

INSECTA MUNDI

A Journal of World Insect Systematics

0568

Bolivian Rhinotragini XI. New species of *Phygopoda* Thomson, 1864
and *Phygopoides* Peñaherrera-Leiva and Tavakilian, 2007
(Coleoptera, Cerambycidae)

Robin O. S. Clarke
Hotel Flora and Fauna,
Buena Vista
Santa Cruz de La Sierra, Bolivia

Date of Issue: August 29, 2017

Robin O. S. Clarke

Bolivian Rhinotragni XI. New species of *Phygopoda* Thomson, 1864 and *Phygopoides* Peñaherrera-Leiva and Tavakilian, 2007 (Coleoptera, Cerambycidae)

Insecta Mundi 0568: 1-18

ZooBank Registered: urn:lsid:zoobank.org:pub:CE0296D5-8FFF-406D-9755-5E042951A638

Published in 2017 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.

Chief Editor: David Plotkin, e-mail: insectamundi@gmail.com

Assistant Editor: Paul E. Skelley, e-mail: insectamundi@gmail.com

Head Layout Editor: Eugenio H. Nearn

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

Review Editors: Listed on the *Insecta Mundi* webpage

Manuscript Preparation Guidelines and Submission Requirements available on the *Insecta Mundi* webpage at: <http://centerforsystematicentomology.org/insectamundi/>

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>

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: Michael C. Thomas

Bolivian Rhinotragini XI. New species of *Phygopoda* Thomson, 1864 and *Phygopoides* Peñaherrera-Leiva and Tavakilian, 2007 (Coleoptera, Cerambycidae)

Robin O. S. Clarke
Hotel Flora and Fauna,
Buena Vista
Santa Cruz de La Sierra, Bolivia
hotelfandf@hotmail.com

Abstract. New Bolivian Rhinotragini (Coleoptera, Cerambycidae, Cerambycinae) are described: three species of *Phygopoda* Thomson, 1864 (*P. longiscopifera* **sp. nov.**, *P. boliviensis* **sp. nov.** and *P. chaquensis* **sp. nov.**); and one species of *Phygopoides* Peñaherrera-Leiva and Tavakilian, 2007 (*P. maxwelli* **sp. nov.**). Two Brazilian species of *Neophygopoda* Melzer, 1933 are transferred to the genus *Phygopoda*: *P. exilis* (Melzer, 1933) **comb. nov.** and *P. agdae* (Martins, Galileo and Santos-Silva, 2015) **comb. nov.** All the species are illustrated, and a key to the Bolivian species of *Phygopoda* and host flower records are provided.

Key Words. Cerambycinae, host flowers, taxonomy.

Introduction

The genus *Phygopoda* was recently revised by Carelli and Monné (2015) with descriptions of *Phygopoda nigratarsis* Gounelle, 1911, *Phygopoda ingae* Peñaherrera-Leiva and Tavakilian, 2004, *Phygopoda fulvatarsis* Gounelle, 1911, *Phygopoda fugax* Thomson, 1864 and *Phygopoda jacobi* Fuchs, 1961 [Note: *Neophygopoda exilis* Melzer, 1933 and *Neophygopoda agdae*, Martins, Galileo and Santos-Silva, 2015, both with closed procoxal cavities (A. Santos-Silva pers. comm.), are species of *Phygopoda*, a fact overlooked by the authors].

Clarke (2017) transferred *P. nigratarsis* (originally described from Goias, Brazil) to the genus *Neophygopoda* Melzer, 1933 (his type species described from Tucuman, Argentina).

Carelli and Monné's revision of *Phygopoda* has been scrutinized by the author to establish the validity of the new species described here. The Bolivian species present some characters affecting Carelli and Monné's description of the genus as discussed below.

It should be mentioned that species of *Phygopoda* present problems for the researcher as dense pubescence on the body hides the details, especially on the underside; also that intraspecific variation may vary with smaller or larger specimens; but, as Clarke (2017) has pointed out, in the Rhinotragini, a tribe of mimics, variation seems to be reduced to safeguard the integrity of the disguise.

Material and Methods

The material for this study was collected in the east Andean foothills of Bolivia between the northern, humid, Amazon forests in the Department of Santa Cruz (17°29'S/63°39'W) and the southern semi-dry Chaco forests in the Department of Tarija (21°16'S/63°27'W).

Paratypes collected by Clarke and Zamalloa do not include a reference to them; those collected by others (or donated by them) include name of collector.

For those interested in the details of the methods and terminology used see Clarke (2015).

Acronyms used in the text are as follows:

- ACMT — American Coleoptera Museum, San Antonio, Texas, USA.
- BMNH — British Museum of Natural History, London, UK.
- CMNH — Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA.
- EMEC — Essig Museum of Entomology, Berkeley, California, USA.
- FSCA — Florida State Collection of Arthropods, Gainesville, Florida, USA.

- MNKM — Museo Noel Kempff Mercado, Universidad Autónoma Gabriel René Moreno, Santa Cruz de la Sierra, Bolivia.
 MZSP — Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil.
 RCSZ — Robin Clarke/Sonia Zamalloa research collection, Santa Cruz, Bolivia.
 RFMC — Roy F. Morris II private collection, Lakeland, Florida, USA.
 SLPC — Steven Lingafelter private collection, Hereford, AZ
 USNM — National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

The abbreviations for the Brazilian States referred to are as follows: Bahia (BA), Espírito Santo (ES), Goiás (GO), Minas Gerais (MG), Pará (PA), Paraná (PR), Rio de Janeiro (RJ), Santa Catarina (SC), São Paulo (SP).

Information on host flowers of *Phygopoda* and *Phygopoides* is provided in Table 1.

Taxonomy

Carelli and Monné (2015) provided a description of the genus *Phygopoda* [and in the square brackets, the author has added new data to include the Bolivian species] as set out below. However, their description is marred by the inclusion of *Phygopoda nigratarsis*, which was previously transferred to the genus *Neophygopoda* [these marked in bold type].

