

INSECTA MUNDI

A Journal of World Insect Systematics

0329

A new species of the genus *Onychopygia* Beier (Orthoptera:
Tettigoniidae: Pseudophyllinae) from Guatemala

Oscar J. Cadena-Castañeda
Universidad Distrital Francisco José de Caldas
Grupo de Investigación en Artrópodos “Kumangui”
Bogotá, Colombia

José Monzón-Sierra
Universidad del Valle de Guatemala
Guatemala City, Guatemala

Date of Issue: January 10, 2014

Oscar J. Cadena-Castañeda and José Monzón-Sierra
A new species of the genus *Onychopygia* Beier (Orthoptera: Tettigoniidae:
Pseudophyllinae) from Guatemala
Insecta Mundi 0329: 1-8

ZooBank Registered: urn:lsid:zoobank.org:pub:3607B6BF-C439-4DC2-AA93-5DA3ED612E6B

Published in 2014 by

Center for Systematic Entomology, Inc.
P. O. Box 141874
Gainesville, FL 32614-1874 USA
<http://www.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, CAB Abstracts, etc. **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. Manuscript preparation guidelines are available at the CSE website.

Managing editor: Paul E. Skelley, e-mail: insectamundi@gmail.com

Production editor: Michael C. Thomas, Brian Armitage, Ian Stocks

Editorial board: J. H. Frank, M. J. Paulsen

Subject editors: G.B. Edwards, J. Eger, A. Rasmussen, G. Steck, Ian Stocks, A. Van Pelt, J. Zaspel

Spanish editors: Julieta Brambila, Angélico Asenjo

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, Great Britain
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 (On-Line 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>

Author instructions available on the Insecta Mundi page at:

<http://www.centerforsystematicentomology.org/insectamundi/>

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/>

A new species of the genus *Onychopygia* Beier (Orthoptera: Tettigoniidae: Pseudophyllinae) from Guatemala

Oscar J. Cadena-Castañeda

Universidad Distrital Francisco José de Caldas
Grupo de Investigación en Artrópodos “Kumanguí”
Bogotá, Colombia
ojccorthoptera@gmail.com

José Monzón-Sierra

Universidad del Valle de Guatemala
Guatemala City, Guatemala
jmonzon@uvg.edu.gt

Abstract. A new species of the genus *Onychopygia* Beier, 1962 (Orthoptera: Tettigoniidae: Pseudophyllinae) from the northern slopes of Los Cuchumatanes Mountains, Huehuetenango, Guatemala is described and illustrated. The morphological differences and peculiarities between *O. panamensis* Beier, 1962 and *O. brachyptera* n. sp. are discussed. The finding of this new taxon extends considerably into Central America our previous knowledge on the distribution of the Eucocconotini tribe. Finally we provide a revised taxonomic key to the Eucocconotini tribe.

Key words. Central America, brachypterism, Eucocconotini, *Onychopygia panamensis*, *Onychopygia brachyptera* n. sp.

Resumen. Se describe e ilustra una nueva especie del género *Onychopygia* Beier, 1962 proveniente de la parte norte de la sierra Los Cuchumatanes, Huehuetenango, Guatemala. Las diferencias y peculiaridades morfológicas entre *O. panamensis* Beier, 1962 y *O. brachyptera* n. sp., son abordadas. El descubrimiento de este nuevo taxon extiende considerablemente nuestro conocimiento sobre el rango de distribución de la tribu Eucocconotini hacia Centro América. Finalmente se provee una clave taxonómica actualizada de la tribu Eucocconotini.

Palabras clave. Centro América, braquipterismo, Eucocconotini, *Onychopygia panamensis*, *Onychopygia brachyptera* n. sp.

Introduction

Currently the tribe Eucocconotini (Orthoptera: Tettigoniidae: Pseudophyllinae) is represented by 17 described species in eight genera, with known distributions from Panama to Peru, including the Amazonian region in Brazil, part of Surinam and Guiana in the Guiana Shield (Eades et al. 2012). Members of this tribe present a high variability within genera; comprising very large and surprising species like the genus *Panoploscelis* Scudder, 1869, where the females also have acoustic communication analogous to the one in the males (Montealegre et al. 2003). Others are very small and delicate like *Ottotettix* Braun, 2011 recently described from the Ecuadorian Andes. In this article we describe a new species from Guatemala of the genus *Onychopygia* Beier, 1962, previously known as a monotypic genus. This new taxon extends considerably the known distribution of this tribe into northern Central America contributing to the poorly known Orthoptera of Guatemala.

