Check List the journal of biodiversity data
NOTES ON GEOGRAPHIC DISTRIBUTION

New records of two species of Pyrrhocoroidea from Vietnam (Hemiptera, Heteroptera, Largidae and Pyrrhocoridae)

Jun Souma[1], Thanh Trung Vu[2], Thai-Hong Pham[3,4]

1 *Shirakami Research Center for Environmental Sciences, Faculty of Agriculture and Life Science, Hirosaki University, Aomori, Japan*
2 *Vietnam National Museum of Nature, Vietnam Academy of Science and Technology, Hanoi, Vietnam*
3 *Mientrung Institute for Scientific Research, Vietnam National Museum of Nature, Vietnam Academy of Science and Technology, Hue, Vietnam*
4 *Graduate School of Science and Technology, Vietnam Academy of Science and Technology, Hanoi, Vietnam*

Corresponding author: *Jun Souma (kodokusignal@gmail.com)*

Abstract. This study reports one genus and two species of the superfamily Pyrrhocoroidea Amyot & Serville, 1843 (Hemiptera, Heteroptera, Pentatomomorpha) from Vietnam for the first time: *Delacampius* Distant, 1903 (Largidae, Physopeltinae, Physopeltini), *D. villosus* (Breddin, 1901), and *Euscopus robustus* Stehlík, 2005 (Pyrrhocoridae). These species were attracted to light traps placed on the roadside near an evergreen broad-leaved forest in a mountainous area with a subtropical climate. Additionally, the discovery of *E. robustus* in Vietnam represents the southernmost locality for this species.

Key words. *Delacampius villosus*, distribution, *Euscopus robustus*, Indochinese Peninsula, Oriental Region, Pyrrhocoroidea, Southeast Asia

Souma J, Vu TT, Pham T-H (2025) New records of two species of Pyrrhocoroidea from Vietnam (Hemiptera, Heteroptera, Largidae and Pyrrhocoridae). Check List 21 (4): 699–704. https://doi.org/10.15560/21.4.699

INTRODUCTION

The terrestrial true bug superfamily Pyrrhocoroidea Amyot & Serville, 1843 (Hemiptera, Heteroptera, Pentatomomorpha) comprises two families, Largidae Amyot & Serville, 1843 and Pyrrhocoridae Fieber, 1860 (Schuh and Weirauch 2020). A catalog of Pyrrhocoroidea was recently published (Zhao et al. 2022), but it includes many unfortunate errors, such as junior synonyms listed as valid taxa, duplicities (one taxon listed as valid under two different genera), as well as omissions of recently described taxa (e.g., Souma and Ishikawa 2021). Thus, it is difficult to determine the exact number of described species. However, a good estimate was provided by a recent study (Hemala et al. 2020): 24 genera and approximately 210 species of Largidae, and 46 genera and about 450 species of Pyrrhocoridae. The pyrrhocoroid fauna of the Indochinese Peninsula has only been comprehensively studied in Laos (Stehlík 2005, 2007) and Thailand (Stehlík and Jindra 2003). Therefore, numerous unrecorded or undescribed species may be discovered in Cambodia, Myanmar, and Vietnam owing to inadequate research. In Vietnam, the pyrrhocoroid fauna is fragmentarily studied through the taxonomic revision of specific genera (e.g., Freeman 1947; Schaefer and Ahmad 2002; Stehlík 2013; Stehlík and Kment 2017), and a comprehensive checklist of species should be compiled in the future.

With the help of the second and third authors, the first author recently collected two indeterminate species of Pyrrhocoroidea using light traps in Tây Giang District, Quảng Nam Province, Vietnam. After careful morphological examination, the first author concluded that one is *Delacampius villosus* (Breddin, 1901) (Largidae, Physopeltinae, Physopeltini), which has been recorded in China, Indonesia, Laos, and Malaysia (Breddin 1901a; Stehlík 2005; Rédei et al. 2012). The other species is *Euscopus robustus* Stehlík, 2005 (Pyrrhocoridae), which has been reported in China and Laos (Stehlík 2005; Zhao et al. 2024). Furthermore, the genus *Delacampius* Distant, 1903 has not been previously recorded from Vietnam. In the present study, we report on *Delacampius*, *D. villosus*, and *E. robustus* from Vietnam for the first time.