Phygopoda* revised annotated definition.** Head with short rostrum [see remarks under length of *genae*], densely covered with coarse punctures provided with long, semierect setae, except for smooth and glabrous area at gular region; with large eyes [presumably referring to the inferior lobes], subcontiguous, slightly emarginated, frontally separated from about 1/10 to 1/5 of width of lower ocular lobe [yes, but contiguous in those separated by 1/8 or less]; *genae* with less than 1/3 length of lower ocular lobes [among the Bolivian males the *genae* are 0.33-0.40 length of inferior lobes; and in females 0.44]; clypeus with two long semierect setae [yes]. Antennae exceeding elytral apex at antennomere 8 to 10 [in male *P. chaquensis* antennomere VII], reaching first or second ventrite [reaching ventrite 3 in females of *P. longiscopifera* and *P. chaquensis*]; antennomere 3 1/3 longer than scape and antennomere 4 [1.2 longer than 3 in *P. longiscopifera* and *P. chaquensis*, 1.4 longer in *P. boliviensis*; 1.5 longer than 4 in *P. longiscopifera*, 1.4 longer in *P. boliviensis*, 1.2 longer in *P. chaquensis*]; 5-9 gradually decreasing in length [among the Bolivian species 6 and 7 may be as long as 5]; 10-11 equal in length [among the Bolivian species 11 always slightly longer than 10]; 7-11 gradually expanded on external margin, subserrate [among Bolivian species 11 is never serrate, and in the female of the smallest species, *P. chaquensis*, only 7-8 serrate]; scape and pedicel with long semierect setae [very variable among the Bolivian species, including the following:]; 3-5 with row of long semierect setae at internal margin (sometimes extending to 8). Prothorax cylindrical, from as wide as long to 1.3 times longer than wide [prothorax is elongate in both sexes of all Bolivian species, the range l/w = 1.1-1.2]; anterior and posterior margin with row of decumbent, golden-yellow setae [according to Carelli and Monné's (2015) descriptions and their photographs of the species this is incorrect; and same data for Bolivian species]. Pronotum densely covered with deep punctures [yes, alveolate ones], provided with long semierect setae (**sometimes with longitudinal, central elevation, extending from anterior to posterior margin, and four additional median elevations, two on each side of central elevation, semicircular, which can be joined**). Prosternum with anterior third smooth and glabrous; posterior 2/3 with punctures provided with long semierect setae [yes; but all ventral pubescence reduced in females]. Prosternal process from about 1/3 [Carelli and Monné (2015) state 1/4 for *P. fugax* and *P. jacobii*] to 1/5 diameter of procoxa [the range for the Bolivian species about 0.28-0.38]; anterior coxal cavities rounded, not angular at sides, closed posteriorly (**except for *P. nigratarsis). Mesosternum covered with long semierect setae [not true of mesosternum, but correct for sides of mesothorax]; mesosternal process from about 1/4 to 2/3 diameter of mesocoxa [the range for the Bolivian species is about 1/8-2/5]; mesepisternum, mesepimeron [yes (sides of mesothorax)], metepisternum and metasternum pubescent. Scutellum densely covered with whitish pubescence; apex rounded **or truncate**. Elytra short, not subulate, narrowing at apical 2/3, reaching first ventrite [yes, except female *P. chaquensis* fails to pass metacoxae]; with coarse, sparse punctures, provided with

Table 1. Host flowers visited by species of *Phygopoda* and *Phygopoides*.

Common name	Scientific name	Family	Visiting Rhinotragini spp.
Barbasquillo	<i>Serjania lethalis</i> St. Hilaire	Sapindaceae	<i>Phygopoda longiscopifera</i>
Gomphrena	<i>Gomphrena vaga</i> Mart.	Amaranthaceae	<i>Phygopoda longiscopifera</i>
Mango	<i>Mangifera indica</i> Linn.	Anacardiaceae	<i>Phygopoda longiscopifera</i>
Ramoneo	<i>Iresine diffusa</i> Willd.	Amaranthaceae	<i>Phygopoda longiscopifera</i> , <i>Phygopoides maxwelli</i>
Sama blanca	<i>Cupania cinerea</i> Poeppig and Endl.	Sapindaceae	<i>Phygopoda boliviensis</i> , <i>Phygopoides maxwelli</i>
Sama blanca chica	<i>Matayba guianensis</i> Aublet	Sapindaceae	<i>Phygopoda longiscopifera</i> , <i>Phygopoides maxwelli</i>
Sapaimosi	<i>Trichilia elegans</i> Adr. Juss.	Meliaceae	<i>Phygopoides maxwelli</i>
Sapaimosi chico	? <i>Trichilia inaequilatera</i> Penn.	Sapindaceae	<i>Phygopoides maxwelli</i>
Tinajero (A)	<i>Croton</i> sp. A	Euphorbiaceae	<i>Phygopoda chaquensis</i>
Turere	<i>Rhamnidium elaeocarpum</i> Reissek	Rhamnaceae	<i>Phygopoda longiscopifera</i>
Tutumillo espinoso	<i>Casearia aculeata</i> Jacq.	Flacourtiaceae	<i>Phygopoides maxwelli</i>

semierect setae; **truncate** or rounded apex [*broadly blunt in all Bolivian species*]; humeri slightly projected [*yes*].

Femora clavate, with short, sparse, semierect setae; pro- and mesofemora with row of semierect setae on inner margin; mesofemora pedunculate to 1/3 of their length [*yes, except in female P. chaquensis with peduncle nearer 1/4 of femoral length*], metafemora without row of setae on inner margin [*should read on ventral surface*], pedunculate to 2/3 of their length [*the range for the Bolivian species is about 1/2-2/3*]; pro- and mesotibiae with apical 3/4 densely covered with short, fine pubescence [*yes*]; metatibiae with dense brush of long setae on apical half [*the Bolivian species vary, in P. longiscopifera dense setae covering more than 4/5 of metatibiae; in P. boliviensis 2/3 of metatibiae; in P. chaquensis sparse for basal 2/3, and not much denser to apex*]; pro- and mesotibiae with two short apical spurs of equal length [*difficult to see, and probably of little value as a generic character*]; metatibiae with two long apical spurs, inner longer than outer [*same data, the last comment*]; pro-, meso- and metatarsi pubescent [*yes, but on latter noticeably thicker and longer in some species; and most authors would compare length of metatarsomere I to length of II and III together; in Bolivian species range I/II+III = 1.25-1.30*]. Ventrites 1-5 covered with long sparse setae [*dense in P. chaquensis*]; each side with spot of bright, whitish pubescence [*yes, these rectangular fascia present in all Bolivian species*]. Last visible urosternite with apical margin centrally excavate [*yes in males, truncate in females*].

Carelli and Monné finish the description of the genus with the following comment: “*Phygopoda* differs from other genera of Rhinotragini by the combination of the features as follow: its small, elongate and slender form, punctate pronotum, abbreviated elytra, elongated hind legs, and metatibiae with brush of setae ...”

This seems to be Carelli and Monné’s diagnosis; which, it has to be said, could describe a large number of Rhinotragini genera; but by removing some of the characters, and by adding a little more detail to others, it could eliminate most of these genera. As many of these details are not provided by them, those given are for Bolivian species only.

