

# INSECTA MUNDI

A Journal of World Insect Systematics

---

0723

New tribes, overview and checklist of Neotropical Cladonotinae  
(Orthoptera: Caelifera: Tetrigidae)

Daniela Santos Martins Silva  
Universidade Federal de Viçosa (UFV)  
campus Rio Paranaíba, Instituto de Ciências Biológicas e da Saúde  
Rodovia MG 230, KM 7, 38810-000  
Rio Paranaíba, MG, Brazil.

Oscar J. Cadena-Castañeda  
Universidad Distrital Francisco José de Caldas  
Grupo de Investigación en Artrópodos "Kumangui"  
Carrera 3 # 26A - 40  
Bogotá, Colombia.

Marcelo Ribeiro Pereira  
Universidade Federal de Viçosa (UFV)  
campus Rio Paranaíba, Instituto de Ciências Biológicas e da Saúde  
Rodovia MG 230, KM 7, 38810-000  
Rio Paranaíba, MG, Brazil.

Fernando Campos De Domenico  
Universidade de São Paulo (USP)  
Museu de Zoologia da Universidade de São Paulo  
Avenida Nazaré, 481, 04263-000  
São Paulo, SP, Brazil.

Carlos Frankl Sperber  
Universidade Federal de Viçosa (UFV)  
Departamento de Biologia Geral  
Avenida PH. Rolfs, s/n, 36570-900  
Viçosa, MG, Brazil.

Date of issue: August 30, 2019

Daniela Santos Martins Silva, Oscar J. Cadena-Castañeda, Marcelo Ribeiro Pereira,  
Fernando Campos De Domenico and Carlos Frankl Sperber  
New tribes, overview and checklist of Neotropical Cladonotinae (Orthoptera:  
Caelifera: Tetrigidae)  
Insecta Mundi 0723: 1–38

ZooBank Registered: urn:lsid:zoobank.org:pub:13D5064E-3000-4EE9-AAEE-DBF61F97A569

**Published in 2019 by**

Center for Systematic Entomology, Inc.  
P.O. Box 141874  
Gainesville, FL 32614-1874 USA  
<http://centerforsystematicentomology.org/>

**Insecta Mundi** is a journal primarily devoted to insect systematics, but articles can be published on any non-marine arthropod. Topics considered for publication include systematics, taxonomy, nomenclature, checklists, faunal works, and natural history. *Insecta Mundi* will not consider works in the applied sciences (i.e. medical entomology, pest control research, etc.), and no longer publishes book reviews or editorials. *Insecta Mundi* publishes original research or discoveries in an inexpensive and timely manner, distributing them free via open access on the internet on the date of publication.

*Insecta Mundi* is referenced or abstracted by several sources, including the Zoological Record and CAB Abstracts. *Insecta Mundi* is published irregularly throughout the year, with completed manuscripts assigned an individual number. Manuscripts must be peer reviewed prior to submission, after which they are reviewed by the editorial board to ensure quality. One author of each submitted manuscript must be a current member of the Center for Systematic Entomology.

Guidelines and requirements for the preparation of manuscripts are available on the *Insecta Mundi* website at <http://centerforsystematicentomology.org/insectamundi/>

**Chief Editor:** David Plotkin, [insectamundi@gmail.com](mailto:insectamundi@gmail.com)

**Assistant Editor:** Paul E. Skelley, [insectamundi@gmail.com](mailto:insectamundi@gmail.com)

**Head Layout Editor:** Robert G. Forsyth

**Editorial Board:** J. H. Frank, M. J. Paulsen, Michael C. Thomas

**Review Editors:** Listed on the *Insecta Mundi* webpage

**Printed copies (ISSN 0749-6737) annually deposited in libraries**

CSIRO, Canberra, ACT, Australia

Museu de Zoologia, São Paulo, Brazil

Agriculture and Agrifood Canada, Ottawa, ON, Canada

The Natural History Museum, London, UK

Muzeum i Instytut Zoologii PAN, Warsaw, Poland

National Taiwan University, Taipei, Taiwan

California Academy of Sciences, San Francisco, CA, USA

Florida Department of Agriculture and Consumer Services, Gainesville, FL, USA

Field Museum of Natural History, Chicago, IL, USA

National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

Zoological Institute of Russian Academy of Sciences, Saint-Petersburg, Russia

**Electronic copies (Online ISSN 1942-1354, CDROM ISSN 1942-1362) in PDF format**

Printed CD or DVD mailed to all members at end of year. Archived digitally by Portico.

Florida Virtual Campus: <http://purl.fcla.edu/fcla/insectamundi>

University of Nebraska-Lincoln, Digital Commons: <http://digitalcommons.unl.edu/insectamundi/>

Goethe-Universität, Frankfurt am Main: <http://nbn-resolving.de/urn/resolver.pl?urn:nbn:de:hebis:30:3-135240>

**Copyright** held by the author(s). This is an open access article distributed under the terms of the Creative Commons, Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited. <http://creativecommons.org/licenses/by-nc/3.0/>

**Layout Editor for this article:** Robert G. Forsyth

---

---

## New tribes, overview and checklist of Neotropical Cladonotinae (Orthoptera: Caelifera: Tetrigidae)

Daniela Santos Martins Silva

Universidade Federal de Viçosa (UFV)  
campus Rio Paranaíba, Instituto de Ciências Biológicas e da Saúde  
Rodovia MG 230, KM 7, 38810–000  
Rio Paranaíba, MG, Brazil.  
danielasantos.biology@gmail.com

Oscar J. Cadena-Castañeda

Universidad Distrital Francisco José de Caldas  
Grupo de Investigación en Artrópodos “Kumanguí”  
Carrera 3 # 26A – 40  
Bogotá, Colombia.  
ojccorthoptera@gmail.com

Marcelo Ribeiro Pereira

Universidade Federal de Viçosa (UFV)  
campus Rio Paranaíba, Instituto de Ciências Biológicas e da Saúde  
Rodovia MG 230, KM 7, 38810–000  
Rio Paranaíba, MG, Brazil.  
marcelo.ribeiropereira@gmail.com

Fernando Campos De Domenico

Universidade de São Paulo (USP)  
Museu de Zoologia da Universidade de São Paulo  
Avenida Nazaré, 481, 04263–000  
São Paulo, SP, Brazil.  
fcdomenico@usp.br

Carlos Frankl Sperber

Universidade Federal de Viçosa (UFV)  
Departamento de Biologia Geral  
Avenida PH. Rolfs, s/n, 36570–900  
Viçosa, MG, Brazil.  
sperberufv@gmail.com

**Abstract.** The Cladonotinae (Orthoptera: Caelifera: Tetrigidae) are a peculiar tetrigid taxon characterized by a relatively widened fascial carina on the frontal costa. This group currently has a doubtful taxonomic status since this is the only character shared by its members. Here, we provide an overview of the Cladonotinae reported from the Neotropical region (29 species, three of them fossils), based on the morphological examination of the specimens housed at several museums. We show that Neotropical Cladonotinae share more characteristics, which strengthen its taxonomic status, and propose two new tribes: Choriphyllini **n. trib.** and Mucrotettigini **n. trib.** We propose the new combination *Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.** (from *Metrodora undulata* Cadena-Castañeda and Cardona, 2015). We also propose splitting the genus *Dasyleurotettix* Rehn, 1904 by revalidating the status of one of its junior synonyms, *Liotettix* Bolívar, 1906, and creating the combinations *Liotettix affinis* Bruner, 1920 **n. comb.** (from *Dasyleurotettix affinis* (Bruner, 1920)), *L. lobulatus* Stål, 1861, **rev. comb.** and *L. miserabilis* Blanchard, 1851, **rev. comb.** We then transfer both *Liotettix* and *Dasyleurotettix* out of Cladonotinae, with the former going to subfamily Tetriginae and the latter going to tribe Criotettigini (Tetrigidae: Scelimeninae). Additionally, we provide a taxonomic key for Neotropical Cladonotinae genera.

**Key words.** Classification, Greater Antillean subregion, tetrigids, pygmy grasshoppers.

**Resumo.** Os Cladonotinae (Orthoptera: Caelifera: Tetrigidae) são um peculiar táxon de tetrigídeos caracterizados pelo alargamento significativo da carena fascial da costa frontal. Este grupo atualmente apresenta posição taxonômica duvidosa, pois há apenas essa característica compartilhada por seus membros. Aqui, revisamos a situação das espécies registradas para a região Neotropical (29 espécies, três delas fósseis), tendo por base a morfologia dos espécimes depositados em vários museus. Nós mostramos que os Cladonotinae Neotropicais compartilham mais características, o que fortalece seu status taxonômico e propomos duas novas tribos: Choriphyllini **n. trib.** e Mucrotettigini **n. trib.** Nós propomos uma nova combinação *Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.** (a partir de *Metrodora undulata* Cadena-Castañeda and Cardona, 2015). Também propomos dividir o gênero *Dasyleurotettix* Rehn, 1904, revalidando o *status* de um de seus sinônimos juniores, *Liotettix* Bolívar, 1906 e criando as combinações *Liotettix affinis* Bruner, 1920 **n. comb.** (a partir de *Dasyleurotettix affinis* (Bruner, 1920)), *L. lobulatus* Stål, 1861, **rev. comb.** e *L. miserabilis* Blanchard, 1851, **rev. comb.** Nós então transferimos ambos *Liotettix* e *Dasyleurotettix* de Cladonotinae, com o primeiro indo para a subfamília Tetriginae e o último indo para a tribo Criotettigini (Tetrigidae: Scelimeninae). Adicionalmente, fornecemos uma chave taxonômica para os gêneros de Cladonotinae Neotropical.

**Palavras-chaves.** Classificação, Subregião das Grandes Antilhas, tetrigídeos, gafanhotos pigmeus.

**Resumen.** Los Cladonotinae (Orthoptera: Caelifera: Tetrigidae) son un taxón peculiar de tetrigidos que se caracterizan por el alargamiento significativo de la carina fascial de la costa frontal. Este grupo actualmente presenta una posición taxonómica dudosa, ya que solamente cuenta con esa característica compartida por los miembros que lo conforman. Aquí revisamos la situación de las especies registradas para la región Neotropical (29 especies, tres de estas fósiles), basándonos en la morfología de los especímenes depositados en varios museos. Nosotros mostramos que los Cladonotinae Neotropicales comparten más características en común, que fortalecen su estatus taxonómico y proponemos dos nuevas tribus: Choriphyllini **n. trib.** and Mucrotettigini **n. trib.** Nosotros proponemos nuevas combinaciones para *Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.** (de *Metrodora undulata* Cadena-Castañeda and Cardona, 2015). También proponemos dividir el género *Dasyleurotettix* Rehn, 1904, revalidando el estado de uno de sus sinónimos, *Liotettix* Bolívar, 1906, y creando las combinaciones *Liotettix affinis* Bruner, 1920 **n. comb.** (de *Dasyleurotettix affinis* (Bruner, 1920)), *L. lobulatus* Stål, 1861, **rev. comb.** y *L. miserabilis* Blanchard, 1851, **rev. comb.** Luego transferimos tanto a *Liotettix* como a *Dasyleurotettix* de Cladonotinae, la primera a la subfamilia Tetriginae y la última a la tribo Criotettigini (Tetrigidae: Scelimeninae). Adicionalmente, presentamos claves taxonómicas para los géneros de Cladonotinae Neotropicales.

**Palabras clave.** Clasificación, subregion de las Antillas Mayores, tetrigidos, saltamontes pigmeos.

## Introduction

Cladonotinae Bolívar, 1887 was defined for the first time as a section named Cladonotae that encompassed all species uniquely characterized by a significantly widened fascial carina of the frontal costa and the consequently broadened scutellum (broader than the scapus) (Tumbrinck 2014); the name Cladonotinae was used for the first time by Hancock (1902). The type genus is *Cladonotus* Saussure, 1862 and its type species is *C. humberianus* Saussure, 1862, from Sri Lanka (Cigliano et al. 2018). This subfamily currently comprises tribe Cladonotini Bolívar, 1887 (which contains *Cladonotus* and other genera) and tribe Xerophyllini Günther, 1979.

As with most Tetrigidae, the relationships among members of Cladonotinae remain unknown (see Devriese 1999; Tumbrinck 2014), and there is no thorough morphological analysis or revision of this subfamily available. This subfamily also has a doubtful taxonomic status, as it was suggested to be polyphyletic (Skejo and Bertner 2017).

The cladonotine species are distributed in the Australian, Ethiopian, Oriental, and Neotropical regions (Cigliano et al. 2018), and for the latter region, several cladonotines are still poorly known, with many species recorded from only a few localities. In the Neotropical region, with the exception of leaf-mimicking species, there are many taxa found in localities of the Antillean subregion: Cuba, Jamaica, Hispaniola (Haiti and the Dominican Republic) and Puerto Rico (Morrone 2014). The Antillean species are characterized by a coarsely granulate integument, presence of fastigial horns or tubercles (also named carinula transversalis of the vertex), and the absence of foliaceous pronotal crests on the median carina (Heads et al. 2014). The South American fauna shows a lower diversity of cladonotines, being represented so far by only two genera (*Cota* Bolívar, 1887 and *Eleleus* Bolívar, 1887).

In the present study, we provide an overview of the Neotropical species of Cladonotinae based on the examination of specimens deposited at several museum collections. We propose two new tribes and present a taxonomic key to the extant genera and two keys to species of the genera *Choriphyllum* Serville and *Cota* Bolívar. In addition, we provide a checklist of species and photos highlighting their most relevant morphological characters. Finally, we discuss morphological aspects and the current classification of this group.

## Materials and Methods

We analyzed the type specimens housed at The Academy of Natural Sciences of Drexel University (ANSP). Additionally, we reviewed literature and photos provided by curators from specimens housed in the following museums or collections (acronyms used in the text): American Museum of Natural History, New York, United States of America (AMNH); The Natural History Museum, London, United Kingdom (BMNH); Carnegie Museum of Natural History, Pittsburgh, United States of America (CMNH); Colección de Artrópodos y otros Invertebrados, Universidad Distrital Francisco José de Caldas, Bogotá, Colombia (CAUD); Florida State Collection of Arthropods, Gainesville, Florida, United States of America (FSCA); Illinois Natural History Survey, Champaign, Illinois, United States of America (INHS); Naturhistorisches Museum Wien, Vienna, Austria (NMW); Muséum d'Histoire Naturelle de la Ville de Genève, Genève, Switzerland (MHNG); Museo Nacional de Ciencias Naturales, Madrid, Spain (MNCN); and the Museum of Evolution Uppsala University, Uppsala, Sweden (UZIU). Additionally, we compared the morphology of Neotropical specimens with the remaining cladonotine fauna. The kind of type, locality, and associated data are summarized in Table 1.

**Table 1.** Checklist of Neotropical species of Cladonotinae. Information on the type specimen (kind of type, locality and depository) is indicated for each species.

Species	Type	Locality	Depository
Fossil species			
<i>Antillotettix electrum</i> Heads, 2009	Holotype	Dominican Republic	American Museum of Natural History (AMNH)
<i>Baeotettix lottiae</i> Heads, 2009	Holotype	Dominican Republic	American Museum of Natural History (AMNH)
<i>Electrotettix attenboroughi</i> Heads and Thomas, 2014	Holotype	Dominican Republic	Illinois Natural History Survey (INHS)
Extant species			
<i>Antillotettix nanus</i> Perez-Gelabert, 2003	Holotype	Dominican Republic	Carnegie Museum of Natural History (CMNH)
<i>Armasius iberianus</i> Perez-Gelabert and Yong, 2014	Holotype	Cuba	Museo Nacional de Historia Natural, La Habana
<i>Bahorucoettix larimar</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	Unknown
<i>Choriphyllum bahamensis</i> Perez-Gelabert and Otte, 1999	Holotype	Bahamas	Florida State Collection of Arthropods (FSCA)
<i>Choriphyllum plagiatum</i> Walker, 1871	Holotype	Jamaica	The Natural History Museum, London (BMNH)
<i>Choriphyllum sagrai</i> Serville, 1838	Unknown	Cuba	Unknown
<i>Choriphyllum saussurei</i> Bolívar, 1887	Syntypes	Cuba	Muséum d'histoire naturelle de la Ville de Genève (MHNG)
<i>Cota bispina</i> (Saussure, 1861)	Unknown	Brazil	Unknown
<i>Cota saxosa</i> Bolívar, 1887	Holotype	Peru	Naturhistorisches Museum Wien (NMW)
<i>Cota strumosa</i> Bolívar, 1887	Lectotype	Peru	Museo Nacional de Ciencias Naturales (MNCN)
<i>Cota undulata</i> (Cadena-Castañeda and Cardona-Granda, 2015) <b>n. comb.</b>	Holotype	Colombia	Colección de Artrópodos y otros Invertebrados, Universidad Distrital Francisco José de Caldas (CAUD)
<i>Cubanotettix turquinensis</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Cuba	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Cubonotus altinotatus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Cuba	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Eleleus curtus</i> Bolívar, 1887	Holotype	Brazil	Naturhistorisches Museum Wien (NMW)
<i>Haitianotettix tuberculatus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	Carnegie Museum of Natural History (CMNH)

Table 1. Continued.

Species	Type	Locality	Depository
<i>Hottettix haitianus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Haiti	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Mucrotettix gibbosus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Mucrotettix spinifer</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Phyllotettix compressus</i> (Thunberg, 1815)	Holotype	Jamaica	Museum of Evolution Uppsala University (UZIU)
<i>Phyllotettix foliatus</i> (Hancock, 1902)	Holotype	Jamaica	Unknown
<i>Phyllotettix rhombeus</i> (Linnaeus, 1767)	Holotype	Jamaica	The Natural History Museum, London (BMNH)
<i>Sierratettix carinatus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Tiburonotus peninsularis</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Haiti	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Truncotettix fronterizus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	The Academy of Natural Sciences of Drexel University (ANSP)
<i>Truncotettix interruptus</i> Perez-Gelabert, Hierro and Otte, 1998	Holotype	Dominican Republic	The Academy of Natural Sciences of Drexel University (ANSP)

## Results

A total of 28 species of Cladonotinae was recorded for the Neotropical region, consisting of three fossils found in Early Miocene amber resin and 25 extant species. Neotropical cladonotines were reported from Brazil, Cuba, Dominican Republic, Jamaica, Haiti and Peru (Cigliano et al. 2018) (Table 1). Additionally, there was an unidentified Cladonotinae juvenile specimen from Puerto Rico (not included in Table 1; see Perez-Gelabert and Yong 2014). We propose two new tribes to include the Neotropical genera.