METHODS

Morphological characteristics of the specimens were observed and measured using a stereoscopic microscope (SZX16; Olympus, Tokyo, Japan) fitted with an ocular grid. The specimens were photographed using a digital camera (EOS 90D; Canon, Tokyo, Japan) equipped with a zoom lens (18–35 mm F1.8 DC HSM; SIGMA,

OPEN ACCESS

Academic editor: Hélcio Gil-Santana
Received: 3 June 2025
Accepted: 18 July 2025
Published: 4 August 2025

Kanagawa, Japan). Photographs of a living individual and a light trap were taken using a compact digital camera (Tough TG-6; Olympus, Tokyo, Japan) and a smartphone (iPhone 14; Apple, Cupertino, CA, USA), respectively. The image stacks of the specimens were processed using Zerene Stacker (Zerene Systems, Richland, WA, USA). All photographs were processed using Adobe Photoshop 2024 v. 25.11 (Adobe Inc., San Jose, CA, USA). Morphological terms were assigned as described by Tsai et al. (2011).

The specimens examined in this study have been deposited at the Vietnam National Museum of Nature, Hanoi, Vietnam (VNMN). Identifications were made by the first author.

The collection sites of the specimens were mapped using SimpleMappr (Shorthouse 2010). Geographic coordinates were obtained from Google Maps (https://www.google.co.jp/maps), and the map was edited using Adobe Photoshop.

RESULTS

One genus (*Delacampius*) and two species (*D. villosus* and *Euscopus robustus*) of Pyrrhocoroidea are newly recorded in Vietnam.

Superfamily Pyrrhocoroidea Amyot & Serville, 1843
Family Largidae Amyot & Serville, 1843
Subfamily Physopeltinae Hussey, 1929
Tribe Physopeltini Hussey, 1929

Genus *Delacampius* Distant, 1903

Identification. The two specimens from Vietnam (Figure 1A–D) matched well with the diagnoses of *Delacampius* (Distant 1903; Rédei et al. 2012; Stehlík and Kment 2014; Souma and Ishikawa 2021; Zhao et al. 2022) mainly based on the following morphological characteristics: antennomere III approximately 0.5 times as long as antennomere IV; calli equally convex in both sexes; and lateral margin of pronotum deeply emarginate between calli and disc.