Diagnosis: small, males 5.4-7.6/females 7.4-9.3 mm; elongate and slender, total length/width metathorax 3.7-5.6; elytra cuneate, short, apex of elytra reaching from middle of metacoxae to base of urosternite I; hind leg long, 3.7-4.8 longer than front leg; metafemoral peduncle exceptionally long, 2-3 times length of clava; metatibiae with brush of setae (except in the smallest species).

Of the more than 200 species analyzed by the author we may have two incontrovertible diagnostics: length of hind leg divided by length of front leg is only approached in *Phygopoides* 3.1-3.8, and

Neophygopoda 3.7-3.9; length of metafemoral clave divided by length of peduncle is only approached/matched by *Odontogracilis* Clarke, 2015 2.32-3.32.

Species descriptions

The descriptions of the males can be abridged by eliminating the characters shared by them, as follows: Elegant species; small to medium-sized, length 5.4-9.25 mm.

Surface features. Pubescence: underside of head almost glabrous; forebody clothed with mixture of long erect hairs and dense, recumbent, white or silver colored pubescence; the latter in the form of long, rectangular fascia clothing sides of each urosternite. Legs generally sparsely setose (but see metatibiae). Antennae: scape almost glabrous; antennomeres III-V finely pubescent, below with fringe of longer setae on apex of III and most of IV and V(VI); VII-XI tomentose. **Puncturation:** dorsad generally small and alveolate; dense on head and pronotum; on the latter larger; along base of labrum row of simple punctures; at base and towards sides of elytra with moderately dense mixture of small and large puncture. Underside of head with mixture of small and larger, alveolate punctures lodged between dense carinas across mentum-submentum. Underside of forebody generally hidden by pubescence; but usually dense, small and alveolate, embedded in matrix of micropunctures as follows: prosternum smooth and carinate anteriorly, densely punctate posteriorly; almost entirely micropunctate on mesosternum; center of metasternum slightly larger and beveled (lacking micropunctures).

Structure. Head: rostrum wide, sides parallel. Mentum-submentum represented by well demarcated quadrate area. Maxillary palpomeres subcylindrical, moderately long, narrower towards apex; galea and lacinia long and narrow. Labrum moderately large, about half as long as wide, front margin hardly emarginate and weakly declivous.

Inferior lobes of eyes large; front margins lying towards sides of frons; strongly convex laterally, medially more prominent than interocular, hind margins weakly oblique.

Antennal tubercles not strongly prominent; rounded at apex. Antennae moderately long.

Scape with weakly bent base (when viewed laterally); pedicel cylindrical. Antennomeres III-V filiform, VI weakly widened to apex, VII narrow at base, and VIII wider at base, both widened to apex and serrate; IX-X subcylindrical, hardly serrate; XI subovate, with small acuminate cone.

Prothorax: elongate; sides of basal half rounded to basal constriction. Surface of pronotum moderately convex; without obvious calli or distinct depressions; apical constriction weak, but not obsolete, basal constriction narrow towards sides, towards midline not strongly declivous with disc, and not fossate; front border narrow, not strongly raised; front margin 0.9 width of hind margin; hind angles square to slightly obtuse (but dense pubescence hiding details). Prosternum declivous across apical third, moderately sloping to base of prosternal process. Procoxae small and narrowly separated; and cavities plugged laterally, closed basally.

Mesothorax: scutellum scutiform (but mostly hidden by dense white pubescence). Elytra cuneate, almost flat, short, apex not passing base of urosternite I; regularly, but not strongly narrowed to apex, laterally hardly arced, moderately dehiscent for apical half (leaving elytral apices parallel to each other, but well separated). Humeri weakly projecting and weakly prominent. Without humero-apical costa. Apex of elytron sub-lobate, surface convex, apical margin blunt. Mesosternum rather short, deep and nearly abrupt. Mesosternal process (partially hidden by dense pubescence) with flat, narrow base (ca. 0.15 mm) and broader, lanceolate (?) apex. Mesocoxal cavities narrowly open to epimeron.

Metathorax: relatively long, not broad. Metepisternum not wide, weakly convex; sides weakly narrowed to sub-acuminate apex.

Abdomen: subcylindrical. Apical tergite trapezoidal, hardly wider than long, apex truncate not passing apex of urosternite V.

Legs: generally long and slender. Front leg: tibia narrow at base. Middle leg: tibia moderately slender, gradually widening to apex. Hind leg: noticeably long and slender; femora distinctly pedunculate-clavate, clavae fusiform, peduncle weakly flattened, narrow, exceptionally long; femoral apex passes abdomen at base of clavae; tibia gradually thickened to apex. Metatarsomere II hardly pediculate, moderately short, somewhat trapezoidal, weakly widened to apex; lobes of metatarsomere III small, narrow, divergent.

***Phygopoda longiscopifera* sp. nov.**

Fig. 1-3

Holotype. Male: 7.35 mm. Deposited at MNKM.

Description of holotype (Fig. 1). Forebody 1.06 longer than abdomen. Prothorax subcylindrical, 1.05 wider than head with eyes.

Surface features. Color: body almost entirely black, abdomen suffused with chestnut. Labial palpomeres chestnut, maxilla pale chestnut to yellowish; Elytra blackish at base, the rest chestnut; but large translucent panels testaceous-olive. Antennae chestnut basally, apical half paler. Legs almost entirely dark chestnut and extreme apex of metatibiae yellowish; metatarsomere I and apex of onychium chestnut, II, III and base of onychium dingy yellow. **Pubescence:** abdomen sparsely pubescent mesally; metatibiae densely setose for apical 9/10, to form rather narrow, sepia and ochreous colored brushes; metatarsus clothed with cream-colored pubescence. **Puncturation:** dense puncturation towards sides of pronotum separated by small area of smooth chitin; on translucent panels of elytra moderately large and almost uniformly separated by slightly more than their diameter; on abdomen, a mixture of different sized punctures (but none very large), almost uniformly sparse, shallow and beveled.

Structure. Head: rostrum short, width/length 3.25. Clypeus narrow, on higher plane than labrum and separated from it by raised border; but almost coplanar with frons. Frons short and hardly convex; frontal suture not deep, but narrow and well-defined, not impinging on frons; but posteriorly passing between antennal tubercles and continuing as raised line to apex of prothorax. Inferior lobes of eyes 1.26 longer than wide; contiguous (width of one lobe/interocular distance 9.50). Superior lobes of eyes narrow (*ca.* 0.15 mm wide medially, narrowed to *ca.* 0.10 mm laterally); with about 10 rows of ommatidia medially, 7 rows laterally; and separated by 2.33 times their own width. Antennal tubercles separated by 2.25 width of scape. Antennae: apex reaching middle of urosternite II and passing apex of elytra at middle of antennomere VIII. Scape subpyriform; Antennomeres IX-X hardly serrate, subcylindrical. Lengths (mm) antennal segments as follows: scape 0.5, pedicel 0.20, III 0.60, IV 0.40, V-VII 0.55, VIII 0.45, IX 0.40, X 0.35, XI 0.40.

