

A new species and first record of *Trichorhina* Budde-Lund, 1908 (Isopoda, Oniscidea, Platyarthridae) from the Department of Norte de Santander, Colombia

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ABSTRACT

The genus *Trichorhina* Budde-Lund, 1908 includes 70 species distributed mainly in tropical regions, of which three species have been recorded from Colombia: *Trichorhina bermudezae* Carpio-Díaz, López-Orozco and Campos-Filho, 2018, *Trichorhina heterophthalma* Lemos de Castro, 1964, and *Trichorhina papillosa* (Budde-Lund, 1893). The present work aims at describing *Trichorhina navasi* n. sp. from La Playa de Belén, Department of Norte de Santander. In addition, it provides the first record of terrestrial isopods in the Department of Norte de Santander.

KEYWORDS

Andean Cordillera, Crustacea, dry forest, Neotropics, woodlice

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INTRODUCTION

Terrestrial isopods (Oniscidea) comprise more than 3,700 described species distributed in almost all terrestrial habitats around the globe (Schmalfuss, 2003; Sfenthourakis and Taiti, 2015). The family Platyarthridae Verhoeff, 1949 includes 132 species distributed mainly in tropical habitats (Schmalfuss and Ferrara, 1978; Schmidt, 2003; Boyko *et al.*, 2008a; Campos-Filho *et al.*, 2017; Carpio-Díaz *et al.*, 2018; Taiti *et al.*, 2018). Currently, the family is considered paraphyletic (Schmidt, 2003; Javidkar *et al.*, 2015; Campos-Filho *et al.*, 2017).

To date, the genus *Trichorhina* Budde-Lund, 1908 comprises 70 valid species, of which 46 are recorded from Neotropical regions (Schmalfuss, 2003; Boyko *et al.*, 2008b; Souza *et al.*, 2011; Campos-Filho *et al.*, 2014; 2015; 2016; 2017; Carpio-Díaz *et al.*, 2018; Taiti *et al.*, 2018). In Colombia, only three species are known: *Trichorhina papillosa* (Budde-Lund, 1893) recorded from Medellín, Department of Antioquia (Richardson, 1912), the pantropical species *Trichorhina heterophthalma* Lemos de Castro, 1964, and *Trichorhina bermudezae* Carpio-Díaz, López-Orozco and Campos-Filho, 2018 from northern Department of Bolívar, Caribbean coast (Carpio-Díaz *et al.*, 2018). The genus is defined by the cephalon with lateral lobes well developed, dorsal surface smooth, densely covered with fan-shaped scale setae, and antenna with flagellum of two articles, distal article much longer than proximal one (Schmidt, 2003; Souza *et al.*, 2011; Carpio-Díaz *et al.*, 2018).

In the present paper, a new species of *Trichorhina* is described from La Playa de Belén, Norte de Santander (Western subregion), constituting the first record of a terrestrial isopod in this department.

MATERIAL AND METHODS

The specimens were collected by hand with aid of forceps and stored in 96 % ethanol. The identifications were based on morphological characters. The illustrations were made from photographs taken with Axio Lab. A1 microscope and SteREO Discovery V12 ZEISS stereomicroscope with adapted camera AxioCam ERc 5s and the aid of a camera lucida mounted on a Wild M3Z stereomicroscope. The final

illustrations were prepared using the software GIMP (v. 2.8) with the method proposed by Montesanto (2015; 2016). The b/c and d/c coordinates of the *noduli laterales* were obtained and figured as in Vandel (1962).

The material used in this study is deposited in the Collection of Isopod Crustaceans of the Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia (ICN-CR-is).

SYSTEMATICS

Platyarthridae Verhoeff, 1949

Trichorhina Budde-Lund, 1908

Type species. *Bathytropa thermophila* Dollfus, 1896 [= *Trichorhina tomentosa* (Budde-Lund, 1893)], by original designation.

Diagnosis. See Carpio-Díaz *et al.* (2018).

Trichorhina navasi López-Orozco, Carpio-Díaz and Campos-Filho n. sp.

(Figs. 1–4)

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Type material. *Holotype:* male (ICN-CR-is 178), Colombia, Department of Norte de Santander, La Playa de Belén, Área Natural Única (ANU) Los Estoraques, Vereda Rosa Blanca, Sendero la Honda, 8°13'14 43"N 73°14'32 47"W, 1500 a.s.l., 04.XI.2013, leg. C. Romero and E. Flórez. *Paratypes:* 1 male (parts in micro-preparations), (ICN-CR-is 178), same data as holotype.

