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Two new species and a new genus of Miridae (Hemiptera: Heteroptera) from Toledo, central Iberian Peninsula

S. PAGOLA-CARTE

Apdo. 70 P.K.; E-20150 Villabona (Gipuzkoa); E-mail: pagolaxpc@telefonica.net

Abstract

Two new species and a new genus of true bugs (Hemiptera: Heteroptera) of the family Miridae are described from Toledo, central Iberian Peninsula and Spain. *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.** (Bryocorinae: Dicyphini) is most similar to *D.* (*B.*) *geniculatus* (Fieber, 1858) but it is clearly separated by distinguishing characters of external morphology and male and female genitalia. *Bolivarcoris* **n. gen.** *parisae* **n. sp.** (Orthotylinae: Halticini) shows an external resemblance to some species included in the genus *Dimorphocoris* Reuter, 1890 and to the monotypic *Schoenocoris* Reuter, 1890; however it shows a combination of characters (external morphology and male and female genitalia) which definitely separates it from them. Interestingly, in both species the pygophore of males is revealed as a provider of useful taxonomic characters. They were collected in the same geographic area of Toledo province, in the surrounding habitats of endorheic lagoons.

Key words: Hemiptera, Heteroptera, Miridae, Bryocorinae, Orthotylinae, *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, Iberian Peninsula.

Resumen

Dos especies y un género nuevos de Miridae (*Hemiptera: Heteroptera*) *de Toledo, Península Ibérica central*

Se describen dos nuevas especies y un nuevo género de chinches (Hemiptera: Heteroptera) de la familia Miridae, ambas de Toledo, en el centro de la Península Ibérica y de España. *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.** (Bryocorinae: Dicyphini) es muy próxima a *D.* (*B.*) *geniculatus* (Fieber, 1858) pero se separa de ella fácilmente por caracteres discriminantes de su morfología externa y genitalia masculina y femenina. *Bolivarcoris* **n. gen.** *parisae* **n. sp.** (Orthotylinae: Halticini) muestra un parecido externo con algunas especies incluidas en el género *Dimorphocoris* Reuter, 1890 o con el monotípico *Schoenocoris* Reuter, 1890; sin embargo, presenta una combinación de caracteres (morfología externa y genitalia masculina y femenina) que la diferencia claramente de ellos. Es destacable que en ambas especies el pigóforo de los machos se haya revelado como portador de caracteres taxonómicos útiles. Ambas fueron recolectadas en la misma zona geográfica de la provincia de Toledo, en hábitats circundantes de lagunas endorreicas.

Palabras clave: Hemiptera, Heteroptera, Miridae, Bryocorinae, Orthotylinae, *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, Península Ibérica.

Laburpena

Miridae-ren bi espezie berri eta genero berri bat (*Hemiptera: Heteroptera*) *Toledokoak, Iberiar Penintsularen erdialdea*

Miridae familiaren bi zimitz espezie berri eta genero berri bat (Hemiptera: Heteroptera) deskribatzen dira Toledokoak, Iberiar Penintsularen eta Espainiaren erdialdean. *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.** (Bryocorinae: Dicyphini) delakoaren espezierik antzekoena *D.* (*B.*) *geniculatus* (Fieber, 1858) da baina argiro bereizten da honengandik kanpo-morfologiaren eta arren eta emeen genitaliaren zenbait ezaugarriri esker. *Bolivarcoris* **n. gen.** *parisae* **n. sp.** (Orthotylinae: Halticini) delakoak kanpo-antzekotasuna erakusten du *Dimorphocoris* Reuter, 1890 generoko espezie

batzuekin, bai eta *Schoenocoris* Reuter, 1890 genero monotipikoarekin ere; hala ere, bere ezaugarri-konbinazioak (kanpo-morfologia eta arren eta emeen genitalia) zalantzarik gabe urruntzen du haiengandik. Interesgarriro, bi espezieetan arren pigoforoa zenbait ezaugarri taxonomiko erabilgarriren eramailetzat agertu da. Bi-biak Toledo probintziaren zonalde geografiko berean harrapatu ziren, urmael endorreikoen inguruko habitatetan.

Gako-hitzak: Hemiptera, Heteroptera, Miridae, Bryocorinae, Orthotylinae, *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, Iberiar Penintsula.

Introduction

With more than 11300 described species, the Miridae or plant bugs (Hemiptera: Heteroptera) are one of the only two hyperdiverse families among non-holometabolous insects, along with the Cicadellidae (> 23000 species). Notably tropical and Mediterranean ecosystems are thought to harbour a much higher diversity of mirids than that revealed until now (Cassis and Schuh, 2012; Aguin Pombo and Bourgoin, 2013; Schuh and Weirauch, 2020).

A great part of the Iberian Peninsula, in southern Europe, belongs to the Mediterranean hotspot of biodiversity, its mirid fauna being still incompletely known. When studying the Orthotylinae of the entomological collection at the Museo Nacional de Ciencias Naturales (MNCN) in Madrid, I found a series of an undescribed species of Halticini collected in Toledo (central Spain and Iberian Peninsula), under the provisional identification as *Schoenocoris flavomarginatus* (A. Costa, 1842) [label handwritten by J. Gómez Menor (Fig. 1a); M. París, pers. comm.]. Despite its first-glance resemblance either to *Schoenocoris* Reuter, 1890 or to *Dimorphocoris* Reuter, 1890, a careful examination of its external morphology and male and female genitalia has revealed the impossibility of its adscription to any of those or other genera of Halticini. Consequently, a new genus will herein be described to accomodate this distinctive, new species: *Bolivarcoris* **n. gen.** *parisae* **n. sp.**

Having been collected by Ignacio Bolívar more than one century ago, it seemed to me desirable to obtain additional, fresh specimens. To this aim, between 2023 and 2024 I visited several localities in the exact geographic area trying to collect them in presumably potential habitats. The undescribed Halticini species would not be found; instead, an undescribed species of *Dicyphus* Fieber, 1858 (Bryocorinae: Dicyphini) was discovered. It will be also described below as *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**

Methodological remarks

The taxa are described separately, in two dedicated sections arranged by subfamily (Bryocorinae and Orthotylinae) and including their own discussions. Besides, given the interest of their simultaneous discovery, a brief «Final remarks» section is added, as a way to discuss some emerging topics.

The whole type series were examined for both new taxa. Labels are exactly transliterated in quotation marks, with «/» indicating separation of lines in the same label and «//» separation of labels in the same pin; additional information is incorporated in square brackets. Measurements are given in greater detail in the descriptions than in the diagnoses. For both descriptions a similar structure has been followed; however, some unavoidable differences exist between them, as follows:

In the case of *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, because of the long series of specimens, the morphometric measurements are based on a limited number of males and females (8 ♂♂, 16 ♀♀). For most characters, the whole range is given in parentheses after the average value. When possible and/or convenient (*e.g.* characters showing sexual dimorphism), measurements are indicated separately for males and females. If a character was not measurable in one given specimen, the ranges (and derived ratios) were adapted accordingly. The terminology of morphological structures mainly follows Matocq *et al.* (in prep.).

As to *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, the peculiar condition of the type series [ancient specimens, most of them (all but one female) being mounted in pairs

as one dorsal and one ventral representatives (Fig. 1b), and pinned together forming three groups of stacked cards or «brochettes» (Fig. 1c-d)] not only has compelled me to proceed with extreme caution, but it has also prevented me from taking every morphometric measurements on all specimens. Hence 3 ♂♂ and 9 ♀♀ have been measured completely and another 3 ♂♂ and 8 ♀♀ partially (*e.g.* total length). In addition, if a character was not measurable in one given specimen the ranges (and derived ratios) were adapted accordingly. For most characters, the whole range is given in parentheses after the average value. On the other hand, following the tradition in descriptions of Halticini with strong sexual dimorphism, male and female sexes are described separately. The terminology of morphological structures mainly follows Tatarnic and Cassis (2012), but also Ehanno (1990, 1993), Tsai *et al.* (2011) and Pluot-Sigwalt and Matocq (2017).

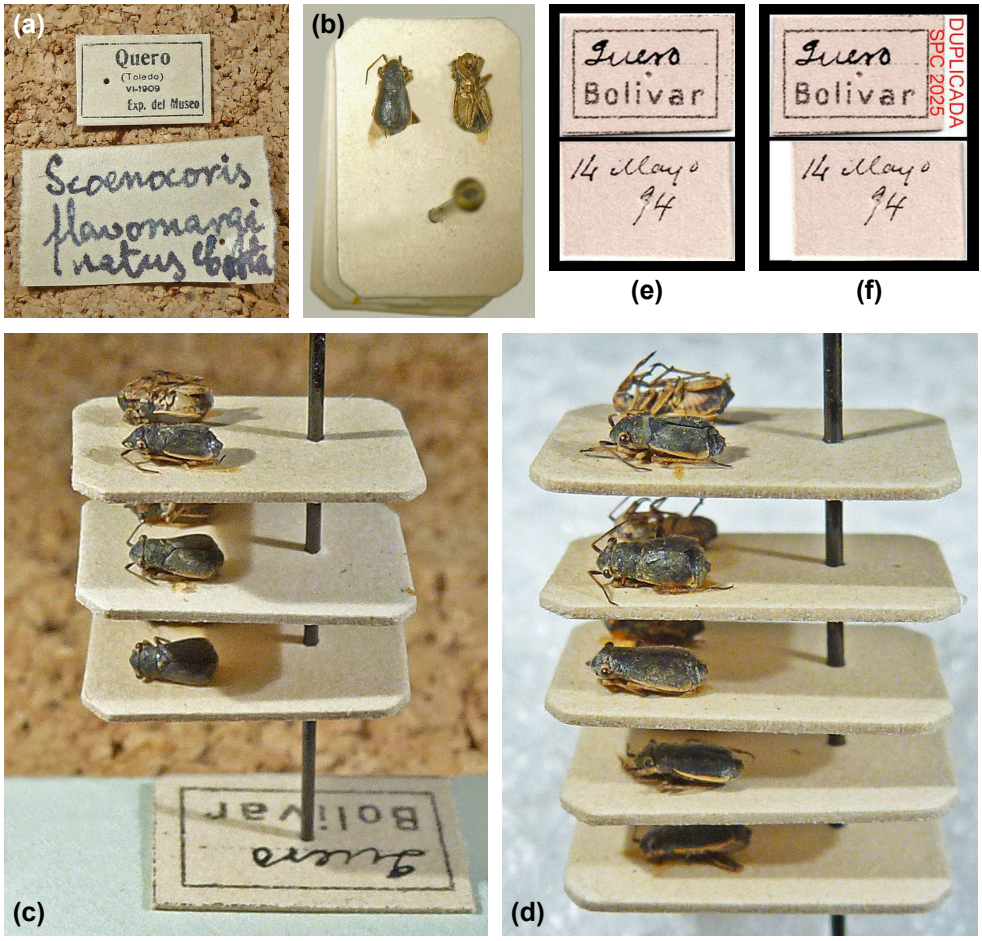

Figure 1. The peculiar condition of the type series of *Bolivarcoris* **n. gen.** *parisae* **n. sp.**: (a) Labels of one single female collected in 1909 and provisionally identified as *Schoenocoris flavomarginatus* (A. Costa, 1842) with handwriting by J. Gómez Menor; (b)-(d) All the specimens collected in 1894 were mounted in pairs showing dorsal and ventral sides on the same card and forming groups of cards pinned together («brochettes»); two of the three groups are here shown; (e) Front and reverse of the only label originally existing for all the specimens collected in 1894 with handwriting by I. Bolívar; (f) Front and reverse of one of the duplicates of that label prepared during the present study in order to pin separately every card with a pair of specimens.

Results and discussion

BRYOCORINAE Baerensprung, 1860

DICYPHINI Carvalho, 1958

Genus ***Dicyphus*** Fieber, 1858

Subgenus ***Brachyceroea*** Fieber, 1858

Dicyphus (*Brachyceroea*) *guentheri* n. sp.

(Figs. 2-7)

Type material:

HOLOTYPE:

♂, central Spain, labelled «TOLEDO: Lillo: Laguna del / Altillo Grande, 680 m, 30SVJ7493, / *Gypsophila tomentosa*, 15-06-2023 / S. Pagola Carte *leg.*» [white, printed label]. Deposited in the Muséum National d'Histoire Naturelle, Paris, with number MNHN EH30988.

PARATYPES:

39 ♂♂, 35 ♀♀: idem as holotype (7 ♂♂, 16 ♀♀); idem as holotype but 29-05-2024 (32 ♂♂, 19 ♀♀). Deposited in: 1 ♂, 2 ♀♀, Muséum National d'Histoire Naturelle, Paris, with numbers MNHN EH30989, EH30990 and EH30991; 2 ♂♂, 2 ♀♀, Museo Nacional de Ciencias Naturales, Madrid, with numbers MNCN_Ent 434343, 434344, 434345 and 434346; 1 ♂, 1 ♀, Centre de Recursos de Biodiversitat Animal, Universitat de Barcelona (CRBA); 1 ♂, 1 ♀, Zoologisches Museum, Universität Hamburg (ZMUH); 1 ♂, 1 ♀, coll. Aukema, Bennekom; 1 ♂, 1 ♀, coll. Carapezza, Palermo; 1 ♂, 1 ♀, coll. Günther, in Naturhistorisches Museum Mainz; 1 ♂, 1 ♀, coll. Heiss, in Tiroler Landesmuseum Ferdinandeum; 1 ♂, 1 ♀, coll. Magnien, Paris; 4 ♂♂, 4 ♀♀, coll. Matocq, Paris; 19 ♂♂, 14 ♀♀, coll. Pagola-Carte, Villabona; 1 ♂, 1 ♀, coll. Rieger, Nürtingen; 1 ♂, 1 ♀, coll. Strauss, Biberach; 4 ♂♂, 4 ♀♀, coll. Streito, Montpellier.