Prothorax: length 1.25 mm, 1.18 longer than wide; sides straight and parallel for apical half, widest well behind middle (prothoracic quotient 1.47). Prosternum declivous across apical third, moderately sloping to base of prosternal process. Prosternal process arched; base of process almost laminate (*ca.* 0.1 mm), about 3.5 times narrower than procoxal cavities; apex of process a moderately large, flat, transverse triangle with all sides arched inwards (but details partially hidden).

Mesothorax: elytra 1.95 mm long, 1.70 longer than wide; humeri not wide enough to hide sides of meso- and metasterna; towards apex surface with slight transverse declivity. Mesosternum: width of mesocoxal cavity 2.33 wider than base of mesosternal process. Length of mesosternum/length of metasternum 0.71.

Metathorax: width 2.00 mm, body length/width metathorax 3.68; strongly rounded at sides to middle of metasternal apex. Metasternum tumid at center, about level with mesocoxae; longitudinal suture narrow, not deep, reaching basal half of metasternum. **Abdomen:** relatively long; convex; moderately narrow; weakly constricted between segments; urosternites I-IV widest (0.90 mm) at middle of III;

narrowest (0.70 mm) at apex of IV. Urosternite I elongate (1.10 mm), sides straight; II (0.75 mm) sides slightly rounded; III (0.75 mm) sides rounded; IV (0.6 mm) sides straight. Urosternite V (0.5 mm) trapezoidal, transverse; sides sharply pointed (but viewed laterally with broad, rounded wings); surface slightly flattened for apical half. Abdominal process a short isosceles triangle coplanar with abdomen. Apical tergite convex.

Legs: ratio length front/middle/hind leg 1.0:1.2:4.8; and body length/length of leg 3.6, 3.0, 0.8 respectively. Front and middle legs moderately robust, the former rather long, the latter rather short; their claws widest at middle (when viewed from above). Front leg: tibia widening to middle, parallel-sided to apex; apico-lateral margin not toothed. Middle leg: femur 1.58 longer than tibia; length of femur/lateral width of claw 3.33. Hind leg: length 12.35 mm; femoral claw short and moderately abrupt, lengths claw/peduncle 0.42; tibiae and femora equal in length; tibia bisinuate (when viewed from above), straight (when viewed from the side); tarsus short, about one third length of tibia, and much narrower than apex of latter; metatarsomere I narrow at base, moderately widened to apex, 1.25 longer than lengths of II+III.

Male variation. Of the 23 male paratypes three have pale chestnut abdomen, legs and antennae; and in many the hind legs are paler than holotype; elytral apices tan colored in three specimens, pale chestnut in others. Rostrum may be more transverse, and sides less parallel in small specimens. Antennal variation: VI and X slightly more serrate; VIII and IX distinctly serrate; XI may vary in length and shape; apical cone may be less acuminate. In many sides of prothorax regularly rounded from apex to base; sides of pronotum may lack smooth areas. Elytra: puncturation varies from smaller to larger, sparser to denser; in three specimens, elytra noticeably narrower towards apex; in others apical margin less blunt, with sutural margin the longest. Small differences in proportions of abdomen are common; and one aberrant has a fusiform abdomen.

Description of female (Fig. 2). Female allotype differs from male holotype as follows: total length 8.85 mm. Slightly more robust than male. Lengths forebody/abdomen 0.88.

Surface features. Color: elytral apices tan colored; abdomen and legs pale chestnut; base of metafemoral peduncle yellowish; metatibial brush black; metatarsus entirely bright yellow. **Surface ornamentation:** similar to holotype on dorsad; generally less pubescent and less densely punctured on underside (especially metathorax and abdomen).

Structure. Head: narrower (widths head with eyes/prothorax 1.21). Inferior lobes of eyes considerably shorter and narrower (length 0.45 mm, width 0.33 mm); less convex (lying slightly below level of interocular); well separated (width interocular 0.30 mm, widths lobe/interocular 1.08). Interocular flat, densely punctured; frontal suture not projecting behind eyes. Antennae reaching base of urosternite III; antennomere III 1.20 longer than scape; VII and X not serrate, VIII-IX weakly serrate, otherwise little different from holotype.

Prothorax: less elongate, 1.09 longer than wide; sides straight, but diverging towards basal half; prothoracic quotient 1.67 (i.e. wider nearer middle); and, unique to this female specimen, lacking smooth areas towards sides of pronotum. Prosternum flatter; base of process not arced, wider than holotype (widths procoxal cavity/base of process 2.80).

Meso- and metathorax: elytra slightly shorter (but also reach base of urosternite 1), broader, length/width 1.58; less dehiscent. Meso- and metathorax very similar to those of holotype, except: mesosternal declivity less abrupt; metasternum less tumid at center (lying slightly below level of metacoxae).

Abdomen: fusiform, wider than holotype; length urosternites 1-V: 1.25, 0.80, 0.75, 0.60, 0.8; V subconical and much longer; abdominal process exceptionally broad, giving urosternite I a conical appearance. Last visible tergite conical, elongate, weakly convex, rounded at apex.

Legs: slightly more robust and shorter than in male, ratio of length from front to hind leg 1.0:1.2:4.4; total body length/length of leg 3.6, 3.0, 0.8 respectively. Middle leg: femur 1.40 longer than tibia; length of femur/lateral width of clava 4.00; clava 2.10 longer than peduncle. Hind leg: slightly shorter (10.90 mm); clava more abrupt and shorter (but apex also passes abdomen at base of clava); peduncle longer (lengths clava/peduncle 0.30); femur hardly longer than tibia (lengths femur/tibia 1.02); tibia weakly arched (when viewed from the side); tarsus 3.92 shorter than tibia; metatarsomere I wider, 1.30 longer than lengths of II+III; II distinctly trapezoidal.

Color variation in females. General color: one as male holotype; four more like allotype, but with pale chestnut head and prothorax (Fig. 3); two intermediate; and one as allotype. Of the eight paratypes, none with base of femoral peduncle yellow; and five have sepia colored brushes on metatibiae.

