A second *Bactericera* species from South America: the willow feeding *B. minuta* in Colombia with description of the previously unknown immatures (Hemiptera, Sternorrhyncha, Psylloidea, Triozidae)

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Abstract. – The North American *Bactericera minuta* (Crawford) is recorded for the first time from Colombia and South America. It develops on *Salix humboldtiana*, a previously unknown host species. Trees infested with psyllids show symptoms of a disease caused by phytoplasmas. Adults and immatures of *Bactericera minuta* are described and illustrated, and some information on the biology is provided. This is the second *Bactericera* species reported from South America, where the genus is not native.

Résumé. – **Une deuxième espèce de *Bactericera* d'Amérique du Sud : *B. minuta*, inféodée aux saules, en Colombie, avec description des immatures inconnus jusqu'à présent (Hemiptera, Sternorrhyncha, Psylloidea, Triozidae)**. *Bactericera minuta* (Crawford), une espèce nord-américaine, est signalée pour la première fois en Colombie et en Amérique du Sud. Elle se développe sur *Salix humboldtiana*, une espèce hôte inconnue auparavant. Les arbres infestés par les psylles présentent les symptômes d'une maladie causée par des phytoplasmes. Les adultes et les immatures de *Bactericera minuta* sont décrits et illustrés, et quelques informations sur la biologie sont fournies. Il s'agit de la deuxième espèce de *Bactericera* signalée en Amérique du Sud, où le genre n'est pas indigène.

Resumen. – **Una segunda especie de *Bactericera* de América del Sur : *B. minuta* desarrollándose en sauces en Colombia con descripción de inmaduros previamente desconocidos (Hemiptera, Sternorrhyncha, Psylloidea, Triozidae)**. *Bactericera minuta* (Crawford) se registra por primera vez en Colombia y Sudamérica. Se desarrolla en *Salix humboldtiana*, una especie hospedera desconocida hasta ahora. Los árboles infestados con psílidos muestran síntomas de una enfermedad causada por fitoplasmas. Se describen e ilustran los adultos e inmaduros de *Bactericera minuta* y se proporcionan algunos datos sobre su biología. Se trata de la segunda especie de *Bactericera* citada en Sudamérica, donde el género no es nativo.

Keywords. – Adventive, Neotropical region, *Salix*.

The UN-DESA (2018) estimated that in 2018 about 55.3% of the world's human population lived in urban settlements and predicted that by 2030 this number will increase to 60%. The understanding, conservation and management of urban biodiversity is, therefore, of utmost importance. Trees, for instance, provide important environmental services, including reducing air pollution and high ambient temperatures, storing carbon, controlling storm water and improving water quality.

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They are also a source of food and shelter for animals and improve the quality of life of humans (Franco-Lara & Perilla Henao, 2014).

The willow *Salix humboldtiana* Willd. (Salicaceae) is an important arboreal species widely distributed in the high Andean zone of Colombia (fig. 1), mainly protecting the water margins. It is also a common ornamental tree, particularly in Bogotá with about 12,800 planted trees (JBB, 2024) (fig. 2). Its natural distribution covers large parts of South and Central America up to central Mexico in the north (POWO, 2023), growing from sea level up to 3,000 m. In May 2022, the psyllid *Bactericera minuta* (Crawford, 1910) (fig. 5-10) was detected on willows in Bogotá. The species was previously reported from El Salvador, Mexico and the USA, associated with *Salix bonplandiana* Kunth (Halbert & Burckhardt, 2020). Currently, the infestation of young and mature trees by the psyllids seems to be widespread throughout the city.

Psyllids or jumping plant lice are characterised by their narrow host ranges. Often related psyllid species develop on related plant taxa, mostly eudicots or magnoliids (Hollis, 2004; Hodkinson, 2009; Burckhardt *et al.*, 2014; Ouvrard *et al.*, 2015). *Bactericera* Puton, 1876 (Triozidae) is exceptional in this respect as some species develop on monocots while others are polyphagous. This predominantly holarctic genus with around 160 described species was, until recently, absent from South America (Burckhardt & Lauterer, 1997; Ouvrard, 2024). In 2017, the North and Central American *Bactericera cockerelli* (Šulc, 1909) was discovered in Ecuador (Castillo Carrillo *et al.*, 2019) and subsequently also in Colombia and Peru (ICA, 2021; Pérez *et al.*, 2021). This species is a major pest of potato and tomato as a vector of '*Candidatus* Liberibacter solanacearum' (*C*Lso), a bacterium responsible for several economically important diseases in Solanaceae and Apiaceae (Liefting *et al.*, 2009; Trkulja *et al.*, 2023; Wenninger & Rashed, 2024). In 2020, also *C*Lso was detected in Ecuador (Caicedo *et al.*, 2020).