A red, printed label is now added below to each specimen: «HOLOTYPE [or PARATYPE] ♂ [or ♀] / *Dicyphus* (*Brachyceroea*) / *guentheri* **n. sp.** / Pagola-Carte, 2025». The specimens are mounted on a white card, several of them with the genitalic structures glued on an additional card or deposited inside a microvial, and pinned below.

Diagnosis:

Total length of 2.75–3.40 mm. Males and females macropterous. Shiny and with contrasting colours. Head black with an ivory-coloured spot adjacent to inner margin of each eye. Antennae mostly black. Pronotum entirely black. In some specimens orange tinge on legs and cuneus. Scutellum black, laterally with a pair of large, ivory-coloured, subtriangular spots; the medial black stripe in between narrower than them. Hemelytra hyaline, greyish to black, apex of exocorium and apex of cuneus largely black, cuneus basally ivory-coloured. Male genitalia: pygophore apically rounded and blunt, provided with a conspicuous tooth on the anterior margin of the genital opening; left paramere stout and provided with a long crest; endosoma bearing fields of spinules longer than half the endosomal length. Female genitalia: genital chamber rounded with seminal reservoir triangular, entirely vermiculate, with sclerotized rings ovate and relatively short.

Description:

Habitus: (Fig. 2)

Macropterous males and females. Shiny and with contrasting colours: head and pronotum mostly black; hemelytra mostly pale, centrally almost hyaline, apically (apical part of corium and apex of cuneus) always dark; three pairs of pale spots: on vertex, scutellum and cuneus, increasing in size from the first to the last. Abdomen black. Vestiture consisting of scattered, semierect, dark setae.

Head:

Black with an ivory-coloured spot adjacent to inner margin of each eye; these spots always rhomboid-shaped and never reaching antennal fossae. Antennae black; segment I narrowly white basally and apically (similarly to antennal fossae); segment II narrowly white basally, slightly swollen in the apical two thirds but not clearly clavate; segment II apically and segment III basally very narrowly white in some specimens. Labium surpassing the anterior coxae; segment I two-coloured, segment II whitish except for dark base, segment III similarly coloured as II but darker (sometimes blackish), segment IV black.

Pronotum:

Black; in some teneral specimens brownish posteriorly or entirely; always without longitudinal pale stripe medially. Collar matt and white (all males examined) or variously coloured (females): white (younger ones), black (older ones) or two-coloured. Anterior half impunctate, including very shiny calli. Posterior

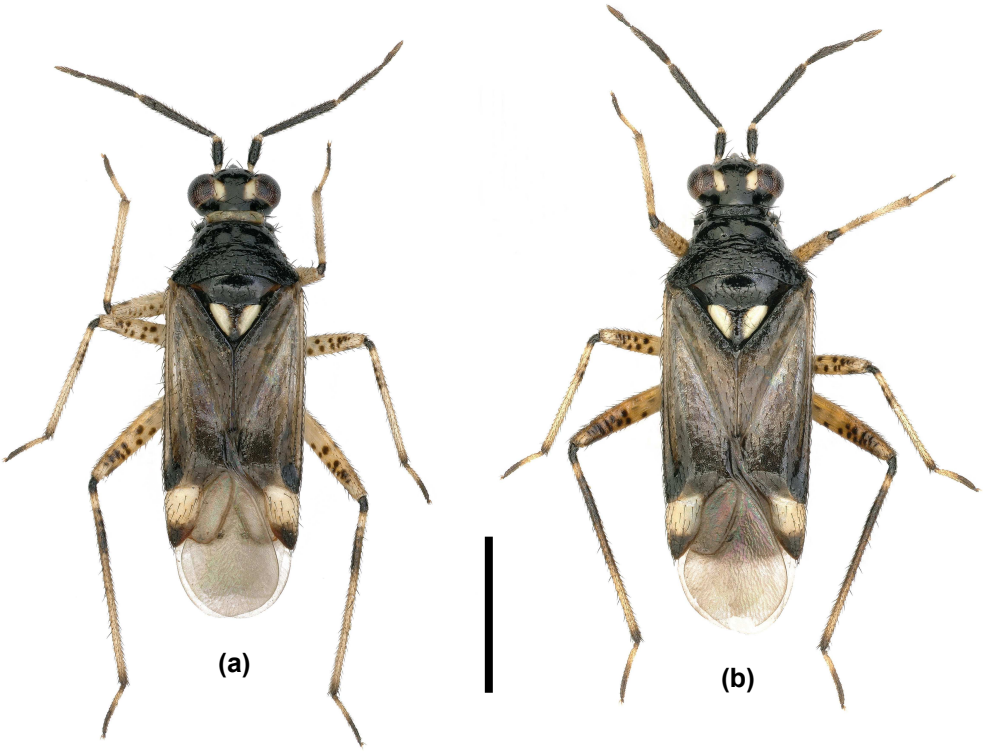

Figure 2. *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, habitus in dorsal view: (a) Male (holotype); (b) Female (paratype) (Scale bar = 1 mm) (Photos by Jean-Claude Streito).

half coarsely punctate. Posterior margin concave thus leaving mesoscutum largely exposed.

Scutellum:

Black, laterally with a pair of large, ivory-coloured, subtriangular spots or calli; these spots devoid of setae and defining between them a narrow (narrower than the spots themselves), black, longitudinal stripe of subparallel margins; in very teneral specimens, this stripe paler or even lacking (in some females) by fusion of the lateral spots into a single ivory-coloured region.

Legs:

General colour whitish; with orange tinge in some specimens. All femora with about ten black spots both dorsally and ventrally, these spots increasing in size from pro- to metafemora. Tibiae pale with the base («knee») conspicuously and the apex narrowly black; subbasally with several black spots; these spots tending to fuse forming a dark ring in many specimens; tibial spines not arising from dark spots. Tarsi with segment I pale, segments II and III and claws black. Coxae pale.

Hemelytra:

Greyish black, almost hyaline, with apex of exocorium and apex of cuneus always largely black and with other more or less dark regions; in the darkest specimens, claval margin and posterior half of corium black. Cuneus basally ivory-coloured or with orange tinge in some male specimens. Membrane hyaline with veins fuscous.

Measurements:

Total length: males: 3.02 (2.75–3.21) mm, females: 3.11 (2.85–3.40) mm. General form according to the following ratios: total length / maximum width = 3.31 (3.18–3.44) in males, 3.11 (2.97–3.24) in females, and total length / pronotum width = 3.54 (3.43–3.67) in males, 3.37 (3.23–3.51) in females.

Ocular index: 1.51 (1.41–1.57) in males, 1.62 (1.52–1.71) in females.

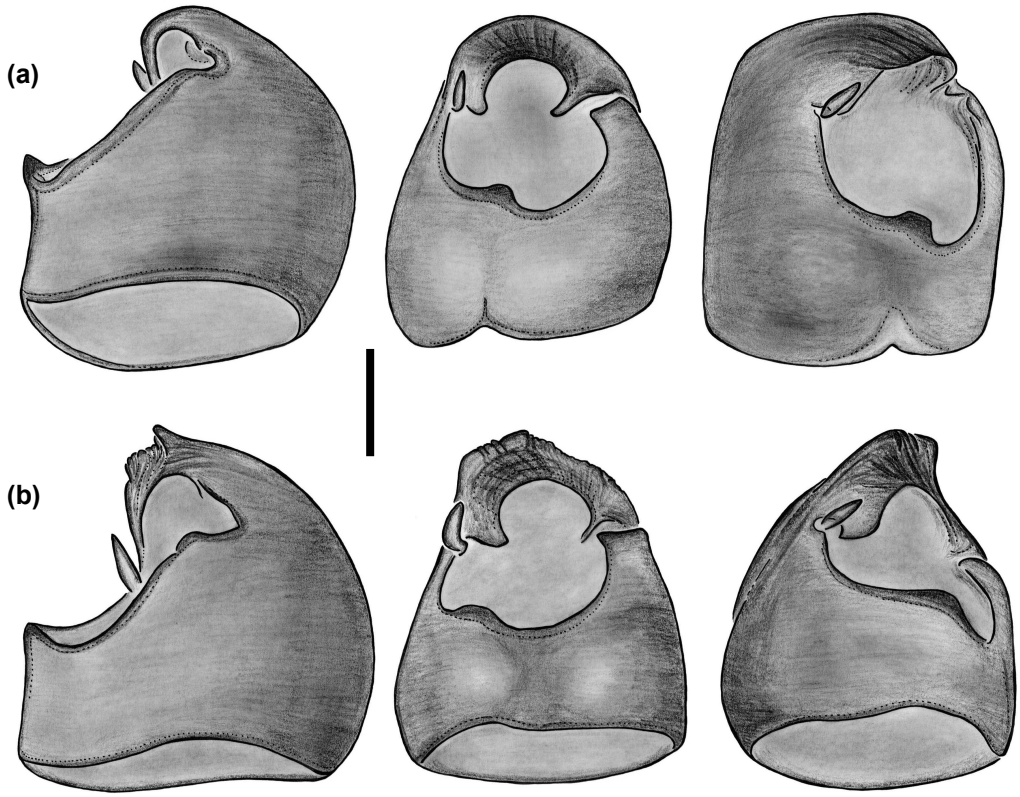

FIGURE 3. Pygophore in three views of: (a) *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**; (b) *D.* (*B.*) *geniculatus* (Fieber, 1858) (Scale bar = 0.2 mm; setae omitted).

Length of antennal segments (males and females): I–II–III–IV = 0.21 (0.20–0.23) – 0.54 (0.43–0.60) – 0.35 (0.30–0.38) – 0.22 (0.20–0.25) mm. Antennal segment II / head width = 0.91 (0.86–0.98) in males, 0.84 (0.71–0.92) in females. Antennal segment II / pronotum width = 0.65 (0.61–0.71) in males, 0.57 (0.49–0.62) in females.

Pronotum less than twice as wide as long, females showing a greater variability for this ratio: Pronotum width/length = 1.92 (1.82–2.00) in males, 1.88 (1.74–2.06) in females.

Metatibia / pronotum width = 1.54 (1.46–1.59) in males, 1.45 (1.39–1.51) in females.

Male genitalia:

Pygophore (Fig. 3a) apically rounded and blunt, non-carinate, also in lateral view; anterior margin of the genital opening provided with a conspicuous tooth particularly noticeable in dorsolateral view. Right paramere (Fig. 4a) small, without distinguishing characters. Left paramere (Fig. 4b) stout, with voluminous and pyramid-shaped base; apophysis uniformly curved, apex somewhat rounded; provided with a long crest, *i.e.* longer than the basal part (body of the paramere) devoid of crest. Endosoma (Fig. 5a) without internal sclerites but externally bearing large fields of spinules which are longer than half the endosomal length.

Female genitalia:

Genital chamber (Fig. 6a) rounded, with seminal reservoir triangular (anteriorly pointed), entirely wrinkled, vermiculate; sclerotized rings ovate and relatively short in dorsal view, somewhat greater or even 8-shaped in lateral or dorsolateral view due to their folding «backwards»; oviducts largely separated from each other and placed very posteriorly.

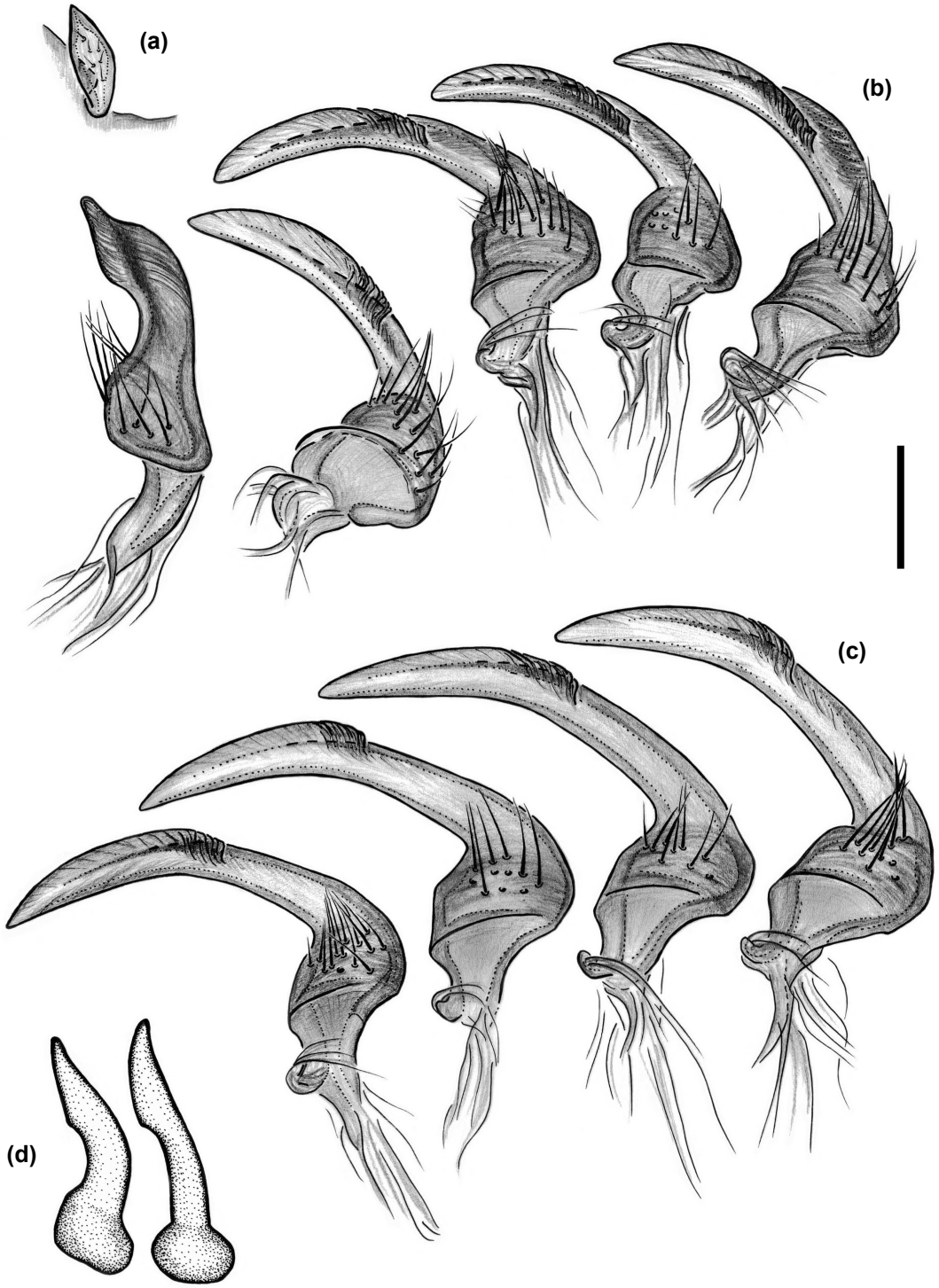

FIGURE 4. Male genitalia, parameres: (a)-(b) *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**: (a) Right paramere; (b) Left paramere (different views or specimens); (c) *D.* (*B.*) *geniculatus* (Fieber, 1858), left paramere (from left to right, specimens from: Grèce Mont Olympe, Grèce Mont Verno, Corse, Hautes-Alpes); (d) Simplified comparison of left parameres in caudal view between *D.* (*B.*) *guentheri* **n. sp.** (left) and *D.* (*B.*) *geniculatus* (right) (Scale bar for (a)-(c) = 0.1 mm).

