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New records of terrestrial isopods (Crustacea: Isopoda: Oniscidea) from Colombia

Новые находки наземных изопод (Crustacea: Isopoda: Oniscidea) в Колумбии

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КЛЮЧЕВЫЕ СЛОВА: мокрицы, распространение, интродуцированные виды, Неотропика.

ABSTRACT: Nineteen species of terrestrial isopods in the families Ligiidae, Tylidae, Detonidae, Trichoniscidae, Philosciidae, Halophilosciidae, Platyarthridae, Eubelidae, Trachelipodidae, Porcellionidae, Agnaridae, and Armadillidiidae are recorded from Colombia. *Atlantoscia floridana*, *Buchnerillo neotropicalis*, *Ethelum americanum*, *Haplophthalmus danicus*, *Littorophiloscia culebrae*, *Trichoniscus pusillus*, *Trichorhina tomentosa*, and *Nagurus cristatus* are recorded for the first time. The range of distribution of *Ligia baudiniana*, *Tylos negroi*, *Armadilloniscus luisi*, *Pulmoniscus turbanaensis*, *Trichorhina heterophthalma*, *Agabiformius lentus*, *Porcellio scaber*, *P. dilatatus*, *Porcellionides pruinosus*, *Aganara madagascariensis*, and *Armadillidium vulgare* is extended. In addition, a distribution map and photographs of the species are given.

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РЕЗЮМЕ: В Колумбии обнаружено 19 видов наземных изопод из семейств Ligiidae, Tylidae, Detonidae, Trichoniscidae, Philosciidae, Halophilosciidae, Platyarthridae, Eubelidae, Trachelipodidae, Porcellionidae, Agnaridae и Armadillidiidae. В стране впервые отмечены *Atlantoscia floridana*, *Buchnerillo neotropicalis*, *Ethelum americanum*, *Haplophthalmus danicus*, *Littorophiloscia culebrae*, *Trichoniscus pusillus*, *Trichorhina tomentosa* и *Nagurus cristatus*. Расширены ареалы *Ligia baudiniana*, *Tylos negroi*, *Armadilloniscus luisi*, *Pulmoniscus turbanaensis*, *Trichorhina heterophthalma*, *Agabiformius lentus*, *Porcellio scaber*, *P. dilatatus*, *Porcellionides pruinosus*, *Aganara madagascariensis* и *Armadillidium vulgare*. Также даны карты распространения всех видов и фотографии некоторых из них.

Introduction

Terrestrial isopods (Oniscidea) are the unique crustacean lineage completely adapted to the terrestrial way of life [Hornung, 2011; Richardson, Araujo, 2015; Taiti, 2018]. To date, the Oniscidea comprise about 4,000 species distributed in more than 500 genera in 38 families, occurring in almost all terrestrial habitats [Schmalfuss, 2003; Javidkar *et al.*, 2015, 2017; Sfenthourakis, Taiti, 2015; Campos-Filho, Taiti, 2021]. These organisms play an essential role in the soil processes, increasing the decomposition rate of organic matter [Zimmer, Topp, 1999; Quadros, Araujo, 2008; Špaldoňová, Frouz, 2014; Abd El-Wakeil, 2015]. Moreover, they are considered bioindicators of environmental impact due to their ability to tolerate high levels of