According to Burckhardt & Lauterer (1997), about a third of the known *Bactericera* spp. are monophagous or oligophagous on *Salix* species and are difficult to identify due to previous confusions in the literature. Halbert & Burckhardt (2020) sorted out the complex taxonomy of *Bactericera minuta* and discussed some morphological characters of the adult. Previously, *B. minuta* had not been recorded from Colombia (Madrigal Collazo, 2003; Rendón-Mera *et al.*, 2017) or South America (Halbert & Burckhardt, 2020) nor from *Salix humboldtiana* (Halbert & Burckhardt, 2020). The psyllid is distributed widely now in Bogotá, Cundinamarca and Boyacá. Infested trees of *S. humboldtiana* exhibit disease symptoms that include epicormic branches, loss of apical dominance, yellowing of the foliage and deformation of young leaves, that lead to drying of branches and death of trees (fig. 3-4). These symptoms on the foliage and canopy are the same as those caused by phytoplasmas in several ornamental tree species in Bogotá (Franco-Lara & Perilla Henao, 2014, Franco-Lara *et al.* 2017; L. Franco-Lara, pers. comm.) and are similar to those caused by phytoplasmas in other *Salix* species (Shahryari & Allahverdipour, 2018). The presence of *Candidatus* Phytoplasma was confirmed in some samples of diseased *Salix* trees from Bogotá (L. Franco-Lara & N. Vargas, pers. comm.). Psyllids transmit fastidious prokaryotes, which are thought to be responsible for several agriculturally important diseases. The joint emergence of both the disease and *B. minuta* in this geographical region of Colombia identify the latter as a potential vector of the phytoplasma detected in *S. humboldtiana*. However, while species of *Cacopsylla* Ossiannilsson, 1970, developing

on Rosaceae are confirmed vectors of *Candidatus* Phytoplasma (Hodkinson, 2009), there is only one doubtful report of *Bactericera* vectoring phytoplasmas, viz. *B. trigonica* Hodkinson, 1981, on carrots [Font *et al.* (1999), which may concern *Candidatus* Liberibacter solanacearum (S. Halbert, pers. comm.)]. Studies on phytoplasmas in *Salix babylonica* in China, Spain and Iran (Wei *et al.*, 2009; Alfaro- Fernández *et al.*, 2011; Ghayeb Zamharir *et al.*, 2017) and in *S. radinostachya* (reported as *S. tetradenia*) in China (Mou *et al.*, 2014; Lai *et al.*, 2022) have focused on the confirmation of the pathogen's presence but have not investigated potential vectors.