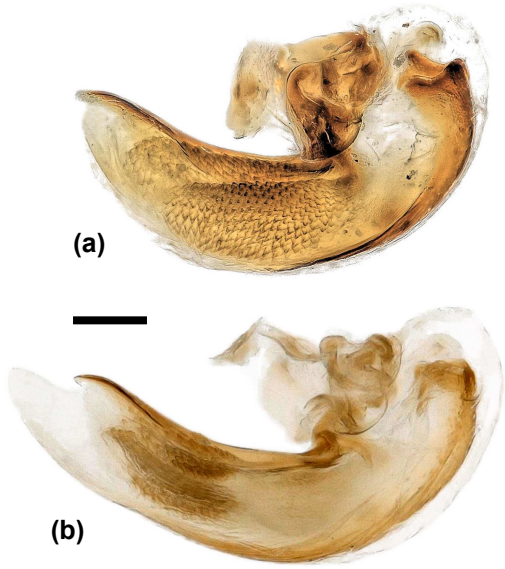

FIGURE 5. Male genitalia, endosoma: (a) *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**; (b) *D.* (*B.*) *geniculatus* (Fieber, 1858) (Scale bar = 0.1 mm) (Photos by Jean-Claude Streito).

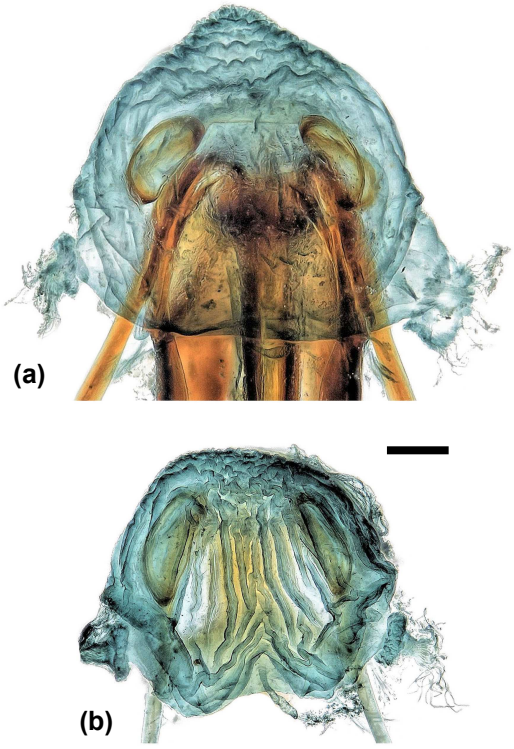

FIGURE 6. Female genitalia, genital chamber: (a) *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**; (b) *D.* (*B.*) *geniculatus* (Fieber, 1858) (Scale bar = 0.1 mm) (Photos by Jean-Claude Streito).

Etymology:

The name of the new species is dedicated to the late Hannes Günther (Politz an der Elbe 20/12/1936 – Ingelheim 5/04/2024 [see: Strauss, 2024; Wagner, 2024]), with admiration for his prominent contribution to the knowledge of European Heteroptera (including remarkable discoveries in the southern half of Spain, where the new species has been collected) and in memory of the friendship that joined us. The name is a noun in genitive, invariable.

Type locality:

Spain: autonomous community of Castilla – La Mancha: province of Toledo: municipality of Lillo: Laguna del Altillo Grande.

Distribution and biology:

Only known from one endorheic lagoon of the south-east of Toledo province, in central Iberian Peninsula. Adults and nymphs were collected between end May and mid-June on *Gypsophila tomentosa* (Caryophyllaceae) growing within one of the belts of halophyte vegetation surrounding that lagoon (Fig. 7). This sticky plant, which is very likely the only host for the new species, is endemic to the Iberian Peninsula (centre, east and south). It grows, among other halophyte herbs and shrubs, on saline and gypsum soils of endorheic depressions at the semi-arid meso-Mediterranean stage (Gutiérrez *et al.*, 2011). According to these authors, despite being a widely distributed plant, its populations are strongly localised and even endangered. Such kind of distribution together with the scarcity of heteropterological samplings in vast areas of the Iberian Peninsula would explain why *D.* (*B.*) *guentheri* **n. sp.** had not been found until now.

Discussion:

Being the largest genus of Dicyphini (about 60 species known), *Dicyphus* is mainly composed of Palaearctic representatives (Kerzhner and Josifov, 1999; Schuh, 2002-2013; Aukema, 2025). The subgenus *Brachyceroea* consists of 18 species, all of them Palaearctic. In western Europe, their identification is usually based on the keys provided by Wagner (1951, 1974a), with subsequent improvements and species additions by Rieger (2002) and Ribes and Baena (2006) [see also: Konstantinov and Neimorovets (2021), for European Russia and the Caucasus]. Presently, Matocq *et al.* (in prep.) are preparing a revision.

The new species of *Dicyphus* undoubtedly belongs to the subgenus *Brachyceroea* and the *globulifer*-group of species (with two pale spots on the head). It is distin-

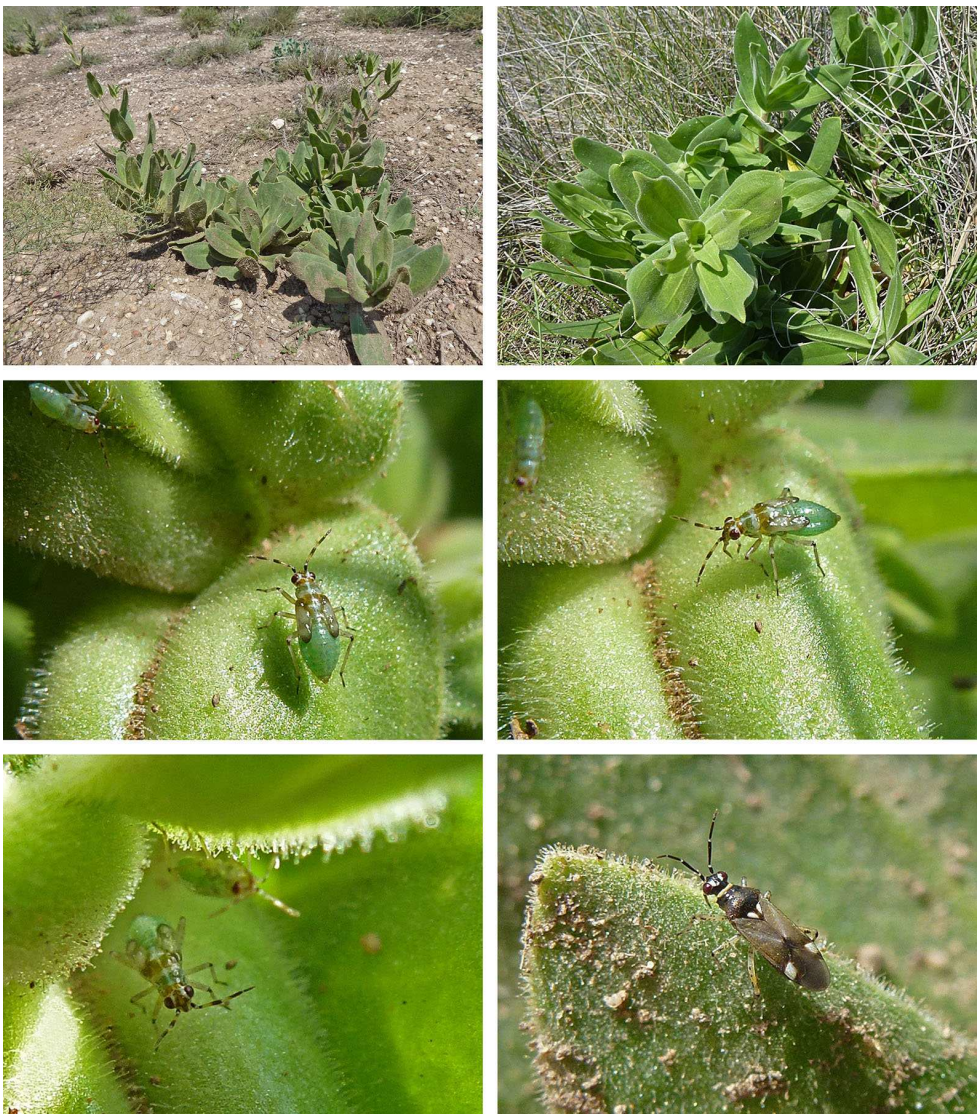

Figure 7. *Dicyphus* (*Brachyceroea*) *guentheri* **n. sp.**, habitat: Adult and nymphs on *Gypsophila tomentosa* (Caryophyllaceae) growing within one of the belts of halophyte vegetation surrounding Laguna del Altillo Grande, south-east of Toledo province, in central Iberian Peninsula.

guished from the other members of the group by the following characters: the small size (2.7–3.4 mm), the colouration generally more contrasted, the shape of pygophore, left paramere and endosoma in males, and the shape of vaginal chamber and sclerotized rings in females.

At first glance, the new species may appear rather similar to *D.* (*B.*) *heissi* J. Ribes & Baena, 2006, but it can be separated from the latter by its smaller size (2.7–3.4 mm *versus* 3.0–4.0 mm [see: Ribes and Baena, 2006; Pagola-Carte, 2022]), the shape of the antennal segment II (slightly swollen *versus* clavate) and the colour of pronotum (uniformly dark *versus* with a longitudinal pale stripe between the calli). Differences in male and female genitalia are also obvious between these two species.

D. (*B.*) *geniculatus* (Fieber, 1858) is the most similar species to *D.* (*B.*) *guentheri* **n. sp.**, considering both their external morphology and their genitalia. However, the new species can be distinguished as follows:

- Total size: smaller (2.7–3.4 mm *versus* 3.5–4.0 mm).
- Ratio antennal segment II / head width: smaller (0.71–0.98 *versus* 0.92–1.22).
- Pronotum: different texture in posterior half (coarsely punctate *versus* smooth and weakly punctate).
- Scutellar calli: larger (defining between them a narrow, black, longitudinal stripe of subparallel margins *versus* forming a «V»).
- Pygophore: apically rounded and blunt, its opening bearing a conspicuous tooth *versus* apically carinate, its opening bearing a less protruding tooth (Fig. 3a *versus* 3b).
- Left paramere: stouter, with voluminous and pyramid-shaped base, and with crest of the apophysis longer than body *versus* more slender, with less voluminous base and with crest of the apophysis shorter than body (Fig. 4b *versus* 4c + Fig. 4d).
- Endosoma: bearing fields of spinules longer *versus* shorter than half the endosomal length (Fig. 5a *versus* 5b).
- Genital chamber: anteriorly pointed *versus* evenly curved; with sclerotized rings short *versus* long (Fig. 6a *versus* 6b).

Concerning its biology, the hitherto only known host plant of *D.* (*B.*) *guentheri* **n. sp.**, *Gypsophila tomentosa* (Caryophyllaceae), and its habitat (Fig. 7) seem to be crucial to understand not only its separation within the *globulifer*-group of species but also its closeness to *D.* (*B.*) *geniculatus*. In fact, the latter was associated by Ehanno (1987) to *Cucubalus baccifer* [nowadays *Silene baccifera*] (Caryophyllaceae) and to the habitat called as «*bord des marais de l'intérieur*»; and by Péricart (1965) to *Silene paradoxa*. Among the specimens of *D.* (*B.*) *geniculatus* examined by the author, those of Corsica belong to the same series studied by Péricart, and those of Hautes-Alpes were collected on *Silene otites*.

Interestingly, according to Kiritshenko (1951), *Gypsophila* sp. is the host plant of *D.* (*B.*) *montandoni* Reuter, 1888 along the seacoast salt dunes of Ukraine (see: Konstantinov and Neimorovets, 2021). However, not only the geographic distance but also the morphological dissimilarity are great between it and the new species of Spain.

ORTHOTYLINAE Van Duzee, 1916

HALTICINI A. Costa, 1853

Bolivarcoris n. gen.