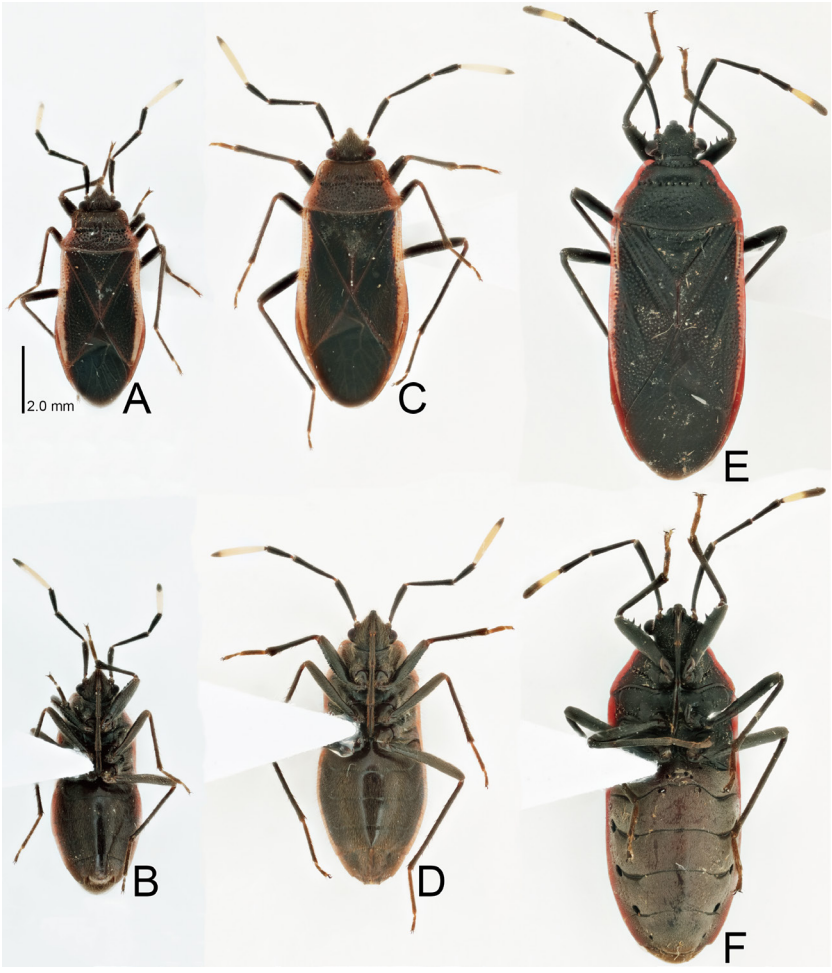

Figure 1. Two pyrrhocoroid species from Vietnam. **A.** *Delacampius villosus*: male, dorsal view. **B.** *D. villosus*: male, ventral view. **C.** *D. villosus*: female, dorsal view. **D.** *D. villosus*: female, ventral view. **E.** *Euscopus robustus*: female, dorsal view. **F.** *E. robustus*: female, ventral view.

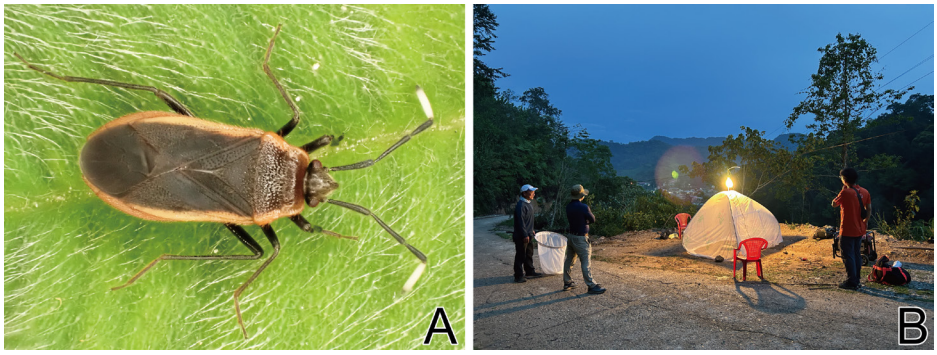

Figure 2. Photographs regarding two pyrrhocoroid species from Tây Giang District, Quảng Nam Province, Vietnam. **A.** Living female of *Delacampius villosus*. **B.** Light trap attracting *D. villosus* and *Euscopus robustus*.

***Delacampius villosus* (Breddin, 1901)**
Figures 1A–D, 2A

New records. VIETNAM — Quảng Nam Province • Tây Giang District, A Tiêng, near Agrông, roadside; 15°53′10″N, 107°29′08″E; 6.V.2025; Jun Souma leg.; light trap; 1 macropterous ♀ VNMN • as above but 7.V.2025; 1 macropterous ♂ VNMN.

Identification. The two specimens from Vietnam (Figure 1A–D) matched well with the descriptions and photographs (including the lectotype) of *D. villosus* (Breddin 1901a, 1901b; Rédei et al. 2012; Zhao et al. 2022) mainly based on the following features: pronotum dark brown except lateral margin, dirty yellow on lateral margin; forewing dark brown except anterior margin, dirty yellow on anterior margin; border on apical part of forewing gradually narrowed distad; corium of forewing weakly convex in anterior margin; and legs dark brown.