Diagnosis. Body narrow, pereonites 1–7 with lateral sides almost parallel, eyes composed of ten ommatidia, cephalon with frontal line straight, male pleopod 1 exopod ovoidal, twice wider than long and distal margin sinuous, endopod elongate with distal margin acute.

Description. Maximum body length: 2.41 mm. Body convex, outline as in Fig. 1A, B. Color light brown; antennal peduncle, median portion of pereon and pleon strongly pigmented; cephalon, antenna, and uropods with irregular unpigmented spots; pereon with unpigmented areas on paramedian portions (Fig. 1A).

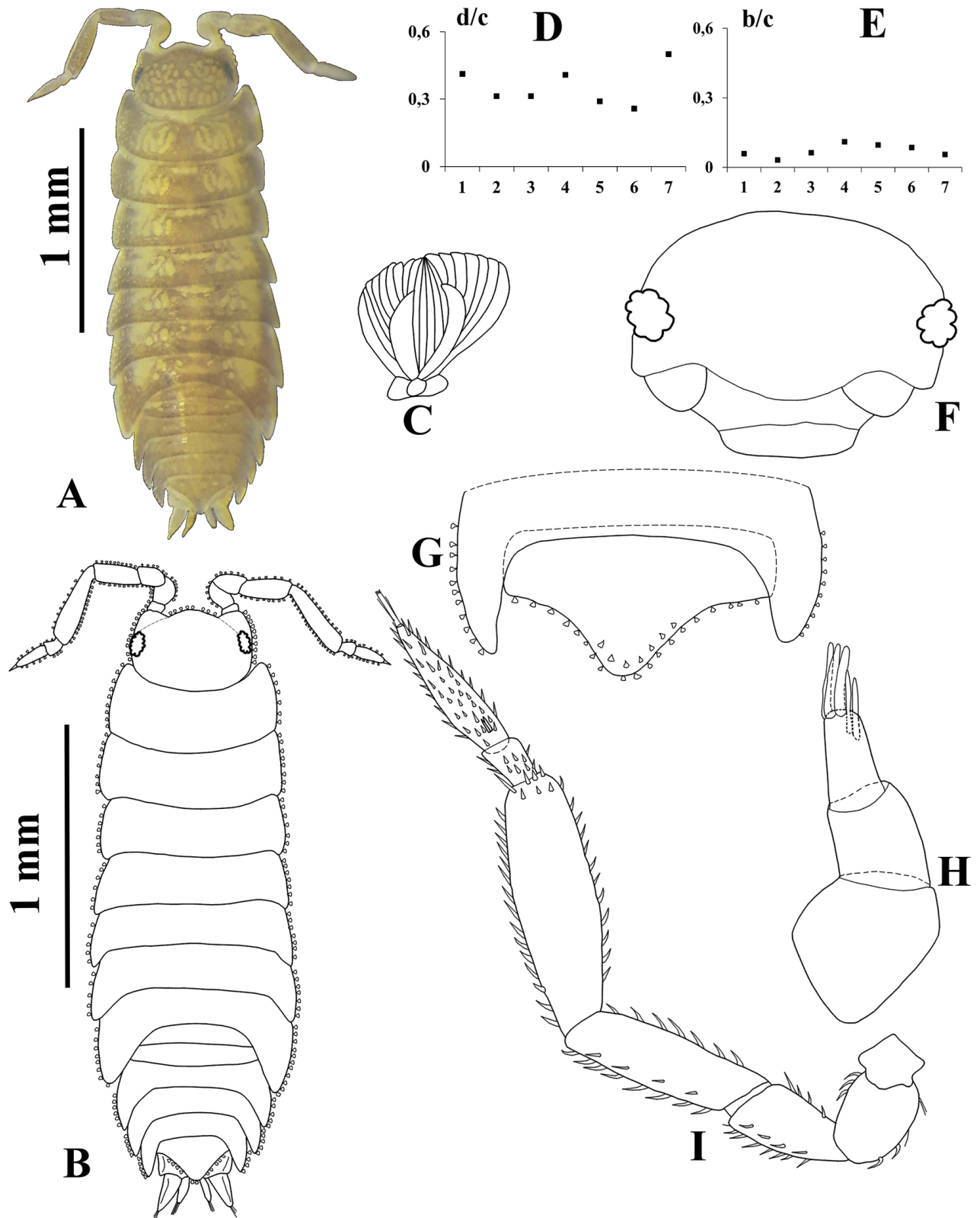


Figure 1. *Trichorhina navasi* López-Orozco, Carpio-Díaz and Campos-Filho n. sp., (male paratype). **A, B**, habitus, dorsal view; **C**, dorsal scale-seta; **D**, b/c noduli laterales coordinates; **E**, d/c noduli laterales coordinates; **F**, cephalon, dorsal view; **G**, pleonite 5 and telson; **H**, antennula; **I**, antenna.