### Key to the Neotropical Cladonotinae (extant genera)

1. Body laterally compressed with foliaceous pronotum [**Choriphyllini Cadena-Castañeda and Silva, n. trib.**] ..... 2
- Body not laterally compressed without a foliaceous pronotum [**Mucrotettigini Cadena-Castañeda and Silva, n. trib., and Cota Bolívar, 1887**]. ..... 3
- 2(1). Hind femur with continuous dorsal margin (Fig. 22A) ..... **Choriphyllum** Serville, 1838 (Fig. 1–5)
- Hind femur with dorsal margin excavated on distal portion (Fig. 22B) ..... **Phyllotettix** Hancock, 1902 (Fig. 6, 7)
- 3(1). Lateral lobe of pronotum directed sideways, flattened and with spine (Fig. 22C) ..... **Armasius** Perez-Gelabert and Yong, 2014
- Lateral lobe of pronotum directed downward and continuous with body (Fig. 22D) ..... 4
- 4(3). Posterior margin of pronotum sharply pointed (Fig. 22E) ..... 5
- Posterior margin of pronotum not sharply pointed (Fig. 22F) ..... 6
- 5(4). Pronotum slightly tapering towards the posterior margin of pronotum, with arrow shaped apex (Fig. 22E) ..... **Cubanotettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 8)
- Pronotum tapering towards the posterior margin of pronotum and abruptly sharpening up as a spine (Fig. 22G) **Mucrotettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 13C, 14B)
- 6(4). Posterior margin of pronotum ‘U’ shaped (Fig. 22H) ..... **Hottettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 12C)
- Posterior margin of pronotum not ‘U’ shaped ..... 7
- 7(6). Posterior margin of pronotum rounded ..... **Bahorucoettix** Perez-Gelabert, Hierro and Otte, 1998
- Posterior margin of pronotum not rounded ..... 8

- 8(7). Posterior part of pronotum slightly tapering from the base toward the apex, with truncated apex (Fig. 22I) . . . . . **Cubonotus** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 9C)  
 — Posterior part of pronotum tapering from the base toward the apex, without truncated apex . . . . . **9**
- 9(8). Posterior margin of pronotum slightly turning upward (Fig. 22J) . . . . .  
 . . . . . **Tiburonotus** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 16)  
 — Posterior margin of pronotum does not turn upwards . . . . . **10**
- 10(9). Anterior margin of pronotum slightly hook-like over the head (Fig. 22K) . . . . .  
 . . . . . **Sierratettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 15)  
 — Anterior margin of pronotum rounded . . . . . **11**
- 11(10). Hind femur with at least two denticles (lappets) in dorsal view (Fig. 22L) . . . . . **12**  
 — Hind femur without denticles (lappets) in dorsal view . . . . . **13**
- 12(11). Pronotum not covering the whole abdomen, with only one elevation (cusp) on the pronotum in lateral view (Fig. 22M) . . . . .  
 . . . . . **Haitianotettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 11)  
 — Pronotum covering the whole abdomen, with two elevations (cusps) on the pronotum in lateral view (Fig. 22N) . . . . . **Cota** Bolívar, 1887 (Fig. 19–21)
- 13(11). Pronotum elevated (not foliaceous) with infrascapular area evident and humero-apical carina continuous with internal lateral carina (Fig. 22O) . . . . . **Eleleus** Bolívar, 1887 (Fig. 10)  
 — Pronotum elevated (not foliaceous) with infrascapular area evident, without humero-apical carina continuous with internal lateral carina (Fig. 22P) . . . . .  
 . . . . . **Truncotettix** Perez-Gelabert, Hierro and Otte, 1998 (Fig. 17–18)

### **Choriphyllini** Cadena-Castañeda and Silva, n. trib.

**Diagnosis.** Choriphyllini n. trib. is distinguished from Xerophyllini Günther, 1979 (the only tribe established for Cladonotinae until this moment) by the absence of spiny protuberances in the face and/or body; posterior edge of the pronotum in the Xerophyllini and other unclassified Cladonotinae with high pronotal crest rounded, in contrast to the Choriphyllini n. trib., that have it truncated; middle femur not flattened or foliaceous, without lappets and with tegmina and wings absent.

**Description.** Body flattened laterally, head prominent, vertex round and without prolongation, supra-ocular lobe and transversal carina not developed; fascial carinae rounded and extending moderately towards the front (in lateral view) or widely divergent (in frontal view); antennal groove situated below lower margin of compound eyes and with 14 to 15 segments. Pronotum crest high, leaf-like, with variable shape of edge; marked by leaf-like veins and granulose; anterior margin of the pronotum extending over the head with rounded or almost truncated shape; posterior margin of the pronotum rounded, with truncated or bifid shape, covering the apex of the abdomen; lateral lobes directed downwards, close to the body; broad infrascapular area; tegmina and wings absent; fore and middle femur undulated, hind femur robust, flattened laterally or with dorsal margin excavated on distal portion; lappets and antegenicular tooth undeveloped; first article of posterior tarsi longer than third.

**Type genus.** *Choriphyllum* Serville, 1838

**Included genera.** *Choriphyllum* Serville, 1838 and *Phyllotettix* Hancock, 1902.

**Distribution.** Cuba, Jamaica and Bahamas (Hancock 1902, 1907; Perez-Gelabert et al. 1998; Perez-Gelabert and Otte 1999; Perez-Gelabert 2003; Cigliano et al. 2018).

### ***Choriphyllum* Serville, 1838**

**Type species.** *Choriphyllum sagrai* Serville, 1838.

**Emended description.** Head and compound eyes inserted below the pronotal disc; pronotum largely compressed; crest highly elevated, foliaceous, rounded-angulate or with general shape variable; anterior margin of pronotum over the head anteriorly rounded and posteriorly truncate or slightly concave (*C. plagiatum*), covering the abdomen; infrascapular area visible and broad; tegmina and wings absent; margins of fore and middle legs undulated; hind femur flattened laterally (*C. plagiatum* and *C. saussurei*) or robust; hind femur compressed and first article of hind tarsi longer than third.

**Comments.** *Choriphyllum* (Cuba, Bahamas and Jamaica) and *Phyllotettix* (Jamaica) are allied leaf-mimic tetrigids (Heads et al. 2014) that share several morphological characteristics. For some time, species of *Choriphyllum* were considered as *Phyllotettix* and vice versa (see Hancock 1902). However, Hancock (1907) assigns this to a compilation error from his 1902 data. *Choriphyllum* is a genus with four species: *Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999 from the Bahamas; *Choriphyllum plagiatum* Walker, 1871 from Jamaica; *Choriphyllum sagrai* Serville, 1838 and *Choriphyllum saussurei* Bolívar, 1887 from Cuba (Cigliano et al. 2018).

### Key to species of *Choriphyllum* Serville (adapted from Perez-Gelabert and Otte (1999) and Gundlach (1891))

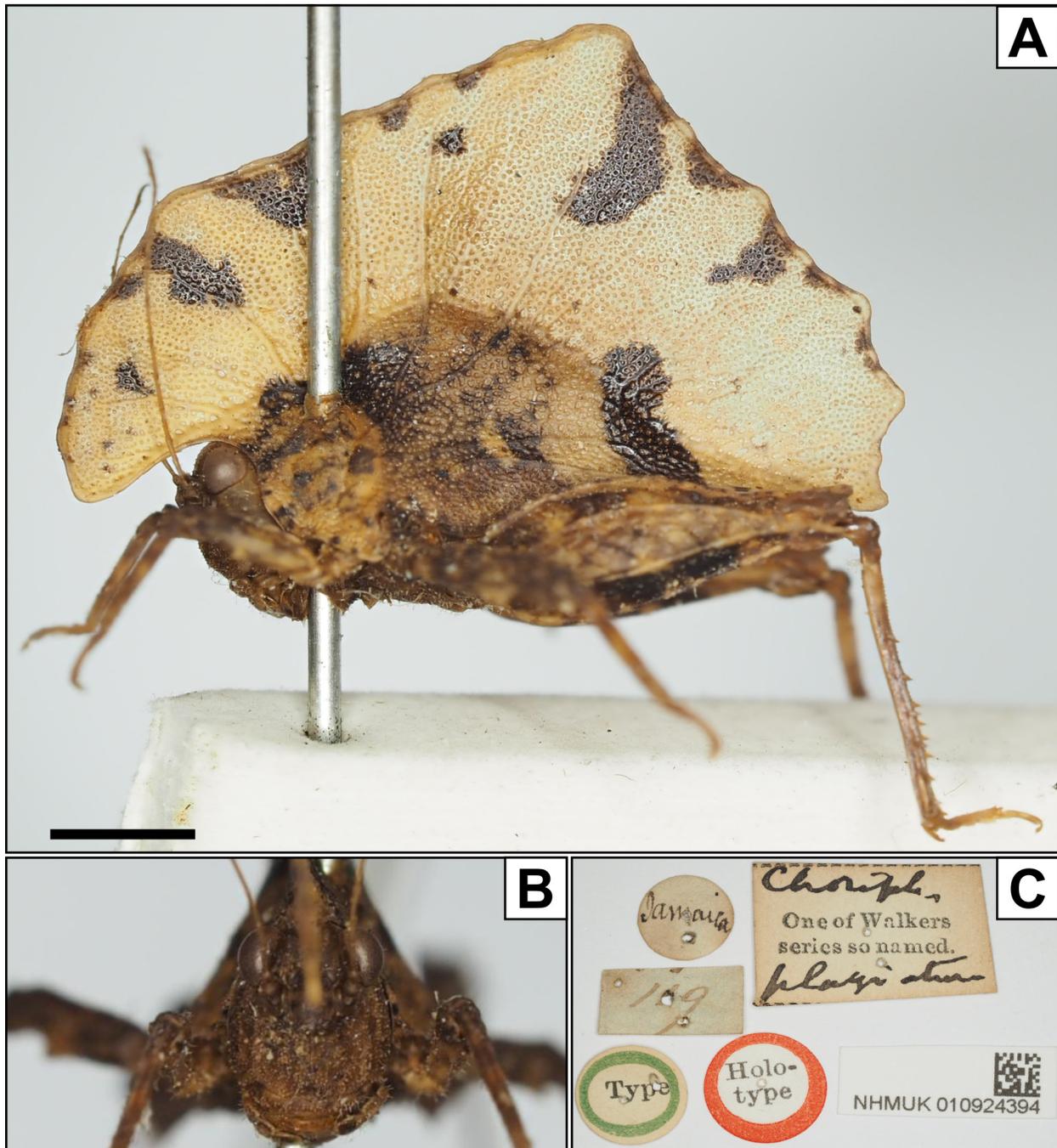
1. Posterior part of median carina slightly concave . . . . . *Choriphyllum plagiatum* Walker, 1871 (Fig. 1A)
- Posterior part of median carina truncated . . . . . 2
2. Median carina (general shape of pronotum) with crest uniformly elevated throughout its length, without undulations . . . . . *Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999 (Fig. 3A–5A)
- Median carina (general shape of pronotum) with crest not uniformly elevated throughout its length, with undulations . . . . . 3
3. Undulations evident only on the median to posterior part of median carina . . . . . *Choriphyllum saussurei* Bolívar, 1887 (Fig. 2)
- Undulations evident perpendicular to the head . . . . . *Choriphyllum sagrai* Serville, 1838 (based on Serville (1838): plate 8, fig. 5 – drawing).

### *Choriphyllum plagiatum* Walker, 1871

Fig. 1

**Description.** Body surface granulated; antennae longer than length of hind femur; antennal groove situated below lower margin of compound eyes; eyes globose with flattened dorsal base; fascial carinae arcuate; interocular width of vertex between eyes (in dorsal view) is wider than vertical width of one compound eye; anterior margin of pronotum rounded, slightly arcuate and with subtriangulate shape over the head; middle part of median carina protruding, giving the pronotum a leaf-like triangular shape with posterior part slightly concave; pronotum ornamented with black spots of different size and without definite shape; pronotum with parallel radiating veins and a lot of small granules on the foliaceous part of pronotum; lateral lobes directed downwards, close to the body.

**Comments.** Walker (1871) only provided a general description of *C. plagiatum*. Afterwards, Hancock (1902) presented the species as *Phyllonotus plagiatum*, but Hancock (1907) corrected the name justifying a compilation error. The original description was based on one female from Jamaica but there is a male specimen housed at the BMNH with labels indicating that it's from a series. As a consequence, either Walker confused the sex of the specimen (terminalia are partially covered) or this is not the original specimen. Additionally, the author did not designate the holotype in the original description. However, following article 73.1.2 of the ICZN, that specimen is the holotype fixed by monotypy.

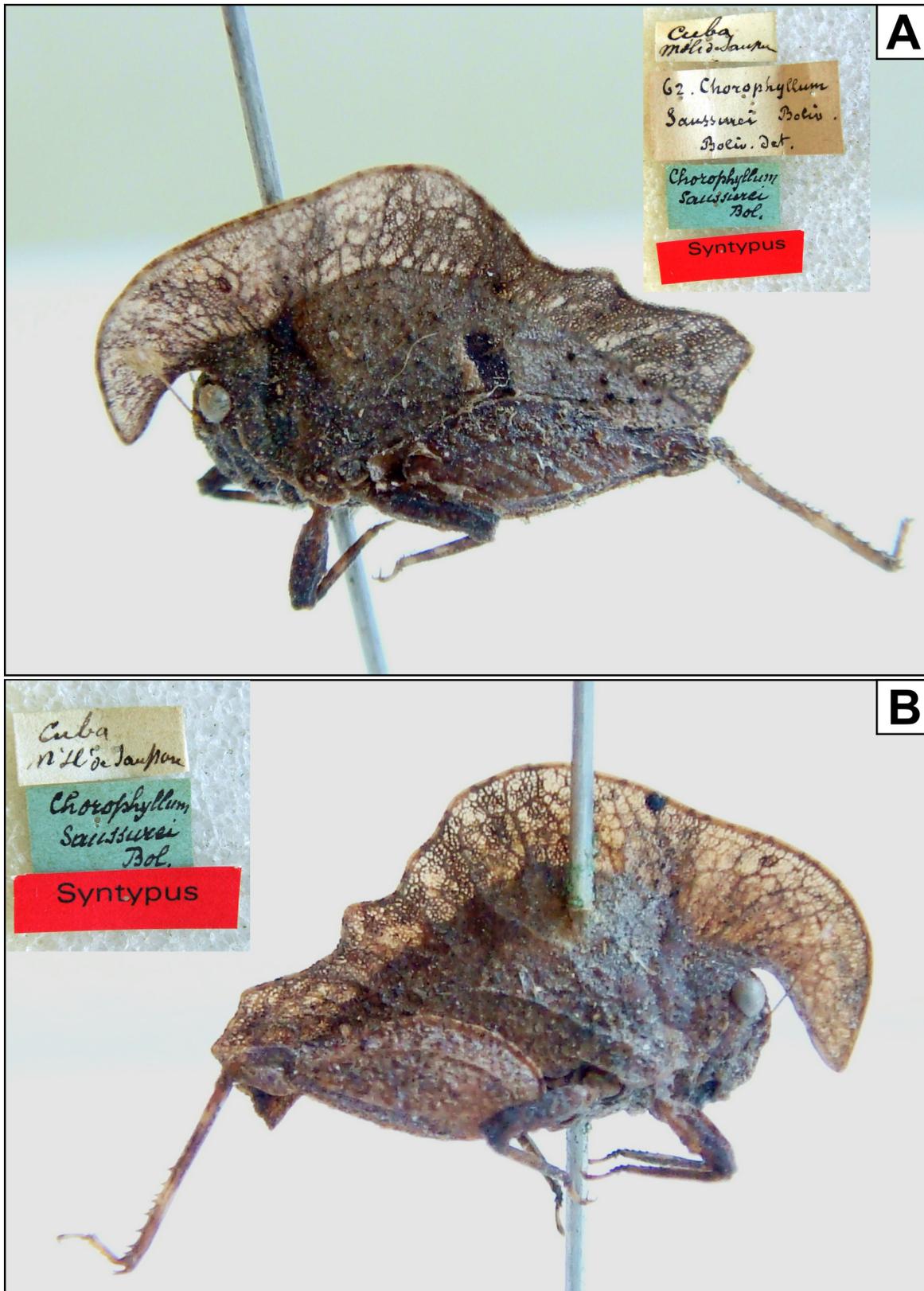


**Figure 1.** *Choriphyllum plagiatum* Walker, 1871, holotype male. A) Left lateral view. B) Frontal view. C) Labels. Photos by Josef Tumbrinck (BMNH).

***Choriphyllum saussurei* Bolívar, 1887**

Fig. 2

**Description.** Body surface granulated; antennae shorter than length of hind femur; antennal groove situated below lower margin of compound eyes; eyes globose with flattened dorsal base; fascial carinae arcuate; interocular width of vertex between eyes (in dorsal view) is wider than vertical width one compound eye; anterior margin of pronotum rounded, slightly arcuate and with subtriangular shape



**Figure 2.** *Chorophyllum saussurei* Bolívar, 1887, syntype female. **A)** Left lateral view with labels. **B)** Right lateral view with labels. Photos by John Hollier (MHNG).

over the head; pronotum leaf-like with crest uniformly elevated up to the middle of the body, from the middle to the end of the body, the median carina is undulated, posteriorly partly truncated; pronotum with parallel radiating veins highlighted only on the small foliaceous part; lateral lobes being directed downwards, close to the body.

**Comments.** *Choriphyllum saussurei* and *C. sagrai* are poorly known, few specimens are recorded and the holotype of the latter species was not found (John Hollier, pers. comm.). There are scarce data about *C. sagrai* and we consider this species name to be a *nomen dubium*. There are two females syntypes of *C. saussurei*, housed at the MHNG (Paris 1994) (Fig. 2) and another syntype at Gundlach's collection in Cuba (Bolívar 1887; Yong and Perez-Gelabert 2014). Bolívar (1887) only provided a general description of *C. saussurei*. Afterwards, Hancock (1902) presented the species as *Phyllonotus saussurei*, but Hancock (1907) corrected the name justifying a compilation error.

### ***Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999**

Fig. 3–5

**Emended description.** Body surface granulated; pronotum leaf-like with crest uniformly elevated throughout its length, without undulations, slightly higher at its midpoint; antennae shorter than length of hind femur; antennal groove situated below lower margin of compound eyes; eyes globose with flattened dorsal base; fascial carinae arcuate; interocular width of vertex between eyes (dorsal view) from above is wider than vertical width of one compound eye; median carina anteriorly rounded, arcuated, with hook-like shape over the head and posteriorly truncated; pronotum ornamented with small black spots; pronotum with radiating veins throughout the pronotum, but more densely concentrated on the foliaceous part of pronotum; lateral lobes directed downwards, close to the body.