Methods

The specimens studied are deposited in the Natural History Museum of the Francisco José de Caldas Distrital University, Entomology and Arachnology Collection Bogota, Colombia (MUD); and in the Universidad del Valle de Guatemala Collection of Arthropods, Guatemala City, Guatemala (UVGC).

Illustrations were performed with Corel DRAW and photographs taken with a Sony 300 camera.

Measurements. The specimens were measured with a Vernier caliper. Characters measured are as follows: *total length*, the distance between the frons and the apex of the abdomen; *length of pronotal disc*, the distance from the anterior to posterior margin; *length of tegmina*, the distance from the humeral sinus to the apex; *length of hind femur*, from the base to base of genicular lobe; *length of hind tibia*, from the base to the apex; *subgenital plate*, the distance from the base to the apex. For the females was measured the *length of the ovipositor*, the distance from the apex of the subgenital plate to the apex of the ovipositor.

Results

The following generic key to the tribe Eucocconotini includes the genera *Onychopygia* and *Ottotettix* that were unknown when Beier (1960) created this tribe. Thereafter we describe *O. brachyptera* n. sp.

Key to genera to the Tribe Eucocconotini

(Adapted from Beier 1960)

1. Anterior and medial femora with dorsal surface unarmed, tegmina variable in length, female without stridulatory organ, body medium sized (18-40mm) and slender **2**
- Anterior and medial femora with dorsal surface armed, tegmina almost as long as pronotum, females with stridulatory organ, body large (60-63mm) and robust **Panoploscelis Scudder, 1869**

- 2(10). Mandibles well developed in both sexes, anterior femora with internal genicular lobe armed with a spine, dorsal surface of anterior tibiae smooth **3**
- Mandibles strongly developed (specially in males), anterior femora with internal genicular lobe unarmed, dorsal surface of anterior tibiae granular or with distinctive tubercles **7**