Type species:

Bolivarcoris **n. gen.** *parisae* **n. sp.**

Diagnosis:

Strongly sexually dimorphic: males macropterous, elongate and roughly parallel-sided; females brachypterous, coleopteroid, pyriform with carapace-like hemelytra. Dorsal colouration black with pale markings: males and females with one spot adjacent to inner margin of each eye and one longitudinal stripe along costal margin of hemelytra. Vestiture consisting of erect and semierect dark and pale setae of different lengths and reclining or adpressed, scale-like, silvery setae. An additional type of setae in the pygophore of males (see below). Transverse striae on pronotum, scutellum and sometimes head. Proportionally to body, head long, pronotum long and combined head+pronotum very long, one fourth (males) to one third (females) of total length.

Head wider than pronotum. Genae approximately twice the eye height. Vertex slightly depressed between elevated eyes and raised posteriorly into a marginal carina. Eyes round, bulging, substylate, not touching the anterolateral angles of pronotum. Antennal insertion well separated from lower margin of eye. Antennae shorter than body length. Pronotum considerably longer than antennal segment I; strongly campanulate in males, trapezoidal to faintly campanulate in females; anterior margin substraight, with distinct collar; posterior margin medially concave; a transverse constriction dividing the pronotum into an anterior and a posterior part, particularly conspicuous in males; rugulose. External efferent system of the metathoracic scent gland elongate, transverse, subtriangular. Tibiae bearing black spines 1–2 × longer than tibial width. Hemelytra: in males, with cuneus elongate and membrane bearing two cells; in females, posteriorly truncate, lacking cuneus and membrane, considerably longer than wide.

Male genitalia: Pygophore subconical in dorsoventral view, rather elongate in lateral view; cuplike sclerite protruding and widely fused with the hypandria, forming a robust receptacle; ventral side provided with a particular type of spinose setae, herein so-called «cuspidate setae». Parameres with basal portions rel-

atively short and well anchored between pygophore margins and hypandria; right paramere L-shaped, with distinct sensory lobe; left paramere smaller than right, several times twisted and provided with several rows of teeth, apophysis long and slender, sensory lobe broad. Endosoma mostly membranous, without spicules; phallotheca elongate-oval, rather long; ductus seminis relatively long, with flexible ribbing; two cordiform strips extending from the secondary gonopore and supporting each a membranous lobe of complex structure.

Female genitalia: Genital chamber ovate. Sclerotized rings medium-sized, oval and slightly pointed anteromedially. A simple dorsal sac, longer than wide, posteriorly ending in the oviducts, the vermicular gland arising between them. Dorsal wall with several bilateral structures: dorsal labiate plate (DLP) forming two large lobes apparently not touching together medially and posteriorly connected to a pair of strongly sclerotized, anteromedially directed, J-shaped lobes; ventral labiate plate (VLP) forming two subrectangular lobes abutting anteromedially and more or less strongly sclerotized; minute spinulae covering large areas. Posterior wall with a weakly sclerotized, but well-defined, bilaterally symmetrical and medially converging structure covered with minute spinulae and continued anteriorly by more weakly sclerotized, membranous plates. Opening to vestibulum symmetrical.

Illustrations and detailed description of the hitherto only known species: see below «Description» for *Bolivarcoris* **n. gen.** *parisae* **n. sp.**

Etymology:

The name of the new genus is dedicated to Ignacio Bolívar y Urrutia, collector of its type species and who studied it first. *Bolivarcoris* is composed of his surname and the suffix «*-coris*» used to designate a number of true bug genera, among them the most similar *Dimorphocoris* and *Schoenocoris*. Gender masculine. It is difficult to summarize Bolívar's intense life and contribution to the advancement of the natural history research in Spain, being a so huge leading figure, for example as director of the Museo de Ciencias Naturales in Madrid [now MNCN], as a world specialist in Orthoptera, and as a driving force encouraging vocations and training naturalists, particularly entomologists. Furthermore, born in Madrid in 1850, he embodies the best of the Spanish «Silver Age» of natural sciences (Casado de Otaola, 2001), promoting the necessary social reform in Spain through education, science and culture. It was for this reason that he ended up going into exile in Mexico in 1939, where he could «die with dignity» (in his own words) in 1944 (Cazurro, 1921; Gomis Blanco, 1988).

Discussion:

See below «Discussion» for *Bolivarcoris* **n. gen.** *parisae* **n. sp.**

***Bolivarcoris parisae* n. sp.** (Figs. 1, 8-12)

Type material:

HOLOTYPE:

♂, central Spain, labelled «Quero [handwritten] / Bolivar [printed], / [REVERSE:] 14 Mayo / [18]94 [handwritten]» [white label with black frame]. Deposited in the Museo Nacional de Ciencias Naturales, Madrid, with number MNCN_Ent 434337.

PARATYPES:

5 ♂♂, 17 ♀♀: 5 ♂♂, 16 ♀♀ idem as holotype; 1 ♀ labelled «Quero / (Toledo) / VI-1909 / Exp. [= Expedición] del Museo» [white, printed label with black frame] // «Scoenocoris [*sic*] / flavomargi / natus Costa» [white, handwritten label]. Deposited in: 3 ♂♂, 15 ♀♀, Museo Nacional de Ciencias Naturales, Madrid, with numbers MNCN_Ent 355105 and 434337 (males) and 355088, 355103, 355104, 434338, 434339, 434340, 434341 and 434342 (females); 2 ♂♂, 2 ♀♀, coll. Pagola-Carte, Villabona.

A red, printed label is now added below to each specimen: «HOLOTYPE [or PARATYPE] ♂ [or ♀] / *Bolivarcoris* **n. gen.** / *parisae* **n. sp.** / Pagola-Carte, 2025». The genitalic structures have been examined in two males and two females and are deposited inside a microvial pinned below. All specimens are mounted on white cards, and most of them (all but one = the female of 1909) are mounted in pairs, as explained and illustrated at the «Methodological remarks» section. Whereas those pairs («dorsal & ventral specimens») have been respected during the study, the three groups of stacked cards (6 males + 6 females + 10 females) have been separated and each pair pinned independently. As only one of the three groups (6 females of 1894) was originally labelled (Fig. 1c, e), duplicates of that label (Fig. 1f) have been prepared and printed for the rest of specimens. Two data labels as well as two type labels have been pinned under each pair of specimens. The holotype is the «dorsal specimen» (to the left) of its pair [number MNCN_Ent 434337 specified as MNCN_Ent 434337a]. According to M. París (curator at MNCN, Madrid), the original

labels conform to the handwriting style of I. Bolívar (locality and date) and J. Gómez Menor (provisional identification).

Diagnosis:

[In addition to generic diagnosis (see above)]: Total length of 3.6–4.1 mm (macropterous males) and 2.7–3.2 mm (brachypterous females); approximately 4 × (males) and 3 × (females) longer than posterior width of pronotum and 3.6 × (males) and 2 × (females) longer than maximum width. Mostly black, matt, with surface microreticulate and pruinose (greyish appearance); the pale markings on head and hemelytra of yellowish cream colour; tibiae pale in both sexes and antennal segment II almost entirely pale in females; females always with greater pale areas than males lateroventrally, including parts of femora and head. Conspicuous transverse striae dorsally. Head big, anteriorly protruding, broad, 1.1 × (males) and 1.2 × (females) wider than posterior width of pronotum; eyes bulging, substylate, ocular index 3.4 (males) and 4.1 (females); antennae 0.6 × (males) and 0.7 × (females) shorter than body length, with segment II 1 × (males) and 0.8 × (females) as long as pronotum width. Pronotum rugulose; 1.3 × (males) and 1.4 × (females) longer than antennal segment I. Hemelytra in females 2 × longer than wide, reaching to half tergite VII, posteriorly obliquely truncate. Abdomen in males with maximum width at segment VIII and base of segment IX (pygophore). Male genitalia: parameres with long and short setae; right paramere bent at a 90º angle, externally with small tubercles, apical apophysis upwards directed; left paramere with the rows of teeth forming an almost continuous crest, apophysis tapering, with beak-like pointed apex, sensory lobe somewhat quadrangular. Female genitalia: sclerotized rings separated by a distance smaller than 2.5 × their transverse diametre; dorsal sac with a pair or well-defined, lateral, longitudinal foldings; a pair of arcuate structures arising from teeth of the rami and touching the posterior side of sclerotized rings.

Description:

Males:

Habitus: (Fig. 8a, 9a-d)

Macropterous. Total length = 3.91 (3.64–4.09) mm. Elongate with lateral margins subparallel, 4.05 (3.87–4.21) × longer than posterior width of pronotum and 3.59 (3.27–3.81) × longer than maximum width. Length of head and pronotum combined = one fourth of total length. Dorsal colouration black with some pale markings, mainly of yellowish cream colour: (1) one spot adjacent to inner margin of each eye; (2) one longitudinal stripe along costal margin of hemelytra; (3) tibiae (somewhat darker than previous markings). Matt and even pruinose in parts. Surface of head, pronotum, scutellum and hemelytra microreticulate, giving the black regions a greyish appearance. Vestiture consisting of: (1) erect and semierect dark and pale setae of different lengths; (2) reclining or adpressed, scale-like, silvery setae; (3) a particular type of spinose setae on the ventral side of pygophore, herein so-called «cuspidate setae» (see explanation below).

Head:

Dorsoventrally elongate («strongly vertical»). Broad, 1.10 (1.08–1.13) × wider than posterior width of pronotum. In frontal view, approximately 1.5 × wider than high. Very long, only slightly shorter than pronotum length. Black with pale markings. Dorsally only visible the pair of spots adjacent to inner margin of eyes, which are extended posteriorly as a fine line around eyes and broadened below them. Another pair of pale spots below antennal fossae, occupying a variable region of mandibular plates and upper part of genae. Clypeus dark except for an apical pale spot and its prolongation as a pair of costal pale stripes. A high degree of interindividual variability concerning such dark-and-pale pattern of head in lateral and frontal view, with darkest specimens almost without some of those pale spots and palest specimens rather similar to females, *i.e.* with mandibular plates largely pale and clypeus showing a large V-shaped pale mark. Bucculae narrowly pale. Vestiture consisting of black setae of different lengths, including long and erect, vibrissa-like ones, and a conspicuous coating of reclining, silvery setae (in most specimens best preserved ventrolaterally and frontally). Surface between eyes and antennal fossae with transverse striae. Vertex slightly depressed between elevated eyes and raised posteriorly into a marginal carina (Fig. 9a, c), slightly less noticeable in some specimens and orientations; posterior margin straight to slightly convex, depending on the orientation; a pair of glabrous, round, shallowly depressed areas near eyes, almost immediate to each pale spot adjacent to eyes (Fig. 9a-b). Frons evenly convex and bulging, protruding in lateral view. Frons and clypeus meeting along a marked notch. Genae approximately twice the eye height. Eyes round, bulging and substylate; of maroon colour in dry specimens; not touching the anterolateral angles of pronotum and slightly but perceptibly angled upwards

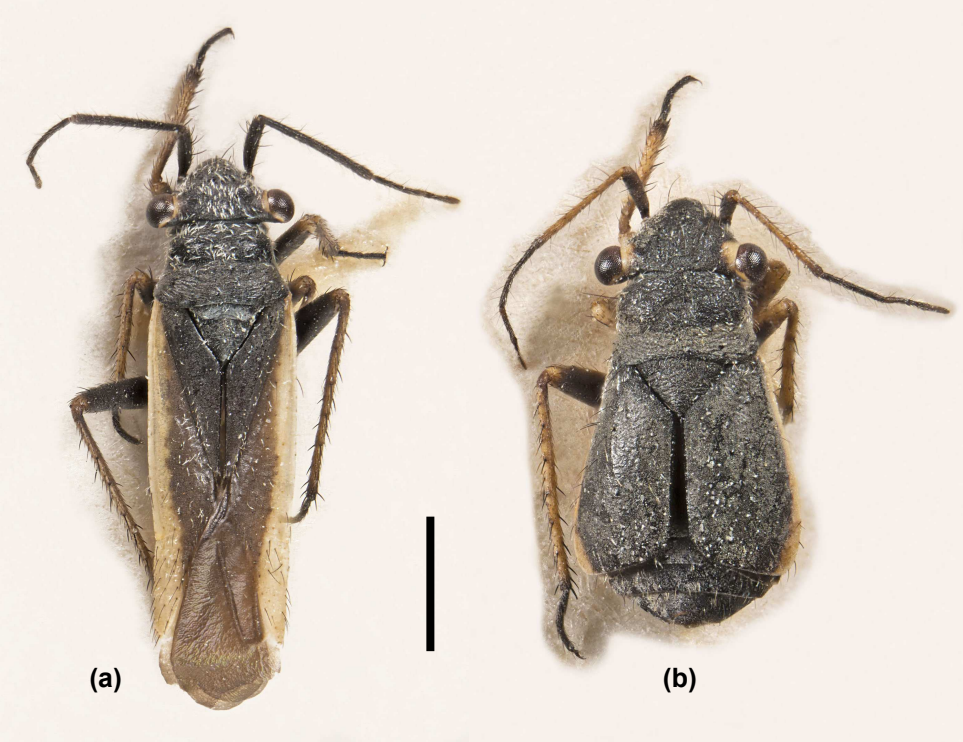

Figure 8. *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, habitus in dorsal view: (a) Male (holotype); (b) Female (paratype) (Scale bar = 1 mm) (Photos by Mercedes París).

and curved backwards, *i.e.* not perfectly aligned with the posterior margin of vertex; ocular index = 3.44 (3.38–3.47). Antennal insertion: in frontal view, to mid-distance between base of clypeus and lower margin of eye; in lateral view, quite ahead, about one eye diameter; in dorsal view, to mid-distance between eye and apex of frons, the antennal tubercles visible. Labium reaching metacoxae; brown to brownish black except for the base of segment II more or less pale; length of segments (relative proportions): I and II subequal, III half the length of them and IV slightly shorter than them; width of segments (relative proportions): I slightly wider than 2 × width of II, III and IV slightly narrower than 2 × width of II.