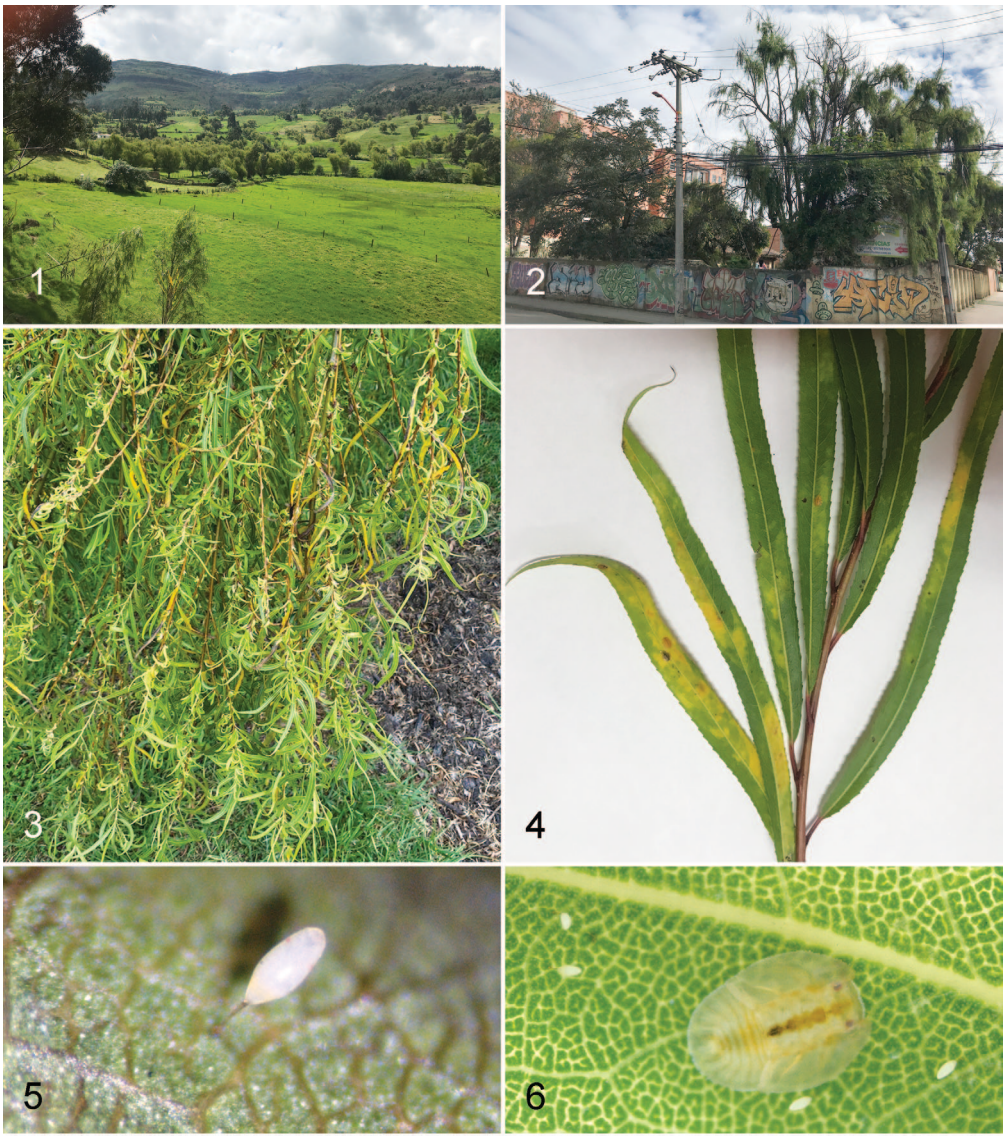

Fig. 1-6. – *Salix humboldtiana* Willd. (Salicaceae). – **1**, Planted trees in rural environment in Boyacá, Colombia. – **2**, Trees in urban environment showing thinning of crown. – **3**, Leaves curled by disease. – **4**, Leaves with yellow areas caused by disease. – **5**, Leaf with egg. – **6**, Leaf with eggs and immature.

Here we report for the first time *Bactericera minuta* from Colombia and South America and its association with *Salix humboldtiana*. It is adventive and the second species of *Bactericera* reported from South America. We provide detailed descriptions of the adult and the previously unknown fifth instar, along with some information on its biology.

MATERIAL AND METHODS

Specimens deposited in the following institutions were examined or are cited in the text: **NHMB**, Naturhistorisches Museum, Basel, Switzerland; **UFJC**, Colección Entomólogica, Forestal Universidad Distrital Francisco José de Caldas; **USNM**, United States National Museum of Natural History, psyllid collection housed at United States Department of Agriculture, Beltville, Md, USA.

Morphological terminology accords with HALBERT & BURCKHARDT (2020). The psyllids are preserved dry mounted on card points, mounted as permanent slides in Canada balsam or kept in 70% ethanol.

RESULTS

Bactericera minuta (Crawford, 1910)

Trioza minuta Crawford, 1910: 232.
Phylloplecta minuta; CALDWELL, 1940: 50.
Bactericera minuta; BURCKHARDT & LAUTERER, 1997: 128.
Trioza marginata Crawford, 1910: 232; secondary homonym of *Psylla marginata* Hartig, 1841: 374 (in *Trioza*).
Trioza arizonae Aulmann, 1912: 144, replacement name for *Trioza marginata* Crawford *nec Psylla marginata* Hartig (in *Trioza*); synonymised with *T. minuta* by TUTHILL (1943: 563).

Type material examined. – USA: 1 ♀, paralectotype of *Trioza minuta*: "Ariz 2304", "Coll CF Baker", "*Trioza minuta* Crawf." (USNM, dry mounted); 1 ♀, paralectotype of *Trioza marginata*, "Ariz 2013", "Collection CF Baker", "*Trioza marginata* Crawf." (USNM, dry mounted); 1 ♀, paralectotype of *Trioza marginata*, "Ariz 1856", "*Trioza minuta arizonae* Aulmann,Tuthill" (USNM, dry mounted).

Additional material examined. – **Colombia**. 4 ♂, 6 ♀, 27 immatures, 1 skin, Bogotá, 4.6692°N 74.0464°W, 2570 m, 15.V.2022, *Salix humboldtiana* (O. P. Pinzón) (NHMB, UFJC, dry and slide mounted, and in 70% ethanol); 2 ♂, 2 ♀, 12 immatures, Bogotá, 4.6673°N 74.0470°W, 2578 m, 5.VI.2022, *Salix humboldtiana* (O. P. Pinzón 1028) (UFJC, in 70% ethanol); 6 ♀, 45 immatures, Guasca, Cundinamarca, 4.5210°N 73.5352°W, 2631 m, 4.VI.2022, *Salix humboldtiana* (O. P. Pinzón) #1026 (UFJC, in 70% ethanol); 7 ♀, 45 immatures, Cota, Cundinamarca, 4.4645°N 74.0701°W, 2545 m, 7.VI.2022, *Salix humboldtiana* (O. P. Pinzón) #1008 (UFJC, in 70% ethanol); 1 ♀, 15 immatures, Tibasosa, Boyacá, 5.4439°N 73.0016°W, 2511 m, 27.VI.2022, *Salix humboldtiana* (O. P. Pinzón) #1015 (UFJC, in 70% ethanol).

El Salvador. 1 adult without abdomen, San Miguel, 19.III.1942 (Plummer) (USNM, dry mounted).