**Comments.** *C. bahamensis* was the last species described in 1999 and in the original description the authors provide a type series composed of holotype, allotype, and one paratype. However, the material housed at the Florida State Collection of Arthropods (Table 1) labeled as *C. bahamensis* includes only the holotype and two paratypes (one male and one female). One of the two paratypes is apparently erroneously labelled, and the female is the allotype mentioned in the description (Fig. 3–5).

### ***Phyllotettix* Hancock, 1902**

**Type species.** *Phyllotettix compressus* (Thunberg, 1815).

**Description.** Body strongly compressed with surface finely rugose; head and compound eyes inserted below pronotum disc; antennal groove situated below margin of compound eyes; facial carinae placed between antennal groove; scutellum distinctly rounded and wider. Pronotum with radiating veins; crest highly elevated, with edge undulated or almost straight; anterior margin of pronotum elevated overhead, covering dorsally the head with a truncated projection or almost rounded extending down almost to the vertex portion; margin posterior of pronotum not truncated; infrascapular area visible and broad. Tegmina and wings absent. Fore femur undulated, middle femur elongated; hind femur robust, with dorsal margin excavated on distal portion (Fig. 6, 7).

**Comments.** *Phyllotettix* has three species: *P. compressus* (Thunberg, 1815), *P. foliatus* (Hancock, 1902) and *P. rhombeus* (Felton, 1765). *P. foliatus* is the species described more recently. Otte (1978) listed the holotype housed at the ANSP, but we were not able to locate this specimen.

### ***Phyllotettix compressus* (Thunberg, 1815)**

Fig. 6

**Description.** Body surface finely rugose, pronotum leaf-like with crest elevated, with median protuberance backwards; antennae shorter than hind femur; antennal groove situated below lower margin of compound eyes; eyes globose with flattened dorsal base; fascial carinae arcuate; intraocular width of vertex between eyes from above wider than vertical width of one compound eye; median carina anteriorly

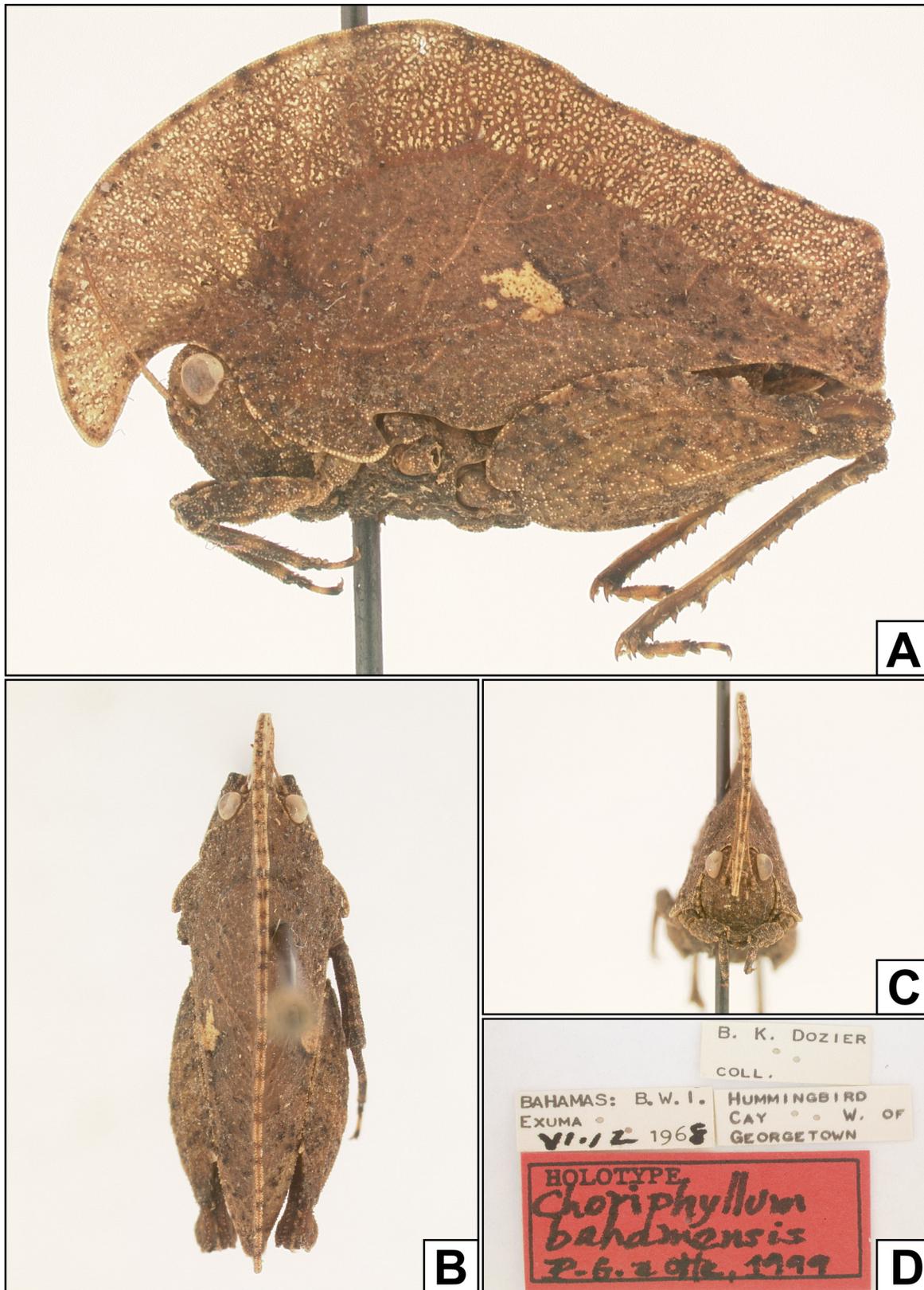


Figure 3. *Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999, holotype female. A) Left lateral view, B) Dorsal view, C) Frontal view and D) Labels. Photos by Kyle E. Schnepf (FSCA).

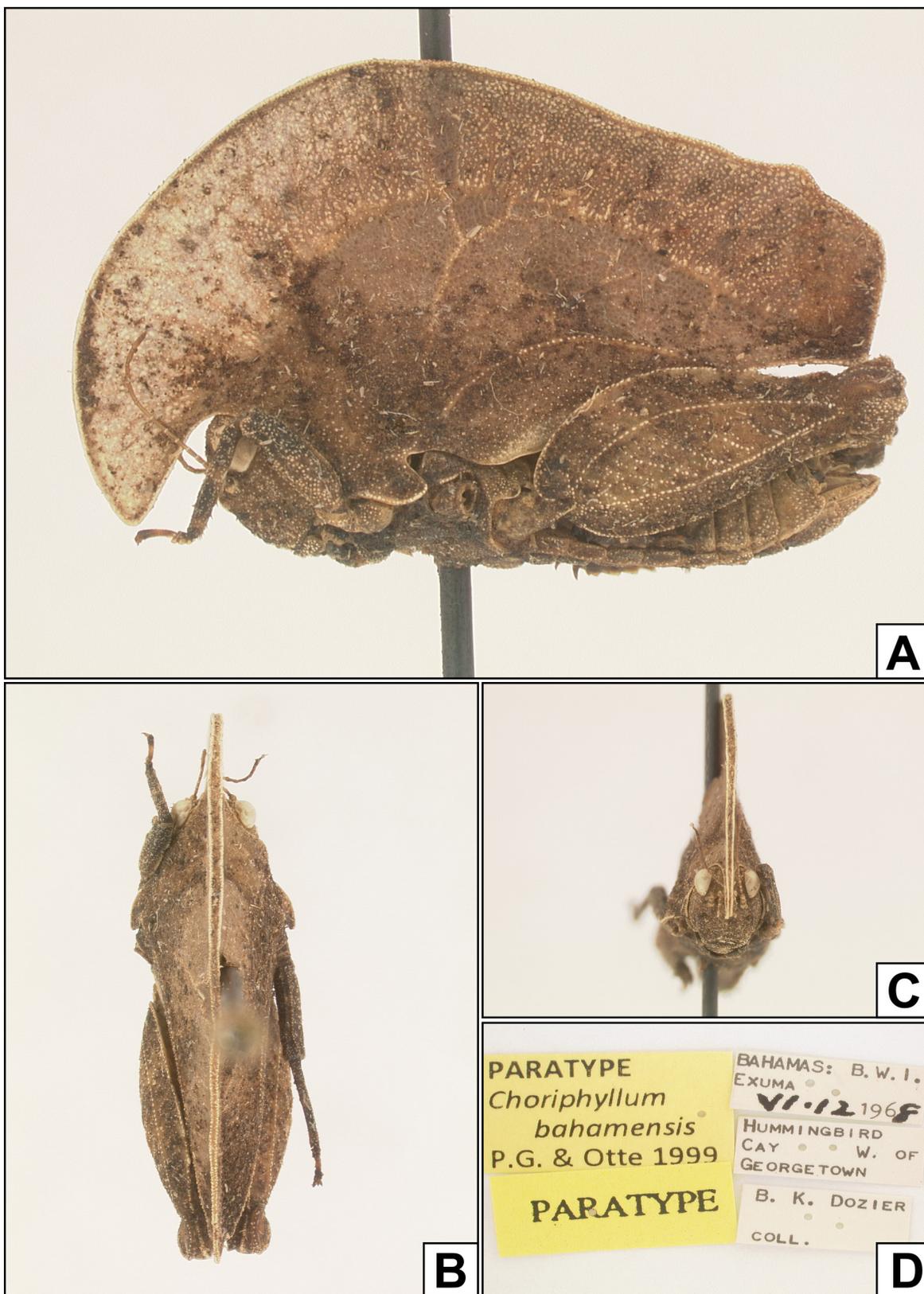
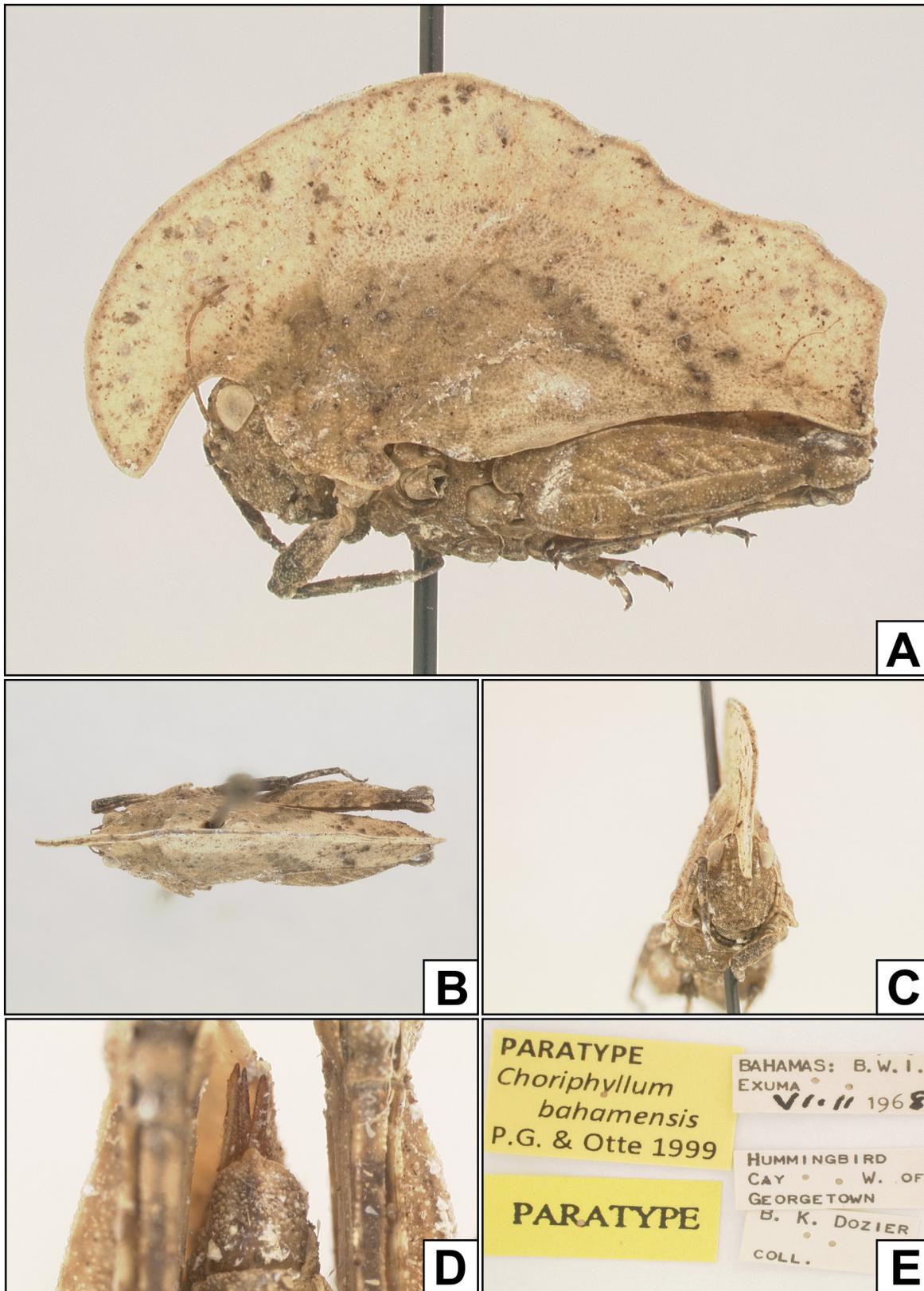
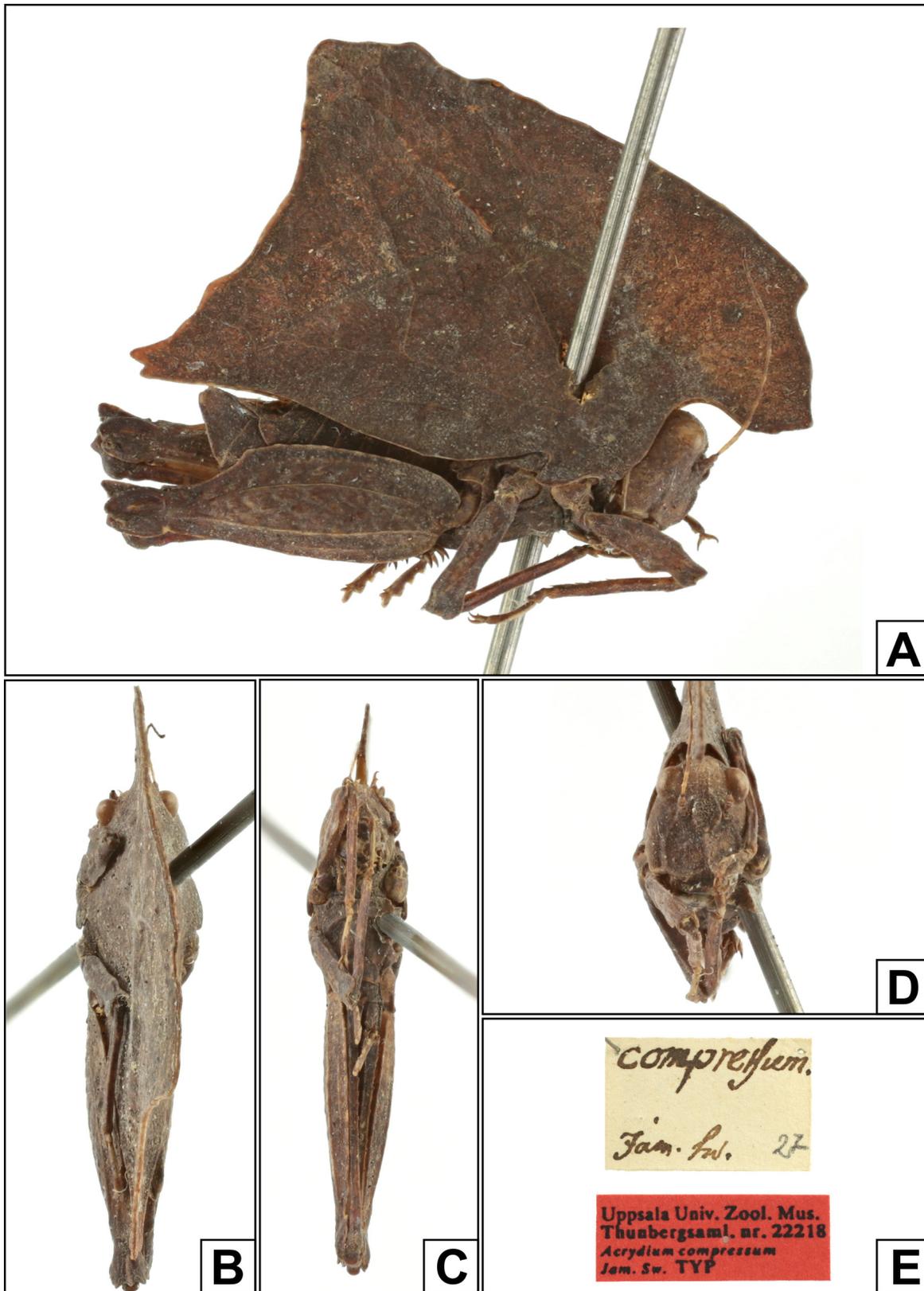


Figure 4. *Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999, paratype male. A) Left lateral view. B) Dorsal view. C) Frontal view. D) Labels. Photos by Kyle E. Schnepf (FSCA).



**Figure 5.** *Choriphyllum bahamensis* Perez-Gelabert and Otte, 1999, allotype female **A)** Left lateral view. **B)** Dorsal view. **C)** Frontal view. **D)** Terminalia, ventral view. **E)** Labels. Photos by Kyle E. Schnepf (FSCA).



**Figure 6.** *Phyllotettix compressus* (Thunberg, 1815), holotype male. **A)** Right view. **B)** Dorsal view. **C)** Ventral view. **D)** Frontal view. **E)** Labels. Photos by Hans Mejlon (UZIU).

almost truncated and posteriorly bifid; median carina with edge almost straight; pronotum without parallel radiating veins; lateral lobes being directed downwards, close to the body; fore and middle femur undulated; dorsal margin of hind femur slightly excavated on the distal portion (Fig. 6).

**Comments.** The *Phyllotettix compressus* male specimen is housed at the UZIU and the author did not designate the holotype in the original description. However, following article 73.1.2 of ICZN, this specimen is the holotype fixed by monotypy. Thunberg (1815) only provided a general description of *P. compressus*, but here we provide a more thorough description of this species.

### *Phyllotettix rhombeus* (Felton, 1765)

Fig. 7

**Description.** Body surface finely rugose, pronotum leaf-like with crest elevated, with median undulated protuberance backwards; antennal groove situated below lower margin of compound eyes; eyes globose with flattened dorsal base; intra-ocular width of vertex between eyes from above is wider than vertical width of one compound eye; median carina anteriorly undulated and subtriangular, posteriorly undulated and rounded; pronotum with parallel radiating veins of higher caliber and small veins with smaller caliber throughout pronotum; lateral lobes being directed downwards, close to the body; fore and middle femora undulated; dorsal margin of hind femur excavated on distal portion (Fig. 7).