Antennae (Fig. 9d) entirely black, considerably shorter [0.61 (0.59–0.63) ×] than body length. Length of antennal segments: I–II–III–IV = 0.42 (0.40–0.45) – 1.01 (0.93–1.08) – 0.57 (0.55–0.60) – 0.40 (0.38–0.43) mm. Segment I clavate to barrel-shaped, up to 2 × wider than segment II basally; segment II increasing in thickness, with apex approx. 1.5 × wider than base; segment III clearly narrower than II; segment IV slightly narrower than III. Antennal segment II / head width = 0.94 (0.90–0.98). Antennal segment II / pronotum width = 1.03 (0.97–1.11). Vestiture consisting of erect and decumbent black setae as well as adpressed silvery setae; some of the erect black setae of segment I, longer and thicker (vibrissa-like).

Pronotum:

Entirely black. Rugulose. Campanulate and subplan with three depressions (see below). Anterior margin substraight; posterior margin medially concave; lateral margins strongly sinuate and forming each a depression centrally; both depressions connected by a transverse constriction dividing the pronotum into an anterior and a posterior part. Pronotum width/length = 1.79 (1.65–1.90). Pronotum length = 1.28 (1.25–1.31) × length of antennal segment I. Anterior collar distinct dorsally, in some specimens faintly visible but in others reaching to be as thick as maximum

width of antennal segment II. Calli tumescent and well delimited medially; between them, a depression (the third one), in connection to, and with similar rugulose surface as, posterior half of pronotum, which is distinctly rugulose including conspicuous transverse striae (Fig. 9b). More or less conspicuous striae on the whole pronotum. Vestiture consisting of erect and semierect black setae, anteriorly including very long, vibrissa-like ones, and reclining, silvery setae, particularly on the anterior half.

Thoracic sternites black. Thoracic pleurites dark with a few pale regions: the anterior pronotal lobe, which appears as a conspicuous knob; the mesothoracic spiracle on the apex of mesepimeron; the apex of mesepisternum; the external efferent system of the metathoracic scent gland (MTG) except for the ostiole black and the peritreme more or less darkened. MTG elongate, transverse, subtriangular (shape of a scalene triangle with the longest side posteriorly). A high density of reclining silvery setae.

Scutellum:

Entirely black. Subplan, with a faint depression between mesoscutum and scutellum. Mesoscutum partly visible. In some specimens, obvious transverse striae of the same type as on pronotum (Fig. 9b).

Legs:

Coxae dark (sometimes narrowly pale basally) with the apex pale. Trochanters with basal half pale and apical half dark. Femora mostly dark, apically pale; metafemora sometimes paler, brownish and with 1-2 longitudinal paler stripe/s medially; bearing short and long, dark and pale setae. Tibiae pale (but tending to brownish cream), apically darkened; basally or subbasally somewhat darkened ventrally, in some specimens also dorsally; bearing black microsetae and black spines 1–2 × longer than tibial width; metatibial length / pronotum width = 1.69 (1.55–1.79). Tarsi dark; length of metatarsomeres (relative proportions): I–II–III = 6 – 8 – 9.5.

Hemelytra:

Largely surpassing apex of abdomen and with costal margins subparallel. Black except for a longitudinal pale stripe along the exocorium, which gradually widens backwards to almost occupy the whole cuneus. Cuneus aprox. 0.4 × corium length. Claval commissure = 1.57 (1.48–1.65) × pronotum length and 1.83 (1.65–2.00) × scutellum length. Membrane infuscated, dark grey to brownish. With two cells, veins concolor or somewhat darker (brown) in some specimens.

Abdomen:

Dark. Maximum width at segment VIII and base of segment IX (pygophore). Vestiture mostly consisting of suberect and decumbent pale setae.

Genitalia:

Pygophore (Fig. 11a-c) subconical in dorsoventral view, rather elongate in lateral view; approximately 0.4 × length of abdomen; cuplike sclerite protruding and widely fused with the hypandria, forming a robust receptacle[(1)]; ventral side provided, on the convexity of its apical half, with more than one hundred of a particular type of spinose setae, herein so-called «cuspidate setae», of about 0.05 mm long[(2)] (Fig. 11a-c). Both parameres with basal portions relatively short and extending slightly out of pygophore, seemingly well anchored between pygophore margins and hypandria. Right paramere (Fig. 10a) L-shaped, bent at a 90º angle; externally with small tubercles and a distinct protuberance (sensory lobe) anterior to the angle; an apical apophysis upwards directed and viper's snout-shaped; provided with long and short setae. Left paramere (Fig. 10b) smaller than right, several times twisted; provided with several rows of teeth connected or continuous in a certain degree; apophysis long and slender, tapering and ended in a beak-like pointed apex; sensory lobe broad and somewhat quadrangular, provided with abundant, mainly long setae. Endosoma (Fig. 11d-g [everted in all the specimens of the type series]) mostly membranous, without

(1) For some species of *Dimorphocoris* with a similar structure, Ehanno (1997b) indicates in French «*hypandria réunis en formant un plateau*». Ehanno himself (1997a) had previously recognized, between the hypandria, «*la plaque sous-génitale en forme de coupe sur laquelle repose la face ventrale du phallus*» following Kullenberg's (1947) definition of the «*Subgenitalplatte*» in Miridae and Nabidae. More recently, Tsai *et al.* (2011) have retermed this structure as «cuplike sclerite» in Scutelleridae. Here I use this term, given the enormous relevance of their introductory chapter on morphology of Heteroptera (A. Carapezza, pers. comm.).

(2) The name of «cuspidate setae» is inspired by the terminology used for crustacean setae (Garm, 2004; Garm and Watling, 2013). Although recognizing that they are surely non-homologous structures, however, the morphological similarity between cuspidate setae in Crustacea and those observed in Halticini leads me to import the use of that Latin adjective for purely practical purposes. Among other features, crustacean cuspidate setae are very robust with a length/width ratio below 8 when width is measured at the base of the seta; have a broad base and taper gradually towards the somewhat rounded tip; and often show a weak curvature of the setal shaft. In any case, the classification of setae proposed by Garm (2004) is «suggested to reflect mechanical functions and not evolutionary history».

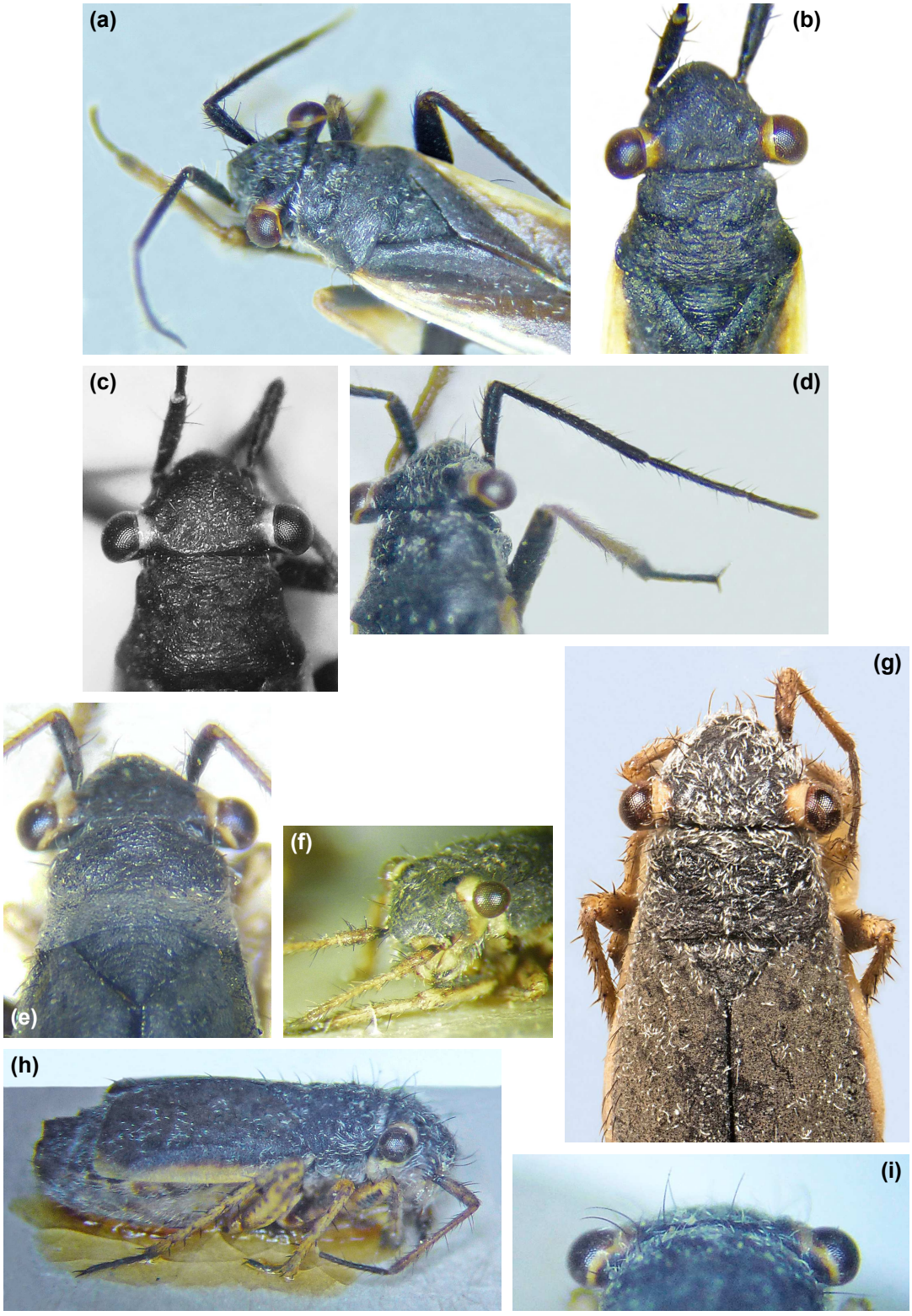

FIGURE 9. *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, details of external morphology: (a)-(d) Males; (e)-(i) Females. In different orientations and under different types of light to better show several characters (Photo (g) by Mercedes París).

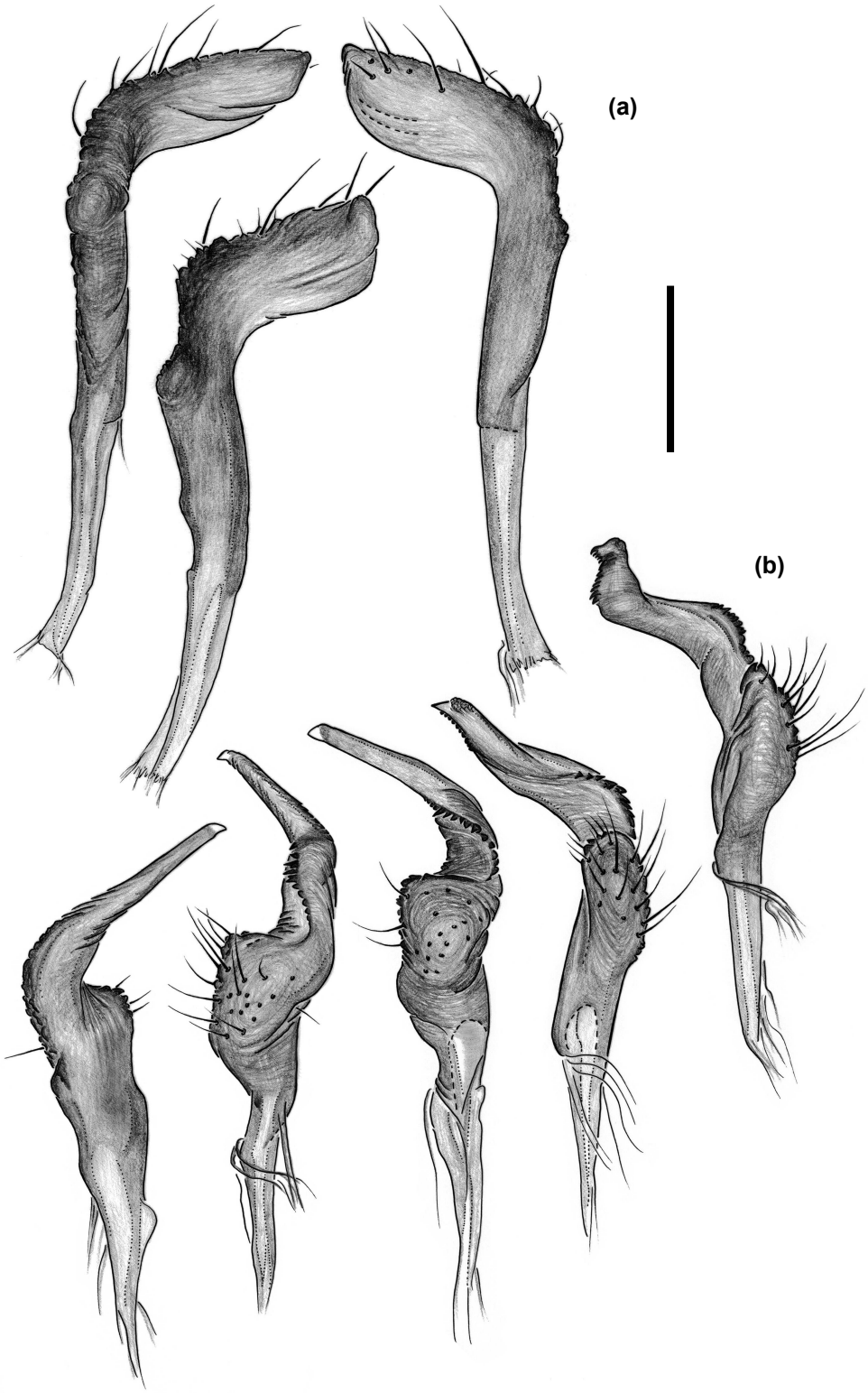

FIGURE 10. *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, male genitalia: parameres in different views or specimens: (a) Right paramere; (b) Left paramere (Scale bar = 0.2 mm).