Mexico. MÉXICO (STATE): 7 ♂, 10 ♀, Teotihuacán, San Francisco Mazapa, N19.6847° E98.8428°, 2300 m, 9.VIII.2015, *Salix bonplandiana* (D. Burckhardt & D. L. Queiroz) #15-13(4) (NHMB, dry mounted and in 70% ethanol); 1 ♂, 1 ♀, Texcoco, Montecillo, 18.VII.2012 (A. Ramírez) (NHMB, in 70% ethanol); 3 ♂, 7 ♀, same but Montecillo, Colegio de Postgraduados, N19.4623° W98.9053°, 2190 m, 10–12.VIII.2015 (D. Burckhardt & D. L. Queiroz) #15-14(-) (NHMB, in 70% ethanol). MEXICO CITY: 1 ♂, San Jacinto, 16.V.1932 (A. Dampf) (USNM, dry mounted); 1 ♀, same but 26.V.1932. MICHOACÁN: 2 ♂, 2 ♀, Zamora, 2.X.1941, *Salix* (De Long, Good, Caldwell & Plummer) (USNM, dry mounted); (NHMB, in 70% ethanol; USNM, dry mounted); 4 ♀, Salvador Escalante, Lago de Zirahuén, N19.4468° W101.7281°, 2020 m, 20.VIII.2015, *Salix bonplandiana* (D. Burckhardt

& D. L. Queiroz) #15-30A(1); 1 ♀, Uruapan, 1600–1700 m, viii.1975 (N.L.H. Krauss) (USNM, dry mounted). Morelos: 1 ♂, 1 ♀, Cuernavaca, III.1945 (N. L. H. Krauss) (USNM, dry mounted); 1 ♀, same but III–V.1965; 1 ♀, same but IV.1965. Oaxaca: 2 ♂, 2 ♀, Oaxaca, II.1945 (N. L. H. Krauss) (NHMB, USNM, dry mounted); 1 ♀, Tehuantepec, 13.X.1941 (De Long, Good, Caldwell & Plummer) (USNM, dry mounted). Puebla: 1 ♂, Tehuacán, 17.X.1941 (De Long, Good, Caldwell & Plummer) (USNM, dry mounted). San Luis Potosí: 1 ♀, Tamazunchale, 29.VIII.1939 (F. M. & D. M. De Long) (USNM, dry mounted); 1 ♀, same but 7.III.1946 (J. S. Caldwell). Sinaloa: 1 ♀, Los Mochis, 15–29.X.1960 (W. W. Gibson) (USNM, dry mounted). Sonora: 1 ♂, Ciudad Obregón, 4–15.I.1960 (W. W. Gibson) (USNM, dry mounted). Veracruz: 3 ♂, 3 ♀, Orizaba, 17.X.1941 (De Long, Good, Caldwell & Plummer) (USNM, dry mounted).

USA. Arizona: 1 ♂, same data as type series of *Trioza minuta* (USNM, dry mounted); 4 ♂, Littlefield, 22.XI.1929 *Pluchea sericea* (D. E. Fox) (USNM, dry mounted); 1 ♀, Fort Yuma, 20.I. (Hubbard) (USNM, dry mounted); 1 ♂, Yuma, I.1959, sticky bands (D. Muse) (USNM, dry mounted); 1 ♀, Yuma, 20.IV.1940 (P. W. Oman) (USNM, dry mounted); 1 ♀, Sabino Canyon, 28.IV.1940 (P. W. Oman) (USNM, dry mounted); 1 ♀, Tubac, 24.VI.1933 (P.W. Oman) (USNM, dry mounted). California: 1 ♀, Cucamonga, 4.V.1945, *Salix* (R. Dickson) (USNM, dry mounted). Kansas: 1 ♂, Kingman County, 420 m, 1916 (R. H. Beamer) (USNM, dry mounted). Oklahoma: 1 ♂, Cherokee, 4.VI.1937 (Standish-Kaiser) (USNM, dry mounted). Texas: 1 ♀, Gillespie County, Pedernales River, 19.VII.1955 (W.W. Wirth) (USNM, dry mounted); 1 ♂, Kleberg County, Kingsville, 28.I.1973 (P. W. Treptow III) (USNM, dry mounted).

Diagnosis. – *Adult*. Head and genal processes dark brown or black; genal processes 0.8–1.0 times as long as vertex along mid-line, conical, subacute apically. Antennal segments 1, 4–10 dark brown or black, segments 2 and 3 whitish; segment 3 slightly thicker than 4. Proepisternum dirty whitish or yellowish, conspicuously lighter than rest of thorax. Forewing with colourless, transparent membrane and yellowish veins, except for narrow brown stripe along clavus. Abdominal sternites whitish. Forewing widest in the middle; vein Rs weakly curved towards costal margin or weakly sinuate; bifurcation of vein M on or distal to line connecting apices of veins Rs and Cu_{1a}; surface spinules present in all cells except for cells c+sc and r_1, leaving broad spinule-free stripes along the veins, in males spaced irregularly, in females regularly. Male proctiger with short posterior lobes and weakly concave posterior outline in basal two thirds. Paramere, in lateral view, narrowly lamellar, relatively straight; apex acute, forming slightly forward directed sclerotised point. Distal segment of aedeagus with apical inflation about half as long as segment, oval and relatively straight; sclerotised end tube of ductus ejaculatorius short and sinuate. Female proctiger, in lateral view, with dorsal margin distal to circumanal ring almost straight in the middle, curved down apically; apex, in lateral view rounded, with a very small hook. Subgenital plate, in lateral view, truncate apically.

Fifth instar immature 1.1–1.3 times as long as wide. Dorsal sectasetae lacking; truncate marginal sectasetae present in following numbers (one side only): head 29–31, forewing pad 90–106, hindwing pad 15–18, caudal plate 96–103. Humeral lobe reaching well beyond anterior eye margin, narrowly rounded.