**Comments.** *Phyllotettix rhombeus* (Fig. 7) was mentioned in the early studies as *Cicada rhombea* and *Membracis rhombea* (Hemiptera, Auchenorrhyncha) by Felton (1765), Linnaeus (1767) and Fabricius (1775), until Westwood (1837) allocated this taxon to a genus of Orthoptera (Cigliano et al. 2018). This species did not have a diagnosis and the author did not designate the holotype in the original description. However, following the ICZN's recommendation, this specimen is the holotype fixed by monotypy.

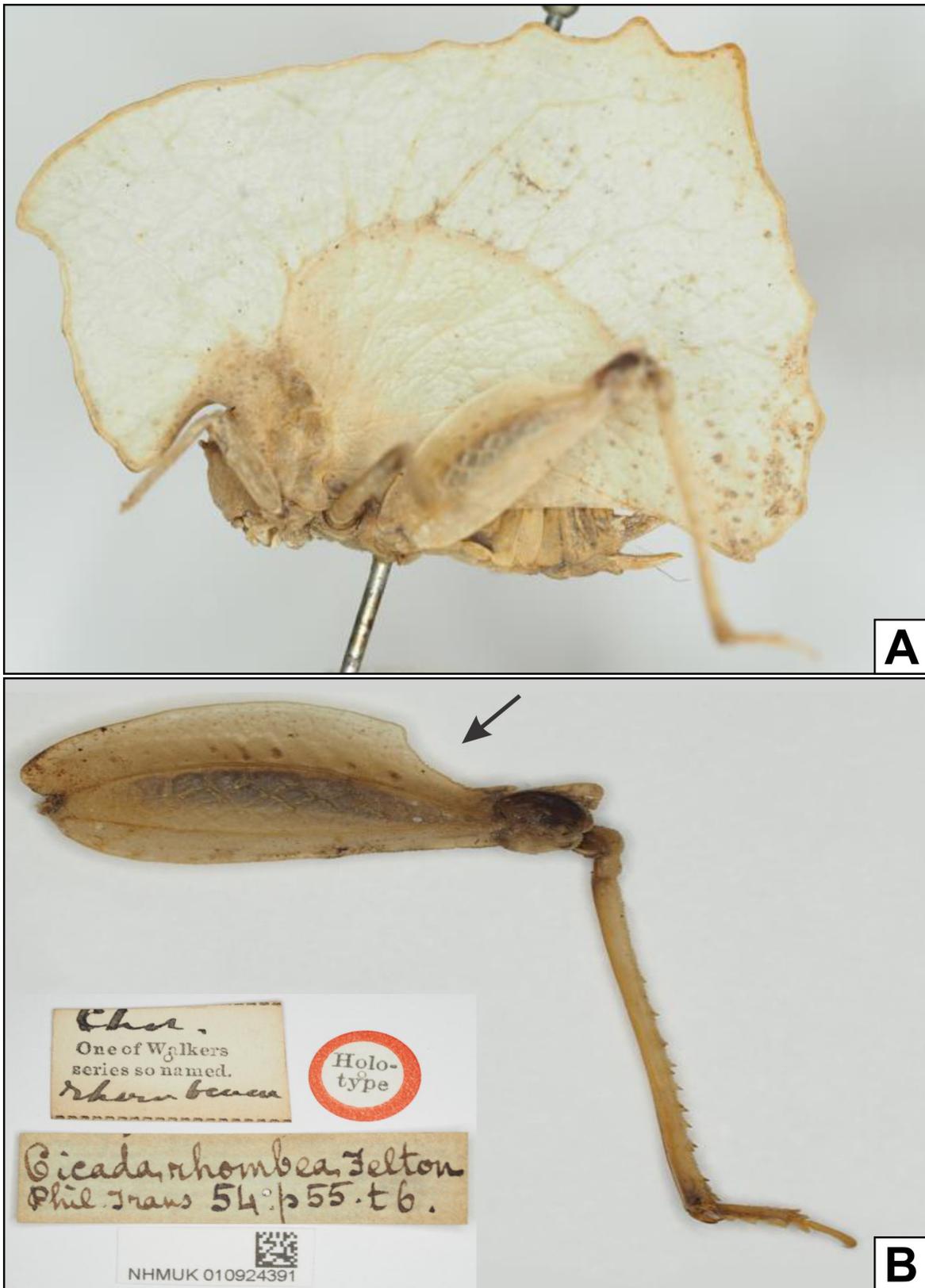
### Mucrotettigini Cadena-Castañeda and Silva, n. trib.

**Diagnosis.** The Mucrotettigini n. trib. are distinguished from Choriphyllini n. trib. and some Xerophyllini by the absence of high and foliaceous crest on the pronotum. It distinguishes itself from Xerophyllini also by the same characters cited in the comparison of Choriphyllini n. trib.

**Description.** Body compact, not flattened laterally, rugose and granulose integument; head mid-sized, medial carina produced in lateral view, transversal carina developed as fastigial horns, fascial carinae arcuated (in lateral view) or widely forked (in frontal view); fastigium prominent above eyes (in lateral view); antennal groove situated below lower margin of compound eyes, and with 10 to 12 segments (only *Mucrotettix* Perez-Gelabert, Hierro and Otte, 1998 and *Baeotettix* Heads, 2009 with 14 segments); pronotum short, brachypronotal, slightly surpassing abdomen; pronotum slightly arcuate; median carina continuous; posterior margin of pronotum with diverse shapes, being truncated in most cases, with peculiar forms; lateral lobes directed downwards, close to the body (only in *Armasius* there is a spine and the lateral lobe of pronotum is projected sideways); broad infrascapular area, extending towards to posterior margin of pronotum in lateral view; tegmina and wing absent (the unique exception is the fossil of *Electrotettix attenboroughi*† Heads and Thomas, 2014 with tegmina and rudimentary hind wings (Heads et al. 2014)); fore and middle femur margins undulated, hind femur robust; lappets and antegenicular tooth developed in the hind legs; first article of posterior tarsi as long as the third.

**Type genus.** *Mucrotettix* Perez-Gelabert, Hierro and Otte, 1998.

**Included genera.** *Antillotettix* Perez-Gelabert, 2003; *Baeotettix* Heads, 2009; *Electrotettix* Heads and Thomas, 2014; *Armasius* Perez-Gelabert and Yong, 2014; *Bahorucoettix* Perez-Gelabert, Hierro and Otte, 1998; *Cubanotettix* Perez-Gelabert, Hierro and Otte, 1998; *Cubonotus* Perez-Gelabert, Hierro and Otte, 1998; *Eleleus* Bolívar, 1887; *Haitianotettix* Perez-Gelabert, Hierro and Otte, 1998; *Hottettix* Perez-Gelabert, Hierro and Otte, 1998; *Mucrotettix* Perez-Gelabert, Hierro and Otte, 1998; *Sierratettix* Perez-Gelabert, Hierro and Otte, 1998; *Tiburonotus* Perez-Gelabert, Hierro and Otte, 1998; and *Truncotettix* Perez-Gelabert, Hierro and Otte, 1998.



**Figure 7.** *Phyllotettix rhombeus* (Felton, 1765), holotype female. **A)** Left lateral view. **B)** Hind leg and labels; arrow indicates the dorsal margin excavated on distal portion. Photos by Josef Tumbrinck (BMNH).

**Distribution.** Cuba, Dominican Republic, Jamaica, Haiti, Puerto Rico and Brazil (Hancock 1907; Perez-Gelabert et al. 1998; Perez-Gelabert and Otte 1999; Heads 2009; Perez-Gelabert 2009; Heads et al. 2014; Perez-Gelabert and Yong 2014; Yong 2017; Cigliano et al. 2018).

### ***Antillotettix* Perez-Gelabert, 2003**

The genus *Antillotettix* comprises two species from the Dominican Republic: an extant species *A. nanus* Perez-Gelabert, 2003 and the fossil *A. electrum*<sup>†</sup> Heads, 2009 (Cigliano et al. 2018). This genus is distinguished from other cladonotines by its relatively much smaller body size (4 to 7 mm); rounded body shape; coarsely granulose integument; 10-segmented antennae; not widely bifurcated fascial carinae; anterior margin of pronotum tectate, elevated only slightly above the head; and pronotum extending over half to 3/4 of the abdomen (Perez-Gelabert 2003). *Antillotettix electrum* is distinguished from *A. nanus* by antennae almost twice as long than fore femur, less granulose body, diminutive pronotum and smaller humeral sinus (Heads 2009). Both *A. nanus* and *A. electrum* have the posterior margin of the pronotum with slight medial notch (op. cit).

### ***Baeotettix*<sup>†</sup> Heads, 2009**

This taxon is a monotypic fossil with an uncommon morphology of the pronotum and frontal costa. *Baeotettix lottiae*<sup>†</sup> Heads, 2009 has the posterior margin of pronotum serrate and is unique among Neotropical Cladonotinae species with fascial carinae bilobate (Heads 2009). This taxon was found in the Dominican Republic (Heads 2009; Cigliano et al. 2018).

### ***Electrotettix*<sup>†</sup> Heads and Thomas, 2014**

*Electrotettix*<sup>†</sup> also has a unique species, *E. attenboroughi*<sup>†</sup> Heads and Thomas, 2014. It is distinguished from other Cladonotinae by the presence of tegmina and rudimentary hind wings (Heads et al. 2014), given that recent Neotropical cladonotines do not present wings. This species was also found in the Dominican Republic (Heads et al. 2014; Cigliano et al. 2018).

### ***Armasius* Perez-Gelabert and Yong, 2014**

Regarding only extant taxa, *Armasius* is the most recent record of cladonotines from the Neotropical region. It was found in Cuba (Perez-Gelabert and Yong 2014; Cigliano et al. 2018). *Armasius iberianus* Perez-Gelabert and Yong, 2014 is the unique species in the genus, which presents the unique characteristic among Neotropical Cladonotinae of a lateral lobe of the pronotum modified as a sharp projection with triangular shape (male) (Yong 2017) or forming a spine (female) (Perez-Gelabert and Yong 2014).

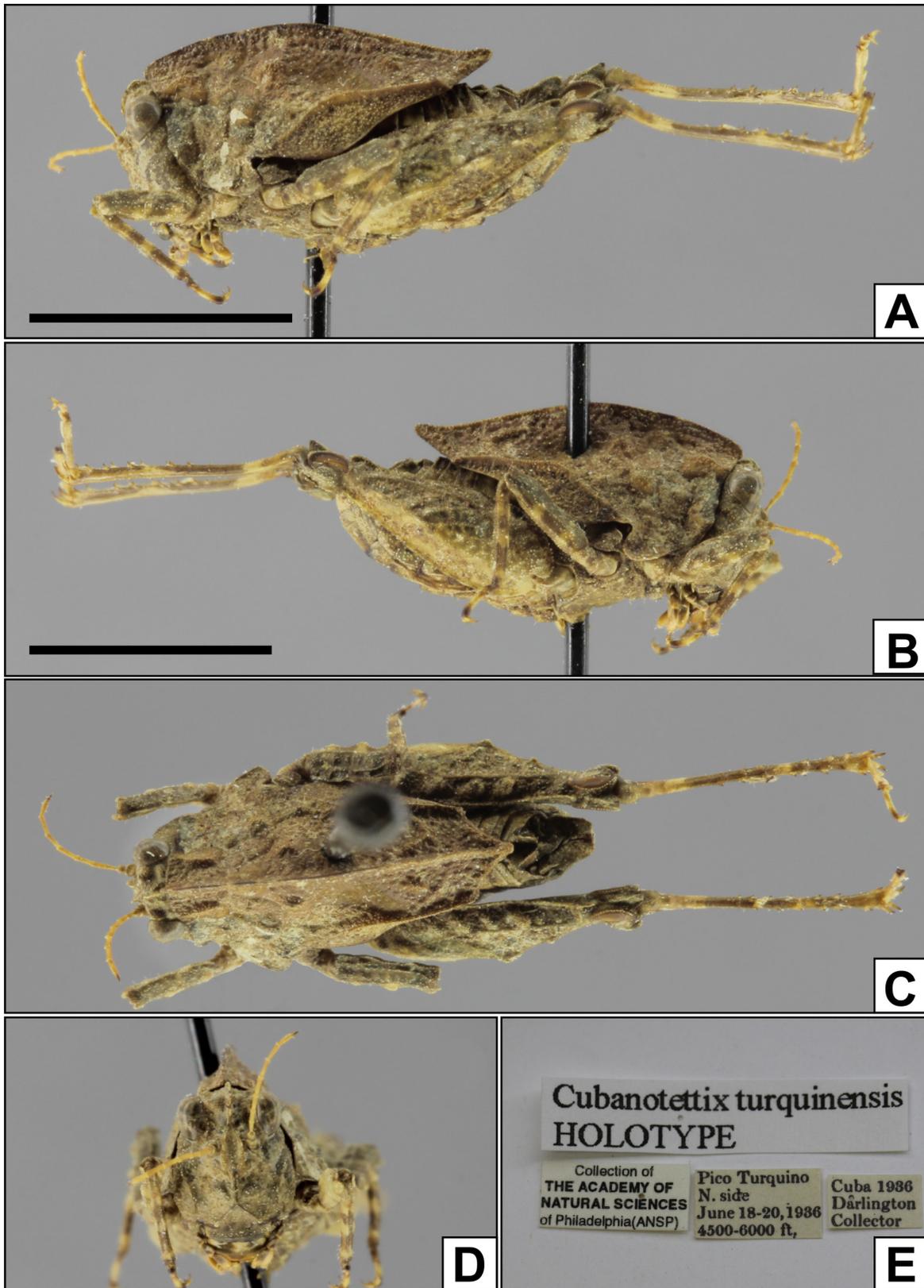
### ***Bahorucogettix* Perez-Gelabert, Hierro and Otte, 1998**

*Bahorucogettix* was also found in Dominican Republic and has a single species, *B. larimar* Perez-Gelabert, Hierro and Otte, 1998. This genus is distinguished from other cladonotines by low pronotum, not much produced over the vertex, blunt ended and almost covering the whole abdomen (Perez-Gelabert et al. 1998). The depository of the type is uncertain and is not located in either the ANSP or FSCA collection (Kyle E. Schnepp, pers. comm.) collections.

### ***Cubanotettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 8

This genus has only one known species, *Cubanotettix turquinensis* Perez-Gelabert, Hierro and Otte, 1998 from Cuba. It is distinguished from other Cladonotinae by antennae with 10–11 segments, eyes lower than level of vertex, relatively more slender scutellum of fascial carinae and a pronotum shorter



**Figure 8.** *Cubanotettix turquinensis* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view. **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.

than the abdomen (Perez-Gelabert et al. 1998; Fig. 8A–D). The holotype was collected on “16–21 vi 1936” in an area with an altitude of “3.000–6.000 ft”. However, the holotype label has different data: it was collected on “June 18–20, 1936” in an area with an altitude of “4.500–6.000 ft”. This latter information coincides with the data of the seven paratypes mentioned by the original authors (Fig. 8E).

### ***Cubonotus* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 9

This genus is also monotypic, with the single species *Cubonotus altinotatus* Perez-Gelabert, Hierro and Otte, 1998 recorded from Cuba. This taxon is characterized by pronotum anteriorly tectiform; median carina laterally compressed and elevated, but not foliaceous; flattened spines projected laterally in hind femur; posterior margin of pronotum slightly pointed (Perez-Gelabert et al. 1998) and posterior margin of pronotum truncated in dorsal view (Fig. 9C).

### ***Eleleus* Bolívar, 1887**

Fig. 10

**Type species.** *Eleleus curtus* Bolívar, 1887.

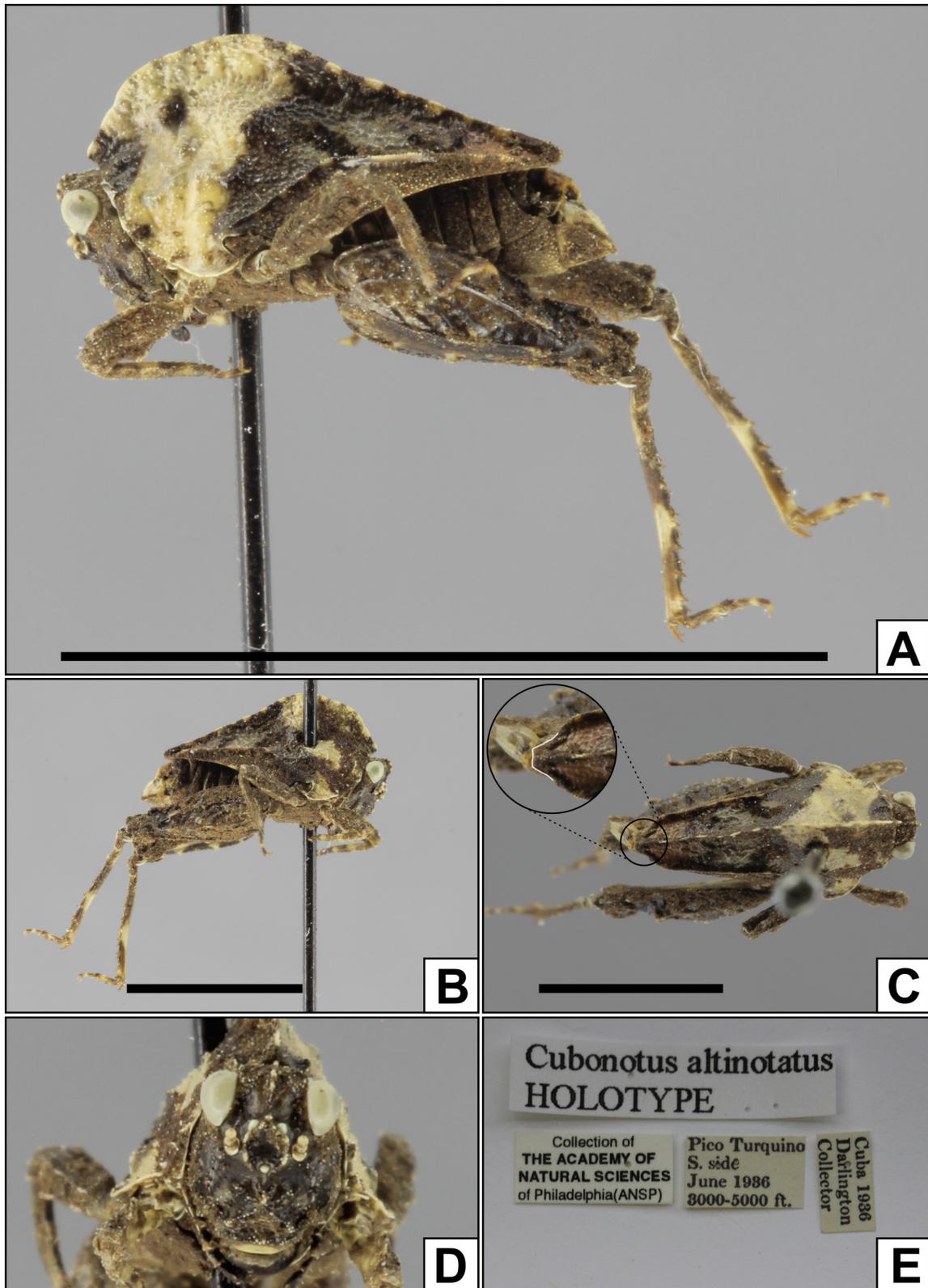
**Description.** [new information and adjustments using data of Hancock (1907) and Bolívar (1887)] Body almost smooth; fastigium visible between eyes; frontal costa placed between compound eyes with wide scutellum, fascial carinae elevated; eyes globose with flattened dorsal base; vertex lower than median carina of pronotum; both superior ocelli placed between fascial carinae. Pronotum slightly rugose, brachypronotal; anterior margin of pronotum curved; median carina elevated but not foliaceous nor flattened; ventral sinus present; posterior margin of pronotum rounded; sternomentum conspicuous. Fore and middle femora undulated, sulcate on the dorsal margin; hind femur broad, entire, with femoral spine very prominent; first and third articles of hind tarsi subequal in length. Ovipositor valves short and slender, margin of dorsal and ventral valves with teeth (Fig. 10).