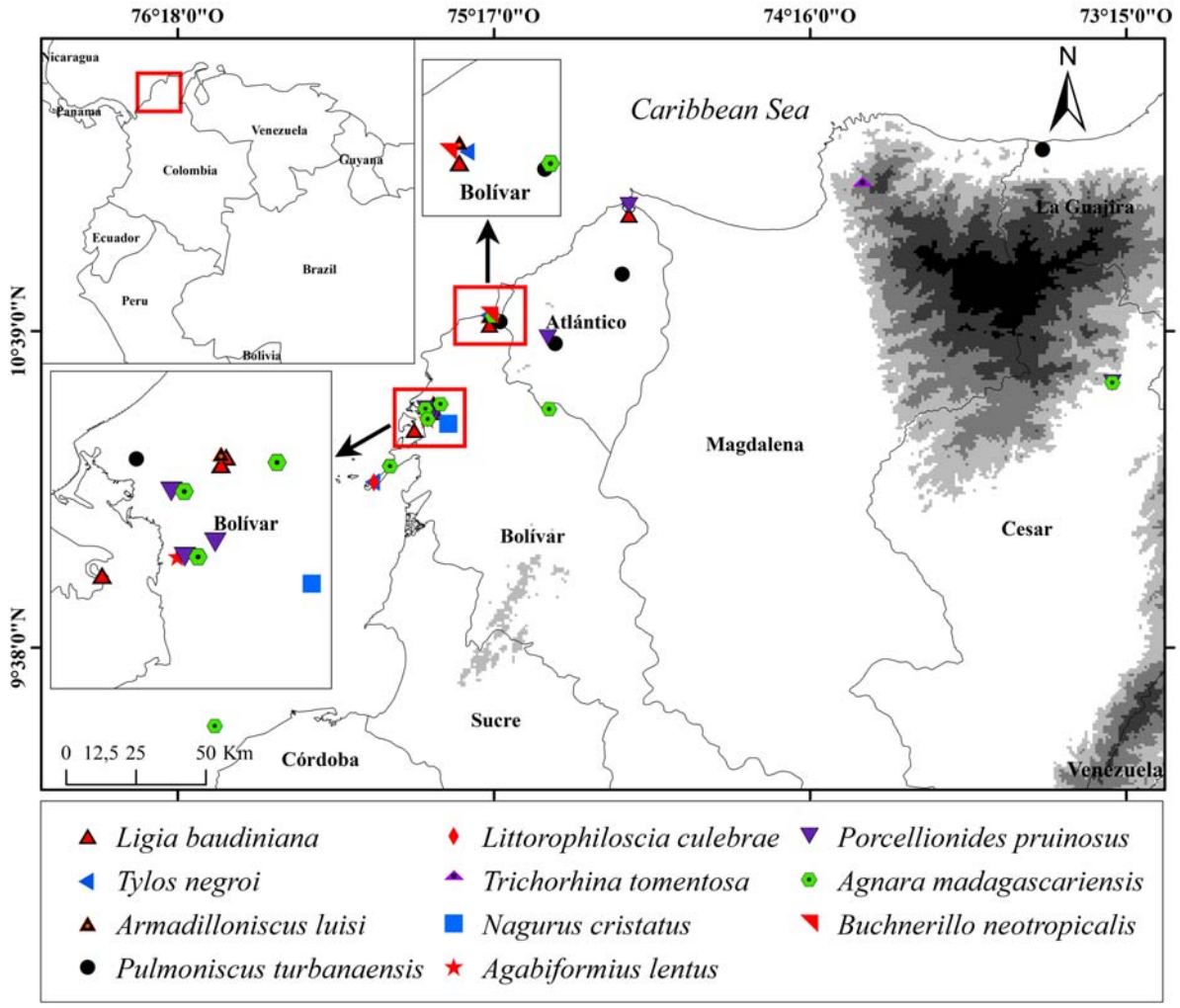


Fig. 1. Distribution map of the new records of terrestrial isopods in the Colombian Caribbean.
Рис. 1. Карта новых находок наземных изопод в карибской части Колумбии.

heavy metals in their organism [Paoletti, Hassall, 1999; Quadros, 2010].

Currently, 58 species of terrestrial isopods in 15 families and 28 genera are known from Colombia [Richardson, 1912; Pearse, 1915; Vandel, 1972; Taiti *et al.*, 1995; Leistikow, 2001a, 2001b; Schmalfuss, 2003; Schmidt, 2007; Martínez *et al.*, 2014; López-Orozco *et al.*, 2014, 2016, 2017, 2022; Carpio-Díaz *et al.*, 2016, 2018, 2021; Campos-Filho *et al.*, 2020]. After the examination of a large collection of Oniscidea from Bogotá D.C. and the Colombian departments of Atlántico, Bolívar, Caquetá, Cesar, Cundinamarca, Magdalena, Nariño, and Putumayo, the distribution of 19 species is extended. Eight species are newly recorded from the country. Moreover, a distribution map and photographs of the habitus of the species are given.

Material and Methods

Specimens have been stored in 75% and 96% ethanol, and identifications are based on morphological characters. The species were examined with the aid of Axio Lab. A1 microscope and SteREO Discovery.V12 ZEISS stereomicroscope with adapted camera Axiocam ERc 5s and, when necessary, appendages were mounted in micro-preparations with Hoyer's medium [Anderson, 1954]. The synonymy lists include original descriptions and publications mentioning records from Colombia. The material is stored in the research laboratories of the Biology Program of the Cartagena University, Cartagena, Colombia (CBUDC-CRU) and the Collection of the Instituto de Ciencias Naturales, Nacional University of Colombia, Bogotá, Colombia (ICN-CR-is).

Taxonomic part

Order **Isopoda** Latreille, 1817
Suborder **Oniscidea** Latreille, 1802
Family **Ligiidae** Leach, 1814
Genus ***Ligia*** Fabricius, 1798
Ligia baudiniana Milne-Edwards, 1840
Fig. 1.

Ligia baudiniana Milne-Edwards, 1840: 155–156.