Diagnosis. The specific epithet of *Phygopoda longiscopifera* provides its most obvious diagnostic, with its setal brush being nearly as long as the metatibia, while never longer than two-thirds of tibia in other species of the genus.

Species sample data.

Measurements (mm): 23 males, 9 females: total length 5.6-7.4/7.9-9.25; length of pronotum 0.95-1.30/1.30-1.50; width of pronotum 0.80-1.05/1.15-1.30; length of elytra 1.50-1.95/1.95-2.25; width at humeri 0.85-1.15/1.20-1.50.

Type material: Holotype male, BOLIVIA, *Santa Cruz*, Hotel Flora and Fauna, 5 km SSE of Buena Vista, 17°29'96"S/63°39'13"W, 440 m, on/flying to flowers of "Barbasquillo", 19.VIII.2005 (MNKM).

Paratypes with same data as holotype: male and female, 14-19.X.2003 Clarke and Zamalloa col. (ACMT); male, 14-17.X.2003/Morris, Nearn, Wappes. (RFMC); male and 2 females, 2.VIII.2005, Clarke and Zamalloa col. (ACMT); male, 2-4.VIII.2005 (RCSZ); same data (BMNH); male, 2-4.VIII.2005 (EMEC); same data (CMNH); 2 females, 16-17.VIII.2005 (RCSZ); male and female, 20-22.VIII.2005 (MZSP); 4 males, 27-29.VIII.2005 (RCSZ); male and female, 4.IX.2005 (ACMT); 2 males, 28.IX.2005 (RCSZ); 2 males, 1.VIII.2007 (RCSZ); female, 8.VIII.2007 (RCSZ).

Paratypes with same locality as holotype, different host flower: on flying to flowers of "turere", male 9.X.2005 (RCSZ). On/flying to flowers of "Sama blanca chica", male, 13.X.2005 (RCSZ); male, 20.X.2005 (RCSZ); male, 14.IX.2007 (USNM). On/flying to flowers of *Mangifera indica*, male, 16.VII.2007 (RCSZ). On/flying to flowers of "Ramoneo", male and 2 females, 13-14.VIII.2008 (RCSZ).

Paratypes with different data from holotype: 17°27'S/63°43'W, 400 m, 5 km W Buena Vista, 1 km W Candelaria, flying to/on flowers of "Gomphrena", male, 15.VIII.2007 (NMNH), male, 11.VII.2008 (RCSZ).); male and 2 females, Cochabamba, 1 km E. of Villa Tunari, E. Giesbert col. (FSCA).

Etymology. This species is named for its unusually long brush (Latin "scopa") on the metatibia.

Phygopoda boliviensis sp. nov.

Fig. 4

Holotype. Male: 7.60 mm. Deposited at MNKM. Female not known.

Description of holotype (Fig. 4). Forebody 1.25 longer than abdomen. Prothorax subcylindrical, 1.14 wider than head with eyes.

Surface features. Color: body black, prothorax suffused with chestnut towards sides of pronotum, part of prosternum and abdomen. Labial and maxillary palpomeres chestnut. Elytra dark chestnut, humeri paler, large translucent panels testaceous olive. Antennae black basally, rest brownish. Legs generally dark chestnut; basal third of metafemoral peduncles and extreme apex of metatibiae yellow; metatarsi ochreous-yellow (apex of onychia chestnut). **Pubescence:** abdomen sparsely pubescent mesally; denser on underside of pro- and mesofemora; on metatibiae densely setose for apical two-thirds, to form moderately wide, black and sepia-colored brushes; metatarsus clothed with creamy-yellow pu-

bescence. **Puncturation:** punctures on translucent panels of elytra moderately large and almost uniformly separated by slightly more than their diameter; on center of metasternum becoming rugose; on abdomen almost uniformly small, sparse, shallow and beveled.

Structure. Head: rostrum wide, moderately long (width/length 2.80), sides parallel. Clypeus narrow, declivous across center, on lower plane than labrum and separated from it by raised border; but almost coplanar with frons. Frons moderately short and slightly depressed; frontal suture almost evanescent, just traceable to hind margin of eyes. Inferior lobes 1.30 longer than wide; width of one lobe/interocular distance 10.00. Superior lobes of eyes narrow (*ca.* 0.15 mm wide medially, narrowed to *ca.* 0.10 mm laterally); with about 9 rows of ommatidia medially, 7 rows laterally; and separated by about 2.67 times their own width. Antennal tubercles separated by 3.33 width of scape.

Antennae: apex reaching apex of urosternite II and passing apex of elytra towards base of antennomere VII; IX-X subcylindrical, hardly serrate; XI sub-ovate. Lengths (mm) antennal segments as follows: scape 0.45, pedicel 0.20, III 0.65, IV 0.45, V 0.60, VI-VII 0.55, VIII 0.45, IX 0.40, X 0.35, XI 0.40.

Prothorax: elongate, 1.40 mm, 1.17 longer than wide; sides slightly sinuate for apical half, widest behind middle, prothoracic quotient 1.65. Prosternum declivous across apical third, sloping to base of prosternal process. Prosternal process arched; base of process sub-laminate (*ca.* 0.10 mm), about 3.5 times narrower than procoxal cavities; apex of process a moderately large, flat, equilateral triangle with apical margin arched inwards (but details partially hidden).

Mesothorax: Elytra: length 1.90 mm, 1.52 longer than wide (1.25 mm); humeri not wide enough to hide sides of meso- and metasterna; towards apex surface with slight transverse declivity. Mesosternum: width of mesocoxal cavity 2.67 wider than base of mesosternal process. Length of mesosternum/length of metasternum 0.60.

Metathorax: width 1.4 mm, body length/width metathorax 5.43; strongly rounded at sides to middle of metasternal apex. Metasternum convex, hardly tumid at center; longitudinal suture narrow, not deep, reaching base of metasternal process.

Abdomen: relatively short; convex; urosternites I-IV widest (0.83 mm) at middle of III, narrowest (0.75 mm) at apex of IV. Urosternite I elongate (0.8 mm); II (0.60 mm) sides slightly rounded; III (0.60 mm) sides rounded; IV (0.60 mm) sides straight. Urosternite V (0.45 mm) trapezoidal, transverse, convex; sides sharply pointed, and the same when viewed laterally. Apical tergite flattish.