**Comments.** This genus is known only from Brazil and has a single known species, *Eleleus curtus* Bolívar, 1887. In the original description, only general characteristics were provided. This species was also examined by Hancock (1907) who added new information. The only specimen known of the type series is housed at the NMW Vienna Museum was classified as syntype (Paris 1994; Cigliano et al. 2018) (Fig. 10) however there is no indication of other specimens and this specimen is a holotype. Regarding this specimen, in ventral view there is a longitudinal suture on the subgenital plate (Fig. 10D).

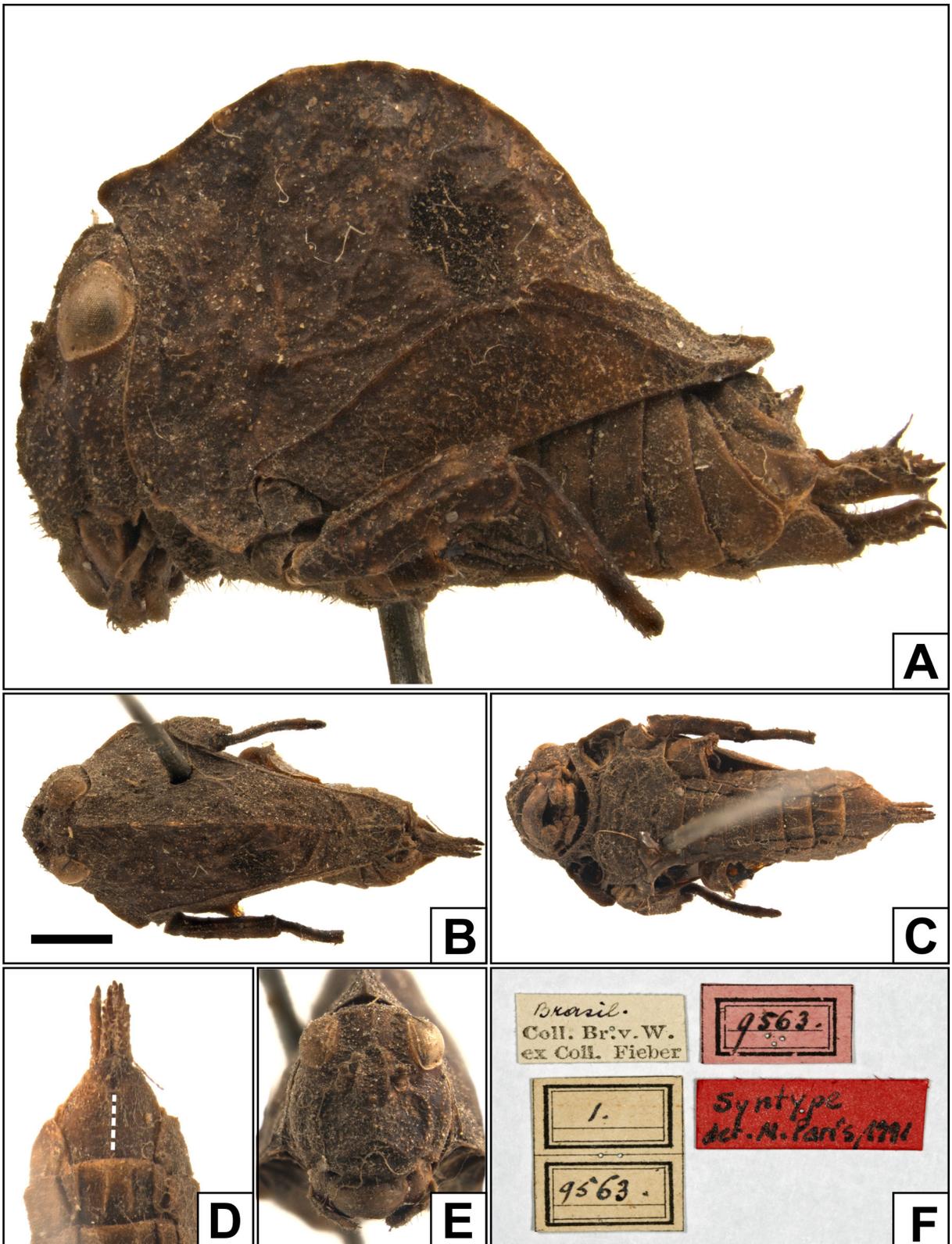
### ***Haitianotettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 11

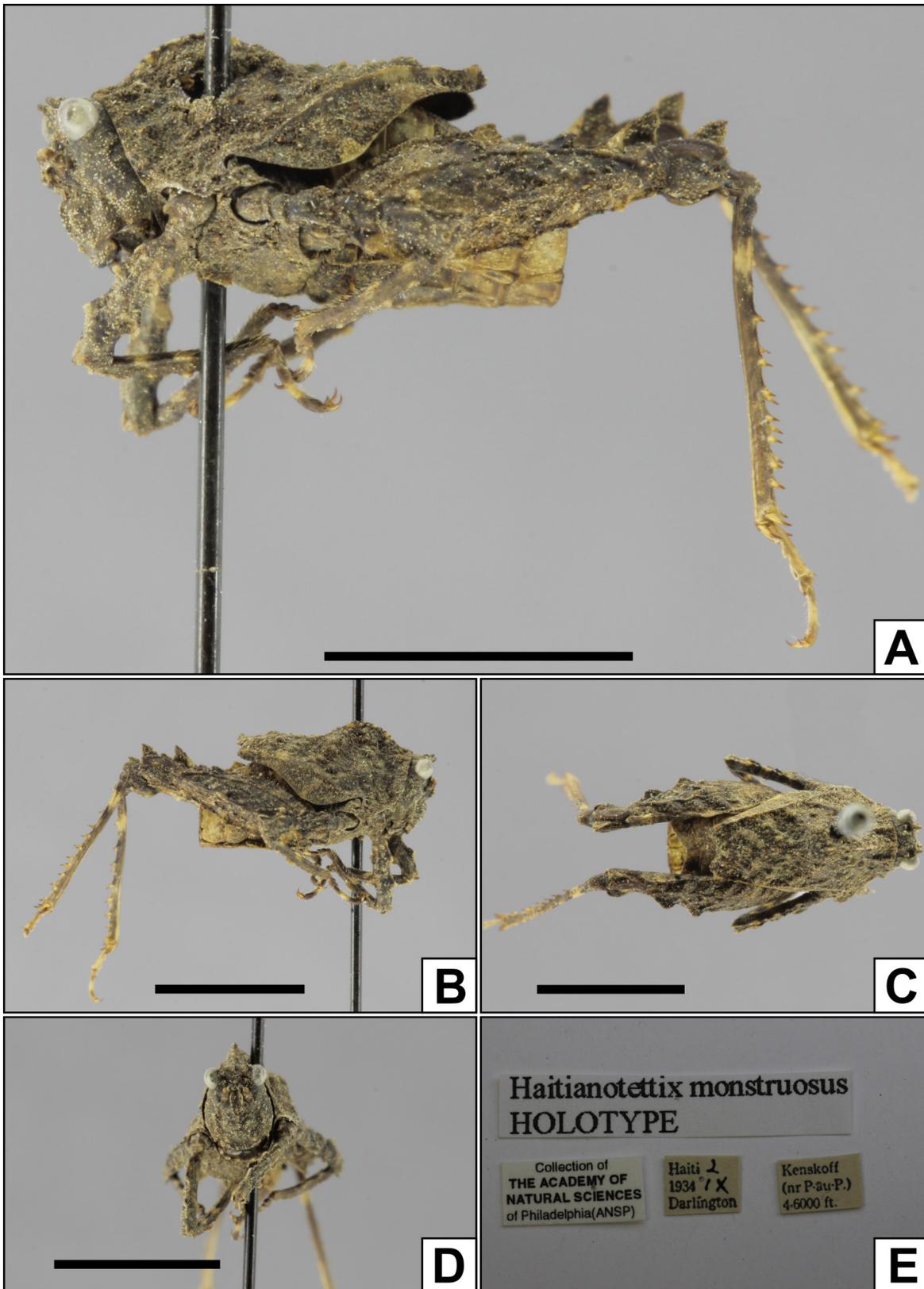
Perez-Gelabert et al. (1998) described this genus with two species: *Haitianotettix tuberculatus* Perez-Gelabert, Hierro and Otte, 1998 and *Haitianotettix monstruosus* Perez-Gelabert, Hierro and Otte, 1998. These species were described based on nine males of *H. tuberculatus* and a single female of *H. monstruosus* (Perez-Gelabert 2009). However, new specimens from expeditions to the Hispaniola Mountains were sampled, and a female of *Haitianotettix* was found from the same region of the *H. tuberculatus*. The analysis of this female indicated that this specimen shared morphological similarities with *H. monstruosus*, so Perez-Gelabert (2009) synonymized *H. monstruosus* with *H. tuberculatus*. *Haitianotettix tuberculatus* differs from the cladonotines by its tuberculate surface, vertex with transversal carinula between the eyes, pronotum elevated only anteriorly, covering half of the abdomen, and hind femur with two tooth-like projections on median external area (Perez-Gelabert 2009; Fig. 11).



**Figure 9.** *Cubonotus altinotatus* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view, highlighting the shape of the posterior margin of the pronotum (outlined in white). **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.



**Figure 10.** *Eleleus curtus* Bolívar, 1887, holotype female. **A)** Left lateral view. **B)** Dorsal view. **C)** Ventral view. **D)** Ventral view of subgenital plate, highlighting a longitudinal suture. **E)** Frontal view. **F)** Labels. Scale bar = 2 mm. © Natural History Museum Vienna, NOaS Image Collection / H. Bruckner; published with permission.



**Figure 11.** *Haitianotettix tuberculatus* Perez-Gelabert, Hierro and Otte, 1998, holotype of *Haitianotettix monstruosus* Perez-Gelabert, Hierro and Otte, 1998. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view. **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.

***Hottettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 12

This genus has only a single species, *Hottettix haitianus* Perez-Gelabert, Hierro and Otte, 1998 from Haiti (Fig. 12). It differs from all other cladonotines in having the posterior margin of pronotum in ‘U’-shape (Perez-Gelabert et al. 1998) (Fig. 12C).

***Mucrotettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 13–14

*Mucrotettix* has two species from the Dominican Republic: *Mucrotettix gibbosus* Perez-Gelabert, Hierro and Otte, 1998 (Fig. 13) and *M. spinifer* Perez-Gelabert, Hierro and Otte, 1998 (Fig. 14). *Mucrotettix* is morphologically similar to *Truncotettix*, but can be distinguished from it by its sharply pointed posterior margin of pronotum, slightly larger body, 14-segmented antennae, and less tectiform pronotum, with anterior margin not produced over vertex (Perez-Gelabert et al. 1998; Fig. 13, 14). These two species can be distinguished by the following characteristics: *M. gibbosus* has a wider scutellum (Fig. 13D), rounded lateral lobes of pronotum (Fig. 13A), and fore and middle legs without spines or projections (Fig. 13A-D), whereas *M. spinifer* has a narrower scutellum (Fig. 14C), truncated lateral lobes of pronotum (Fig. 14A) and fore and middle legs with spines or projections (Fig. 14A-C) (Perez-Gelabert et al. 1998).

***Sierratettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 15

This taxon has only one species, from the Dominican Republic: *Sierratettix carinatus* Perez-Gelabert, Hierro and Otte, 1998 (Fig. 15). Its main distinguishing character relative to the other Neotropical cladonotines is its slightly hook-like over the head anterior margin of pronotum in dorsal view, which is more protruding than *Eleleus* (Perez-Gelabert et al. 1998) (Fig. 15A: arrow).

***Tiburonotus* Perez-Gelabert, Hierro and Otte, 1998**

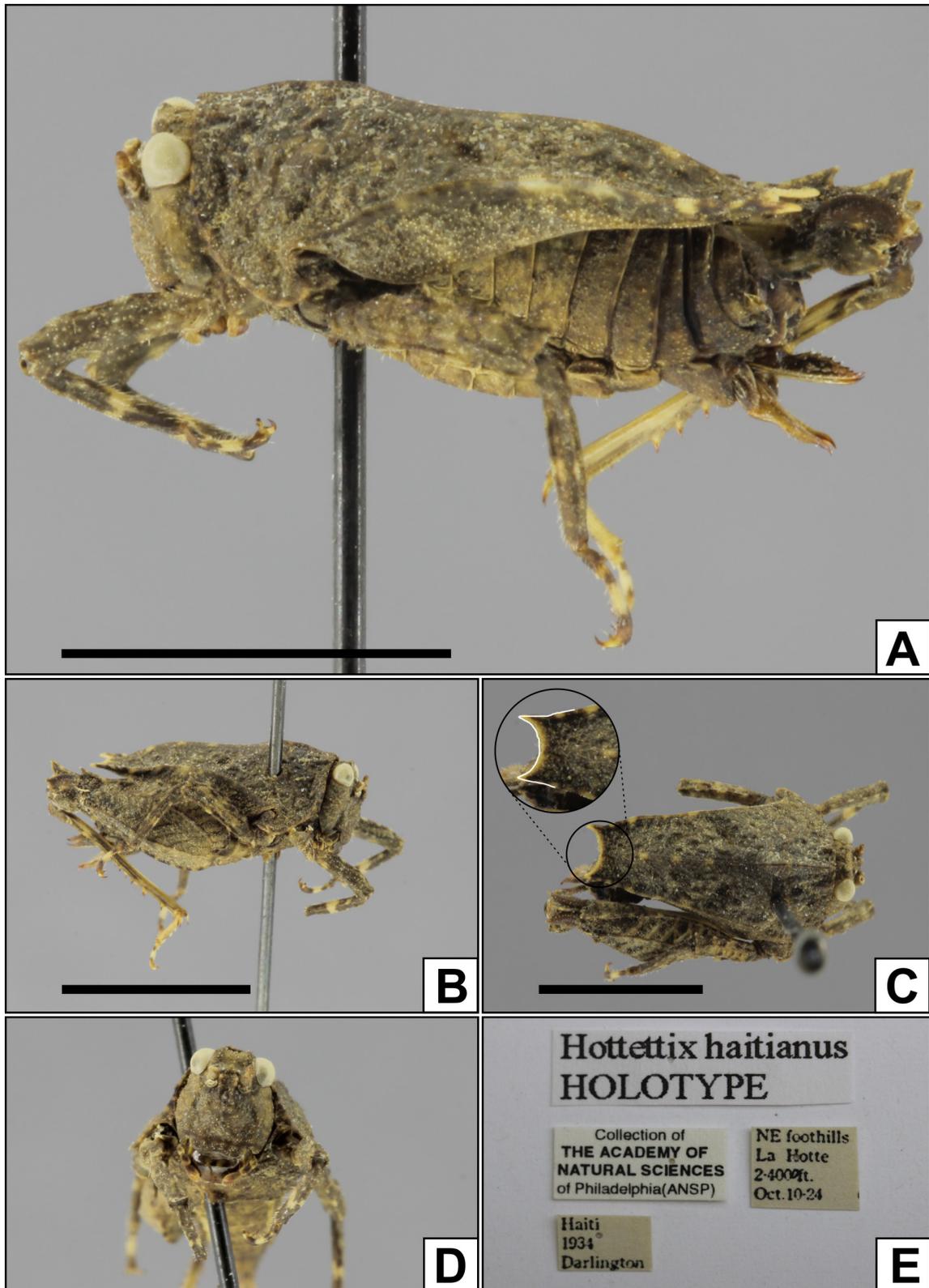
Fig. 16

This genus has only one species, *Tiburonotus peninsularis* Perez-Gelabert, Hierro and Otte, 1998, from Haiti (Fig. 16). This genus can be distinguished by an elevated pronotum, only anteriorly increased, with its posterior margin slightly concave in dorsal view (Fig. 16C; Perez-Gelabert et al. 1998).