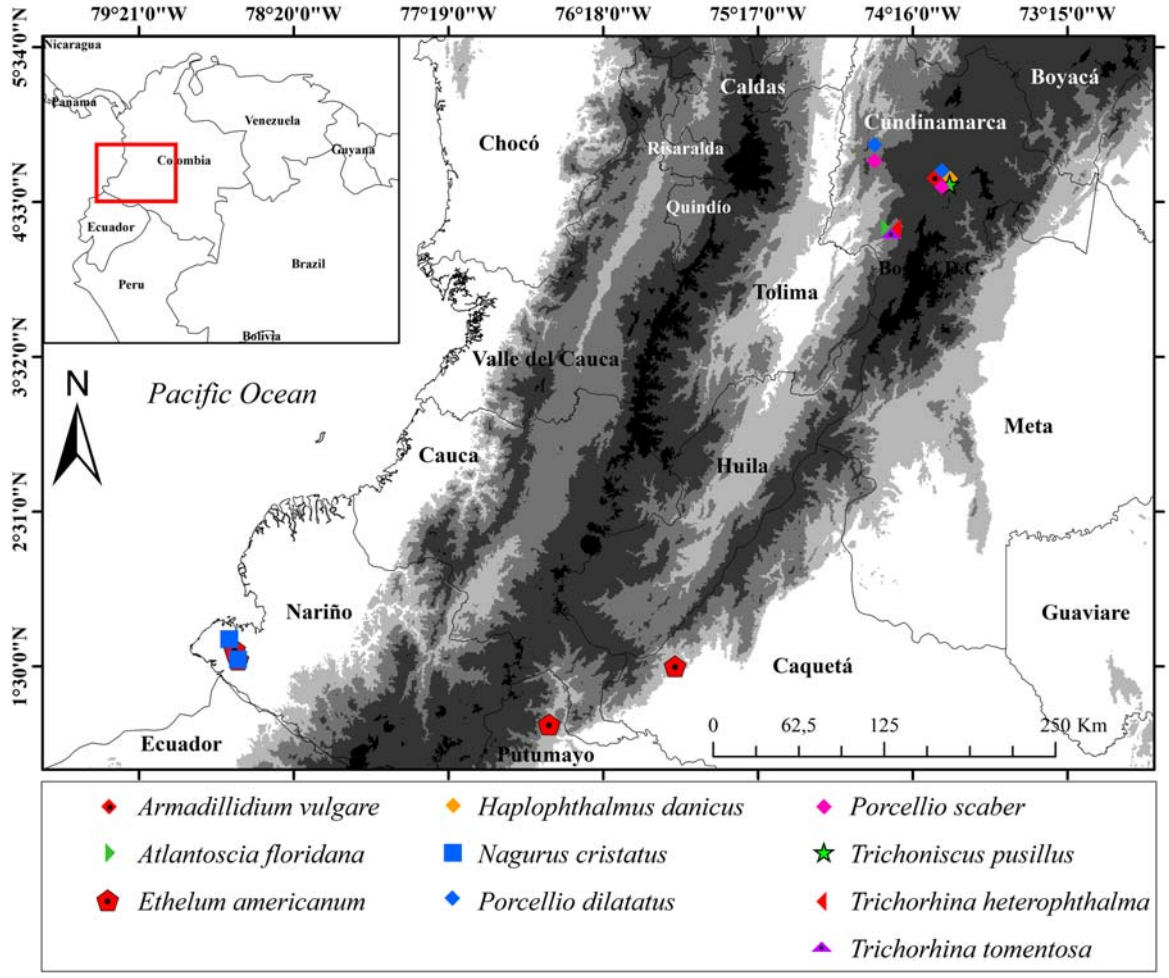


Fig. 2. Distribution map of the new records of terrestrial isopods in the central and southwestern from Colombia.
Рис. 2. Карта новых находок наземных изопод в центральной и юго-западной частях Колумбии.

Ligia baudiniana: Ríos, Ramos, 1990: 93, fig. 7; Schmalfuss, 2003: 124; Lazarus-Agudelo, Cantera-Kintz, 2007: 226; López-Orozco *et al*., 2014: 196, figs 1–3; López-Orozco *et al*., 2022: 7, fig. 1.

MATERIAL EXAMINED. Atlántico – *Barranquilla*, Puerto Mocho, Ciénaga de Mallorquín, 9 ♂♂, 14 ♀♀, 11°3′12.59″N, 74°51′ 0.59″W, 16 Aug. 2017, leg. C.M. López-Orozco and R. Borja-Arrieta, CBUDC-CRU 319; Bolívar – *Cartagena de Indias*, Canal Calicanto Nuevo, 1 ♂, 1 ♀, 10°25′22.76″N, 75°28′30.12″W, 28 Oct. 2016, leg. D. Ahumada, CBUDC-CRU 70; 3 ♂♂, 3 ♀♀, 10°24′ 12.85″N, 75°28′6.44″W, 15 Nov. 2016, same locality and collectors as for preceding; Tierra Bomba Island, Punta Arena, 4 ♂♂, 2 ♀♀, 10°21′41.26″N, 75°32′23.77″W, 7 Aug. 2015, leg. C.M. López-Orozco, CBUDC-CRU 84; Arroyo de Piedra, Palmarito, 1 ♂, 10°41′59.05″N, 75°17′54.09″W, 12 May 2017, leg. C.M. López-Orozco, CBUDC-CRU 409; Canal Matute, 4 ♂♂, 2 ♀♀, 10°25′ 8.46″N, 75°28′40.11″W, 8 Mar. 2018, leg. C.M. López-Orozco, CBUDC-CRU 410.

DISTRIBUTION. Florida, across the Caribbean Sea, Bahamas, Bermuda, Colombia, Venezuela, northern Brazil, and the Pacific coast from Costa Rica, Panamá, Colombia, and Ecuador [Santamaria *et al.*, 2014; López-Orozco *et al.*, 2022]. The present work extends the knowledge of its distribution to the coast of the Atlántico department (Fig. 1).

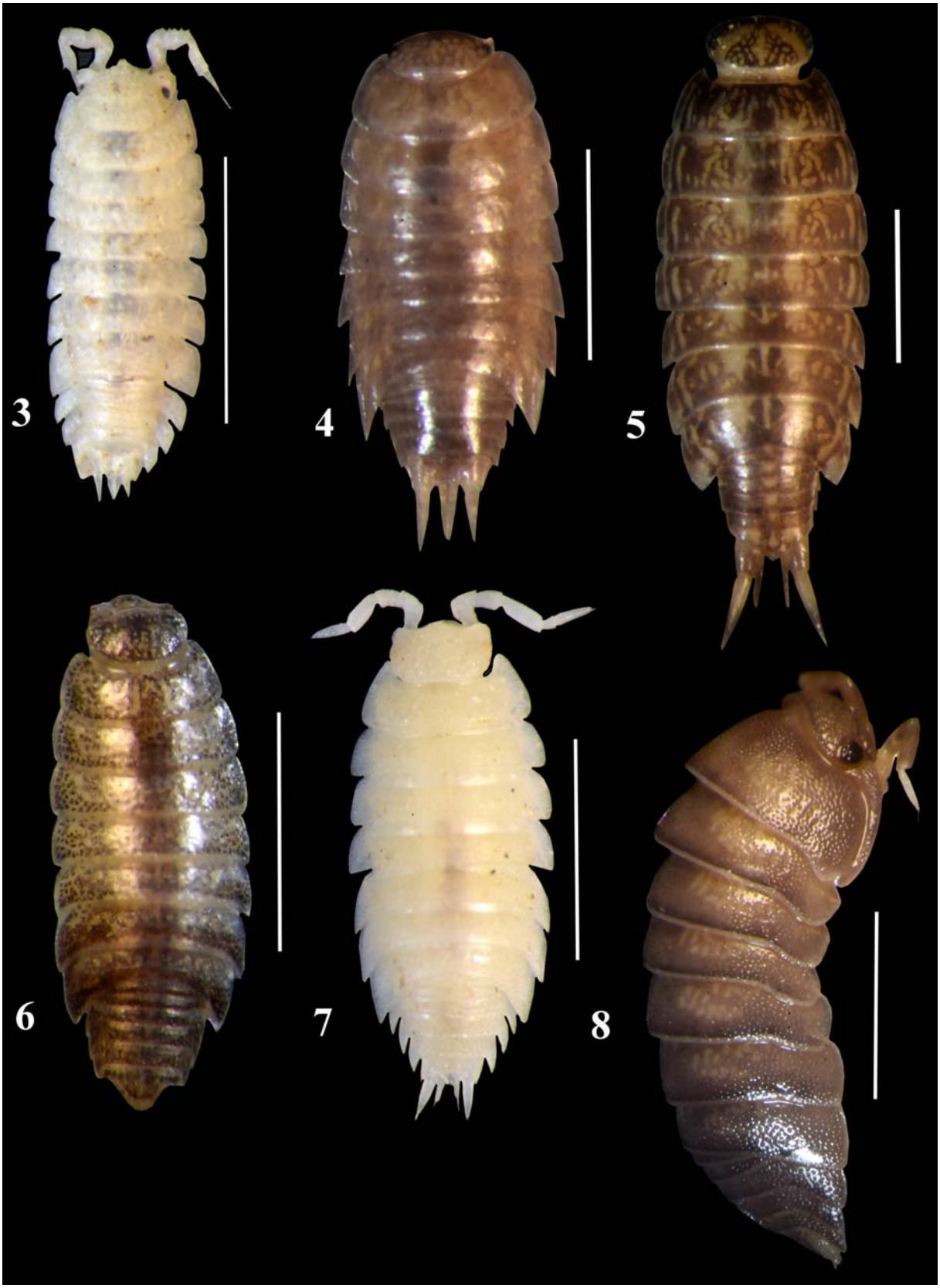
Family **Tylidae** Dana, 1852
Tylos Audouin, 1826
Tylos negroi López-Orozco, Carpio-Díaz et Campos-Filho, 2022
Fig. 1.