Description of adult (fig. 7-16). *Coloration* (fig. 7-10). Head, thorax and abdominal tergites dark brown or black. Clypeus dark brown. Antennal segments 1, 4–10 dark brown or black, segments 2 and 3 whitish. Proepisternum, area around wing insertions and mesoscutellum dirty whitish or yellowish, conspicuously lighter than rest of thorax. Legs dark brown; femora whitish ventrally; pro and mesotibiae slightly lighter along outer face; metatibia and metatarsus whitish. Forewing with colourless, transparent membrane and yellowish veins, except for narrow brown stripe along clavus. Hindwing with olourless, transparent membrane. Abdominal

sternites whitish; intersegmental membranes whitish. Male terminalia greyish brown, except for subgenital plate which is whitish latero-basal; female terminalia whitish except for greyish brown apical half. Younger specimens with more expanded light colour.

Head inclined in a 45° angle from longitudinal body axis (fig. 7, 8), slightly narrower than mesonotum in dorsal view (fig. 9, 10). Vertex (fig. 11) subtrapezoidal, 1.6–1.9 times as wide as long along mid-line; disk relatively smooth except for margins which bear laterally and anteriorly imbricate microsculpture, covered with scattered microscopic setae (fig. 12); genal processes 0.8–1.0 times as long as vertex along mid-line, conical, subacute apically (fig. 11). Antenna 1.6–1.8 times as long as head width, with a single subapical rhinarium on each of segments 4, 6, 8 and 9; segment 3 slightly thicker than 4, segment 9 distinctly expanding to

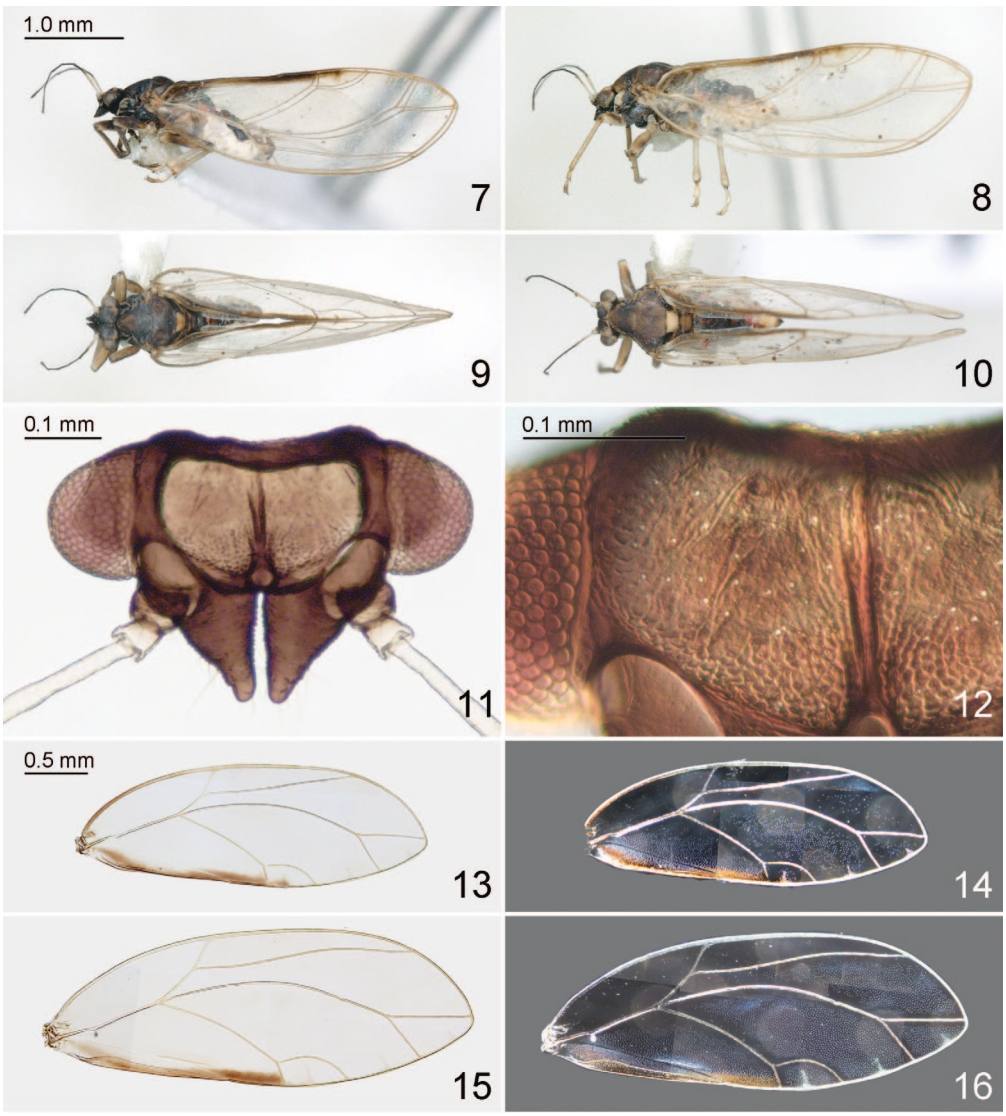

Fig. 7-16. – *Bactericera minuta* (Crawford), adult. – **7-8**, Habitus, lateral view: **7**, ♂; **8**, ♀. – **9-10**, Habitus, dorsal view: **9**, ♂; **10**, ♀. – **11**, Head, dorsal view. – **12**, Vertex. – **13-16**, Forewing : **13**, ♂; **14**, ♂, surface spinules; **15**, ♀; **16**, ♀, surface spinules. Scales: fig. 8-10 same as fig. 7; 14-16 same as fig. 13.