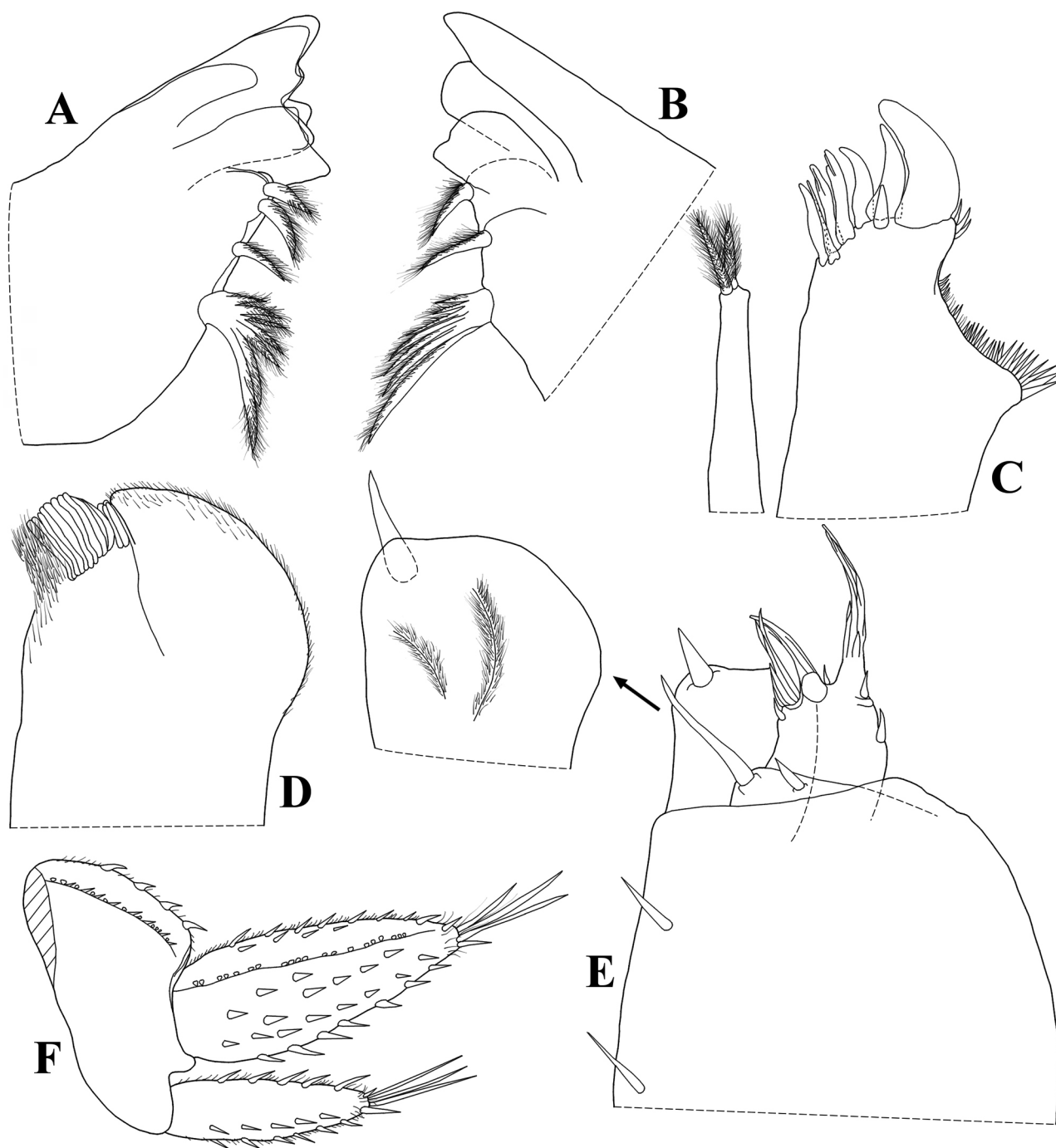


Figure 2. *Trichorhina navasi* López-Orozco, Carpio-Díaz and Campos-Filho n. sp. (male paratype). **A**, left mandible; **B**, right mandible; **C**, maxillula; **D**, maxilla; **E**, maxilliped; **F**, uropod.