Tylos negroi López-Orozco, Carpio-Díaz et Campos-Filho, in López-Orozco *et al.*, 2022: figs 3–5.

MATERIAL EXAMINED. Bolívar – *Cartagena de Indias*, Arroyo de Piedra, Palmarito, 19 ♂♂, 21 ♀♀, 10°41′59.05″N, 75°17′54.09″W, 12 May 2017, leg. Y.M. Carpio-Díaz, C.M. López-Orozco and R. Borja-Arrieta, CBUDC-CRU 411; Barú, Cholón, 1 ♂, 2 ♀♀, 10°9′51.99″N, 75°40′8.1″W, 14 May 2018, leg. C.M. López-Orozco and Y. Herrera-Medina, CBUDC-CRU 412.

DISTRIBUTION. This species has been recorded in the Colombian Caribbean in Isla Grande, Bolívar department [López-Orozco *et al.*, 2022]. These records extended the knowledge of its distribution to the continental part of the Colombian Caribbean (Fig. 1).

Family **Detonidae** Budde-Lund, 1904
Genus ***Armadilloniscus*** Uljanin, 1875
Armadilloniscus luisi Carpio-Díaz, Taiti et Campos-Filho, 2022
Fig. 1.



Figs 3–8. Habitus of some terrestrial isopodos from Colombia: 3 — *Haplophthalmus danicus*; 4 — *Trichoniscus pusillus*; 5 — *Atlantoscia floridana*; 6 — *Littorophiloscia culebrae*; 7 — *Trichorhina tomentosa*; 8 — *Ethelum americanum*. Scale bars 1 mm.

Рис. 3–8. Внешний вид некоторых наземных изопод Колумбии. Масштаб 1 мм.

Armadilloniscus luisi Carpio-Díaz, Taiti et Campos-Filho, in López-Orozco *et al*., 2022: 19, figs 1, 2E, 10–12.

MATERIAL EXAMINED. Atlántico – *Barranquilla*, Puerto Mocho, Ciénaga de Mallorquín, 1 ♀, 11°3′12.59″N, 74°51′0.59″ W, 16 Aug. 2017, leg. C.M. López-Orozco and R. Borja-Arrieta, CBUDC-CRU 316; Bolívar – *Cartagena de Indias*, Canal Matute, 1 ♂, 1 ♀, 10°25′8.46″N, 75°28′40.11″W, 8 Mar. 2018, leg. C.M. López-Orozco, CBUDC-CRU 413.

DISTRIBUTION. This species has been recorded in the Colombian Caribbean in Isla Grande, department of Bolívar [López-Orozco *et al.*, 2022]. These records extended the knowledge of its distribution to the continental part of the Colombian Caribbean in Atlántico and Bolívar (Fig. 1).

Family **Trichoniscidae** Sars, 1899
Genus ***Haplophthalmus*** Schöbl, 1860
Haplophthalmus danicus Budde-Lund, 1880
Figs 2–3.

Haplophthalmus danicus Budde-Lund, 1880: 9.

MATERIAL EXAMINED. Bogotá D.C. – *Bogotá*, Humedal Cordoba, 2 ♂♂, 1 ♀, 4°42′11.41″N, 74°4′23.48″W, 9 Dec. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 310.

DISTRIBUTION. Species of European origin introduced in many parts of the world [Schmalfuss, 2003; Campos-Filho *et al.*, 2018]. This is the first record of the family, genus, and species for Colombia (Fig. 2).

Genus ***Trichoniscus*** Brandt, 1833
Trichoniscus pusillus Brandt, 1833
Figs. 2, 4.

Trichoniscus pusillus Brandt, 1833: 174.

MATERIAL EXAMINED. Bogotá D.C. – *Bogotá*, Humedal Cordoba, 1 ♂, 27 ♀♀, 4°42′11.41″N, 74°4′23.48″W, 9 Dec. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 281.

DISTRIBUTION. Species of European origin, with records from north of the Alps. It was introduced in other regions of the world [Schmalfuss, 2003; Cifuentes *et al.*, 2022]. This is the first record of the species and genus for Colombia and South America (Fig. 2).

Family **Philosciidae** Kinahan, 1857
Genus ***Atlantoscia*** Ferrara et Taiti, 1981
Atlantoscia floridana (Van Name, 1940)
Figs 2, 5.

Philoscia floridana Van Name, 1940: 113, fig. 4.

MATERIAL EXAMINED. Cundinamarca – *Silvania*, Condominio El Pedregal, 41 ♂♂, 95 ♀♀, 23 Juvs, 4°22′26.77″N, 74°24′ 38.89″W, 30 Nov. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 286.

DISTRIBUTION. Species described initially from Florida, USA (Van Name, 1940), and recorded from Argentina, Brazil, Ascension, and St. Helena Island [Schmalfuss, 2003; Campos-Filho *et al.*, 2013]. This is the first record of the species and genus for Colombia and northern South America (Fig. 2).