apex; relative length of flagellar segments as 1.0 : 0.5 : 0.5 : 0.4 : 0.4 : 0.3 : 0.2 : 0.1; relative length of antennal segment 10 and terminal setae as 1.0 : 1.0 : 0.5. Rostrum 0.4–0.5 times as long as head width.

Thorax. Metatibia 0.9 times as long as head width. Forewing (fig. 13, 15) 4.9–5.3 times as long as head width, 2.6–2.9 times as long as wide, lanceolate, widest in the middle, apex subacute, lying in cell m_1; vein Rs weakly curved towards costal margin or weakly sinuate; bifurcation of vein M on or distal to line connecting apices of veins Rs and Cu_{1a}; surface spinules present in all cells except for cells c+sc and r_1, leaving broad spinule-free stripes along the veins, in males spaced irregularly (fig. 14), in females regularly (fig. 16).

Abdomen. Male terminalia (fig. 17-19) with proctiger 0.2 times as long as head width, posterior lobes short, with weakly concave outline in basal two thirds. Male subgenital plate

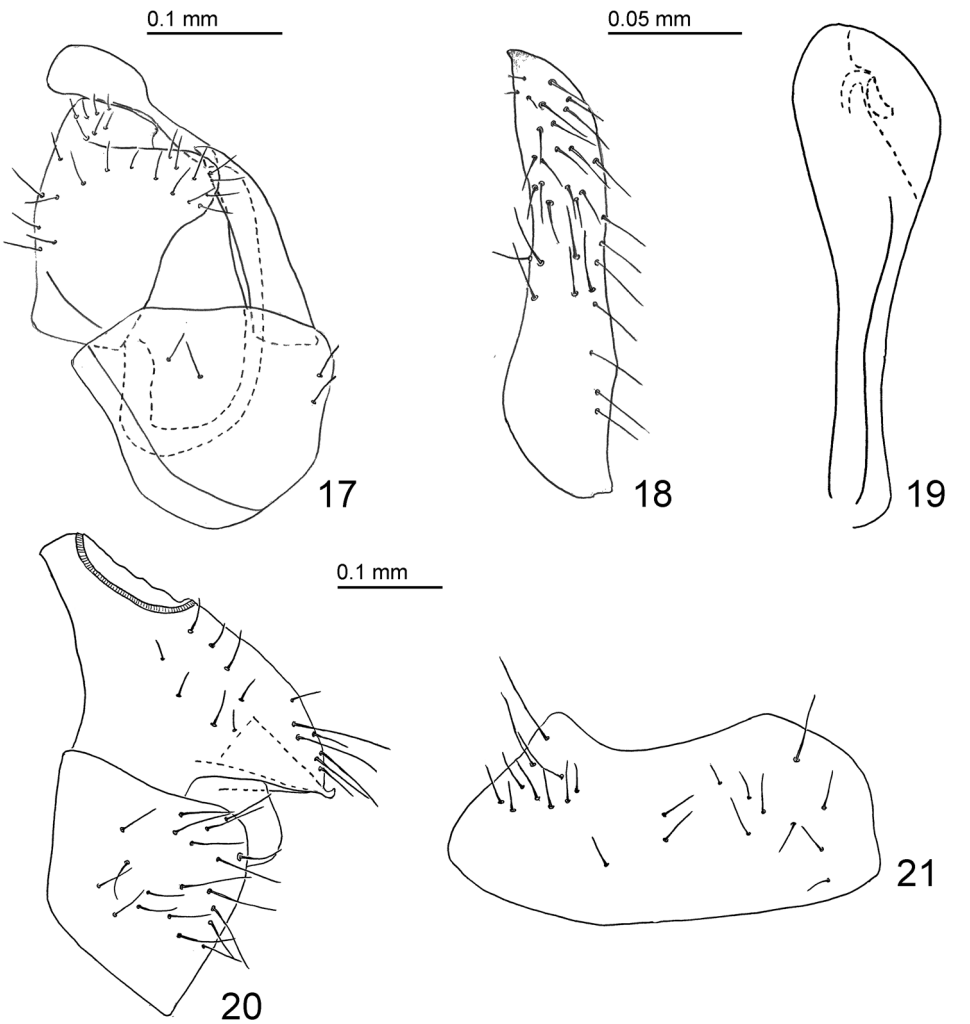

Fig. 17-21. – *Bactericera minuta* (Crawford), terminalia. – **17**, ♂ terminalia, lateral view. – **18**, Paramere, inner face, lateral view. – **19**, Distal segments of aedeagus, lateral view. – **20**, ♀ terminalia, lateral view. – **21**, ♀ subgenital plate, ventral view (slightly distorted). Scales: fig. 19 same as fig. 18; 21 same as fig. 20. (Fig. 17 and 18 by Halbert & Burckhardt, 2020: fig. 158, 159).