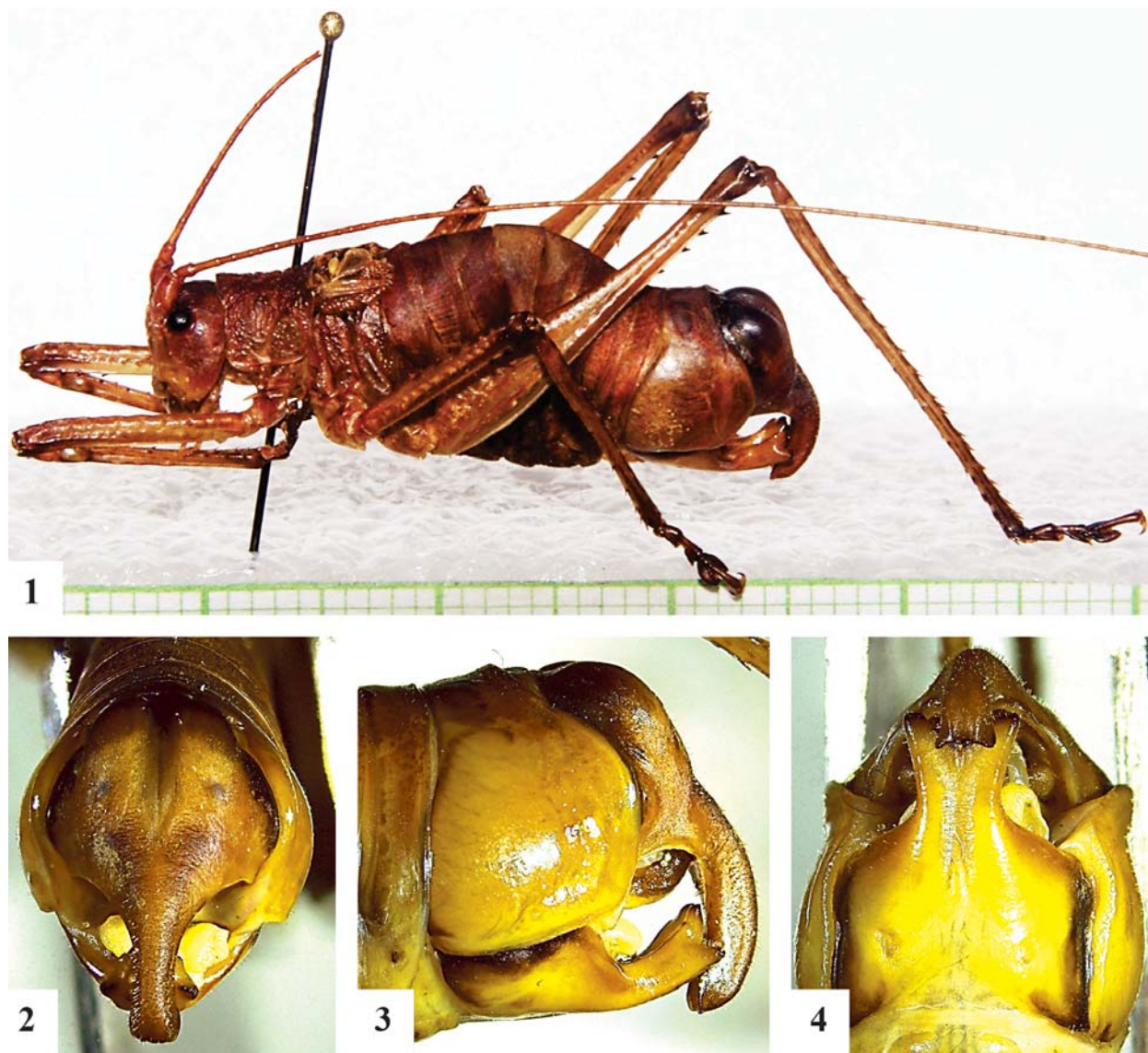
- 3(2). Tegmina reduced or not beyond abdomen's length **4**
- Tegmina extending widely beyond abdomen's length **5**

- 4(3). Body slender, abdomen cylindrical and uniform, terminalia well developed, male cerci bifurcated, ovipositor wide and strong **Ottotettix Braun, 2011**
- Body robust, abdomen wide and broad shaped, terminalia developed prominently; tenth tergite and epiproctum pronounced, male cerci not bifurcated, ovipositor slightly curved and narrow **Onychopygia Beier, 1962**

- 5(3). Medial tibiae dorsal surface unarmed, anal margin of tegmina stained **6**
- Medial tibiae dorsal surface with internal face armed, anal margin of tegmina unicolor **Eucocconotideus Beier, 1960**

- 6(5). Posterior femora armed with small spines, preapical femoral rings yellow, male cerci simple **Eucocconotus Hebard, 1926**
- Posterior femora armed with big and prominent spines, femora without preapical femoral rings, male cerci with medial tooth and terminal spine **Myopophyllum Beier, 1960**

- 7(2). Middle tibia dorsally unarmed, mandibles of male strongly elongated mostly with dorsal lobe to hump **Gnathoclita Haan, 1842**
- Middle tibiae with some spines on each side, mandibles in both sexes with long, coniform (horn-shaped) band-like process **Dicranostomus Dohrn, 1888**