Genus ***Pulmoniscus*** Leistikow, 2001
Pulmoniscus turbanaensis López-Orozco, Carpio-Díaz et Campos-Filho, 2017
Fig. 1

Pulmoniscus turbanaensis López-Orozco, Carpio-Díaz et Campos-Filho, in López-Orozco *et al*., 2017: 2, figs 1–5.

MATERIAL EXAMINED. Atlántico – *Luruaco*, Arroyo de Piedra, Cueva La Mojana, 4 ♂♂, 11 ♀♀, 10°37′39.48″N, 75°6′ 36. 63″W, 25 Mar. 2017, leg. C.M. López-Orozco and R. Borja-Arrieta, CUDC-CRU 108; *Galapa*, near to Megua Park, 13 ♂♂, 53 ♀♀, 10°51′3.08″N, 74°53′44.14″W, 29 Jun. 2022, leg. C.M. López-Orozco, CBUDC-CRU 417; Bolívar – *Cartagena de Indias*, Arroyo de Piedra, Palmarito, 9 ♂♂, 19 ♀♀, 10°41′53.42″N, 75°17′ 16.06″W, 7 May 2016, leg. D. Ahumada, CBUDC-CRU 32; *Cerro de La Popa*, Salto del Cabrón, 14 ♂♂, 56 ♀♀, 10°25′9.03″N, 75°31′33.37″W, 24 June 2017, leg. C.M. López-Orozco, CBUDC-CRU 55; La Guajira – *Dibulla*, Palomino, 20 ♂♂, 59 ♀♀, 11° 15′6.63″N, 73°32′37.66″W, 30 Jul. 2021, leg. C.M. López-Orozco and Y. Herrera-Medina, CBUDC-CRU 416.

DISTRIBUTION. This species is recorded from northern Bolívar [López-Orozco *et al.* 2017]. This is the first record for the Atlántico and La Guajira departments, extending the knowledge of its distribution to the north of the Colombian Caribbean in the Tropical Dry Forest areas (Fig. 1).

Family **Halophilosciidae** Verhoeff, 1908
Genus ***Littorophiloscia*** Hatch, 1947
Littorophiloscia culebrae (Moore, 1901)
Figs 1, 6.

Philoscia culebrae Moore, 1901: 176, pl. 11, figs 13–17.

MATERIAL EXAMINED. Bolívar – *Cartagena de Indias*, Barú, Cholón, 4 ♂♂, 4 ♀♀, 10°9′51.99″N, 75°40′8.1″W, 14 May 2018, leg. C.M. López-Orozco and Y. Herrera-Medina, CBUDC-CRU 314.

DISTRIBUTION. Circumtropical distribution [Schmalfuss, 2003]. This is the first record of the species for Colombia, in the coast of Caribbean sea (Fig. 1).

Family **Platyarthridae** Verhoeff, 1949
Genus ***Trichorhina*** Budde-Lund, 1908
Trichorhina heterophthalma Lemos de Castro, 1964
Fig. 2.

Trichorhina heterophthalma Lemos de Castro, 1964: 2, figs 1–2.

Trichorhina heterophthalma: Carpio-Díaz *et al*., 2018: 307, fig. 3; López-Orozco *et al*., 2022: 36.

MATERIAL EXAMINED. Cundinamarca – *Silvania*, Condominio El Pedregal, 11 ♀♀, 4°22′26.77″N, 74°24′38.89″W, 30 Nov. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 284.

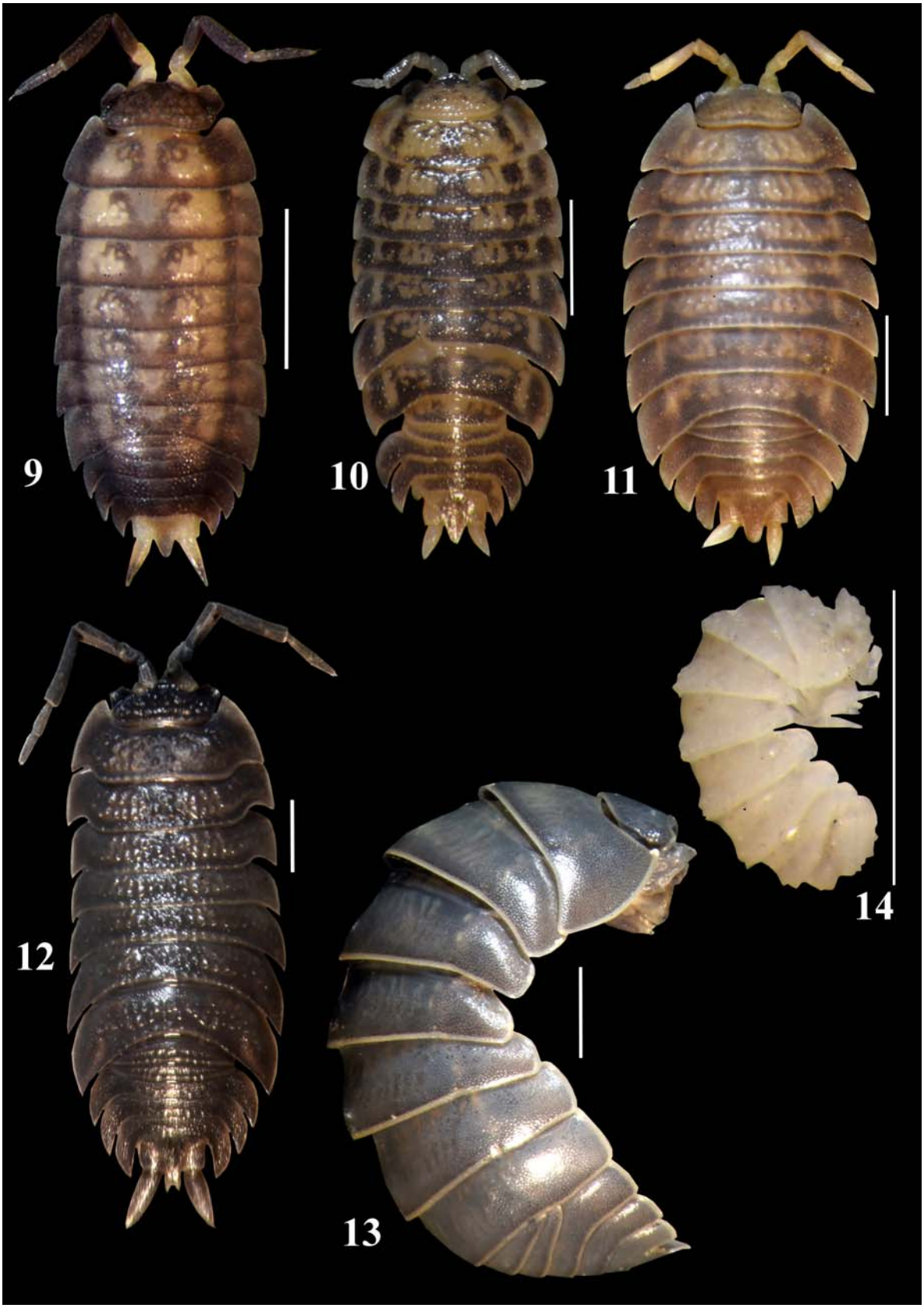
DISTRIBUTION. Pantropical species [Schmalfuss, 2003]. In Colombia, it is recorded from the continental islands and Tropical Dry Forest in the department of Bolívar [Carpio-Díaz *et al.*, 2018; López-Orozco *et al.*, 2022]. This record extends the knowledge of its distribution to the central part of Colombia (Fig. 2).