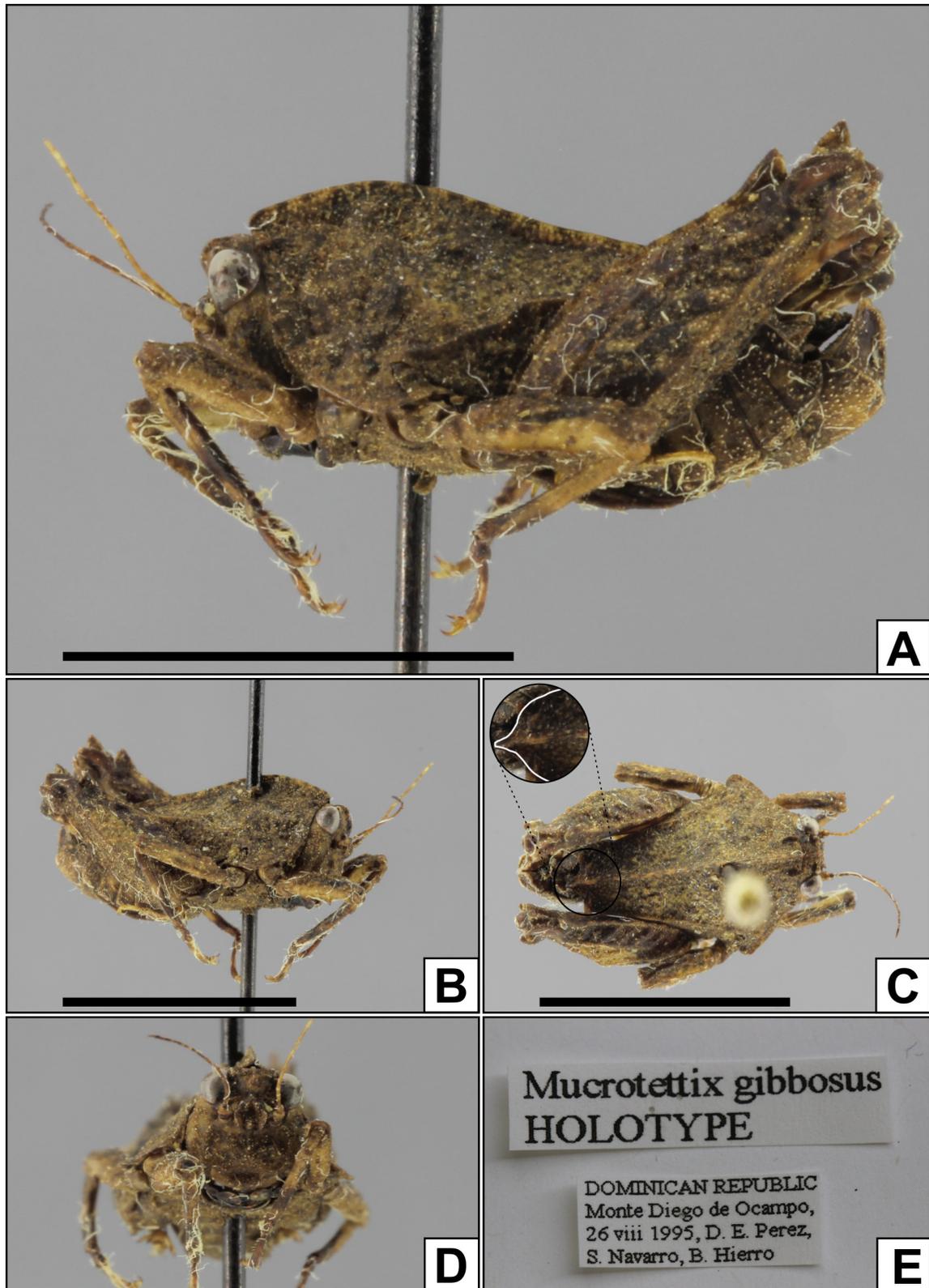
***Truncotettix* Perez-Gelabert, Hierro and Otte, 1998**

Fig. 17–18

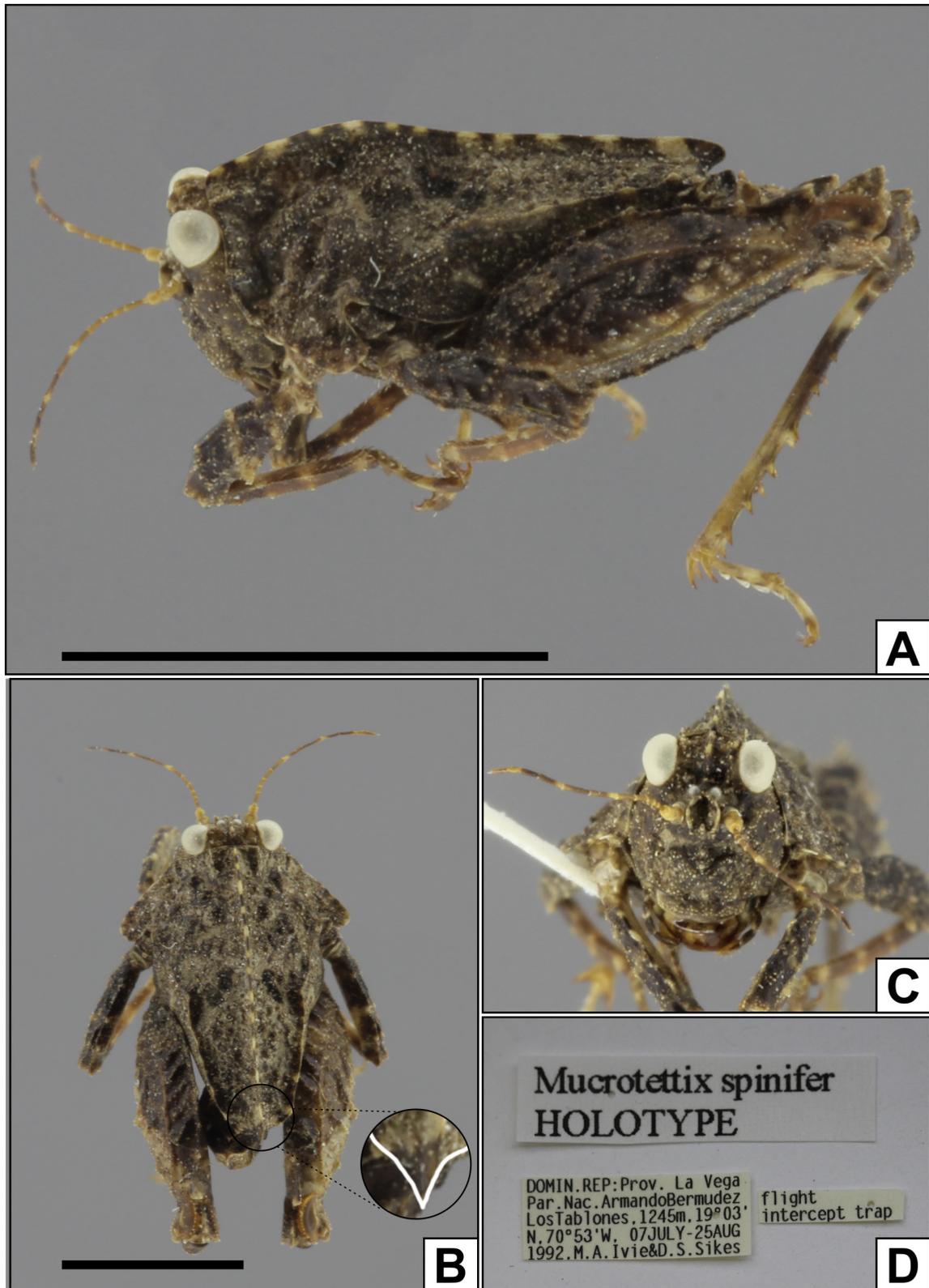
Perez-Gelabert et al. (1998) described this genus with two species: *T. fronterizus* Perez-Gelabert, Hierro and Otte, 1998 (Fig. 17) and *T. interruptus* Perez-Gelabert, Hierro and Otte, 1998 (Fig. 18), both from Dominican Republic. This genus has a relatively very small body size among Neotropical cladonotines, and 12-segmented antennae and a tectiform pronotum with the anterior margin slightly produced over vertex in dorsal view (Perez-Gelabert et al. 1998; Fig. 17, 18). The two species are very similar, but can be distinguished by posterior margin of pronotum, which presents a notch in *T. fronterizus* (Fig. 17C) and is slightly truncated in *T. interruptus* (Fig. 18C).



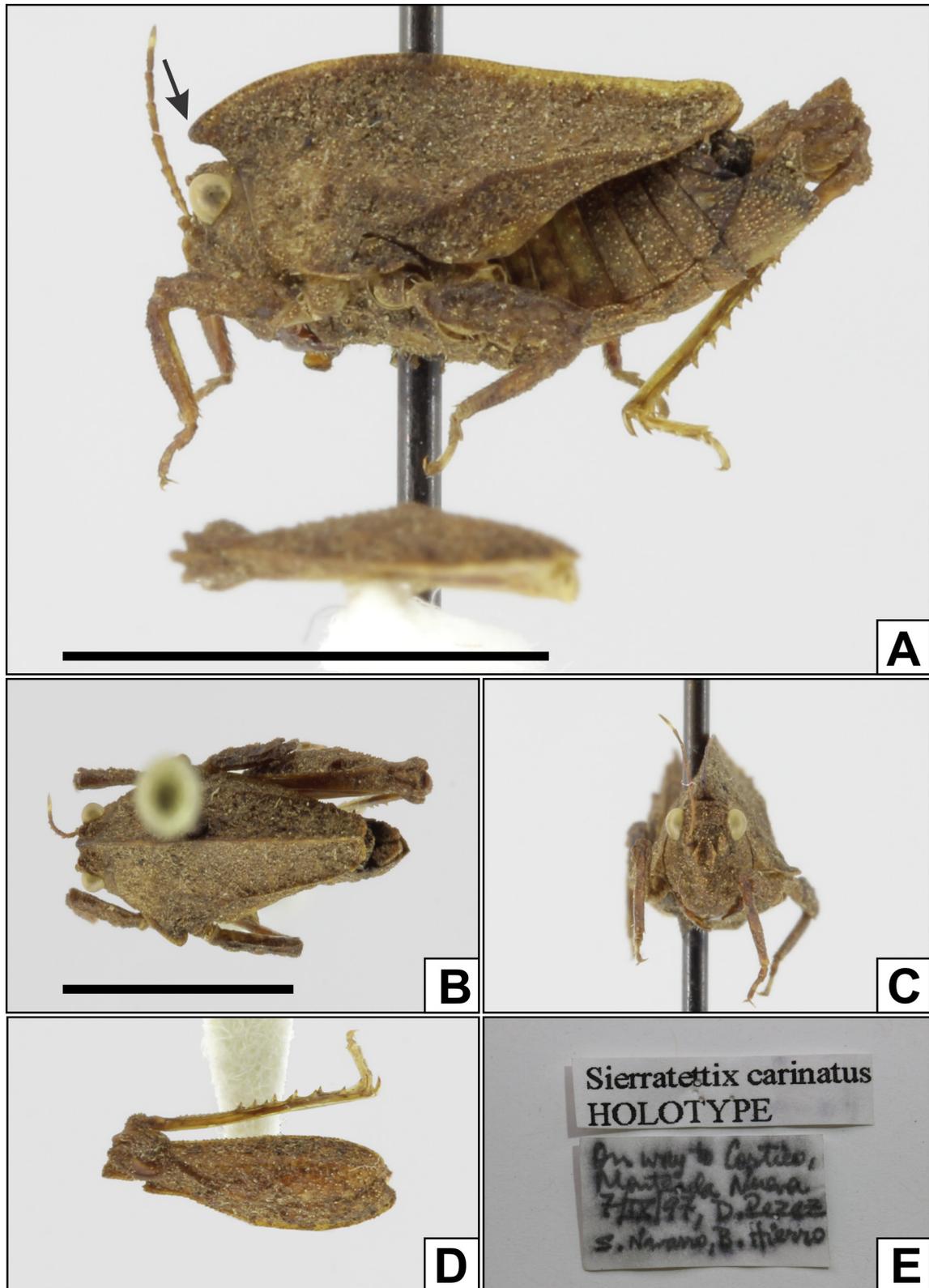
**Figure 12.** *Hottettix haitianus* Perez-Gelabert, Hierro and Otte, 1998, holotype female. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view, highlighting the shape of the posterior margin of the pronotum (outlined in white). **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.



**Figure 13.** *Mucrotettix gibbosus* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view, highlighting the shape of the posterior margin of the pronotum (outlined in white). **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.



**Figure 14.** *Mucrotettix spinifer* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view. **B)** Dorsal view, highlighting the shape of the posterior margin of the pronotum (outlined in white). **C)** Frontal view. **D)** Labels. Scale bar = 0.5 cm.



**Figure 15.** *Sierratettix carinatus* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view; arrow indicates the anterior margin of the pronotum, which is slightly hook-like over the head. **B)** Dorsal view. **C)** Frontal view. **D)** Hind femur glued on triangle. **E)** Labels. Scale bar = 0.5 cm.

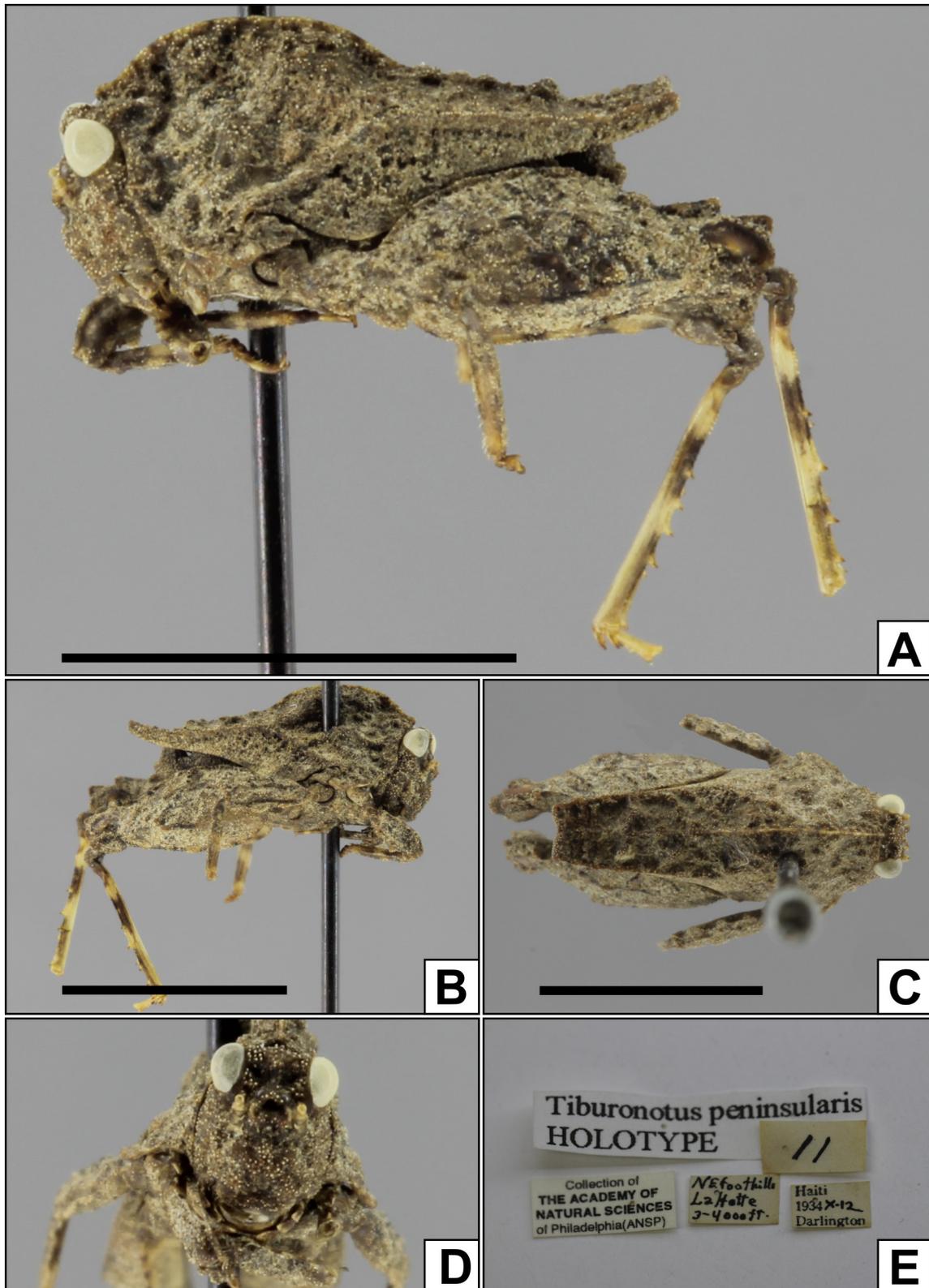
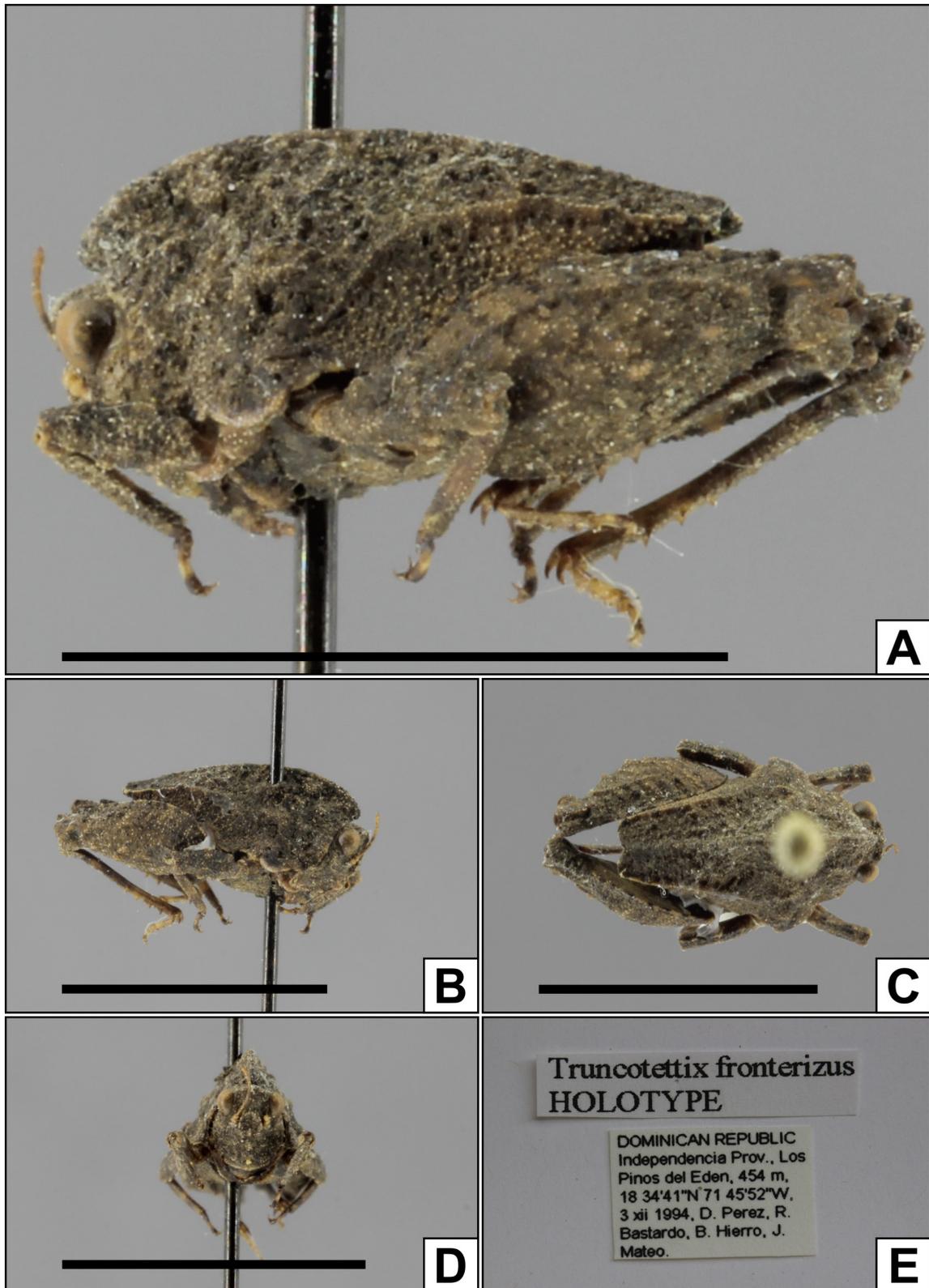


Figure 16. *Tiburonotus peninsularis* Perez-Gelabert, Hierro and Otte, 1998, holotype male. A) Left lateral view. B) Right lateral view. C) Dorsal view. D) Frontal view. E) Labels. Scale bar = 0.5 cm.