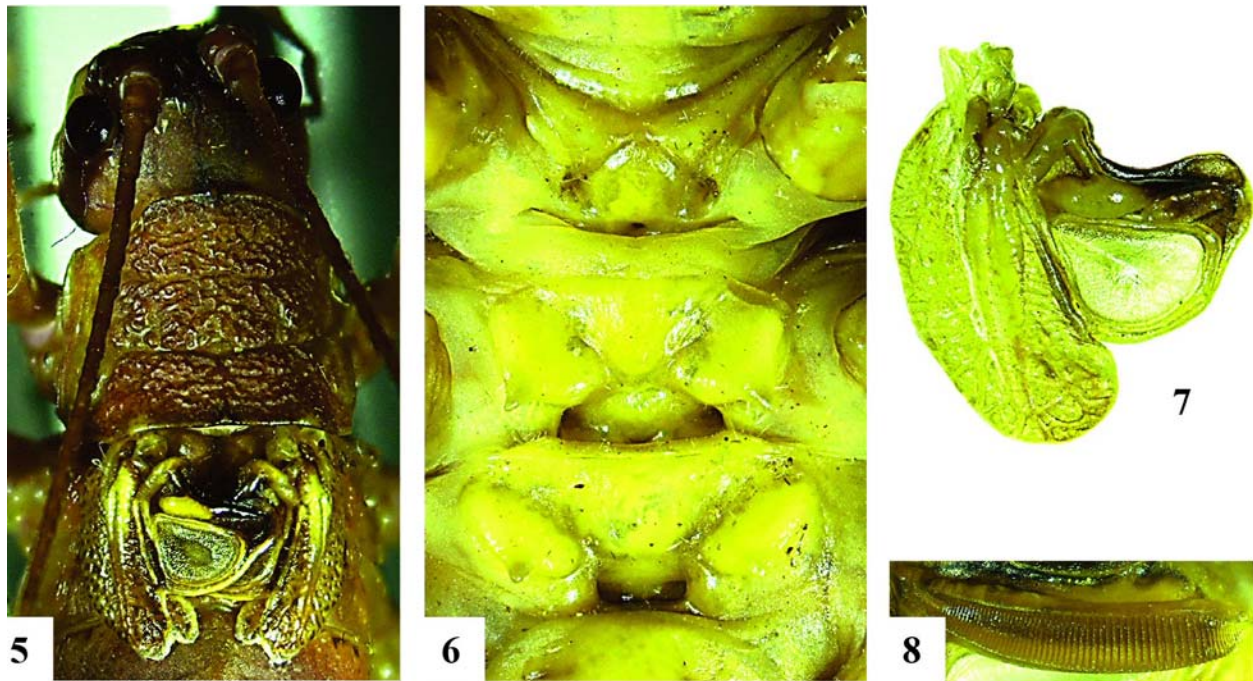
Figures 1-4. *Onychopygia brachyptera* n. sp. (Male). **1)** Habitus lateral. Terminalia: **2)** Posterior view. **3)** Lateral view. **4)** Subgenital plate.

***Onychopygia brachyptera* Cadena-Castañeda & Monzón-Sierra, new species**

Figures 1-13

Type material. Holotype male (Natural History Museum of the Universidad Distrital Francisco José de Caldas (MUD)) labeled “Guatemala, Huehuetenango, Barillas, Unión Las Palmas. 1,444 m., 15.9311000° -91.2993100°. May, 15, 2012. J. Monzón & F. Camposeco Col.”. Allotype female (Universidad del Valle de Guatemala Collection of Arthropods (UVGC)) labeled as holotype. Paratypes two males labeled as holotype deposited in MUD.

Description. Holotype male. General color is light brown, femora with apical area black, wings’ venation yellowish. *Head:* Fastigium slightly pronounced scape and pedicel unarmed, frontal ocellus oval, lateral ocelli inconspicuous. *Thorax:* Pronotum softly granular with pronotal regions distinct (Fig. 5). Prosternum armed with two small pyramidal spines. Mesosternum rectangular, mesosternal striae separated by the anterior lobe, not connecting with the lateral ones. Metasternum hexagonal, wider than

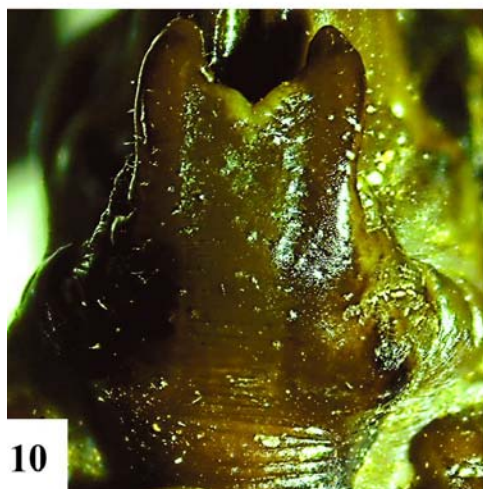


Figures 5-8. *Onychopygia brachyptera* n. sp. **5)** Dorsal view. **6)** Sternum (pro, meso and metasternum). **7)** Male tegmina. **8)** Stridulatory file.