Trichorhina tomentosa (Budde-Lund, 1893)
Figs 1–2, 7.

Alloniscus tomentosa Budde-Lund, 1893: 126.

MATERIAL EXAMINED. Cundinamarca – *Silvania*, Condominio El Pedregal, 16 ♀♀, 4°22′26.77″N, 74°24′38.89″W, 30 Nov. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 285; Magdalena – *Santa Marta*, Sierra Nevada de Santa Marta, Hacienda La Victoria, 1 ♀, 11°6′54.72″N, 74°5′ 54.36″W, 13 Aug. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 315.

DISTRIBUTION. Pantropical species [Schmalfuss, 2003]. This is the first record for Colombia (Figs 1–2).



Figs 9–14. Habitus of some terrestrial isopodos from Colombia: 9 — *Nagurus cristatus*; 10 — *Agabiformius lentus*; 11 — *Porcellio scaber*; 12 — *P. dilatatus*; 13 —*Armadillidium vulgare*; 14 — *Buchnerillo neotropicalis*. Scale bars 1 mm.

Рис. 9–14. Внешний вид некоторых наземных изопод Колумбии. Масштаб 1 мм.

Family **Eubelidae** Budde-Lund, 1899
Genus ***Ethelum*** Budde-Lund, 1899
Ethelum americanum (Dollfus, 1896)
Figs 2, 8.

Mesarmadillo americanus Dollfus, 1896: 397, fig. 11a–d.

MATERIAL EXAMINED. Putumayo – *Mocoa*, Vereda Rumillaco, Finca Heraldo Vallejo, 1 ♂, 3 ♀♀, 1°7′6.56″N, 76°39′15.98″W, 4 Mar. 2016, leg. D. Molina, ICN-CR-is 130; Caquetá – *Florencia*, Centro de Investigaciones Amazónicas Macagual (CIMAZ), 1 ♂, 1 ♀, 1°30′5.36″N, 75°49′42.26″W, Mar 2016, leg. E. Flórez, ICN-CR-is 144; Nariño – *Tumaco*, CORPOICA, 1 ♂, 1°32′39″N, 78°41′53″W, 4 Mar. 2015, leg. Estudiantes Taxonomía Animal Universidad Nacional, ICN-CR-is 152; Sede Universidad Nacional de Colombia, 1 ♀, 1°36′35.32″N, 78°43′13.83″W, same data as previous, ICN-CR-is 185; 1 ♀, same data as previous, ICN-CR-is 191.

DISTRIBUTION. The species has been recorded in the Lesser Antilles and northeast of South America [Schmalfuss, 2003; Campos-Filho *et al.*, 2018; Ocampo-Maceda *et al.*, 2022]. This is the first record of the family, genus, and species for Colombia, and the first for terrestrial isopods in the department of Caquetá (Fig. 2).

Family **Trachelipodidae** Strouhal, 1953
Genus ***Nagurus*** Holthuis, 1949
Nagurus cristatus (Dollfus, 1889)
Figs 1–2, 9.

Porcellio cristatus Dollfus, 1889: 91, pl. 5, fig. 2a–d.

MATERIAL EXAMINED. Bolívar – *Turbaco*, Sector Matute, Finca La Cigarra, Many ♀♀, 10°21′5.28″N, 75°25′49.1″W, 121 m a.s.l., 12 Oct. 2018, leg. C.M. López-Orozco, CBUDC-CRU 414; Nariño – *Tumaco*, CORPOICA, 2 ♀♀, 1°32′39″N, 78°41′53″W, 4 Mar. 2015, leg. Estudiantes Taxonomía Animal Universidad Nacional, ICN-CR-Is 150; Mar Agrícola, 1 ♀, 1°40′42.89″ N, 78°45′17.96″W, same data as previous, ICN-CR-Is 155; Sede Universidad Nacional de Colombia, 1 ♀, 1°36′35.32″N, 78°43′13.83″W, same data as previous, ICN-CR-Is 190.

DISTRIBUTION. Pantropical species [Schmalfuss, 2003; Campos-Filho *et al.*, 2018; Cifuentes *et al.*, 2022]. This is the first record of the family, genus, and species for Colombia (Figs 1–2).

Family **Porcellionidae** Brandt, 1831
Genus ***Agabiformius*** Verhoeff, 1908
Agabiformius lentus (Budde-Lund, 1885)
Figs 1, 10.