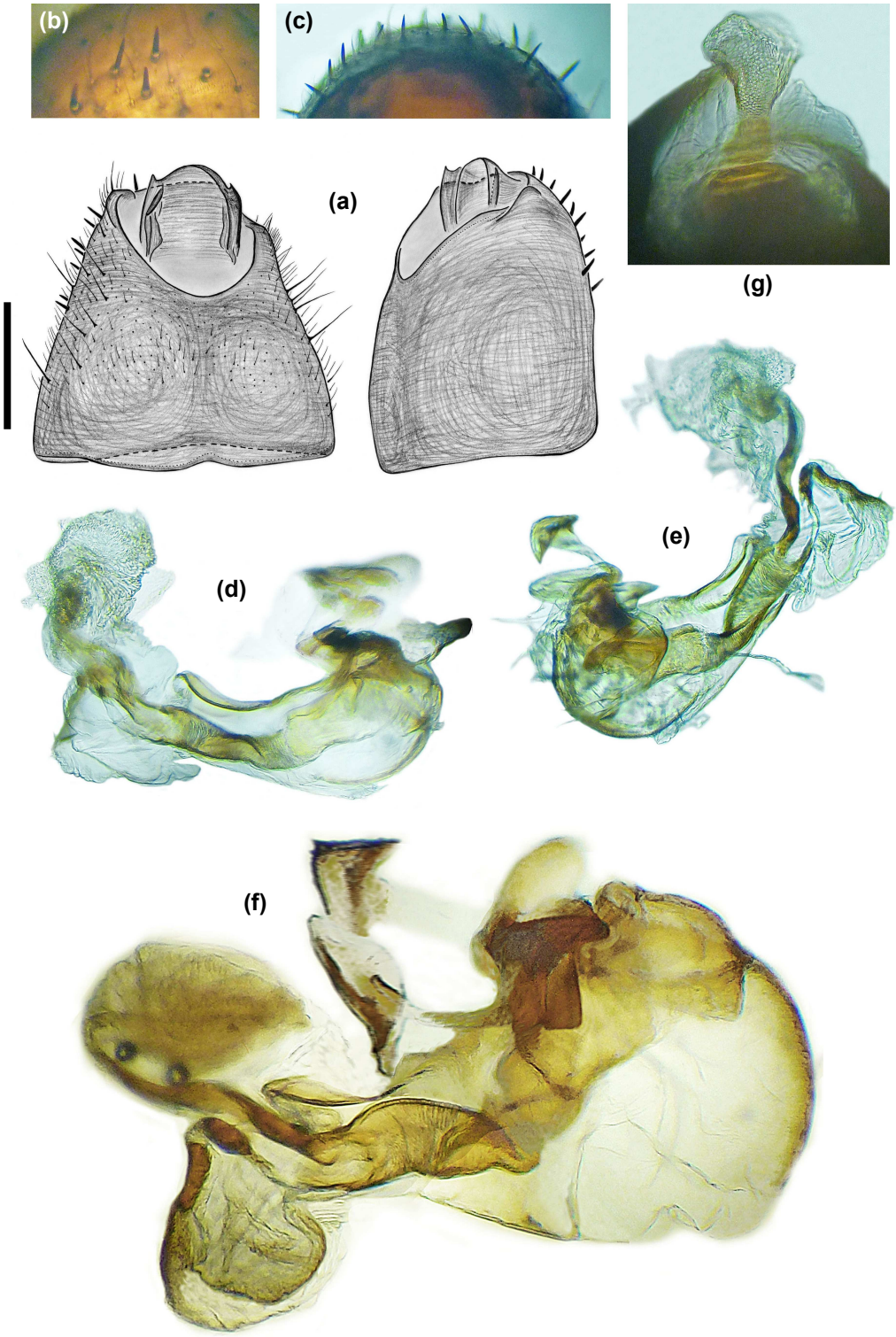

FIGURE 11. *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, male genitalia: pygophore and endosoma: (a) Pygophore in two views (Scale bar = 0.4 mm; «normal» setae omitted in one of the views); (b)-(c) Detail of cuspidate setae; (d)-(f) Endosoma in different views or specimens; (g) Detail of the delta-shaped «organ» at the apex of endosomal dorsal lobe.

spicules or fields of spinules; phallotheca elongate-oval, rather long, more strongly sclerotized dorsally and ventrobasally; ductus seminis relatively long, with flexible ribbing; two long, more or less sclerotized, cordiform strips extending from the secondary gonopore, ending or supporting each a membranous lobe of complex structure; the dorsal lobe apically ending in a fluted, delta-shaped «organ» of micro-scale-like texturing, always visible in dorsal view (in everted-endosoma specimens) between the parameres (Fig. 11g).

Females:

Habitus: (Fig. 8b, 9e-i)

Brachypterous and coleopteroid. Total length = 2.90 (2.73–3.19) mm. Pyriform with carapace-like hemelytra reaching to half tergite VII, 2.97 (2.85–3.16) × longer than posterior width of pronotum and 1.99 (1.90–2.11) × longer than maximum width. Length of head and pronotum combined = one third of total length. Dorsal colouration black with some pale markings, mainly of yellowish cream colour: (1) one spot adjacent to inner margin of each eye; (2) one longitudinal stripe along costal margin of hemelytra (narrower than in males); (3) antennal segment II almost entirely pale; (3) tibiae, as in males, but also some regions of femora pale. Matt and even pruinose in parts, particularly the posterior half of pronotum and the anterior regions of hemelytra. Surface of head, pronotum, scutellum and hemelytra microreticulate, giving the black regions a greyish appearance. Vestiture consisting of: (1) erect and semierect dark and pale setae of different lengths; (2) reclining or adpressed, scale-like, silvery setae.

Head:

Dorsoventrally elongate («strongly vertical»). Broad, 1.18 (1.15–1.24) × wider than posterior width of pronotum. In frontal view, approximately 1.4 × wider than high. Very long, only slightly shorter than pronotum length. Black with pale markings. Dorsally only visible the pair of spots adjacent to inner margin of eyes, which are extended posteriorly as a fine line around eyes and broadened below them considerably, with the effect of a mainly pale «face»: most of mandibular plates and genae, as well as gulae, being pale, and the antennal fossae being completely surrounded by pale. Clypeus pale in apical half except for a pair of subcostal, longitudinal dark stripes, more or less extended; in some specimens, clypeus almost entirely pale except for the longitudinal dark stripes, these very narrow then. A high degree of interindividual variability concerning such dark-and-pale pattern of head in lateral and frontal view, but females always with greater pale areas than males. Bucculae broadly pale. Vestiture consisting of black setae of different lengths, including long and erect, vibrissa-like ones, and a conspicuous cover of reclining, silvery setae (in most specimens best preserved ventrolaterally and frontally). Surface between eyes and antennal fossae with transverse striae, more conspicuous than in males. In some females, distinct transverse striae also on vertex. Vertex slightly depressed between elevated eyes and raised posteriorly into a marginal carina, generally less distinct than in males (Fig. 9f, i); posterior margin straight to slightly convex, depending on the orientation; a pair of glabrous, round, shallowly depressed areas near eyes, almost immediately to each pale spot adjacent to eyes (Fig. 9f, h). Frons evenly convex and bulging, protruding in lateral view. Frons and clypeus meeting along a marked notch. Genae approximately twice the eye height. Eyes round, bulging and substylate; of maroon colour in dry specimens; not touching the anterolateral angles of pronotum and slightly but perceptibly angled upwards and curved backwards, *i.e.* not perfectly aligned with the posterior margin of vertex; ocular index = 4.10 (3.87–4.34). Antennal insertion: in frontal view, to mid-distance between base of clypeus and lower margin of eye; in lateral view, quite ahead, about one eye diameter; in dorsal view, to mid-distance between eye and apex of frons, being the antennal tubercles visible. Labium reaching or slightly exceeding metacoxae; segment I pale except for a ventral longitudinal dark stripe, segments II–IV brownish except for the base of segment II more or less pale; length of segments (relative proportions): I and II subequal, III half the length of them and IV slightly shorter than them; width of segments (relative proportions): I slightly wider than 2 × width of II, III and IV slightly narrower than 2 × width of II.

Antennae (Fig. 9h) black except for segment II pale (yellowish to brownish cream colour), only apically darkened, and segment I brownish to blackish but always darker ventrally. Shorter [0.72 (0.69–0.74) ×] than body length. Length of antennal segments: I–II–III–IV = 0.36 (0.34–0.40) – 0.77 (0.73–0.83) – 0.50 (0.48–0.55) – 0.45 (0.40–0.50) mm. Segment I clavate to barrel-shaped, up to 2 × wider than segment II basally; segment II slightly narrower basally than apically; segment III clearly narrower than II; segment IV slightly narrower than III. Antennal segment II / head width = 0.68 (0.65–0.73). Antennal segment II / pronotum width = 0.80 (0.75–0.89). Vestiture consisting of erect and decumbent black setae as well as adpressed silvery setae; some of the

erect black setae of segment I, longer and thicker (vibrissa-like).

Pronotum:

Entirely black. Rugulose. Trapezoidal to faintly campanulate in dorsal view, in continuity with the pyriform shape of hemelytra; and arched in transverse section, in continuity with the carapace-shape of hemelytra. Anterior margin substraight; posterior margin medially concave; lateral margins slightly sinuate and forming each a faint depression centrally; both depressions weakly connected by a transverse constriction dividing the pronotum into an anterior and a posterior part. Pronotum width/length = 1.88 (1.81–2.00). Pronotum length = 1.42 (1.30–1.57) × length of antennal segment I. Anterior collar distinct dorsally, in some specimens faintly visible. Calli less tumescent than in males; between them, a faint depression (in some females, the only distinct depression of pronotum, not the third one as in males), in connection to, and with similar rugulose surface as, posterior half of pronotum, which is distinctly rugulose including conspicuous transverse striae (Fig. 9e). More or less conspicuous striae on the whole pronotum. Vestiture consisting of erect and semierect black setae, anteriorly including very long, vibrissa-like ones, and reclining, silvery setae, particularly on the anterior half.

Thoracic sternites pale. Thoracic pleurites dark with some pale regions forming a more checkered pattern than in males: the anterior pronotal lobe, which appears as a conspicuous knob adjacent to the big pale spot below eye; the margins of the pleurites around mesocoxae, which are more largely pale than in males, including the mesothoracic spiracle on the apex of mesepimeron, the apex of mesepisternum and the external efferent system of the metathoracic scent gland (MTG) with its ostiole and peritreme almost not darkened. MTG elongate, transverse, subtriangular (shape of a scalene triangle with the longest side posteriorly). A high density of reclining silvery setae.

Scutellum:

Entirely black. Subplan, with a faint depression between mesoscutum and scutellum. Mesoscutum partly visible. In some specimens, obvious transverse striae of the same type as on pronotum (Fig. 9e).

Legs:

Coxae pale except for the base and a medial dark spot. Trochanters mostly pale. Femora paler than in males; dorsally: pro- and mesofemora mostly pale with dark spots or stripes near anterior and/or posterior margins; metafemora mostly dark with the anterior margin pale (in the darkest specimens, only an apical pale spot somewhat extended basad); ventrally: all femora mostly pale except for 1-3 rows of blackish spots medially, more or less fused together and forming longitudinal stripes in pro- and mesofemora (and which even «invade» the trochanters; in some specimens largely «invading» the protrochanters and these being entirely brown), but metafemora always bearing well-defined rows of spots. Tibiae pale (but tending to brownish cream), apically darkened; basally or subbasally somewhat darkened ventrally, in some specimens also dorsally; bearing black microsetae and black spines 1–2 × longer than tibial width; metatibial length / pronotum width = 1.45 (1.40–1.49). Tarsi dark; length of metatarsomeres (relative proportions): I–II–III = 5 – 7 – 8.

Hemelytra:

Reduced, posteriorly truncate and lacking membrane; carapace- or shell-like (convex and undivided); without cuneus but with clavus faintly marked; gradually widened from their base (width of combined hemelytra = width of posterior of pronotum) to their maximum width at the level of apex of claval commissure (width of combined hemelytra = 1.5 × width of posterior of pronotum); apical margins obliquely truncate and leaving visible tergite VII (almost entirely in the middle, only half its length laterally) and subsequent ones. Black except for a longitudinal pale stripe along the exocorium, which gradually widens from the base (generally well-defined stripe of width = width of antennal segment II) to the apex (vaguely defined stripe of width = width of metatibia), where it is more or less crescent-shaped spread on the posterolateral angle. Ratio length/width of each hemelytron = 2.02 (1.90–2.11). Claval commissure = 1.65 (1.56–1.75) × pronotum length and 2.22 (1.75–2.54) × scutellum length.

Abdomen:

Dorsally dark except for costal margin of laterotergites, narrowly pale. Ventrally pale except for: (1) a more or less brownish medial area; (2) segments VIII–IX mostly black, with ovivalvula brown; (3) a subcostal band of subtriangular black spots, increasing in size posteriad. Vestiture mostly consisting of suberect and decumbent pale setae. Ovivalvula (Fig. 12e) equilateral triangle-shaped, apex rounded.