long; anterior lobe expanded, separating the lateral lobes, metafurcal furrow deep and elongated, as wide as the inferior lateral margin of the anterior lobe, anterior lobes of meso and metasternum armed with one spine subelevated over each infero-external margin (Fig. 6). Coxae armed with typical Eucocconotini tribe tubercula. Anterior and medial femora and tibiae cylindrical and slender, posterior femora with regular shape and armed with three or four ventral spines close to the apex, posterior tibiae armed with spines above ventral and dorsal margin. Posterior femora genicular lobes armed, anterior femora unarmed, middle tibiae genicular lobes' external margin armed on the internal face. *Wings:* Tegmina barely covering the first abdominal tergite, venation reticulated, M vein and base of the R strongly sclerotized and prominent (Fig. 7). Stridulatory region sclerotized with the exception of the mirror which is membranous and notorious in both tegmen. Stridulatory crest prominent, thinning from left to right, stridulatory row with 103 laminar and elongated teeth, tight spaced (Fig. 8). *Abdomen:* wide, ninth and tenth tergites fussed and as wide as the sixth, seventh and eight tergites together, compressing slightly on the posterior margin above the dorsum, forming a wide "U" shaped emargination (Fig. 2); epiproctum widened, covering the cerci and thinning from the medial region in the whole length, forming from there on a cylindrical prolongation that curves moderately, fitting in the emargination of the subgenital plate, apex truncate and in sucker shape (Fig. 3). Subgenital plate rectangular up to mesal region where it narrows down abruptly, apex bifurcated in lateral view, emargination "U" shaped (Fig. 4). Cerci are minute, curving towards their posterior margin.

Allotype female. Similar in shape and color to the male (Fig. 9). Epiproctum lanceolate, apex truncate and covering the anal aperture. Ovipositor as long as a fourth part of the total length of the body, curving gradually towards the sharp apex, ventral and dorsal margin without denticulations (Fig. 11). Subgenital plate rectangular, apex prominent and "U" shaped (Fig. 10).

Measurements: (mm) **Holotype:** Total length 37.0; pronotum 4.0; tegmina 4.0; hind femora 17.0; hind tibiae 20.0; subgenital plate 8.0; cerci 0.9. **Allotype:** Total length 39.0; pronotum 5.0; tegmina 3.2; hind femora 18.0; hind tibiae 20.0; subgenital plate 4.2; ovipositor 12.0. **Paratypes:** Total length 36.0-37.0; pronotum 4.0; tegmina 3.8-4.0; hind femora 17.0-17.5; hind tibiae 20.0-21.0; subgenital plate 8.0; cerci 0.9.