Delacampius villosus resembles *D. siberutensis* Stehlík & Jindra, 2008 and *D. typicus* Distant, 1903 in general appearance but is easily distinguished from these two allied species based on the following characteristics (Figures 1A–D, 2A) (Stehlík and Kerzhner 1999; Stehlík and Jindra 2008; Rédei et al. 2012): anterior margin of forewing dirty yellow (red in *D. siberutensis*); border on apical part of forewing gradually narrowed distad (broadened distad in *D. siberutensis*); and corium of forewing weakly convex in anterior margin (strongly convex in anterior margin in *D. typicus*).

Distribution. Vietnam (Quảng Nam Province) (Figure 3); China (Guangdong Province; Guangxi Zhuang Autonomous Region; Hainan Island; Hong Kong) (Rédei et al. 2012; Yiu and Yip 2012; Zhao et al. 2022); Indonesia (Sumatra Island) (Breddin 1901a, 1901b; Blöte 1931; Rédei et al. 2012; Heiss et al. 2022; Zhao et al. 2022); Laos (Champasak Province) (Stehlík 2005); Malaysia (Perak State) (Rédei et al. 2012).

Judging from the photographs of living individuals, a pyrrhocoroid species from Hong Kong illustrated

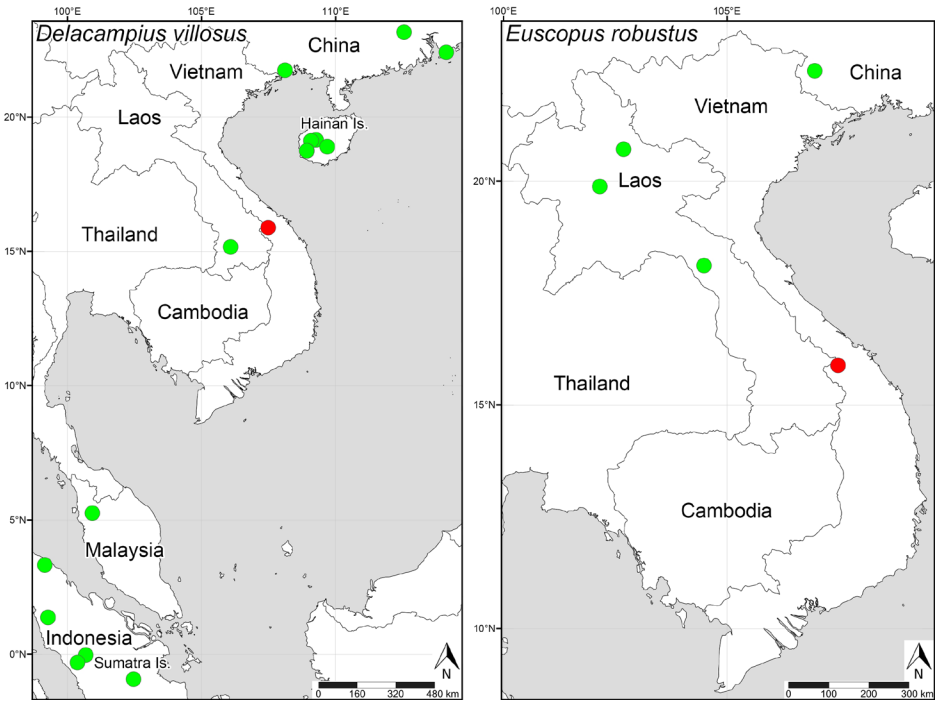

Figure 3. Collection sites of two pyrrhocoroid species, excluding records without a detailed locality. Red circles = new records; green circles = known records.

by Yiu and Yip (2012) as "*Pyrrhocoris sinuaticollis* Reuter, 1885 (Pyrrhocoridae)" is also *D. villosus*. Owing to the lack of detailed localities and the possibility of other species, the distribution of *D. villosus* in the Philippines and Sulawesi Island in Indonesia requires verification (Stehlík and Kerzhner 1999; Stehlík and Jindra 2008; Rédei et al. 2012).