Genitalia:

Genital chamber (Fig. 12a-d) ovate with seminal reservoir triangular (anteriorly pointed), entirely wrinkled. Sclerotized rings medium-sized, separated by a distance less than 2.5 × their transverse diametre, oval and slightly pointed anteromedially, weakly upturned

laterally, adjacent costal region of dorsal wall strongly sclerotized and connected to them by a twisted structure (its 8-like shape not visible dorsally). A simple dorsal sac, longer than wide, posteriorly ending in the oviducts, the vermicular gland arising between them; the dorsal sac with a pair or well-defined, lateral, longitudinal foldings «backwards»; another folding, also «backwards» but transverse, connects the oviducts and/or posterior region of the dorsal sac with both the posterior margin of the genital chamber and the posterior wall [connection lost when the «*ensemble 1*» and «*ensemble 2*» *sensu* Ehanno (1990, 1993) are ripped; see asterisk (*) in Fig. 12c]. Dorsal wall (Fig. 12a) with several bilateral structures: dorsal labiate plate (DLP) forming two large lobes apparently not touching together medially and connected posteriorly (at the level of sclerotized rings) to a pair of strongly sclerotized, anteromedially directed, J-shaped lobes, which are very conspicuous; ventral labiate plate (VLP) forming two subrectangular lobes abutting anteromedially and more or less strongly sclerotized (= visible); all DLP structures posteriorly running unified (bilaterally) and anchoring to the rami at the level of a pair of teeth, from which also a pair of arcuate structures are directed anterolaterally touching the posterior side of sclerotized rings; minute spinulae covering large parts of previous structures, as shown in Fig. 12a. Posterior wall (Fig. 12c-d) with a weakly sclerotized, but well-defined, bilaterally symmetrical and medially converging structure covered with minute spinulae and continued anteriorly by more weakly sclerotized, membranous plates. Opening to vestibulum without noteworthy characters: symmetrical, with margins weakly sclerotized and unmodified.

Etymology:

The name of the new species is dedicated to Mercedes París, curator at the entomology department of the Museo Nacional de Ciencias Naturales de Madrid (MNCN), where the type series, collected and first studied by Ignacio Bolívar, has been preserved for more than 130 years. To her, among others, we owe the preservation and access for study of this collection. She has allowed me to examine this interesting species, helping with curatorial tasks and photography of specimens. The name is a noun in genitive, invariable.

Type locality:

Spain: autonomous community of Castilla – La Mancha: province of Toledo: municipality of Quero.

Distribution and biology:

Only known from a single locality («Quero» without further details) of the south-east of Toledo province, in central Iberian Peninsula. The specimens (all adults in the preserved series) were collected between mid-May and June according to their labels. No other ecological information is available. However, given the high interest of the habitats which surround the endorheic lagoons of this region, along with the known biology of most species in the closest genera *Dimorphocoris* and *Schoenocoris*, it can be hypothesized that they were collected on any of the monocots (Poaceae, Juncaceae or Cyperaceae) growing at the vegetation belts surrounding the lagoon of Quero. In view of the current environmental conditions of this lagoon, it is likely that the species is nowadays endangered or even extinct there.

Discussion:

As mentioned in the Introduction, the type specimens of *Bolivarcoris* **n. gen.** *parisae* **n. sp.** have remained in the MNCN collection for more than a century under the name *Schoenocoris flavomarginatus*. A first examination allowed me to realize that they did not actually belong to that species. Instead, they should be described as new to science; however, their external resemblance to several species in the genus *Dimorphocoris* as well as to *Schoenocoris flavomarginatus* itself was intriguingly combined with some other characters not shared with them. The subsequent in-depth study has brought me face to the colossal Palaearctic (and particularly Mediterranean) diversity of this «section» of Halticini, which is mostly composed of about 60 species of the catch-all genus *Dimorphocoris*, but also of two other genera containing each a single known species: the South African *Compositocoris* Schwartz, Schuh & Tatarnic, 2008 and the European *Schoenocoris* Reuter, 1890 (Kerzhner and Josifov, 1999; Schuh, 2002-2013; Tatarnic and Cassis, 2012; Aukema, 2025). Independently of my certainty about the need of splitting *Dimorphocoris* into several genera, but always with such background idea in mind (rather than that of lumping all three mentioned taxa and recognizing a number of subgenera within an omnibus genus *Dimorphocoris*), I have arrived to the conclusion that the creation of a new genus was imperative to accomodate the unique combination of characters observed in the new Iberian species.

Among those characters of external morphology and male and female genitalia, there can be emphasized: **(1)** Brachypterous females coleopteroid and pyriform with long, carapace-like hemelytra; **(2)** Head long,

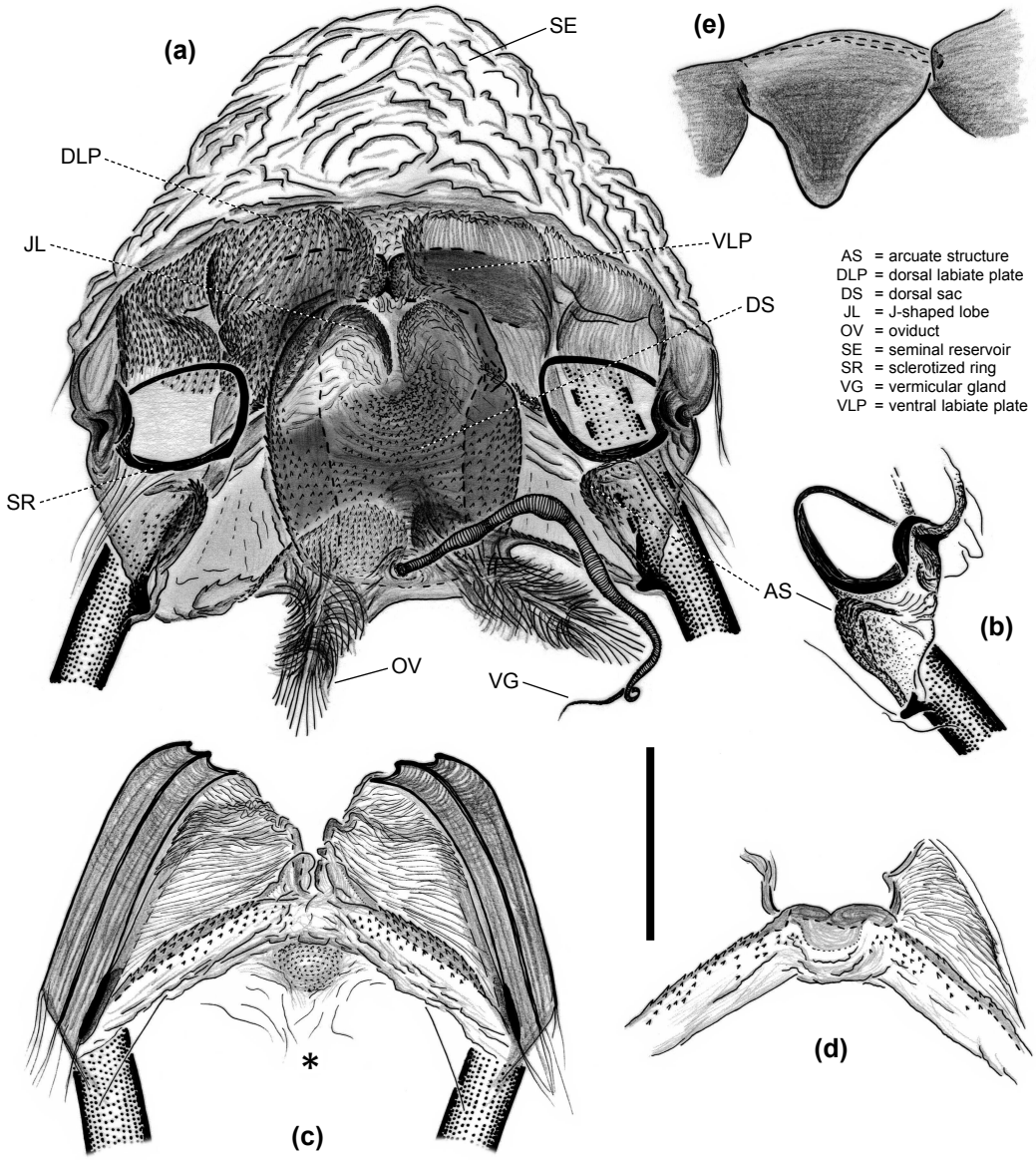

Figure 12. *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, female genitalia: (a)-(d) Genital chamber: (a) Dorsal wall (some regions or structures highlighted on the left or right half, for example by «transparency» of other structures above them); (b) Detail of right sclerotized ring in another view showing its connection to the adjacent costal region of dorsal wall by a twisted, 8-shaped structure; (c) Posterior wall separated from the rest of genital chamber, with the asterisk (*) indicating the ripped region; (d) Detail of posterior wall in another specimen previous to separation (observed behind dorsal wall); (e) Ovivalvula (Scale bar for (a)-(d) = 0.2 mm).

pronotum long and combined head+pronotum very long, so that, for example, the pronotum is considerably longer than antennal segment I (character not shared with any other species of the compared genera); **(3)** Pronotum campanulate in males, trapezoidal to faintly campanulate in females, with a transverse constriction dividing the pronotum into an anterior and a posterior part; **(4)** Vertex carinate posteriorly;

(5) Anterior collar of pronotum distinct; **(6)** Transverse striae on pronotum, scutellum and sometimes head; **(7)** Pygophore with the cuplike sclerite protruding and widely fused with the hypandria, forming a robust receptacle, so that the basal portions of parameres are relatively short and well anchored between pygophore margins and hypandria; **(8)** Pygophore provided, on its ventral surface, with a particular type of spinose setae, the herein so-called «cuspidate setae» (character only shared, among Euromediterranean Halticini, with the genera *Schoenocoris* and *Myrmecophyes*); **(9)** Right paramere sharply L-shaped, with distinct sensory lobe; **(10)** Left paramere several times twisted and provided with several rows of teeth; **(11)** Endosoma mostly membranous, without spicules; **(12)** Genital chamber with the dorsal labiate plate containing a pair of strongly sclerotized, anteromedially directed, J-shaped lobes.

In the following paragraphs the distinctiveness of the new taxon will be discussed, firstly separating it from the species under which it was previously identified, *Schoenocoris flavomarginatus*, and later from the highly diverse genus *Dimorphocoris*.

The male genitalia of *Bolivarcoris* **n. gen.** *parisae* **n. sp.** is completely different from that of *Schoenocoris flavomarginatus* (for the latter, see: Tatarnic and Cassis, 2012: fig. 53), the parameres and endosoma showing a disparity hardly acceptable as congeneric. As to the pygophore, they share the cuspidate setae on it, but the structure of this segment is strongly different between them (compare Figs. 11a and 13a). As indicated above, a search for that type of setae among Euromediterranean Halticini has revealed its presence also in *Myrmecophyes* (*Myrmecophyes*) *gallicus* Wagner, 1976 (Fig. 13b)[3]. For this reason, cuspidate setae should not be considered a synapomorphy exclusive of *Bolivarcoris* **n. gen.** and *Schoenocoris* but instead a further character of the pool of phenotypic potentialities within Halticini, together with others such as the different types of brachypterism, the stylate or substylate eyes, the incrassate femora, the clavate tibiae, etc., which occur in various combinations among its included genera (see Tatarnic and Cassis (2012) for the most thorough genus-level investigation on this tribe).

As to the female genitalia, *Bolivarcoris* **n. gen.** *parisae* **n. sp.** shows a general similarity with *Schoenocoris flavomarginatus* (for the latter, see: Tatarnic and Cassis, 2012: fig. 53), but some important differences are obvious, such as the J-shaped lobes in the dorsal labiate plate of the former.

Besides male and female genitalia, *Bolivarcoris* **n. gen.** *parisae* **n. sp.** and *Schoenocoris flavomarginatus* are clearly separated by the characters (2) to (6) of external morphology [second paragraph of this Discussion delineating the new genus], in addition to several species-level differences such as (for the later): (1) Eyes not angled upwards; (2) Females darker, including antennae entirely; (3) Morphometric measurements and ratios, for example: (a) Total length smaller (males = 2.8–3.2 mm; females = 2.5–2.7 mm) and males less elongate; (b) Ocular index smaller (males = 2.4–2.7; females = 3.0–3.5); (c) Ratio width/ length of pronotum greater (males = 2.2–2.4; females = 2.3–2.5); (d) Hemelytra less elongate in females.

My study of *Schoenocoris flavomarginatus* was based on 7 males and 3 females from the following collections: Günther, Matocq, Pagola-Carte and Wagner [in ZMUH], all of them collected in the Apennines or Subapennines mountains, central Italian Peninsula: Monti Sibillini (Günther *leg.*, Tamanini *leg.*), Campo Imperatore (Rizzoti *leg.*) and Monte Livata (Koller *leg.*), all of them close to the type locality (see: Carapezza *et al.*, 1995). I have not seen material from other countries. According to the Palaearctic Catalogue (Aukema, 2025), besides Italy, this species occurs in Bulgaria, France, Macedonia, Romania and Spain. However, its distribution may not be well defined. On the one hand, it is interesting to note the long history of confusion between it and several species of *Dimorphocoris* (Seidenstücker, 1964; Carapezza, 1995) in a period in which the current knowledge on the general chorology of Euromediterranean Miridae was being elaborated (for example: Wagner and Weber, 1964; Wagner, 1974b). On the other hand, more recent publications seem to question some previous records, for instance in France: «*Pas de référence récente pour la Lorraine*» (Streito *et al.*, 2014), «*La présence de* Schoenocoris flavomarginatus (*Costa, 1842*) *dans les Vosges reste à confirmer*» (Callot, 2020). Josifov (1986) indicates Bulgaria and Macedonia without further details. As to Spain, both Chicote (1880) and Medina (1895)

[3] Whereas in *Bolivarcoris* **n. gen.** and *Schoenocoris* the cuspidate setae are located on the broad apicoventral convexity of pygophore, in *Myrmecophyes* they are circumscribed to a caudal protuberance (maybe topologically homologous to the mentioned convexity for the other genera) and their thickness seemingly changes innerwards up to commingle with «normal» setae. On the other hand, the field of cuspidate setae in *Bolivarcoris* **n. gen.** seems to extend over a larger surface than in *Schoenocoris*.