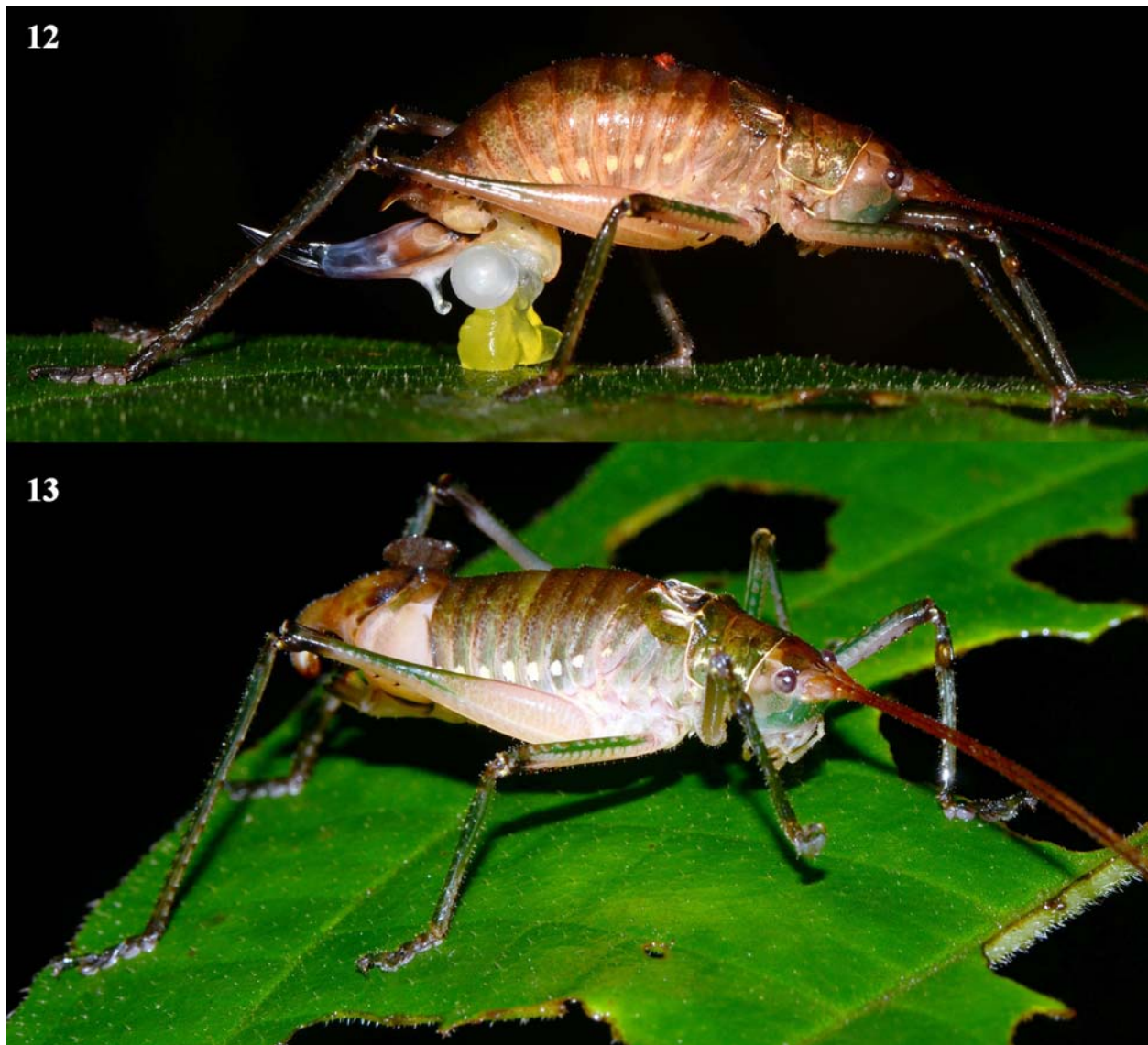
Figures 9-11. *Onychopygia brachyptera* n. sp. (Female). **9)** Habitus lateral. **10)** Subgenital plate. **11)** Ovipositor.

Etymology. The name makes reference to the brachypterous condition of the species.

Distribution and remarks. Currently *Onychopygia brachyptera* n. sp. is only known from the type locality and can be separated from *O. panamensis* by several important characters (Table 1).

Discussion. With the description of *O. brachyptera* the known distribution of the tribe Eucocconotini is extended considerably in Central America. It was previously known only from Peru, Ecuador, Colombia, northern Brazil, Surinam, Guiana and Panama (Eades et al. 2012). Additional field work is necessary as there might be other interesting species of this tribe between Panama (where *O. panamensis* is found) and Guatemala.

The taxonomic status of the tribe Eucocconotini needs revision as members are very similar to the members of the tribe Cocconotini. The main characters that separate these two tribes are in Eucocconotini the anterior and medial bicuspid coxae and generally the lateral lobes of the meso and metasternum are erected or sharpened; these characters are variable in Cocconotini. Gorochoff (1988) proposed a different classification for the Pseudophyllinae, although it has not been used, except for himself in his most recent publication (Gorochoff 2012). This new classification is not appropriate to separate satisfactorily the tribal characters of the subfamily Pleminae (*sensu* Gorochoff) because the Gorochoff was concerned



Figures 12-13. Living *Onychopygia brachyptera* n. sp. 12) Female with spermatophore. 13) Male.

with the higher classification of Ensifera, from suborder to subfamilies, and did not take into consideration the tribes. Further studies are necessary to establish the relationship and organization of this subfamily and its tribes.