Oniscus (*Lyprobius*) *lentus* Budde-Lund, 1885: 230–231.

Leptotrichus granulatus: Pearse, 1915: 543.

MATERIAL EXAMINED. Bolívar – *Cartagena de Indias*, Barrio Sucre, 16 ♂♂, 15 ♀♀, 10°21′55.6″N, 75°29′48″W, 2 Nov. 2016, leg. C.M. López-Orozco and Y. Herrera-Medina, CUDC-CRU 115.

DISTRIBUTION. Species of Mediterranean origin, introduced to many parts of the world [Schmalfuss, 2003]. In Colombia, it is recorded from the department of Magdalena [Pearse, 1915]. This is the first record for the department of Bolívar, extending the knowledge of its distribution to the south of the Colombian Caribbean in urbanized areas (Fig. 1).

Genus ***Porcellio*** Latreille, 1804
Porcellio scaber Latreille, 1804
Figs 2, 11.

Porcellio scaber Latreille, 1804: 45.

Porcellio scaber: Martínez *et al*., 2014: fig. 2.

MATERIAL EXAMINED. Bogotá D.C. – *Bogotá*, Humedal Cordoba, 4 ♂♂, 3 ♀♀, 4°42′11.41″N, 74°4′23.48″W, 9 Dec. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 309; Cundinamarca – *Chía*, Santa Bibiana de Chía, 2 ♀♀, 4°52′24″N, 74°3′1″W, 2 Dec. 2018, same collectors as previous, CBUDC-CRU 283.

DISTRIBUTION. Species of European origin, introduced to many parts of the world [Schmalfuss, 2003]. In Colombia, it was recorded from the department of Boyacá [Martínez *et al.*, 2014]. This is the first record of the species to the department of Cundinamarca and Bogotá D.C. (Fig. 2).

Porcellio dilatatus Brandt, 1831
Figs 2, 12.

Porcellio dilatatus Brandt, 1831: 78, pl. XII, fig. 6.

Porcellio dilatatus: Martínez *et al*., 2014: fig. 3.

MATERIAL EXAMINED. Bogotá D.C. – *Bogotá*, Humedal Cordoba, 9 ♂♂, 6 ♀♀, 4°42′11.41″N, 74°4′23.48″W, 9 Dec. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 311; Cundinamarca – *Chía*, Santa Bibiana de Chía, 1 ♂, 1 ♀, 4°52′24″N, 74°3′1″W, 2 Dec. 2018, same collectors as previous, CBUDC-CRU 282.

DISTRIBUTION. Species of European origin, introduced to many parts of the world [Schmalfuss, 2003]. In Colombia, it was recorded from the department of Boyacá [Martínez *et al.*, 2014]. This is the first record of the species to the department of Cundinamarca and Bogotá D.C. (Fig. 2).

Genus ***Porcellionides*** Miers, 1877
Porcellionides pruinosus (Brandt, 1833)
Fig. 1.

Porcellio pruinosus Brandt, 1833: 19.

Porcellionides pruinosus: Martínez *et al*., 2014: fig. 4; Carpio-Díaz *et al*., 2016: 434, figs 1–2; López-Orozco *et al*., 2022: 36.

MATERIAL EXAMINED. Atlántico – *Luruaco*, Arroyo de Piedra, Cueva La Mojana, 35 ♂♂, 50 ♀♀, 10°37′38.15″N, 75°6′35.89″W, 25 Mar. 2017, leg. C.M. López-Orozco and R. Borja-Arrieta, CBUDC-CRU 110; *Barranquilla*, Puerto Mocho, Ciénaga de Mallorquín, 1 ♂, 11°3′12.59″N, 74°51′0.59″W, 16 Aug. 2017, leg. C.M. López-Orozco and R. Borja-Arrieta, CBUDC-CRU 317; Bolívar – *Cartagena de Indias*, Barrio María Cano, 1 ♂, 4 ♀♀, 10°22′22.93″N, 75°28′50.64″W, 23 Jun. 2014, leg. G. Carpio, CBUDC-CRU 18; Barrio Zaragocilla, Universidad de Cartagena, Campus San Pablo, 2 ♂♂, 5 ♀♀, 10°23′57.53″N, 75°30′13.32″W, 27 Aug. 2016, leg. C.M. López-Orozco, CBUDC-CRU 111; Barrio Henequen, 1 ♂, 12 ♀♀, 10°21′55.6″N, 75°29′48″W, 2 Nov. 2016, leg. Y. Herrera-Medina, CBUDC-CRU 113; Cesar – *Valledupar*, Barrio La Nevada, 57 ♂♂, 55 ♀♀, 10°28′59.82″N, 73°17′41.25″W, 27 Dec. 2015, leg. E. Mejía, CBUDC-CRU 66.

DISTRIBUTION. Cosmopolitan species [Schmalfuss, 2003]. This is the first record for Atlántico and Cesar departments (Fig. 1).

Family **Agnaridae** Schmidt, 2003
Genus ***Agnara*** Budde-Lund, 1908
Agnara madagascariensis (Budde-Lund, 1885)
Fig. 1.

Metoponorthus Madagascariensis Budde-Lund, 1885: 189.

Agnara madagascariensis: López-Orozco *et al*., 2022: 37, figs 1, 2K.