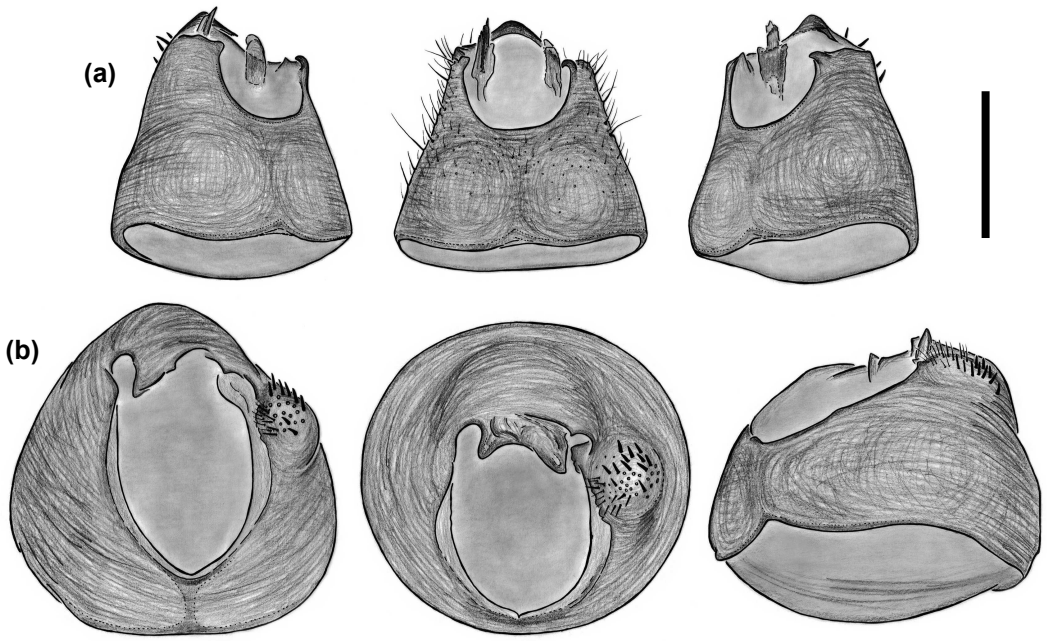

Figure 13. Pygophore (different views or specimens) of: (a) *Schoenocoris flavomarginatus* (A. Costa, 1842); (b) *Myrmecophyes* (*Myrmecophyes*) *gallicus* Wagner, 1976 (Scale bar = 0.4 mm; «normal» setae omitted in most of the views).

recorded it from Sevilla based on specimens identified by I. Bolívar, so that they could actually belong or not to this species. A more reliable record might be that provided by Bator (1957) from central Iberian mountains (Navacerrada). Nevetherless, further research is needed to define the true distribution of *Schoenocoris flavomarginatus*, which, in my opinion, could be endemic to central Italian mountains.

The comparison of *Bolivarcoris* **n. gen.** *parisae* **n. sp.** with *Dimorphocoris* is more difficult. This is the largest genus of Halticini and a paradigmatic example of circummediterranean speciation (even though not exclusive from the Mediterranean region in its current concept; see: Tatarnic and Cassis, 2012). Its astounding and still partially known diversity, with most species having a strongly restricted distribution range, is probably due to a low capacity for movement caused by the brachipterism of females or of both sexes (Wagner, 1965a; Linnavuori, 1992). The brachipterism is precisely one of the many features of their external morphology shared with both *Schoenocoris* and *Bolivarcoris* **n. gen.** Moreover, I have not found any single character which definitely separates *Schoenocoris* from *Dimorphocoris* as a whole[4], but only combinations of characters which allow not only such separation but also the splitting of the latter in groups of species. In fact, a number of groups and subgroups, «formally» established or not, can be recognised according to their external morphology, to their genitalia or to

[4] Due to the high specific diversity within *Dimorphocoris*, the only true distinguishing character in Wagner's (1974) book appears in the identification keys (antennal segment II slightly clavate in males of *Schoenocoris*), but it is a very faint character. As to the generic revision of Halticini by Tatarnic and Cassis (2012), their concept for *Dimorphocoris* is mostly based on the type species *D.* (*D.*) *gracilis* (Rambur, 1839), so that their identification keys, descriptions and cladistic analyses are of limited value for a comprehensive treatment of this genus with its current composition. As an example, the separation between *Schoenocoris* and *Dimorphocoris* in their keys (dichotomy 21) is based on the external efferent system of the metathoracic scent gland (MTG), but its quite unusual shape in *D.* (*D.*) *gracilis* is not shared by many other species of *Dimorphocoris*, with a MTG rather similar to that of both *Schoenocoris* and *Bolivarcoris* **n. gen.**

a combination of both (Wagner, 1965a, 1965b, 1974b; Linnavuori, 1992; Ehanno, 1993; Ehanno and Ribes, 1994). In some of those groups high levels of interspecific similarity are shown, due to presumably recent phylogenetic divergence in connection to mountain or plain refuges during glacial-interglacial cycles. Some other groups, or even single species, are morphologically more isolated and presumably early diverging.

I have reviewed the most relevant literature dealing with *Dimorphocoris*[5], comparing every description and illustration available for each species with *Bolivarcoris* **n. gen.** *parisae* **n. sp.** and taking into account the abovementioned groups of species in my comparison strategy. In addition, a dozen species belonging to several of those groups have been examined personally. The identification keys provided by Wagner (1974b) are still the best way to become familiar with the diversity of the Mediterranean fauna, always in combination with a few subsequent improvements of those keys by Linnavuori (1992), Ehanno (1993) and Ehanno and Ribes (1994), who also made a greater effort to understand «naturally» the inner classification of the genus beyond Wagner's artificial approach. Besides those contributions, I have also considered the descriptions or revisions for western Europe provided subsequently by Ehanno (1997a, 1997b), Rizzotti Vlach (1998) and Carapezza (2002).

Despite the tremendous variety of character combinations (external morphology and male and female genitalia) which can be found within the species-rich genus *Dimorphocoris*, *Bolivarcoris* **n. gen.** *parisae* **n. sp.** appears as quite different from all of its members. Not only its combination of characters is unique [see the second paragraph of this Discussion delineating the new genus] but also some of those characters are totally unknown in *Dimorphocoris*. First of all, in no species of *Dimorphocoris* can be found a so long pronotum. In the new taxon it is considerably longer than the antennal segment I, while it is always shorter or, at most, equal to it in *Dimorphocoris*. Concerning the male genitalia, both parameres are highly distinctive: the right paramere is sharply L-shaped, with a distinct sensory lobe (spoon- and/or club-shaped and not so sharply bent in *Dimorphocoris*), and the left paramere is several times twisted and provided with several rows of teeth more or less connected between them (always simpler in *Dimorphocoris*), turning out to be one of the most complex left parameres among Halticini, together with some *Halticus* Hahn, 1832. As to the cuspidate setae of the pygophore, whereas I cannot asseverate that they lack in all species of *Dimorphocoris* (my own examination was limited to a fraction of the known species), it seems difficult to believe that Carapezza, Ehanno, Ribes, Seidenstücker or Tamanini had overlooked this character in their meticulous studies or forgotten it in their laborious drawings (see, for example: Seidenstücker, 1964; Tamanini, 1971a, 1971b, 1972, 1973, 1975, 1976a, 1976b, 1981, 1982; Ehanno, 1993, 1997a, 1997b; Ehanno and Ribes, 1994; Ribes and Ribes, 2001; Carapezza, 2002).

With respect to a majority of species of *Dimorphocoris*, some other characters of *Bolivarcoris* **n. gen.** *parisae* **n. sp.** are of particular interest. The endosoma is entirely membranous in the latter, while in most members of *Dimorphocoris* it is heavily sclerotized or, if membranous, it bears highly sclerified pieces (namely spicules, sclerites, fields of teeth or dentate lobes...), with only a few species in which it is entirely membranous, such as *D.* (*D.*) *albipilis* Kerzhner, 1964 or *D.* (*D.*) *tauricus* (Horváth, 1880) (Ehanno and Ribes, 1994), or even *D.* (*D.*) *asanovae* Kerzhner, 1964, *D.* (*D.*) *distylus* Seidenstücker, 1964, *D.* (*D.*) *seidenstueckeri* Linnavuori, 1984, *D.* (*D.*) *toros* Seidenstücker, 1962 and *D.* (*D.*) *cilix* Seidenstücker, 1962, according to Ehanno (1997b). These species are very different in many other aspects (see: Seidenstücker, 1962; Wagner, 1974b; Ehanno and Ribes, 1994; Ehanno, 1997b) even if, curiously, *D.* (*D.*) *tauricus* «approaches» the new species due to several features of external morphology: the head is broad with substylate eyes (see: Lindberg, 1956: figs. 9-10; Seidenstücker, 1962: figs. 12-13), the pronotum is rather long in males (see: Lindberg, 1956: fig. 9; Seidenstücker, 1962: fig. 12) and the hemelytra are rather long in females (see: Lindberg, 1956: fig. 9). So that, if we try to identify the new species from Toledo following Wagner's keys for *Dimorphocoris*, at most we could reach dichotomy 18/19 concerning *D.* (*D.*) *tauricus* and *D.* (*D.*) *gallicus* Wagner, 1965. But, once again, they are completely different insects. In a similar way, some other species might show a first-glance resemblance due to one or another mor-

[5] In the absence of a comprehensive review of *Dimorphocoris*, however a substantial corpus of information on its included species has been achieved in the last sixty years, thanks to the works of some authors: particularly Wagner, Ehanno, Kerzhner and Tamanini but also (alphabetically) Carapezza, Gadalla, Hoberlandt, Lindberg, Ribes, Rizotti Vlach and Seidenstücker, among others. It is to them that we owe the current state-of-the-art for this genus, even if twenty years have passed since the last relevant contribution (Gadalla, 2005).

phological coincidence, as for example *D.* (*D.*) *satyriscus* (Scott, 1870).

In the pygophore of *Bolivarcoris* **n. gen.** *parisae* **n. sp.** the cuplike sclerite is protruding and widely fused with the hypandria, forming a robust receptacle. In my research on *Dimorphocoris* I have found, mainly thanks to the profusely illustrated works by Ehanno (1993, 1997a, 1997b) and Ehanno and Ribes (1994), but also confirmed by personal observations, that: (a) the pygophore exhibits a high structural diversity within this genus as currently conceived; (b) the shape and structure of hypandria and cuplike sclerite, together with the shape of genital opening and its margins, follow several models; (c) the resulting types of pygophore have been neglected throughout the taxonomic history of the genus, even when they provide crucial distinguishing characters and define groups of species; (d) eventually they should, in my opinion, help splitting *Dimorphocoris* into smaller genera. All in all, a few species of *Dimorphocoris*, such as *D.* (*D.*) *remanei* Wagner, 1965, also have the hypandria fused together «*en formant un plateau*» (Ehanno, 1997b). In view of the otherwise strong dissimilarity with the new species and genus, we can almost be sure that the coincidence is due to (once again) sharing the same pool of phenotypic potentialities within Halticini.

Concerning the female genitalia in *Dimorphocoris*, Ehanno (1993, 1997a, 1997b) and Ehanno and Ribes (1994) described and illustrated it for about forty species, while the description and illustrations provided by Tatarnic and Cassis (2012) only refer to its type species *D.* (*D.*) *gracilis* (Rambur, 1839). A great diversity of shapes and structures is again evident within this genus. However, the female genitalia observed in *Bolivarcoris* **n. gen.** *parisae* **n. sp.** seems to be very different from that diversity (with regard to dorsal sac, sclerotized rings, J-shaped lobes, etc.). Although the use of female genitalia for species separation is not generalized in *Dimorphocoris*, and some parts of the genital chamber of Halticini are considered as «inherently variable» as to be diagnostically useful at tribe level (Schuh, 1974), their great interest as a complement for generic diagnoses has been systematically shown by Tatarnic and Cassis (2012).

Final remarks

Dicyphus (*Brachyceroea*) *guentheri* **n. sp.** and *Bolivarcoris* **n. gen.** *parisae* **n. sp.** have been described from the habitats surrounding endorheic lagoons of Toledo province, highlighting both the high biological interest of these inland brackish basins of Castilla – La Mancha and the limited knowledge on the Iberian fauna of insects. The present contribution represents further entomological discoveries in the same exact localities and habitats as those by López *et al.* (2006) or, much recently, Álvarez Fidalgo and Pascual Hergueta (2024).

Dicyphus (*Brachyceroea*) *guentheri* **n. sp.** is a species close to *D.* (*B.*) *geniculatus*, perhaps being its «sister species» phylogenetically. In the case of *Bolivarcoris* **n. gen.** *parisae* **n. sp.**, it has been deemed necessary the creation of a new genus, which is close to the genera *Dimorphocoris* and *Schoenocoris*. Most probably both new taxa are endemic to this region, and the phylogenetic origin of each of them, in connection to the evolution of their habitats, could have happened at different times throughout the long geological history of this Castilian plain.

Another emerging topic from both descriptions is the interest of the pygophore as a provider of useful taxonomic characters. In the author's opinion, such interest has been somewhat neglected in the study of Palaearctic Miridae, even if for many genera it could be crucial (see another example among Orthotylinae in: Pagola-Carte, 2024).

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