**Figure 17.** *Truncotettix fronterizus* Perez-Gelabert, Hierro and Otte, 1998, holotype male. **A)** Left lateral view. **B)** Right lateral view. **C)** Dorsal view. **D)** Frontal view. **E)** Labels. Scale bar = 0.5 cm.



**Figure 18.** *Truncotettix interruptus* Perez-Gelabert, Hierro and Otte, 1998, holotype male. A) Left lateral view. B) Dorsal view. C) Frontal view. D) Labels. Scale bar = 0.5 cm.

## Ungrouped Cladonotinae

### *Cota* Bolívar, 1887

Fig. 19–21

**Type species.** *Cota saxosa* Bolívar, 1887.

**Description.** Body surface granulated with spine-like tubercles over the tegument; head and compound eyes inserted slightly below pronotal disc; face oblique; fastigium visible between eyes; antennal groove situated much below lower margin of compound eyes, eyes globose with flattened dorsal base; vertex lower than median carina of pronotum; fascial carinae elevated; fastigium of vertex protruding as a horn-like structure (in lateral view) and carinula transversal to vertex, between the eyes, with cusp shape surpassing dorsal margin of the eyes, forming small horns in frontal view (referred to by Hancock (1907) and Bolívar (1887) as tricuspidate form) in *C. saxosa*; interocular width of vertex between eyes, in dorsal view, wider than vertical width one compound eye. Pronotum granulated with spine-like tubercles, anteriorly truncated or rounded, median carina conspicuous, continuous with protuberances; lateral lobes directed sideways; median carina continuous, with two strongly elevated cusps. Tegmina and wings absent. Fore and middle femur with lappets and saxose (i.e., with various lumps and teeth on femora, giving a stone-like appearance, Fig. 22L) protuberances; hind femur with lappets, genicular teeth conspicuous; the first and third articles of posterior tarsi with subequal length.

**Comments.** This genus is found in South America and has three species: *Cota bispina* (Saussure, 1861) from Brazil; *C. saxosa* Bolívar, 1887 and *C. strumosa* Bolívar, 1887 from Peru (Cigliano et al. 2018). *Cota* has characteristics which do not allow it to be classified in Choriphyllini **n. trib.** or Mucrotettigini **n. trib.**; these are spiny protuberances in the face and body, and femora with lappets. We maintain it within the subfamily Cladonotinae until future cladistic analysis can clarify its classification. Bolívar (1887) only provided a general description of *Cota*.

### Key to the species of *Cota* Bolívar, 1887 (adapted from Bruner (1910) and Cadena-Castañeda and Cardona-Granda (2015)).

1. First cusp on pronotum rounded or subquadrate . . . . . 2
- First cusp on pronotum spiniform . . . . . *C. bispina* (Saussure, 1861)
2. First cusp on pronotum subquadrate and lateral lobe of pronotum rounded at apex . . . . .
- . . . . . *C. strumosa* Bolívar, 1887 (Fig. 20)
- First cusp on pronotum rounded and lateral lobe of pronotum with other shape . . . . . 3
3. Lateral lobe of pronotum with tricuspid shape . . . . . *C. saxosa* Bolívar, 1887 (Fig. 19)
- Lateral lobe of pronotum subquadrate . . . . .
- . . . . . *C. undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.** (Fig. 21)

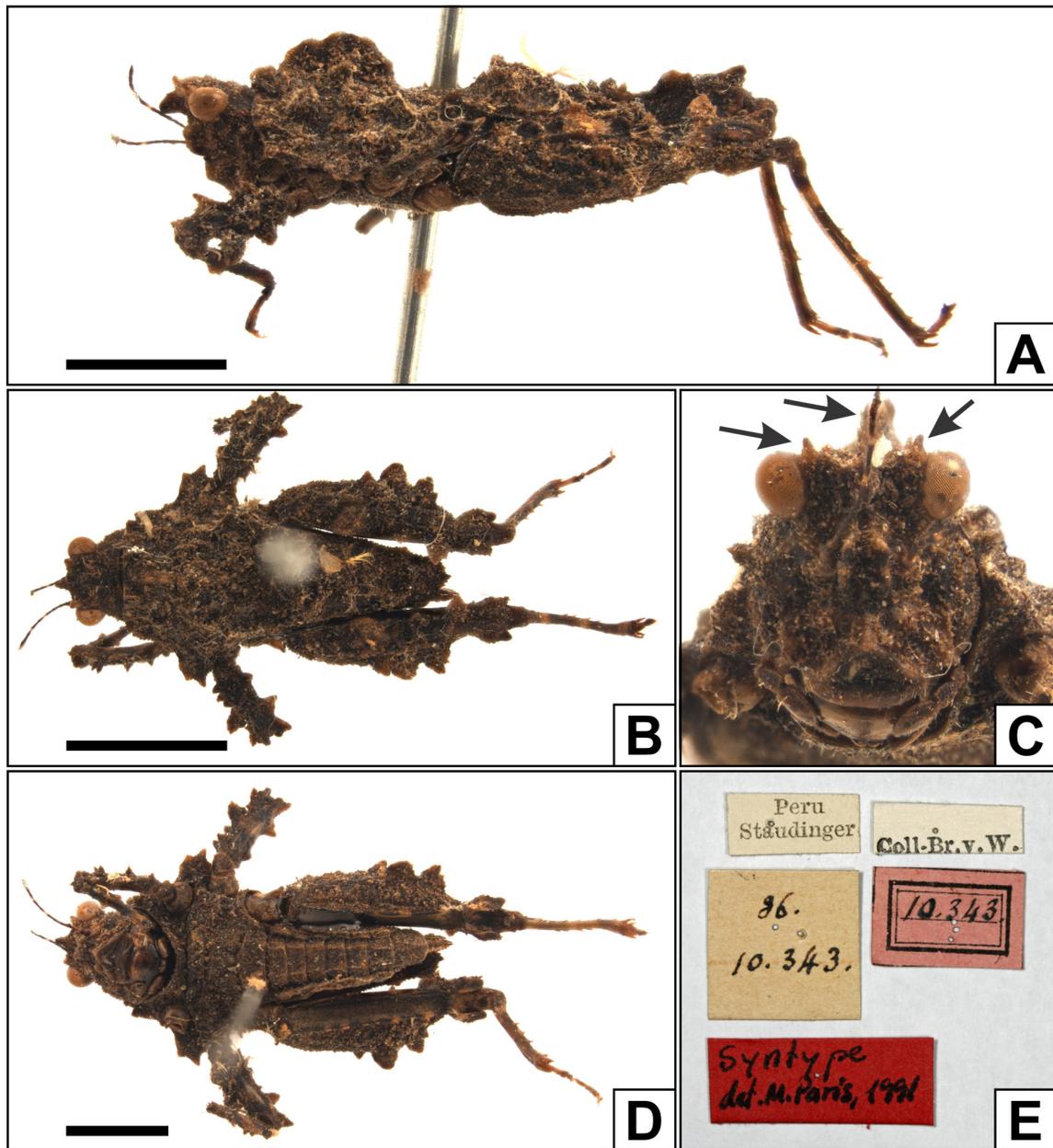
### *Cota bispina* (Saussure, 1861)

*Cota bispina* is a Cladonotinae described from South America and is poorly known. There is one male in the collection of the MHNG, but this specimen needs to be analyzed since the type material is unknown (Hollier 2013). We consider this species name a *nomen dubium* since the type specimen was not found in the collection of the MHNG and there are few data on this species.

### *Cota saxosa* Bolívar, 1887

Fig. 19

**Description.** Head with carinula transversal to vertex, between the eyes, with cusp shape surpassing dorsal margin of the eyes, forming small horns in frontal view with a tricuspidate form; anterior



**Figure 19.** *Cota saxosa* Bolívar, 1887, holotype female. **A)** Left lateral view. **B)** Dorsal view. **C)** Ventral view. **D)** Frontal view with arrows pointing to the Hancock's and Bolívar's tricuspidate form. **E)** Labels. Scale bar = 2 mm. © Natural History Museum Vienna, NOaS Image Collection / H. Bruckner; published with permission.

margin of pronotum and first cusp rounded, lateral lobe of pronotum directed sideways with tricuspid shape; fore and middle femur with undulated carina, lappets and protuberances saxose (i.e., similar to 'stones') (Fig. 19).

**Comments.** There is a specimen housed at the NMW classified as syntype (Paris, 1994) (Fig. 19) however there is no indication of other specimens and this specimen is a holotype.

***Cota strumosa* Bolívar, 1887**

Fig. 20

**Description.** Anterior margin of pronotum truncated and first cusp rounded, lateral lobe of pronotum directed sideways and subquadrate; fore and middle femur less protruding than in *C. saxosa*.

**Comments.** There is a lectotype designated by Paris (1994) and housed at the MNCN (Fig. 20).

***Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015), n. comb.**

Fig. 21

**Diagnosis.** Regarding the species of this group, we noted that *Metrodora undulata* Cadena-Castañeda and Cardona-Granda, 2015, from Colombia, is not a member of *Metrodora* Bolívar, 1887, but in fact represents a species of *Cota*. The holotype of *M. undulata* has head and pronotal morphology corresponding to members of *Cota*. Thus, the new combination *Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.** should be used when referring to this species. It is morphologically very close to *C. saxosa* and can be distinguished from *C. saxosa* by a more rounded horn-like pronotum, with lateral lobes directed sideways and subquadrate (Fig. 21).

**Taxa transferred out of Cladonotinae*****Liotettix* Bolívar, 1906, stat. rev.**

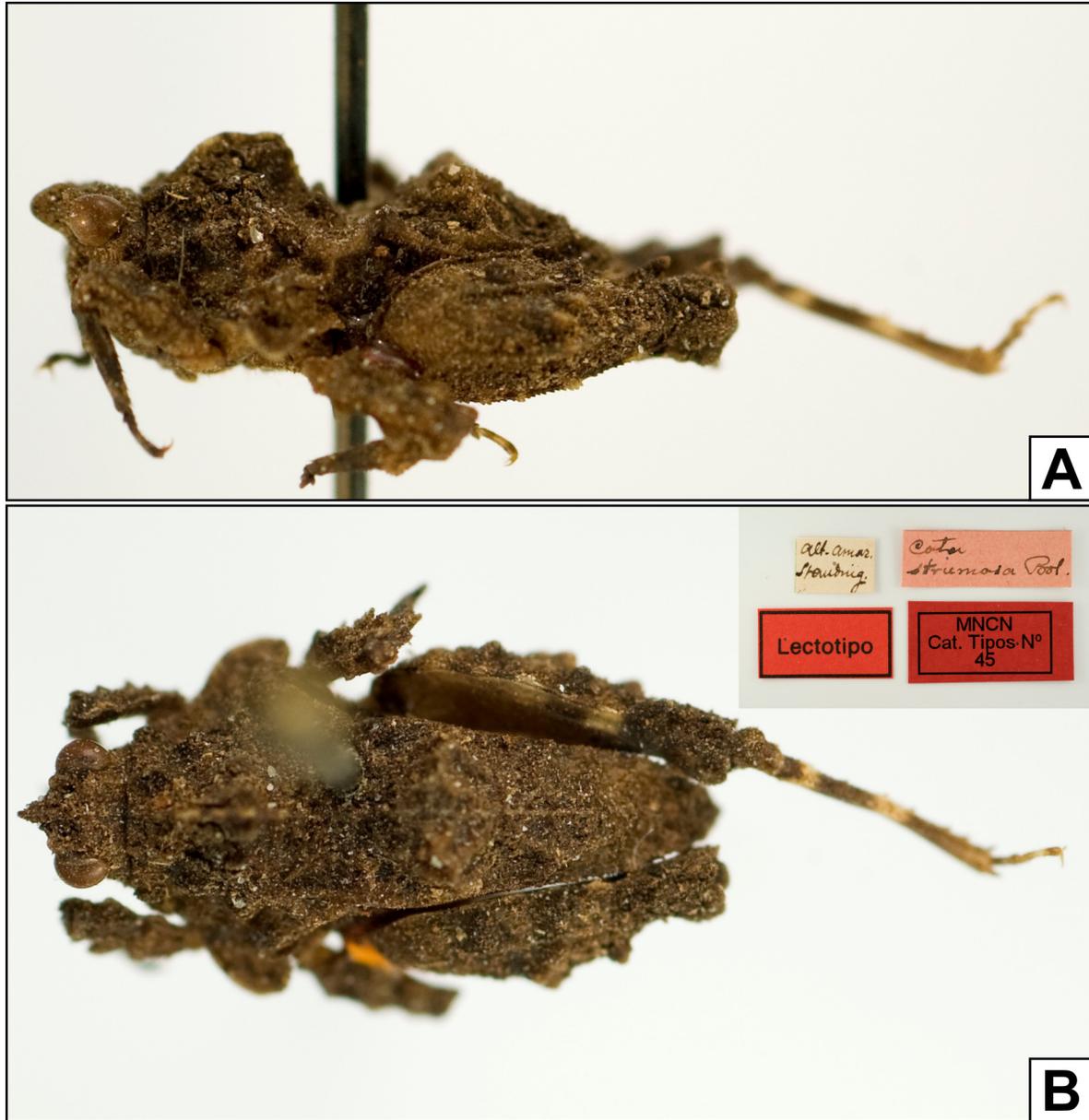
This genus was previously considered a junior synonym of *Dasyleurotettix* Rehn, 1904. *Dasyleurotettix* sensu Cigliano et al. (2018) has a widespread distribution, found in the Neotropical and Ethiopian regions (see Cigliano et al. 2018), and contains five species: *D. affinis* (Bruner, 1920) (Argentina); *D. infaustus* (Walker, 1871) (Southern Africa); *D. lobulatus* (Stål, 1861) (Brazil); *D. miserabilis* (Blanchard, 1851) (Chile) and *D. sublaevis* (Bolívar, 1912) (West-Central Tropical Africa) (Cigliano et al. 2018). The type species of *Dasyleurotettix* is *D. infaustus* (Walker, 1871), and this species presents a less widened fascial carina of the frontal costa than *Cladonotus* or other similar taxa indicated by Rehn (1904): *Diotarus* Stål, 1877 and *Trachytettix* Stål, 1876. Rehn (1907) wrote that after examining the types of *Dasyleurotettix*, he was convinced that this taxon should be placed within the Tetrigininae.

From the available information on this genus, it is suggested to separate the taxa of Africa and America. The three species with Neotropical distribution are herein transferred to the genus *Liotettix* Bolívar, 1906 **stat. rev.**: *Liotettix lobulatus* (Stål, 1861) (type species) **rev. comb.**, *L. affinis* **n. comb.** and *L. miserabilis* **rev. comb.**, and the genus is concurrently transferred from Cladonotinae to subfamily Tetrigininae, without further tribal assignment. We do not consider *Rytinatettix* Hancock, 1909 as valid, since that author justifies the change of name to *Liotettix*, by writing “The genus *Prototettix* Bol., preoccupied now *Liotettix* Bol. as given by Bruner, l. c., p. 122, is confined to Africa” (Hancock 1914). This is not true, since the type species of *Liotettix*, *Prototettix fossulatus* Bolívar, 1887 (currently *L. lobulatus*), was found in Brazil. Additionally, we keep *Liotettix* in Tetrigininae, where Bolívar (1887) originally placed it, when it was called *Prototettix*, because it has the diagnostic characters of this subfamily.

The two African species of *Dasyleurotettix* (*Dasyleurotettix infaustus* (type species) and *D. sublaevis*) are not cladonotines according to Skejo (2018), who writes: “Related to *Pelusca* Bolívar 1912 and both members of Criotettigini (note U-shaped carinae), not Cladonotinae.” We agree with Skejo’s assessment of these species, and formally transfer both of them from Cladonotinae to tribe Criotettigini (Tetrigidae: Scelimeninae).

**Discussion**

Since the establishment of the basis of the Cladonotinae taxonomy by Bolívar (1887), little suprageneric information has been added to this taxon. Although the characteristics that unify the cladonotines from the different regions of the Great Antillean subregion are evident (see Heads et al. 2014), the remaining groups of Cladonotinae need an in-depth revision (with exception of those already studied



**Figure 20.** *Cota strumosa* Bolívar, 1887, lectotype male. **A)** Left lateral view. **B)** Dorsal view with labels. Photos by Josip Skejo (MNCN).

in Xerophyllini (see Devriese 1999) and the cladonotines from the islands of Southeast Asia, Australia, New Guinea, and New Caledonia (see Tumbrinck 2014)). There are few researchers working on this group and most of the recent data on these taxa in the Neotropical region come from the studies of Heads, regarding fossil (Heads 2009; Heads et al. 2014); Perez-Gelabert and co-workers (1998, 1999, 2014); Perez-Gelabert (2003, 2009) and Yong (2017) for extant Cladonotinae.

Neotropical cladonotine species occur basically in two areas: (i) South America, where the tetrigid fauna is formed mainly by Batrachideinae, Metrodorinae and other less representative subfamilies such as Tetriginae, Lophotettiginae and Cladonotinae (with only two genera) (Perez-Gelabert 1998; Heads 2009; Cigliano et al. 2018) and (ii) some localities of the Greater Antillean subregion. The Antillean cladonotines represent more than 75% of the total tetrigid species known from the West Indies (Heads 2009) and many groups are likely to be discovered in this region.



**Figure 21.** *Cota undulata* (Cadena-Castañeda and Cardona-Granda, 2015) **n. comb.**, holotype male, left lateral view. Photo by Oscar J. Cadena-Castañeda (CAUD).