Legs: ratio length front/middle/hind leg 1.0:1.2:4.1; and body length/length of leg 2.7, 2.3, 0.6 respectively. Front and middle legs moderately robust, rather long; profemoral clave widest at middle, mesofemoral clave widest towards apex (when viewed from above). Front leg: tibia gradually widening to apex; apico-lateral margin toothed. Middle leg: femur 1.73 longer than tibia; length of femur/lateral width of clave 3.67. Hind leg: length 11.80 mm; clave comparatively long and abrupt; lengths clave/peduncle 0.49; tibiae and femora equal in length; tibia straight (when viewed from above), bisinuate (when viewed from the side); tarsus short (1.45 mm), less than one third length of tibia, and narrower than apex of latter; metatarsomere I pediculate at base, parallel-sided to apex, 1.30 longer than lengths of II+III.

Diagnosis. Metatibial brushes wide, covering apical two-thirds of tibia (in *P. longiscopifera* brushes narrower and longer; in *P. chaquensis* metatibia without true brush).

Species sample data.

Measurements (mm): 1 male: total length 7.6; length of pronotum 1.4; width of pronotum 1.2; length of elytra 1.90; width at humeri 1.25.

Type material: Holotype male, BOLIVIA, *Santa Cruz*, Hotel Flora and Fauna, 5 km SSE of Buena Vista, 17°29'96"S/63°39'13"W, 440 m, on/flying to flowers of "Sama blanca", 12.XI.2005 (MNKM).

Etymology. The specific epithet, “boliviensis”, simply means “from Bolivia” in Latin.

***Phygopoda chaquensis* sp. nov.**

Fig. 5, 6

Holotype. Male: 6.20 mm. Deposited at MNKM.

Description of holotype (Fig. 5). Small. Forebody and abdomen of equal length. Prothorax subcylindrical, 1.13 wider than head with eyes.

Surface features. Color: forebody and sides of abdomen black, rest of abdomen dark chestnut. Labial and maxillary palpomeres chestnut. Elytra chestnut, with all margins darker (and elytral apex chestnut); but humeri paler and large translucent panels dark testaceous. Antennae chestnut basally, rest browner. Legs generally chestnut (including all tarsi); front and middle legs, and basal half of metafemoral peduncle paler; rest of metafemoral peduncle and lateral surface of mesofemoral clava darker; metatibiae (and its setae) almost black; metatarsal setae chestnut. **Pubescence:** away from midline especially dense on abdomen; dense on underside of pro- and mesofemora; metatibial setae short, moderately sparse and only denser for apical fifth (but not thick enough to be called a brush). **Puncturation:** punctures on translucent panels small, and separated by slightly more, to three times their diameter; on center of metasternum shallow and not rugose; on abdomen dense at base of each segment and towards sides of each one (in places deeper and strongly beveled), towards midline sparse.

Structure. Head: rostrum moderately long and wide (width/length 3.00). Clypeus narrow, flat, on lower plane than labrum and separated from it by raised border. Frons moderately short, transversely depressed; frontal suture eliminated by dense punctures. Inferior lobes 1.18 longer than wide; width of one lobe/interocular distance about 5.70. Superior lobes of eyes narrow (*ca.* 0.10 mm wide medially, slightly narrowed laterally); with about 7 rows of ommatidia medially, 6 laterally; and separated by 3.00 times their own width. Antennal tubercles separated by 2.33 width of scape. **Antennae:** apex reaching middle of urosternite II and passing apex of elytra towards apex of antennomere VII. Scape nearly cylindrical with weakly bent base (when viewed laterally). Lengths (mm) antennal segments as follows: scape 0.45, pedicel 0.20, III 0.55, IV 0.45, V-VI 0.55, VII 0.50, VIII 0.40, IX 0.35, X 0.30, XI 0.40.

Prothorax: length 1.25 mm, 1.09 longer than wide; sides slightly sinuate for apical half, widest behind middle (prothoracic quotient 1.67). Prosternum declivous across apical fifth, nearly flat to base of prosternal process. Prosternal process: flat; base sub-laminate (*ca.* 0.10 mm), about 3.0 times narrower than procoxal cavities; apex of process a moderately small, flat, equilateral triangle (but details partially hidden).

Mesothorax: elytral length 1.70 mm, 1.55 longer than wide (1.10 mm); humeri wide enough to hide sides of mesothorax; towards apex surface with slight transverse declivity. Mesosternum: width of mesocoxal cavity 2.00 times wider than base of mesosternal process. Length of mesosternum/length of metasternum 0.70.

Metathorax: width 1.2 mm, body length/width metathorax about 5.0; moderately rounded at sides, oblique to middle of metasternal apex. Metasternum convex, moderately tumid at center; longitudinal suture represented by shallow stria basally, ending in small oval depression towards apex.

Abdomen: somewhat more fusiform; relatively short; convex; urosternites I-IV widest (0.85 mm) at middle of III, narrowest (0.65 mm) at apex of IV. Urosternite I slightly elongate (0.95 mm), sides straight; II and III (0.60 mm), II sides almost straight, III sides weakly rounded, IV (0.50 mm) sides weakly rounded. Urosternite V (0.35 mm) trapezoidal, transverse; sides sharply pointed (and the same when viewed laterally). Abdominal process a large, wide isosceles triangle (with broad apex) coplanar with abdomen. Apical tergite convex.

Legs: ratio length front/middle/hind leg 1.0:1.1:3.4; and body length/length of leg 2.6, 2.4, 0.8 respectively. Front and middle legs: moderately slender, front leg rather long; their claws somewhat tumid mesally and widest at middle (when viewed from above). Front leg: tibia gradually widening to apex; apico-lateral margin not toothed. Middle leg: femur 1.60 longer than tibia; length of femur/lateral width of claw 4.00. Hind leg: length 8.25 mm; claw comparatively long and weakly abrupt; lengths claw/peduncle 0.49; femora (3.65 mm) 1.07 longer than tibiae (3.40 mm); tibia bisinuate (when viewed from above), almost straight (when viewed from the side); tarsus short (1.20 mm), about one third length of tibia, and narrower than apex of latter; metatarsomere I gradually widened to apex, 1.25 longer than lengths of II+III.

Male variation. Among the paratypes two have paler legs, about half have paler chestnut abdomens and antennae; and in two specimens elytral apices are pale chestnut; in one pronotum slightly chestnut; abdomen paler chestnut in two paratypes. Antennal variation: minor differences include V-VII may be equal in length; VI nearer filiform; VIII narrower at base and slightly more serrate; IX and X slightly more serrate. In two paratypes prothorax widest well behind middle (prothoracic quotient 1.38); in all paratypes sides of pronotum lack noticeable smooth areas (as in other species), and one lacks any smooth interstices (as described for the holotype). Elytra: dehiscent for apical half; in half of the paratypes elytral punctures slightly larger and denser; in some elytra slightly narrower towards apex; in one apical margin more rounded. Small differences in proportions of abdomen are common; in one paratype it is narrow and cylindrical; lengths forebody/abdomen 0.95-1.09.