Bionomics. *Delacampius villosus* is attracted to artificial light at night and therefore exhibits positive phototaxis (Rédei et al. 2012; Zhao et al. 2022). The two individuals were attracted to light traps on the roadside near an evergreen broad-leaved forest in a mountainous area of Vietnam with a subtropical climate (Figure 2B). Thus, evergreen broad-leaved forests may be a suitable habitat for *D. villosus*.

Adults have been collected between March and November (Stehlík 2005; Rédei et al. 2012; Heiss et al. 2022; Zhao et al. 2022). Nymphs and feeding habits are unknown.

Family Pyrrhocoridae Fieber, 1860

Genus *Euscopus* Stål, 1870

Identification. The single specimen from Vietnam (Figure 1E, F) matched well with the diagnoses of *Euscopus* (Stål 1870; Schaefer and Ahmad 2002; Zhao et al. 2022, 2024) mainly based on the following morphological characteristics: head as long as its maximum width across compound eyes; maximum width of head across compound eyes as wide as anterior margin of pronotum; and compound eye not pedunculate.

Euscopus robustus Stehlík, 2005

Figure 1E, F

New record. VIETNAM — Quảng Nam Province • Tây Giang District, A Tiêng, near Agrồng, roadside; 15°53′10″N, 107°29′08″E; 7.V.2025; Jun Souma leg.; light trap; 1 macropterous ♀ VNMN.

Identification. The single specimen from Vietnam (Figure 1E, F) matched well with the descriptions and photographs (including the holotype) of *E. robustus* (Stehlík 2005; Zhao et al. 2024) mainly based on the following features: body nearly parallel-sided; pronotum black except lateral margin, yellow to red on lateral margin; and corium of forewing black except anterior margin, yellow to red on anterior margin, without a spot on apical part.

Euscopus robustus resembles *E. fuscus* Hsiao, 1964 and *E. parviceps* Breddin, 1901 in general appearance but is easily distinguished from these two allied species based on the following characteristics (Figure 1E, F) (Stehlík 2005; Zhao et al. 2024): body nearly parallel-sided (oblong-elliptical in *E. fuscus*); posterior margin of pronotum black (yellow to red in *E. fuscus*); and corium of forewing without a spot on apical part (with a yellow spot on apical part in *E. parviceps*).

Distribution. Vietnam (Quảng Nam Province) (Figure 3); China (Guangxi Zhuang Autonomous Region) (Zhao et al. 2024); Laos (Khammouane Province; Luang Prabang Province) (Stehlík 2005).

The discovery of *E. robustus* in Vietnam represents the southernmost locality for this species.

Bionomics. *Euscopus robustus* is attracted to artificial light at night and therefore exhibits positive phototaxis (Zhao et al. 2024). A single individual was attracted to a light trap on the roadside near an evergreen broad-leaved forest in a mountainous area of Vietnam with a subtropical climate (Figure 2B). Thus, evergreen broad-leaved forests may be a suitable habitat for *E. robustus*.

Adults were collected in April, May, and July (Stehlík 2005; Zhao et al. 2024). Nymphs and feeding habits are unknown.

DISCUSSION

To date, *Delacampius villosus* has been confirmed across a wide area of Southeast Asia, spanning approximately 2,600 km from north to south and 1,670 km from east to west (Figure 3) (e.g., Breddin 1901a; Stehlík 2005; Rédei et al. 2012). Additionally, the Vietnamese locality of *D. villosus* is 180 km from its nearest known locality in Laos. Thus, the discovery of *D. villosus* in Vietnam was expected. The Vietnamese locality of *Euscopus robustus*, which is known from China, Laos, and Vietnam so far (Stehlík 2005; Zhao et al. 2024), is located at least 250 km south of its nearest known locality in Laos, suggesting a wide distribution range in Southeast Asia. However, all the localities of *E. robustus* located in the Oriental Region with a subtropical climate. Therefore, the discovery of *E. robustus* in Vietnam was also expected. These two pyrrhocoroid species were attracted to artificial light at night and therefore exhibit positive phototaxis (Rédei et al. 2012; Zhao et al. 2022, 2024). True bug species that exhibit positive phototaxis can be collected using light traps even when their habitats are poorly understood. Consequently, these heteropterans are likely among the first species recorded in field surveys focusing on true bug fauna. Due to a limited schedule, we could only use light

traps four times during the 2025 field survey. In conclusion, the discovery of two pyrrhocoroid species with expected distributions and positive phototaxis in Vietnam suggests that field surveys are inadequate, and further research is necessary.