MATERIAL EXAMINED. Bolívar – *Cartagena de Indias*, Barrio El Pozón, 2 ♂♂, 4 ♀♀, 10°24′51.72″N, 75°27′19.02″W, 13 Mar 2014, leg. Y. Carpio-Díaz, CBUDC-CRU 19; *Barrio Zaragocilla*, Universidad de Cartagena, Campus San Pablo, 12 ♂♂, 61

♀♀, 10°23′57.53″N, 75°30′13.32″W, 19 Apr. 2015, leg. C.M. López-Orozco, CBUDC-CRU 20; *Arroyo de Piedra*, Palmarito, 5 ♀♀, 10°41′53.42″N, 75°17′16.06″W, 7 May 2016, leg. D. Ahumada, CBUDC-CRU 94; *Barrio Henequen*, 2 ♂♂, 23 ♀♀, 10°21′55.6″N, 75°29′48″W, 2 Nov. 2016, leg. Y. Herrera-Medina, CBUDC-CRU 114; *Barú*, Playa Blanca, 3 ♂♂, 5 ♀♀, 10°12′52.79″N, 75°37′5.48″W, 30 Jun. 2014, leg. Y. Carpio-Díaz, CBUDC-CRU 22; *Finca Barú*, 4 ♂♂, 6 ♀♀, 10°12′51.14″N, 75°37′4.38″W, 15 Jun. 2015, leg. D. Ahumada, CBUDC-CRU 23; *Isla Fuerte*, 5 ♂♂, 19 ♀♀, 9°22′51.47″N, 76°10′53.48″W, 8 Aug. 2017, leg. G. Navas and A. Rodríguez, CBUDC-CRU 415; *Soplaviento*, Finca Lancaster, 1 ♀, 10°23′55.6″N, 75°6′21.63″W, 16 Jul. 2016, leg. C.M. López-Orozco, CBUDC-CRU 28; Cesar – *Valledupar*, Barrio La Nevada, 2 ♂♂, 10 ♀♀, 10°28′59.82″N, 73°17′41.25″W, 27 Dec. 2015, leg. E. Mejía, CBUDC-CRU 116.

DISTRIBUTION. Ascension Island, Senegal, Guinea Bissau, Arabian Peninsula, Madagascar, southern China, Taiwan, and Venezuela [Ashmole, Ashmole, 2000; Schmidt, 2001; Schmalfuss, 2003]. This species has been recorded in the Colombian Caribbean in Isla Grande, department of Bolívar [López-Orozco *et al.*, 2022]. These records extended the knowledge of its distribution to the continental part of the Colombian Caribbean (Fig. 1).

Family **Armadillidiidae** Brandt, 1833
Genus ***Armadillidium*** Brandt, 1831
Armadillidium vulgare (Latreille, 1804)
Figs 2, 13.

Armadillo vulgaris Latreille, 1804: 48.
Armadillidium vulgare: Martínez *et al*., 2014: fig. 5.

MATERIAL EXAMINED. Bogotá D.C. – *Bogotá*, Humedal Cordoba, 18 ♂♂, 6 ♀♀, 4°42′11.41″N, 74°4′23.48″W, 9 Dec. 2018, leg. C.M. López-Orozco, W. Galvis and Y. Carpio-Díaz, CBUDC-CRU 308.

DISTRIBUTION. Species of Mediterranean origin, introduced worldwide [Schmalfuss, 2003]. In Colombia, it was recorded from the department of Boyacá [Martínez *et al*., 2014]. This is the first record of the species to Bogotá D.C. (Fig. 2).

Incertae sedis
Genus ***Buchnerillo*** Verhoeff, 1942
Buchnerillo neotropicalis Taiti, Montesanto et Vargas, 2018
Figs 1, 14.

Buchnerillo neotropicalis Taiti, Montesanto et Vargas, in Taiti *et al*., 2018: figs 3–6.

MATERIAL EXAMINED. Bolívar – *Cartagena de Indias*, Arroyo de Piedra, Palmarito, 1 ♀, 10°41′59.05″N, 75°17′54.09″W, 12 May 2017, leg. C.M. López-Orozco, CUDC-CRU 313.

DISTRIBUTION. Species recently described from the Pacific coast of Costa Rica [Taiti *et al.*, 2018]. This is the first record of the genus and species for Colombia and the Caribbean Sea coast (Fig. 1).

Discussion

In the last two decades, studies on terrestrial isopods have increased globally [Vittori, Dominko, 2022]. However, in Colombia, the study of oniscofauna has been intermittent, leading to a low knowledge level of this group. Until 2014, 34 species in 10 families and 19 genera were known, most of which were recorded or described in the 20th century [Richardson, 1912; Pearse, 1915; Vandel, 1972; Taiti *et al.*, 1995; Leistikow, 2001a, 2001b; Schmalfuss, 2003; Schmidt, 2007; Martínez *et al.*, 2014]. In the last seven years, the richness of the Oniscidea from Colombia has increased to 58 species in 15 families and 28 genera [López-Orozco *et al*., 2014, 2016, 2017, 2022; Carpio-Díaz *et al.*, 2016, 2018, 2021; Campos-Filho *et al.*, 2020]. With the present work, this number of oniscideans in Colombia increases to 66 species, 18 families, and 34 genera.

Most of the recorded species have wide distributions except *Tylos negroi*, *Armadilloniscus luisi*, and *Pulmoniscus turbanaensis*, which are recorded only from Colombia. *Ligia baudiniana*, *Atlantoscia floridiana*, *Ethelum americanum* and *Buchnerillo neotropicalis* were recorded also in other countries of the Americas; *Trichorhina heterophthalma*, *T. tomentosa*, *Nagurus cristatus* and *Agnara madagascariensis* have pantropical distributions; *Littorophiloscia culebrae* has a circumtropical distribution; and *Trichoniscus pusillus*, *Agabiformius lentus*, *Haplophthalmus danicus*, *Porcellio scaber*, *P. dilatatus*, *Porcellionides pruinosus* and *Armadillidium vulgare* are considered exotic or introduced in the country. Moreover, the records from Atlántico and Caquetá are the first report of terrestrial isopods for these departments.

Considering the vast extension of the Colombian territory and its high spatial heterogeneity, the inventory of terrestrial isopods in the country is far from complete. Regarding the different scientific fields within biology, there is only one study determining Oniscidea as a potential plague to horticultural crops in Boyacá [Martínez *et al.*, 2014]. When compared with other countries of South America, the group is better studied, especially in Brazil, e.g., Araujo & Bond-Buckup [2005], Lopes *et al*. [2005], Magrini *et al*. [2011], Sokolowicz & Araujo [2013], Wood *et al*. [2017]. The present work stresses the importance of more investigations to better understand the biodiversity of the Colombian Oniscidea, as well as other aspects of their biology.

Compliance with ethical standards

CONFLICT OF INTEREST: The authors declare that they have no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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