Description of female (Fig. 6). Female allotype differs from male holotype as follows: total length 7.60 mm. More robust than male. Lengths forebody/abdomen 0.78.

Surface features. Color: underside of prothorax and abdomen clouded chestnut; basal segments of antenna orange, apical ones dusker; apical half of metafemora, metatibiae (and its setae) and metatarsi blacker. **Surface ornamentation:** similar to holotype on dorsad; but generally less pubescent, noticeably so on underside (with longer pubescence much reduced on forebody); and less densely punctured on metathorax and abdomen. Pubescence on abdomen dense but shorter, fascia on sides of abdominal segments much broader; metatibiae more strongly setose, almost brush-like towards apex.

Structure. Head: narrower (widths head with eyes/prothorax 1.28). Rostrum longer (width/length 2.60). Inferior lobes of eyes considerably shorter and narrower (length 0.40 mm, width 0.33 mm); less convex (lying slightly below level of interocular); well separated (width interocular 0.25 mm, widths lobe/interocular 1.30). Superior lobes slightly wider, separated by about 2.67 width of lobes. Interocular flat, densely punctured; frontal suture reaching frons and antennal tubercles. Antennae more robust and slightly shorter, reaching basal third of urosternite III; only VII and VIII serrate (but weakly so); XI less elongate.

Prothorax: more elongate, 1.13 longer than wide; prothoracic quotient 1.63; and lacking smooth areas towards sides of pronotum. Prosternum almost completely flat (including base of process); widths procoxal cavity/base of process 3.50; apex of process triangular and transverse.

Meso- and metathorax: Elytra slightly shorter (length/width 1.50) only reaching middle of metacoxae; less dehiscent; humeri hardly hide mesepimerum. Meso- and metathorax very similar to those of holotype, except: mesosternal declivity less abrupt; widths mesosternal process/coxal cavity 2.33; metathorax almost parallel-sided (body length/width metathorax 5.6).

Abdomen: more fusiform and convex, wider than holotype; length urosternites 1-V: 2.3, 1.6, 1.5, 1.2, 1.6), V conical and much longer. Last visible tergite conical, elongate, weakly convex, rounded at apex.

Legs: slightly more robust and longer than in male, ratio of length from front to hind leg 1.0:1.2:4.1; body length/length of leg 3.8, 3.1, 0.8 respectively. Middle leg: femur 1.42 longer than tibia; length of femur/lateral width of claw 4.50; claw 1.70 longer than peduncle. Hind leg: longer (9.55 mm) than in

male, clava more abrupt and shorter (with longer abdomen base of clava passes middle of urosternite V); peduncle longer (lengths clava/peduncle 0.43); femur distinctly longer than tibia (lengths femur/tibia 1.20); tibia straight (when viewed from the side); tarsus 3.17 shorter than tibia; metatarsomere I narrower and more cylindrical than in male, but also 1.25 longer than lengths of II+III.

Color variation in females. The single paratype varies from the allotype by the following: antennae as in holotype; disc of pronotum clouded chestnut; apices of elytra black; abdomen pale chestnut; hind leg with femoral clavae and tarsi chestnut.

Diagnosis. Lack of distinct brush on metatibia (especially in males); inferior lobes of eyes in males less contiguous; abdomen densely pubescent (in males long and erect, in female shorter and less erect). Chaco forest species.

Species sample data.

Measurements (mm): 13 males, 2 females: total length 5.4-6.9/7.4-7.6; length of pronotum 0.90-1.25/1.25-1.40; width of pronotum 0.80-1.05/1.10-1.15; length of elytra 1.40-1.70/1.75-1.80; width at humeri 0.85-1.05/1.10-1.20.

Type material: Holotype male, BOLIVIA, *Tarija*, 4 km W Villamontes, 2 km S Puente Usterez, west bank of Rio Pilcomayo, 21°16'S/63°27'W, 366 m, flying to/on flowers of *Croton* sp. A, 12.XII.2011, Clarke and Zamalloa col. (MNKM).

Paratypes with same data as holotype: male, 12.XII.2011 (RCSZ); same data (MZSP); same data (EMEC); same data (CMNH); same data (BMNH).

Paratypes with different data from holotype: *Santa Cruz*, Prov. Cordillera, road to Itai, 83 km N Camiri, 19°20.547S/63°28.870W, 890 m, male 17.XII.2011, S. Lingafelter col. (SLPC); 24 km S Camiri, 20°12.0'S/63°28.4'W, 885 m, on *Croton* flowers, male, 18.XII.2011, S. Lingafelter col. (SLPC); same data, 2 males, Wappes and Lingafelter col. (ACMT).

Tarija, G. Chaco Rd to Tarija, 22 Km W Villamontes, 21°15'S/63°34'W, 3 males, 13-15.XII.2011, Wappes, Bonasso and Morris (ACMT); same data, male (RFMC); same data, female (RCSZ).

Etymology. The specific epithet, “chaquensis”, simply means “from the Chaco” in Latin.

Key to the species of Bolivian *Phygopoda*

1. Metatibia with distinct brush; abdomen with sparse, long setae; in males, inferior lobes of eyes contiguous; Amazonian Forest **2**
- Metatibia without distinct brush; abdomen with dense, long setae; in males, inferior lobes of eyes subcontiguous (Fig. 5, 6); Chaco Forest ***Phygopoda chaquensis* sp. nov.**
2. Metatibial brushes wide, covering apical two-thirds of tibia; in male, basal third of metafemoral peduncle yellow (Fig. 4) ***Phygopoda boliviensis* sp. nov.**
- Metatibial brushes narrow, covering more than apical two-thirds of tibia; in male, basal third of metafemoral peduncle rarely yellow (Fig. 1-3) ***Phygopoda longiscopifera* sp. nov.**

***Phygopoides maxwelli* sp. nov.**

Fig. 7-10

Holotype. Male: 11.15 mm. Deposited at MNKM.

Description of holotype (Fig. 7). Moderately robust species. Forebody 1.20 longer than abdomen. Prothorax subcylindrical, 1.13 wider than head with eyes.