ACKNOWLEDGEMENTS

We sincerely thank Hélcio R. Gil-Santana (Instituto Oswaldo Cruz, Rio de Janeiro, Brazil), Petr Kment (National Museum, Prague, Czech Republic), Dimitri Forero (Universidad Nacional de Colombia, Bogotá, Colombia), and the anonymous reviewer for their critical comments on the manuscript. We express our gratitude to Toshiya Hirowatari, Toshiharu Mita (Kyushu University, Japan), the local guides, and colleagues of the second and third authors for their help and support during the field surveys. We thank Editage (www.editage.com) for English language editing.

ADDITIONAL INFORMATION

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Funding

This study was partially supported by a Bilateral Collaborations (JPJSBP120249601) grant from the Japan Society for the Promotion of Science, Tokyo, Japan awarded to Toshiharu Mita. The Vietnam Academy of Science and Technology (VAST) funded the present study under grant number NCSX02.04/25-26.

Author contributions

Conceptualization: JS. Data curation: JS. Funding acquisition: JS. Investigation: JS. Methodology: JS. Project administration: JS, TTV, T-HP. Resources: JS. Software: JS. Supervision: JS, TTV, T-HP. Validation: JS. Visualization: JS. Writing – original draft: JS. Writing – review and editing: JS.

Author ORCID iDs

Jun Souma https://orcid.org/0000-0002-2238-5015
Thanh Trung Vu https://orcid.org/0009-0002-8987-1672
Thai-Hong Pham https://orcid.org/0000-0002-4763-3679

Data availability

All data supporting the results of this study are available in the main text.

REFERENCES

Blöte HC (1931) Catalogue of the Pyrrhocoridae in 's Rijks Museum van Natuurlijke Historie. Zoölogische Mededeelingen 14 (8): 97–136.

Breddin G (1901a) Neue Lygaeiden und Pyrrhocoriden der malayisch-australischer Region. Societas Entomologica 16 (2): 10–12.

Breddin G (1901b) Hemiptera Sumatrana collecta a dom. Henrico Dohrn. Pars II. Stettiner Entomologische Zeitung 62 (1/2): 138–145.

Distant WL (1903) Report on the Rhynchota. Part I. Heteroptera. In: Annandale N, Robinson HC (Eds) Fasciculi Malayenses: anthropological and zoological results of an expedition to Perak and the Siamese Malay states, 1901–1902. Zoology. Part 2. Longmans, Green & Co. for University Press of Liverpool, London, UK, 223–272, pls. xv–xvi.

Freeman P (1947) A revision of the genus *Dysdercus* Boisduval (Hemiptera, Pyrrhocoridae), excluding the American species. Transactions of the Royal Entomological Society of London 98 (8): 373–424. https://doi.org/10.1111/j.1365-2311.1947.tb01056.x

Heiss E, Eckelt A, Lederwasch M, Unterasinger R (2022) Die Heteropterensammlung Ernst Heiss im Tiroler Landesmuseum Ferdinandeum. Teil VIII: Pentatomomorpha II, Familie Largidae. Linzer Biologische Beiträge 54 (1): 143–148.

Hemala V, Kment P, Malenovský I (2020) The comparative morphology of adult pregenital abdominal ventrites and trichobothria in Pyrrhocoroidea (Hemiptera: Heteroptera: Pentatomomorpha). Zoologischer Anzeiger 284: 88–117. https://doi.org/10.1016/j.jcz.2019.11.006

Rédei D, Gao CQ, Bu WJ (2012) First record of *Delacampius* Distant, 1903 from China (Heteroptera: Largidae). Entomologische Zeitschrift 122 (3): 125–127.