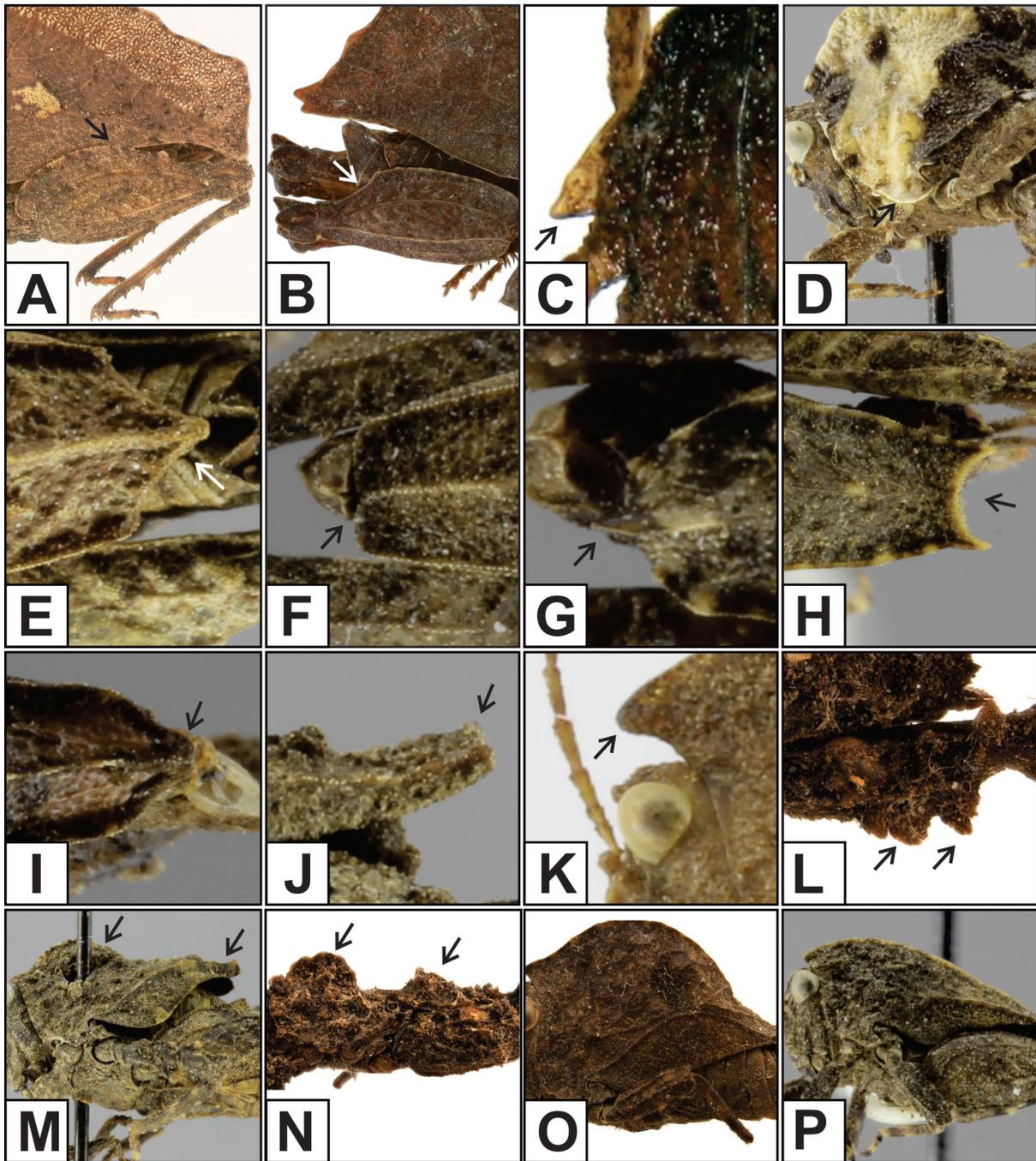
This huge diversity in the Greater Antillean subregion resulted from cladonotine evolution on these islands due to their geological history and ecological complexity, which probably produced numerous vicariance events and consequent allopatric speciation events in these wingless taxa with limited dispersal ability (Perez-Gelabert et al. 1998; Perez-Gelabert and Otte 1999; Heads et al. 2014). All these island landmasses had a complex history of drift, submergence and land bridge formation (Iturralde-Vinent and MacPhee 1996) that may have directed vicariance and dispersion of taxa during one or more geological episodes, as has also probably occurred with *Choriphyllum* (Perez-Gelabert and Otte 1999). This historical contingency has led to a unique morphology for this restricted group among the cladonotines.

In the current study we propose some taxonomic changes and present information on the morphological classification of cladonotines, among which we highlight the following:

(i) Regarding the new tribes we propose, our suggestions increase the Cladonotinae tribes to three, including two new tribes: Choriphyllini **n. trib.** and Mucrotettigini **n. trib.**. These new tribes gather all Neotropical genera except *Cota*, whose species do not present morphological characteristics that fit in either of the two.

(ii) We highlight an unusual morphological characteristic among tetrigids that distinguishes *Eleleus*: the longitudinal suture on the subgenital plate. Chopard (1920) was the first researcher who noticed that the terminalia region of tetrigids was totally different from other grasshoppers. He noted that the male subgenital plate is divided transversally in two parts with the apical part flexible, forming a triangular projection. In *Eleleus*, the female has a longitudinal suture on the subgenital plate. This longitudinal suture was also noted in the female of *Tripetalocera ferruginea* Westwood, 1834 and the male of *Tripetaloceroideus tonkinensis* (Günther, 1938) (see Storozhenko 2013: drawings).

(iii) The genus *Cota* (and most tetrigids) needs to be reviewed, particularly in relation to its



**Figure 22.** Morphology of Neotropical Cladonotinae, with arrows pointing to the diagnostic characters mentioned in the captions. **A)** *Choriphyllum bahamensis*, dorsal margin of the hind leg (lateral view). **B)** *Phyllotettix compressus*, dorsal margin of the hind leg (lateral view). **C)** *Armasius iberianus*, lateral lobe of the pronotum (dorsal view). **D)** *Cubonotus altinotatus*, lateral lobe of pronotum (lateral view). **E–I)** Posterior margin of pronotum (dorsal view). **E)** *Cubanotettix turquinensis*. **F)** *Truncotettix interruptus*. **G)** *Mucrotettix spinifer*. **H)** *Hottettix haitianus*. **I)** *Cubonotus altinotatus*. **J)** *Tiburonotus peninsularis*, posterior margin of pronotum (lateral view). **K)** *Sierratettix carinatus*, slightly hook-like anterior margin of pronotum (lateral view). **L)** *Cota saxosa*, lappets in hind femurs. **M)** *Haitianotettix tuberculatus*, pronotum elevation and posterior margin of the pronotum. **N)** *Cota saxosa*, pronotum elevations. **O)** *Eleleus curtus*, pronotum and infrascapular area. **P)** *Truncotettix interruptus*, pronotum and infrascapular area.

phylogenetic position. There is an ongoing discussion among scientists working with this taxon due to the presence of a horn, which may be developed from the fastigium, frontal costa, or scutellum (see Silva et al. 2017). The prolonged horn occurs in different evolutionary groups and, thus, is not a useful character in Tetrigidae suprageneric taxonomy (Silva et al. 2017). However, among the taxa that do present this horn in the Neotropical region, *Cota* shares with *Metrodora* Bolívar, 1887 other characteristics, such as the elevated cusp on the pronotum and the lateral lobe of pronotum directed sideways. Some *Metrodora* have, also, the fascial carina of the frontal costa widened. We regard *Cota bispina* as a *nomen dubium*, since the type is not available and the diagnostic characters are insufficient (see Mones 1989).

(iv) Rehn (1907) suggested the allocation of *Dasyleurotettix* in Tetriginae. In this study we split the genus, with the two African species remaining in *Dasyleurotettix* and the three Neotropical species being transferred to the newly restored genus *Liotettix* (which was formerly a junior synonym of *Dasyleurotettix*). We then transfer both of these genera from Cladonotinae to other tetrigid taxa, with *Dasyleurotettix* going to Criotettigini (in subfamily Scelimeninae) and *Liotettix* going to Tetriginae.

In accordance with several studies highlighting the relevance of biological collections (e.g., Allmon 1994; Rocha et al. 2014), our data endorse the overwhelming importance of collections. We were able to provide complete morphological descriptions for taxa with scarce field data thanks to the use of specimens housed in museums and other collections. For tetrigids biological collections have permitted the preservation of information of species with historical value, species found in inaccessible geographic areas, and species whose habitats have not been conserved.

## Acknowledgments

The study has benefited from facilities from CNPq/Programa SISBIOTA Brasil (Edital MCT/CNPq/MMA/MEC/CAPES/FNDCT e FAPEMIG—Ação Transversal/FAPs 166 n° 47/2010, Proc. n° 563360/2010–0), PROTAX/CNPq/FAPEMIG (Proc. n° 440664/2015–2 and APQ—04154–15), CNPq (310032/2015–6). We especially thank Janson Weintraub and Daniel Otte for allowing access to type material of Orthoptera deposited at the Academy of Natural Sciences of Drexel University (ANSP). The photographs of types were taken during the execution of the project: “The Neotropical Tetrigidae (Caelifera: Tetrigoidea) deposited in the Academy of Natural Sciences of Drexel University, Philadelphia, USA” financed by The Orthopterists’ Society. We would like to thank Josef Tumbrinck and Josip Skejo for providing some photos and also give many thanks to the curators Kyle E. Schnepp (FSCA), Hans Mejlou (UZI), John Hollier (MHNG), and Harald Bruckner (NMW) for the invaluable and essential data they provided for this manuscript. Thank Jorge Ari Noriega Alvarado for providing the English revision of the manuscript. We would like to thank Martina Pocco for valuable suggestions, Holger Braun, Hendrik Devriese and Juan Manuel Cardona for their invaluable feedback and corrections on the manuscript.

## Literature Cited

- Allmon, W. D. 1994. The value of natural history collections. *Curator* 37 (2): 83–89.
- Bolívar, I. 1887. Essai sur les acridiens de la tribu des Tettigidae. *Annales de la Société Entomologique de Belgique* 31: 175–313.
- Bruner, L. 1910. South American Tetrigidae. *Annals of the Carnegie Museum* 7: 89–143.
- Cadena-Castañeda, O. J., and J. M. Cardona-Granda. 2015. Introducción a los saltamontes de Colombia (Orthoptera: Caelifera, Acridomorpha, Tetrigoidea and Tridactyloidea). Lulu.com; Raleigh, NC. 534 p.
- Chopard, L. 1920. La conformation et le développement des derniers segments abdominaux chez les Orthoptères. PhD Thesis. Là Faculté des Sciences de Paris; France. 398 p.
- Cigliano, M. M., H. Braun, D. C. Eades, and D. Otte. 2018. Orthoptera Species File. Version 5.0/5.0. Available at <http://Orthoptera.SpeciesFile.org> (Last accessed 2 December 2018.)
- Devriese, H. 1999. Revision des Xerophyllini d’Afrique (Orthoptera Tetrigidae). *Belgian Journal of Entomology* 1(1): 21–99.

- Fabricius, J. C. 1775.** Systema Entomologiae Sistens Insectorum Classes, Ordines, Genera, Species, Adiectis Synonymis, Locis, Descriptionibus, Observationibus. Korte; Flensburg and Leipzig. 832 p.
- Felton, S. 1765.** An account of a singular species of wasp and locust. Philosophical Transactions of the Royal Society 54: 53–56.
- Gundlach, J. 1891.** Contribución a la entomología Cubana, ortopteros. Tomo II, parte cuarta. G. Montiel; Havana. 396 p.
- Hancock, J. L. 1902.** Tettigidae of North America. R.R. Donnelly and Sons; Chicago. 188 p.
- Hancock, J. L. 1907.** Orthoptera. Fam. Acridiidae. Subfam. Tetriginæ. Genera Insectorum 48: 1–79.
- Hancock, J. L. 1914.** Some corrections in names of South American Tetriginæ. Entomological News 25: 328.
- Heads, S. W. 2009.** New pygmy grasshoppers in Miocene amber from the Dominican Republic (Orthoptera: Tetrigidae). Denisia, Neue Serie 26(86): 69–74.
- Heads, S. W., M. J. Thomas, and W. Y. Yinan. 2014.** A remarkable new pygmy grasshopper (Orthoptera, Tetrigidae) in Miocene amber from the Dominican Republic. ZooKeys 429: 87–100.
- Hollier, J. 2013.** An annotated list of the Orthoptera (Insecta) species described by Henri de Saussure, with an account of the primary type material housed in the Muséum d'Histoire Naturelle de Genève, Part 4: The Acridomorpha excluding the superfamily Acridoidea. Revue suisse de Zoologie 120(2): 203–219.
- ICZN (International Commission on Zoological Nomenclature). 1999.** International Code of Zoological Nomenclature, 4th edition. The International Trust for Zoological Nomenclature, c/o Natural History Museum; London. xxix + 306 p.
- Iturralde-Vinent, M. A., and R. D. E. MacPhee. 1996.** Age and paleogeographical origin of Dominican amber. Science 273: 1850–1852.
- Linnaeus, C. 1767.** Systema Naturae per Regna Tria Naturae, Secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Tom I. Pars II. Editio Duodecima Reformata. Impensis Direct, Laurentii Salviae; Stockholm. 824 p.
- Mones, A. 1989.** Nomen dubium vs. nomen vanum. Journal of Vertebrate Paleontology 9(2): 232–234.
- Morrone, J. J. 2014.** Biogeographical regionalisation of the Neotropical region. Zootaxa 3782(1): 1–110.
- Morrone, J. J. 2015.** Biogeographical regionalisation of the world: a reappraisal. Australian Systematic Botany 28: 81–90.
- Otte, D. 1978.** The primary types of Orthoptera (Saltatoria, Mantodea, Phasmatodea and Blattodea) at the Academy of Natural Sciences of Philadelphia. Proceedings of the Academy of Natural Sciences of Philadelphia 130: 26–87.
- Paris, M. 1994.** Catalogo de tipos de Ortopteroides (Insecta) de Ignacio Bolivar, I: Blattaria, Mantodea, Phasmoptera y Orthoptera (Stenopelmatoidea, Rhaphidophoroidea, Tettigonioida, Grylloidea, Tetrigoidea). Eos 69: 143–264.
- Perez-Gelabert, D. E. 2003.** A new genus and species of tetrigid (Orthoptera: Tetrigidae: Cladonotinae) from Dominican Republic, Hispaniola. Journal of Orthoptera Research 12(2): 111–114.
- Perez-Gelabert, D. E. 2009.** Synonymy in Caribbean Tetrigidae (Orthoptera). Proceedings of the Entomological Society of Washington 111(4): 900–901.
- Perez-Gelabert, D. E., D. Hierro, and D. Otte. 1998.** New genera and species of Greater Antillean grouse-locusts (Orthoptera: Tetrigidae: Cladonotinae). Journal of Orthoptera Research 7: 189–204.
- Perez-Gelabert, D. E., and D. Otte. 1999.** A new species of *Choriphyllum* Serville (Orthoptera: Tetrigidae: Cladonotinae) from the Bahamas. Transactions of the American Entomological Society 125 (4): 453–458.
- Perez-Gelabert, D. E., and S. Yong. 2014.** *Armasius iberianus* (Orthoptera: Tetrigidae: Cladonotinae): A new genus and species of pygmy grasshoppers from Eastern Cuba. Novitates Caribaea 7: 44–50.
- Rehn, J. A. G. 1904.** Studies in the orthopterous subfamilies Acrydiinae (Tettiginae), Eumastacinae and Proscopinae. Proceedings of the Academy of Natural Sciences 56: 658–683.
- Rehn, J. A. G. 1907.** XII. Studies of the Tetrigiæ (Orthoptera) in the Oxford University Muscum. Transactions of the Entomological Society of London 55: 213–244.
- Rocha, L. A., A. Aleixo, G. Allen, F. Almeda, C. C. Baldwin, M. V. L. Barclay, J. M. Bates, A. M. Bauer, F. Benzoni, and C. M. Berns. 2014.** Specimen collection: an essential tool. Science 344: 814–815.

- Serville, J. G. A. 1838[1839].** Histoire naturelle des insectes. Orthoptères. Librairie Encyclopédique de Roret; Paris. xviii + 776 p. + 14 pl.
- Silva, D. S. M., J. Skejo, M. R. Pereira, F. C. De Domenico, and C. F. Sperber. 2017.** Comments on the recent changes in taxonomy of pygmy unicorns, with description of a new species of *Metopomystrum* from Brazil (Insecta, Tetrigidae, Cleostratini, Miriatrini). *ZooKeys* 702: 1–18.
- Skejo, J. 2018.** Genus *Dasyleurotettix* Rehn, 1904. In: M. M. Cigliano, H. Braun, D. C. Eades, and D. Otte. Orthoptera Species File. Version 5.0/5.0. Available at <http://orthoptera.speciesfile.org/Common/basic/Taxa.aspx?TaxonNameID=1100650> (Last accessed 2 December 2018.)
- Skejo, J., and P. Bertner. 2017.** No more dust and exoskeletons – *in vivo* photographic records provide new data on *Eufalconius pendleburyi* Günther, 1938 (Orthoptera: Tetrigidae) from the Titiwangsa Mts. *Annales Zoologici (Warszawa)* 67(4): 665–672.
- Storozhenko, S. Y. 2013.** Review of the subfamily Tripetalocerinae Bolívar, 1887 (Orthoptera: Tetrigidae). *Zootaxa* 3718(2): 158–170.
- Thunberg, C. P. 1815.** Acrydii descriptio. *Nova Acta Regiae Societatis Scientiarum Upsaliensis* 7: 157–162.
- Tumbrinck, J. 2014.** Taxonomic revision of the Cladonotinae (Orthoptera: Tetrigidae) from the islands of South-East Asia and from Australia, with general remarks to the classification and morphology of the Tetrigidae and descriptions of new genera and species from New Guinea and New Caledonia. p. 345–396. In: D. Telnov (ed.). Biodiversity, biogeography and nature conservation in Wallacea and New Guinea. Volume II. Entomological Society of Latvia; Riga. 584 p.
- Walker, F. 1871.** Catalogue of the specimens of Dermaptera Saltatoria in the collection of the British Museum. Part V. British Museum (Natural History); London. 80 p.
- Westwood, J. O. 1837.** A catalogue of Hemiptera in the collection of the Rev. F.W. Hope, M.A – with short Latin descriptions of the new species. J. C. Bridgewater; London. 46 p.
- Yong, S. 2017.** The adult male of the little-known pygmy grasshopper *Armasius iberianus* Perez-Gelabert and Yong, 2014 (Orthoptera: Tetrigidae: Cladonotinae). *Ecologica Montenegrina* 15: 1–9.
- Yong, S., and D. Perez-Gelabert. 2014.** Grasshoppers, crickets and katydids (Insecta: Orthoptera) of Cuba: An annotated checklist. *Zootaxa* 3827: 401–438.

Received March 24, 2019; accepted July 3, 2019.

Review editor Lawrence Hribar.