Dorsal surface scaled, covered with fan-shaped scale-setae (Fig. 1C). Body (Fig. 1B) narrow, pereonites 1–7 with lateral sides almost parallel; pereonite 1 epimera directed frontwards, 2–7 progressively directed backwards. Pereonites 1–7 epimera with one line of small *noduli laterales*, inserted close to posterior margins and shifted from lateral margins; d/c and b/c coordinates as

in Fig. 1D, E. Cephalon (Fig. 1A, B, F) with triangular lateral lobes, slightly directed outwards; supr antennal line straight; eyes composed of ten ommatidia strongly pigmented. Pleon slightly narrower than pereon, epimera 3–5 well developed and falciform (Fig. 1A, B). Telson (Fig. 1G) triangular with lateral margins concave, apex narrow with distal margin rounded.

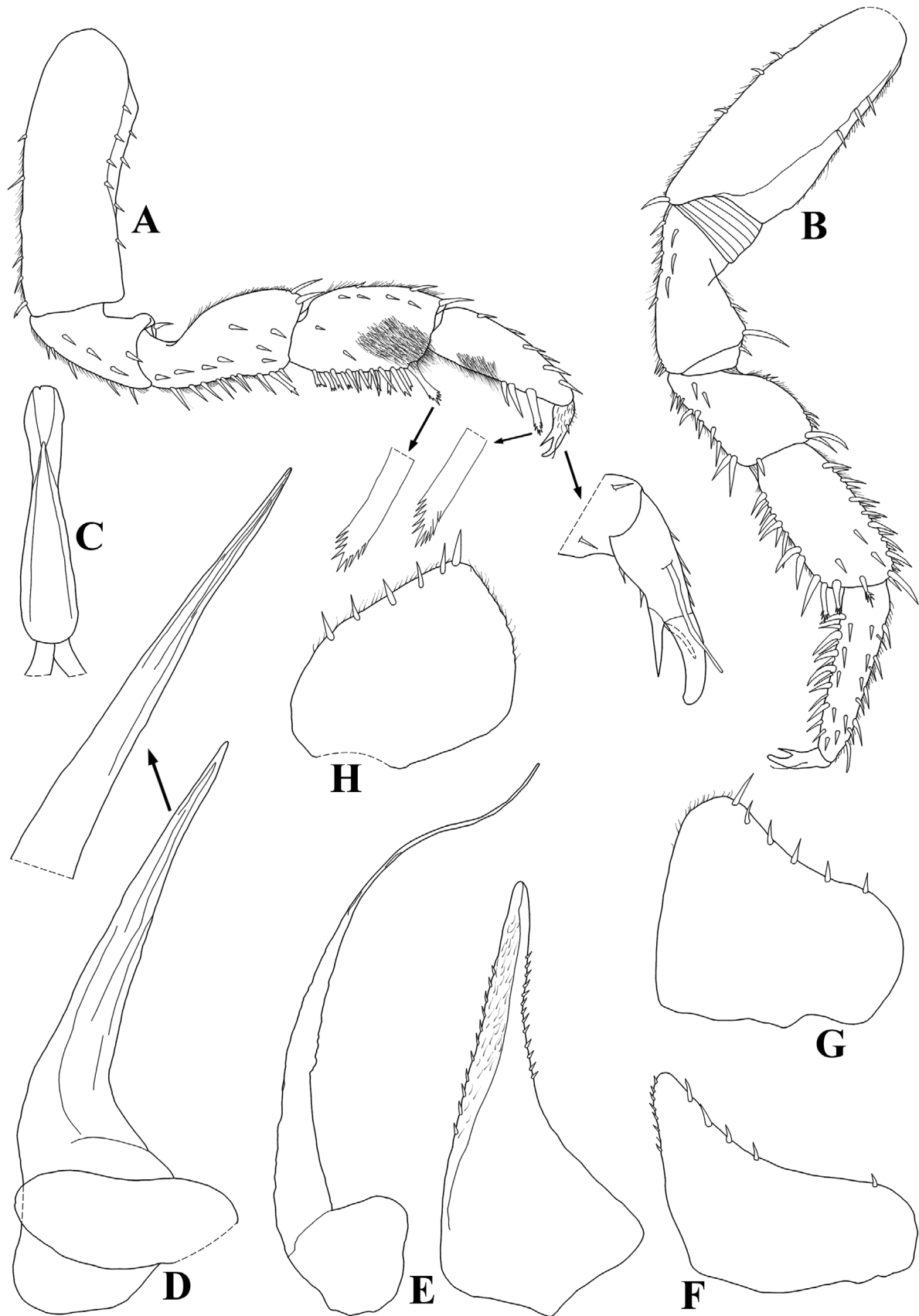


Figure 3. *Trichorhina navasi* López-Orozco, Carpio-Díaz and Campos-Filho n. sp., (male paratype). **A**, pereopod 1; **B**, pereopod 7; **C**, genital papilla; **D**, pleopod 1; **E**, pleopod 2; **F**, pleopod 3 exopod; **G**, pleopod 4 exopod; **H**, pleopod 5 exopod.

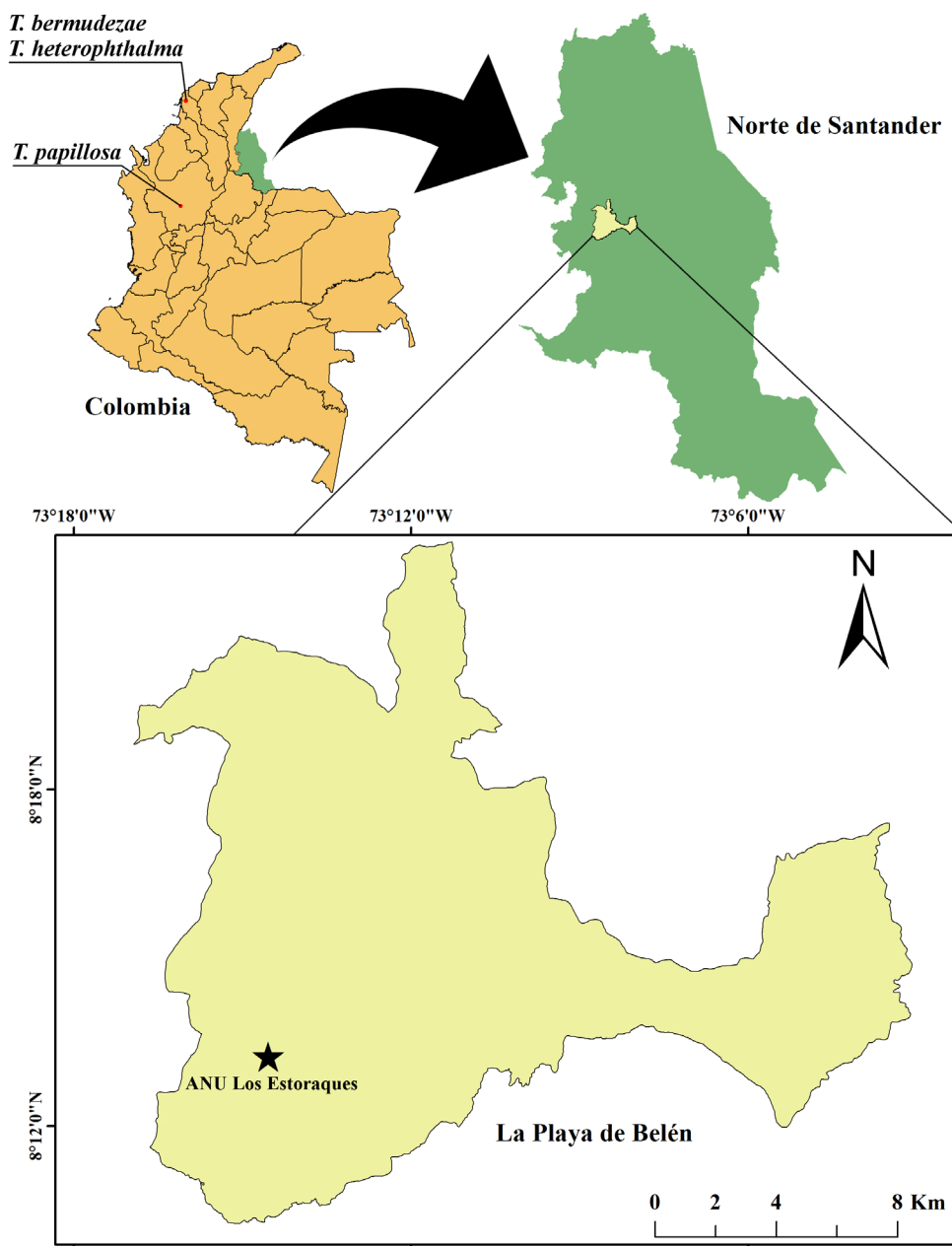


Figure 4. Map of the study area and location of the ANU Los Estoraques, La Playa de Belén, Department of Norte de Santander, Colombia.