short, subglobular, with very few setae. Paramere longer than proctiger; in lateral view, narrowly lamellar, relatively straight; inner face beset with moderately long setae in apical two thirds, apex acute, forming slightly forward directed sclerotised point. Distal segment of aedeagus slightly longer than proctiger; apical inflation about half as long as segment, oval and relatively straight; sclerotised end tube of ductus ejaculatorius short and sinuate. Female terminalia (fig. 20-21) with proctiger 0.5–0.6 times as long as head width, sparsely covered with a few moderately long setae; dorsal margin of proctiger distal to circumanal ring, in lateral view, almost straight in the middle, curved down apically; apex, in lateral view rounded, with a very small hook. Circumanal ring oval, 0.3 times as long as proctiger; consisting of two unequal rows of pores. Subgenital plate 0.4–0.5 times as long as proctiger, in lateral view truncate apically, in ventral view weakly concave posteriorly (fig. 21). Dorsal valvulae triangular, ventral valvulae almost straight; lacking teeth.

Measurements (in mm). Body length (7 ♂, 7 ♀) 2.9–4.1. Morphological details (2 ♂, 1 ♀): Head width 0.58–0.62; antenna length 0.94–1.12; forewing length 2.86–3.36; length of male proctiger 0.11–0.14; paramere length 0.18–0.22; length of distal segment of aedeagus 0.16–0.22; length of female proctiger 0.32–0.36.

Fifth instar immature (fig. 6, 22-29). – *Coloration*. Dark brown to almost black, wing pads slightly lighter with dirty yellowish pattern as follows. Cephalothorax with two small submedian dots anteriorly and two large lateral patches posteriorly; thoracic dorsum with an irregular, longitudinal, sublateral band on either side; each forewing pad with a small anterior and a large posterior patch; abdomen with nine large submarginal and six small submedian patches. Antenna dirty yellowish with black tip. Younger specimens predominantly light coloured.

Structure. Body strongly dorso-ventrally flattened, oval, 1.1–1.3 times as long as wide; dorsally flat (fig. 22). Dorsal sclerites covered in granular microsculpture and sparse microscopical setae, lacking sectasetae (fig. 23). Marginal sectasetae truncate present in following numbers (one side only): head 29–31 (fig. 25); forewing pad 90–106 (fig. 26); hindwing pad 15–18 (fig. 27); caudal plate 96–103 (fig. 28). Each half of cephalothorax broadly rounded anteriorly. Antenna 0.2 times as long as forewing pad; inserted on ventral body side, three-segmented, segment 3 with four rhinaria. Tarsal arolium (fig. 24) lobe-like, subcircular, with short unguitractor, lacking petiole, slightly longer than claws which are both well developed. Humeral lobe reaching well beyond anterior eye margin, narrowly rounded. Caudal plate 1.5–1.7 times as wide as long, irregularly rounded. Outer circumanal ring (fig. 29) 0.1–0.2 times as wide as caudal plate, transversely oval; on ventral body side; distance from hind margin to hind margin of caudal plate 4.0 times as long as distance from fore to hind margin of outer circumanal ring (measured in the middle); consisting of a single row of oval pores. – Measurements (in mm; 4 specimens). Body length 2.08–2.32; antenna length 0.26–0.32; length of forewing pad 1.42–1.48; caudal plate width 1.38–1.56.

Egg (fig. 5-6). – Colour mostly whitish. Oblong oval, stalk about as long as egg.

Host plant. – *Salix humboldtiana* Willd. (Salicaceae); adults were collected also on *S. bonplandiana* Kunth, which is a likely host.

Distribution. – Recorded from El Salvador, Mexico (México, Mexico City, Michoacán, Morelos, Oaxaca, Puebla, San Luis Potosí, Sinaloa, Sonora, Veracruz) and the USA (Arizona, California, Kansas, Oklahoma, Texas) (HALBERT & BURCKHARDT, 2020). New for Colombia.

Biology. – Eggs are laid singly on the leaf surface (fig. 5-6). Immatures of *B. minuta* develop mostly on the upper surface of the leaves, but occasionally they can be found also on the lower leaf face. Adults and immatures are observed throughout the year reflecting the continuous growth of young branches of *S. humboldtiana*.

