elevation of meso-metanotum with a longitudinal groove and separated from mtg I hump by a deep sulcus, outline of dorsal elevations as in Fig. 4. Body length 4.2 mm (♂) (China: Yunnan). ..... *V. quarta* Bai, Heiss & Cai, 2011
- 8(7) Median fused elevation of meso-metanotum without a longitudinal groove and separated from mtg I hump only by a shallow sulcus, outline of dorsal elevations as in Fig. 2. Body length 4.4 mm (♀). (China: Guangdong). ..... *V. schaeferi* sp. nov.

### Acknowledgments

Our thanks are due to Petr Kment (National Museum, Prague) for the loan of the specimen and critical reading of the manuscript for AEMNP and Jiří Hájek (National Museum, Prague) for detailed information on habitat of *V. schaeferi*. Petr Baňář also thanks for the financial support provided by the grant IGA no. B03/15 of the Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences.

### References

- BAI X.-S., HEISS E. & CAI W.-Z. 2011: Three new species of the apterous carventinae genus Vietnamaptera (Hemiptera: Heteroptera: Aradidae) from China. *Zootaxa* **3016**: 29–36.
- HEISS E. & BAŇÁŘ P. 2013: *Ambohitantelya yuripopovi* n.gen., n.sp., a new apterous Mezirinae from Madagascar (Hemiptera, Heteroptera, Aradidae). *Zootaxa* **3616**: 291–297.
- ZHANG W.-J., BAI X.-S., HEISS E. & CAI W.-Z. 2010: Vietnamaptera, a new genus of apterous Carventinae (Hemiptera: Aradidae) from Vietnam. *Zootaxa* **2530**: 60–64.

## List of reviewers for *Acta Entomologica Musei Nationalis Pragae*, Volumes 55(1), 55(2) and 55(supplement)

The editors of the journal *Acta Entomologica Musei Nationalis Pragae* greatly appreciate the time and advice generously given by all the reviewers on papers appearing in volumes 55(1), 55(2) and 55(Supplement). The non-anonymous reviewers are:

Miguel ARCHANGELSKY, Argentina	Josef JELÍNEK, Czech Republic
Petr BAŇAŘ, Czech Republic	Alexander KONSTANTINOV, USA
Charles BARTLETT, USA	Gunnar Mikalsen KVIFTE, Norway
Jan BATELKA, Czech Republic	John F. LAWRENCE, USA
Aleš BEZDĚK, Czech Republic	Chi-Feng LEE, Taiwan
Jan BEZDĚK, Czech Republic	Richard A. B. LESCHEN, New Zealand
Daniel BICKEL, Australia	Martin LILLIG, Germany
Marco BOLOGNA, Italy	Andrew LISTON, Germany
Art BORKENT, USA	Lorene MARCHAL, France
Mark BOROWIEC, Poland/USA	Ottó MERKL, Hungary
Thierry BOURGOIN, France	Felipe F. F. MOREIRA, Brazil
Freddy BRAVO, Brazil	Stephan NAGLIS, Switzerland
Roberto CALDARA, Italy	Ryo OGAWA, Japan
†Luis CERVANTES PEREDO, Mexico	David OUVREARD, United Kingdom
Maria Lourdes CHAMORRO, USA	Michel PERREAU, France
Donald S. CHANDLER, USA	Hans POHL, Germany
Peter J. CHANDLER, United Kingdom	Dan A. POLHEMUS, USA
Ping-ping CHEN, the Netherlands	Darren POLLOCK, USA
Bruno CLARKSON, Brazil	Alexander G. RADCHENKO, Poland/Ukraine
Enzo COLONNELLI, Italy	Dávid RÉDEI, Hungary/China
Jérôme CONSTANT, Belgium	David A. RIDER, USA
Danilo CORDEIRO, Brazil	Jan RŮŽIČKA, Czech Republic
Gregory R. CURLER, USA	Sergey RYNDEVICH, Belarus
Leonidas DAVRANOGLOU, Greece/United Kingdom	Jukka SALMELA, Finland
Albert DELER-HERNÁNDEZ, Cuba/Czech Republic	Davide SASSI, Italy
Jowita DROHOJOWSKA, Poland	Wolfgang SCHEDL, Austria
Joe E. EGER, USA	Matthias SCHÖLLER, Germany
Hermes ESCALONA, Venezuela/Australia	Andrew E. Z. SHORT, USA
Rafaela L. FALASCHI, Brazil	Naomi SHUN-ICHIRO, Japan
Martin FIKÁČEK, Czech Republic	Paula C. SIMÕES, Portugal
Dimitri FORERO, Colombia	Adam ŚLIPINŃSKI, Australia
Roland GRIMM, Germany	Dmitri TELNOV, Latvia
Adalgisa GUGLIELMINO, Italy	Andrea TÓTHOVÁ, Czech Republic
Zoltán GYÖRGY, Hungary	Jitka VILÍMOVÁ, Czech Republic
Masami HAYASHI, Japan	Rüdiger WAGNER, Germany
Oliver HILLER, Germany	Ying-Lun WANG, China
Peter HLAVÁČ, Czech Republic	Donald WINDSOR, USA
Werner HOLZINGER, Austria	Rafael YUS RAMOS, Spain
Sergio IBAÑEZ-BERNAL, Mexico	Guan-Yang ZHANG, USA
Manfred A. JÄCH, Austria	