Schaefer CW, Ahmad I (2002) A review of the Asian genus *Euscopus* (Hemiptera: Pyrrhocoridae). Oriental Insects 36 (1): 211–220.

Schuh RT, Weirauch C (2020) True bugs of the world (Hemiptera: Heteroptera). Classification and natural history (second edition). Siri Scientific Press, Manchester, UK, 768 pp., 32 pls.

Shorthouse DP (2010) SimpleMappr, an online tool to produce publication-quality point maps. http://www.simplemappr.net. Accessed on: 2025-5-28.

Souma J, Ishikawa T (2021) A taxonomic review of the genus *Physopelta* (Hemiptera: Heteroptera: Largidae) from Japan, Korea, and Taiwan, with a new record of *Ph. parviceps* from China. Zootaxa 4951 (3): 461–491. https://doi.org/10.11646/zootaxa.4951.3.3

Stål C (1870) Enumeratio Hemipterorum. Bidrag till en företeckning öfver alla hittils kända Hemiptera, jemte systematiska meddelanden. Pt. 1. Kungliga Svenska Vetenskaps Akademiens Handlingar (N.F.) 9: 90–124. https://doi.org/10.5962/bhl.title.12549

Stehlík JL (2005) Largidae and Pyrrhocoridae of Laos (Hemiptera: Heteroptera). Folia Heyrovskyana 12 (4): 141–159.

Stehlík JL (2007) Two new species and new records of Pyrrhocoroidea from Laos (Heteroptera). Acta Musei Moraviae, Scientiae Biologicae 92: 131–136.

Stehlík JL (2013) Reclassification of the genus *Physopelta* (Physopeltinae) and comments on the possible origin of the subfamily Larginae in the New World (Hemiptera: Heteroptera: Largidae). Acta Entomologica Musei Nationalis Pragae 53 (2): 505–584.

Stehlík JL, Jindra Z (2003) Largidae and Pyrrhocoridae of Thailand (Heteroptera). Acta Musei Moraviae, Scientiae Biologicae 88: 5–19.

Stehlík JL, Jindra Z (2008) New taxa of the Largidae and Pyrrhocoridae (Hemiptera: Heteroptera) from the Oriental Region. Acta Entomologica Musei Nationalis Pragae 48 (2): 611–648.

Stehlík JL, Kerzhner IM (1999) On taxonomy and distribution of some Palaearctic and Oriental Largidae and Pyrrhocoridae (Heteroptera). Zoosystematica Rossica 8 (1): 121–128.

Stehlík JL, Kment P (2014) *Riegeriana*, a new genus for *Physopelta apicalis*, and checklist of the genus *Iphita* (Hemiptera: Heteroptera: Largidae) with description of one new species. Zootaxa 3860 (2): 167–183. https://doi.org/10.11646/zootaxa.3860.2.4

Stehlík JL, Kment P (2017) *Ectatops grandis* sp. nov. from Vietnam and an annotated list of the genus *Ectatops* (Hemiptera: Heteroptera: Pyrrhocoridae). Acta Musei Moraviae, Scientiae Biologicae 102 (1): 1–20.

Tsai JF, Rédei D, Yeh GF, Yang MM (2011) Jewel Bugs of Taiwan (Heteroptera: Scutelleridae). National Chung Hsing University, Taichung, Taiwan, 309 pp.

Yiu V, Yip CH (2012) A photographic guide to Hong Kong true bugs. Hong Kong Entomological Society, Hong Kong, China, 263 pp. [in Chinese].

Zhao P, Cao LM, Long LZ (2022) Taxonomic study of the Superfamily Pyrrhocoroidea (Hemiptera: Heteroptera) in China. China Forestry Publishing House, Beijing, China, 272 pp.

Zhao P, Ou M, Cao L, Liu H, Wang J (2024) One new species and two new records of Pyrrhocoridae (Hemiptera, Heteroptera) from China. ZooKeys 1210: 273–286. https://doi.org/10.3897/zookeys.1210.125457