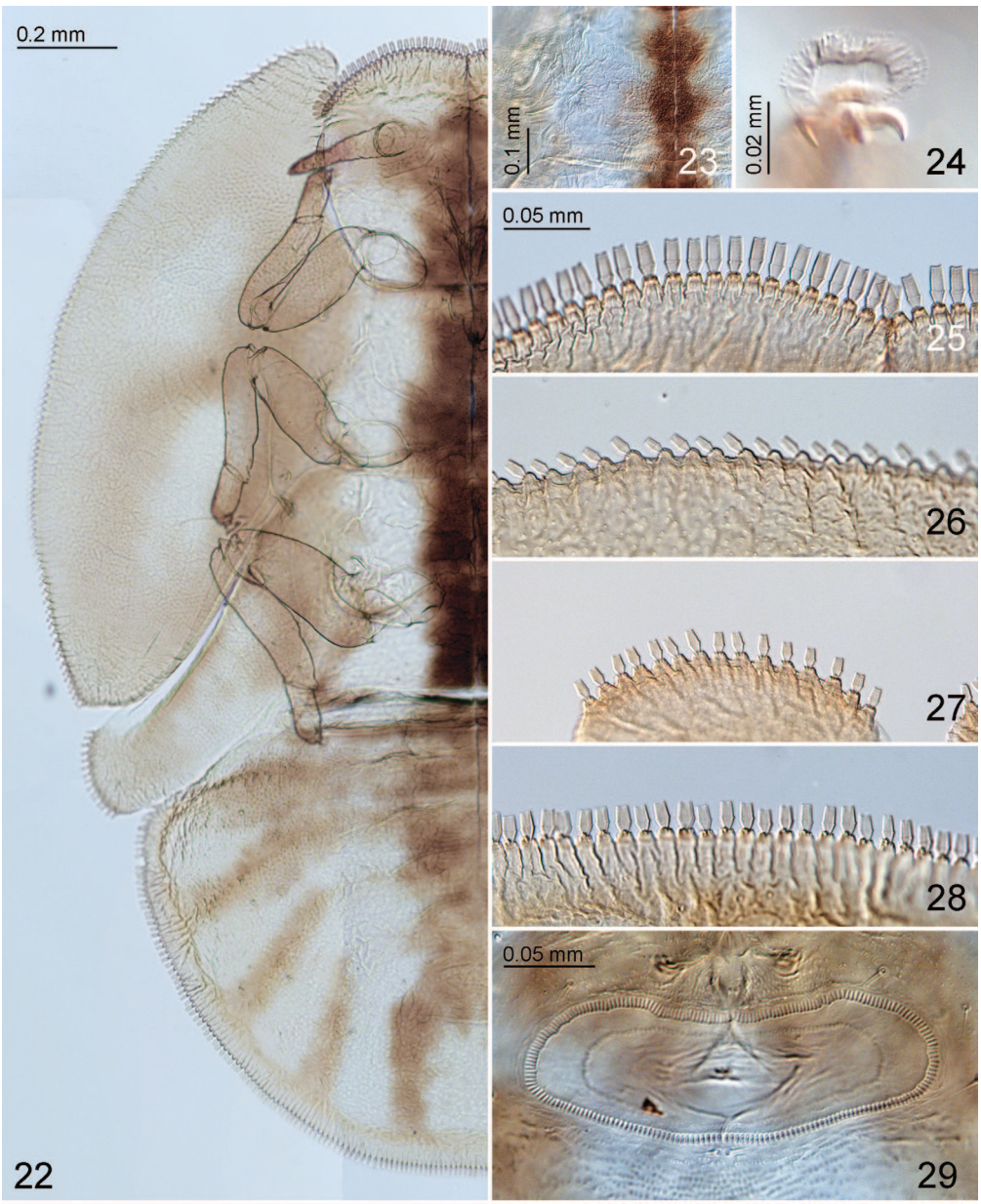

Fig. 22-29. – *Bactericera minuta* (Crawford), fifth instar immature. – **22**, Habitus, left side, dorsal view. – **23**, Mesothorax, left side, dorsal view. – **24**, Apex of tarsus with claws and tarsal arolium. – **25**, Marginal sectasetae on head. – **26**, Marginal sectasetae on forewing pad. – **27**, Marginal sectasetae on hindwing pad. – **28**, Marginal sectasetae on caudal plate. – **29**, circumanal ring, ventral view. Scales: fig. 29-28 same as fig. 25.

Discussion and conclusions

Bactericera minuta is native to the Western and Midwestern USA (oldest examined material from 1916) and Mexico (oldest examined material from 1932). There are no host records from North America confirmed by the presence of immatures, though adults were collected on *Salix bonplandiana* in Mexico, a likely host. A single damaged

specimen was taken in El Salvador in 1942 suggesting that the species also may occur in Central America. This, however, needs to be verified with new collections. The presence of *B. minuta* in Colombia is probably recent. How the species got there is currently unknown. As a natural expansion of the distributional range seems unlikely, an inadvertent introduction with plant material or by cargo planes cannot be excluded.

Many *Bactericera* species associated with *Salix* are narrowly oligophagous. *Salix humboldtiana* is a confirmed and *S. bonplandiana* a likely host species of *B. minuta*, suggesting that the psyllid is restricted to narrow-leaved willows. In Bogotá, *B. minuta* is probably polyvoltine with overlapping generations.

The joint occurrence of the disease and *B. minuta* identify the latter as a potential vector of the phytoplasma responsible for the bacterial disease of *S. humboldtiana*. This should be verified by transmission experiments and molecular data to ensure that there is no co-infection with a *Candidatus* Liberibacter species. It is therefore of utmost importance to understand the role of *B. minuta* in this severe disease affecting *S. humboldtiana*.

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