Acknowledgments

We thank Jack C. Schuster from the Universidad del Valle de Guatemala-Collection of Arthropods, and Ludivina Barrientos-Lozano from the Instituto Tecnológico de Cd. Victoria, Tamaulipas, Mexico, for reviewing the manuscript; Faustino Camposeco for his assistance collecting the type series; and CONAP for research and collecting permits. We are grateful to Holger Braun for his invaluable help during preparation of this paper. Finally the first author thanks Professor Alexander García from the Universidad Distrital Francisco José de Caldas-Grupo de Investigación en Artrópodos “Kumanguí” (Bogotá, Colombia), for his help, advice and support.

Table 1. Basic features to distinguish *Onychopygia* species.

	<i>O. brachyptera</i> n. sp.	<i>O. panamensis</i>
Wing development	Slightly covering the first abdominal tergite in both sexes.	Covering up to the eight tergite in males and slightly longer than the abdomen apex in the female.
Stridulatory crest	Notorious and strongly sclerotized.	Simple and slightly sclerotized.
Ninth tergite	Dorsal margin unarmed and constricted forming a “U” shaped emargination. Lateral lobes slightly pronounced.	Dorsal margin armed with two slightly prominences. Side lobes not pronounced.
Tenth tergite	Base wide and rounded, prolonging from the mesal region to the apex, slender and snout shaped; apex sucker shape.	With a slight bilobed prolongation, different from epiproctum.
Paraproctal prolongations	Covered by the tenth tergite prolongation, curved and rod shaped, with the apex blunt.	Visible, curved and sickle shaped with the apex sharp and with a slight meso-external prolongation.
Cerci	Covered by the ninth tergite, reduced curving towards posterior margin.	Exposed, not covered by the ninth tergite, conical shaped.
Male subgenital plate	Apex bifurcated in lateral view, emargination “U” shaped.	Apex simple in lateral view, strongly prolonging upwards, emargination “V” shaped.

Literature Cited

- Beier, M. 1960.** Orthoptera Tettigoniidae (Pseudophyllinae I). Das Tierreich 73: 1-468.
- Beier, M. 1962.** Neue neotropische Pseudophyllinen (Orthoptera-Tettigon.). Annalen des Naturhistorischen Museums in Wien 65: 81-116.
- Braun, H. 2011.** *Ottotettix*, a new katydid genus and species from the rainforest of southern Ecuador (Orthoptera, Tettigoniidae, Pseudophyllinae, Eucocconotini). Journal of Orthoptera Research 20(1): 39-42.
- Dohrn, H. W. L. 1888.** Ueber einige merkwürdige Pseudophylliden. Stettiner Entomologische Zeitung 49: 353-362.
- Eades, D. C., D. Otte, M. M. Cigliano, and H. Braun. 2012.** Orthoptera Species File Online. Version 2.0/4.0. URL: [http:// Orthoptera.SpeciesFile.org](http://Orthoptera.SpeciesFile.org) [accessed November 2012].
- Gorochoy, A. V. 1988.** Classification and phylogeny of Tettigonioidae (Gryllida=Orthoptera, Tettigonioidae) [in Russian]. In Ponomarenko [Ed.]. Cretaceous Biocoenotic Crisis and the Evolution of Insects 145-190.
- Gorochoy, A. V. 2012.** Systematics of the American katydids (Orthoptera: Tettigoniidae). Communication 1. Trudy Zoologicheskogo Instituta 316(1): 3-21.
- Haan, W. 1842.** Bijdragen tot de kennis der Orthoptera. In Temminck. Verhandelingen over de natuurlijke geschiedenis der Nederlandsche overzeesche bezittingen. 16 Zoologie: 45-248.

Hebard, M. 1926. Studies in the Dermaptera and Orthoptera of Colombia, fourth paper. Transactions of the American Entomological Society. 52(4): 275-354, pl. 18-22.

Montealegre-Z, P. A. F. Guerra, and G. K. Morris. 2003. *Panoploscelis specularis* (Orthoptera: Tettigoniidae: Pseudophyllinae): extraordinary female sound generator, male description, male protest and calling signals. Journal of Orthoptera Research. 12(2): 173-181.

Scudder, S. H. 1869. Notes on Orthoptera collected by Prof. James Orton on either side of the Andes of Equatorial South America. Proceedings of the Boston Society of Natural History 12: 330-345.

Received April 13, 2013; Accepted August 4, 2013.