Antennula (Fig. 1H) with articles subequal in length, distal article bearing two subapical plus three apical aesthetascs. Antenna (Fig. 1I) when extended posteriorly reaching posterior margin of pereonite 1; distal article of flagellum three times longer than first, with two aesthetascs on proximal portion; apical organ short. Mandibles with molar penicil consisting of seven branches, left mandible (Fig. 2A) with 2+1 penicils, right mandible (Fig. 2B) with 1+1 penicils. Maxillula (Fig. 2C) inner endite with two penicils; outer endite

with 4+4 teeth, inner set with two teeth cleft at apex. Maxilla (Fig. 2D) inner lobe subquadrangular, distal margin slightly rounded and covered with thick setae; outer lobe about three times as wide as inner lobe, covered with thin setae. Maxilliped (Fig. 2E) basis rectangular bearing sparse scale-setae; palp with two setae distinct in length on proximal article; endite with medial seta surpassing distal margin. Pereopod 1 (Fig. 3A) merus with sternal setae sparse; carpus with brush of setae on sternal margin and transverse

antennal grooming brush; merus, carpus, and propodus with sternal setae double-serrate at apex. Pereopod 7 (Fig. 3B) without any particular modification. Dactylus with inner claw not surpassing outer claw; unguis seta and dactylar organ simple, not surpassing outer claw (Fig. 3A). Uropod (Fig. 2F) protopod and exopod grooved on outer margin bearing glandular pores, protopod subrectangular, exopod slightly longer than endopod, endopod inserted proximally. Genital papilla (Fig. 3C) with triangular ventral shield and two subapical orifices. Pleopod 1 (Fig. 3D) exopod ovoidal, twice as broad as long, distal margin slightly sinuous; endopod five times longer than exopod, distal portion acute. Pleopod 2 (Fig. 3E) exopod triangular, outer margin concave bearing many small setae; endopod flagelliform, distinctly longer than exopod, distal portion slender. Pleopods 3–5 exopods as in Fig. 3F–H.

Etymology. The new species is named after Dr. Gabriel R. Navas, from the University of Cartagena, Colombia, for his contributions to the knowledge of crustaceans from Colombia.

Remarks. In having the eyes composed of ten ommatidia, *T. navasi* n. sp. is similar to *T. bermudezae* (see Carpio Díaz *et al.*, 2018), *Trichorhina amazonica* Souza-Kury, 1997, *Trichorhina mariani* Arcangeli, 1930, *Trichorhina pubescens* (Dollfus, 1893), and *Trichorhina yiara* Campos-Filho, Araujo and Taiti, 2014; however, it can be easily distinguished by the shape of the male pleopod 1. Moreover, it differs in having the eyes composed of ten ommatidia (*vs.* five to six in *T. papillosa*), antennula with three apical aesthetascs plus two subapical (*vs.* five subapical in *T. amazonica*; two apical plus two subapical in *T. bermudezae*; four to five in *T. papillosa*; four apical in *T. yiara*), mandibles with molar process of seven branches (*vs.* four in *T. amazonica*; five in *T. bermudezae* and *T. yiara*; three in *T. papillosa*), maxillula outer endite of 4+4 teeth, two teeth cleft at apex (*vs.* 3+4 with two cleft in *T. amazonica* and *T. papillosa*; 5+4 and all simple in *T. bermudezae*; 4+4 with two cleft in *T. yiara*), and male pleopod 2 endopod with distal portion slender (*vs.* thicker in *T. amazonica* and *T. yiara*) (see also Vandell, 1952; Souza-Kury, 1997; Campos-Filho *et al.*, 2014; Carpio-Díaz *et al.*, 2018). Comparisons with *T. mariani* and *T. pubescens* are limited because

the available descriptions do not provide enough information.

The present work represents the first record of a terrestrial isopod in the Department of Norte de Santander (Fig. 4). Moreover, it describes the first species of *Trichorhina* in the Eastern Cordillera (up to 1500 m a.s.l.) pre-montane dry forest. Considering the diversity of the genus in other countries of the Neotropical region (*e.g.*, Schmidt, 2001; Schmalzfuss, 2003; Campos-Filho *et al.*, 2018), the knowledge of the biodiversity of *Trichorhina* in Colombia is far from complete.

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