Surface features. Color: body almost entirely black. Labial palpomeres pale chestnut, maxillary palpomeres yellow. Elytra with small, testaceous-olive translucent panels. Apical half of antennae dark brown. Legs almost entirely dark chestnut, tibiae and tarsi blacker; but metatarsus yellow (base of metatarsomere I and apex of onychium black). **Pubescence:** pronotum, base of elytra and underside of head liberally clothed with long erect hairs, on underside long hairs reduced to metasternum and metepisternum. Dense, recumbent, silver-colored pubescence on the following: frons, center of prosternum (spreading to extreme sides of pronotum), most of meso- and metathorax and abdomen. Legs generally lacking noticeable pubescence; except metatibiae (densely setose for apical two-thirds, to form narrow, black brushes) and metatarsus (densely clothed with long, pale yellow hairs). Antennal scape almost glabrous; antennomeres III-V finely pubescent (below with fringe of longer setae on apex of III and most of IV-VI); VII-XI somewhat tomentose. **Puncturation:** on dorsad generally dense and alveolate; small on head, largest on base of elytra and sides of pronotum (the latter with small impunctate area anteriorly); along base of labrum row of simple punctures; elytra entirely dense (at base becoming rugose and beveled), except on translucent panels (smaller and sparse, separated by slightly more than their diameter), and separated by smooth surface of humero-apical costa. Underside of head with mixture of small and larger, alveolate punctures lodged between dense carinas across mentum-submentum. Underside of forebody: different on each thoracic segment as follows: prosternum sub-carinate with dense, relatively large, alveolate punctures embedded in matrix of micropunctures; mesosternum almost entirely micropunctate; metasternum micropunctate basally, towards apex and sides mixed with scattering of shallow, small and slightly larger punctures (without beveling). Surface of abdomen entirely micropunctate (especially towards sides), with very small, non-alveolate, shallow punctures on: urosternite I sparse, II-IV moderately dense, V dense and beveled.

Structure. Head: rostrum long (width/length 2.10), sides parallel. Mentum-submentum represented by well demarcated quadrangle area. Labial and maxillary palpomeres cylindrical, moderately long, truncate at apex; galea long and narrow, lacinia short and broad. Labrum moderately large, about half as long as wide, front margin hardly emarginate and weakly declivous. Clypeus narrow, on higher plane than labrum and frons and separated from them by transverse depressions. Frons long, hardly convex, with distinct depression at midline; frontal suture not deep, exceptionally narrow, just traceable from base of frons to antennal tubercles. Inferior lobes of eyes large; 1.13 longer than wide; front margins lying on frons; strongly convex laterally, medially slightly more prominent than interocular (which, itself appears to be abruptly raised); contiguous (width of one lobe/interocular distance 15.00); hind margins almost transverse. Superior lobes of eyes narrow (*ca.* 0.20 mm wide medially, narrowed to *ca.* 0.15 mm laterally); with about 9 rows of ommatidia medially, 7 rows laterally; and separated by twice their own width. Antennal tubercles prominent; slightly rounded at apex; approximate (separated by 1.67 width of scape). **Antennae:** moderately long, apex reaching apical third of urosternite II and passing apex of elytra at middle of antennomere VIII. Scape subpyriform with weakly bent base (when viewed laterally); pedicel cylindrical. Antennomeres III-V filiform, VI weakly widened to apex and serrate, VII-X strongly widened to apex and serrate, weakly clipped at apex (and even XI with modified serration); XI subovate, with moderately long acuminate cone. Lengths (mm) antennal segments as follows: scape 0.65, pedicel 0.25, III 1.00, IV 0.60, V-VI 0.85, VII 0.80, VIII-IX 0.70, X 0.55, XI 0.65.

Prothorax: elongate, 2.00 mm, 1.14 longer than wide; cylindrical, sides regularly rounded from apex to basal constriction. Sides widest at middle (prothoracic quotient 2.00). Surface of pronotum moderately convex; with pair of long, wide, lobate calli laterally (these abrupt along a curved line from midline to sides of pronotum, but hardly traceable to apical half of pronotum); apical constriction weak, but not obsolete; basal constriction narrow towards sides, strongly declivous adjacent to lateral calli, sloping towards pronotal disc between calli (and a singularly deep “puncture” would suggest it to be fossate); apical margin moderately wide, not strongly raised, 0.94 width of hind margin; hind angles slightly obtuse. Prosternum declivous across apical 1/4, distinctly sloping to base of prosternal process. Prosternal process arched; base of process almost laminate (*ca.* 0.1 mm), about six times narrower than procoxal cavities; apex of process a moderately large equilateral triangle with all side margins abruptly raised. Procoxae large and narrowly separated; procoxal cavities plugged laterally, firmly closed basally.

Mesothorax: scutellum scutiform, moderately long and narrow, densely clothed with silver-colored pubescence. Elytra cuneate, almost flat, rather short (2.55 mm), reaching base of urosternite I; 1.38 longer than wide; regularly narrowed to apex, laterally slightly arched, weakly fissate for apical half (leaving elytral apices slightly divergent and well separated). Humeri hardly projecting and weakly prominent; not wide enough to hide sides of meso- and metasterna. With evanescent humero-apical costa (represented by slightly raised, smooth line) running from behind humerus to apical fifth. Apex of elytron weakly lobate, broad, blunt, surface weakly convex. Mesosternum rather short, deep and nearly abrupt. Mesosternal process with nearly flat, narrow base (0.10 mm); at apex a small equilateral triangle, narrowly and deeply notched at middle of hind margin (giving it a bilobed appearance). Width of mesocoxal cavity six times wider than base of mesosternal process; cavities narrowly open to epimeron. Length of mesosternum/length of metasternum 0.67.

Metathorax: relatively long, moderately broad (2.0 mm), body length/width metathorax 5.60; strongly rounded at sides to middle of metasternal apex. Metasternum strongly tumid at center, about level with mesocoxae; longitudinal suture moderately deep, wide and long, reaching basal third of metasternum. Metepisternum wide, weakly convex; nearly parallel-sided, but narrowed to subacuminate apex.

Abdomen: subcylindrical, narrowed from base to apex; rather short; strongly convex; moderately broad, distinctly annulated (exceptionally and abruptly constricted between urosternites I and II); urosternites I-IV widest at apex of I (1.50 mm), narrowest at apex of IV (1.05 mm). Urosternite I slightly elongate (1.65 mm), sides well rounded (giving it a somewhat conical appearance); II (0.85 mm) cylindrical, transverse, weakly widening from base to apex, sides slightly rounded; III (0.85 mm) cylindrical, strongly transverse, widest at middle, sides rounded; IV (0.75 mm) trapezoidal, transverse, widest at base, sides nearly straight. Urosternite V (0.70 mm) trapezoidal, weakly transverse; apex with wide, but not deep, truncate excavation (sides sharply pointed, but viewed laterally with broad, rounded wings); surface lacking distinct soleate depression (represented by weak circular depression at center of apical half). Abdominal process an equilateral triangle, coplanar with abdomen, apex moderately acuminate. Apical tergite trapezoidal, wider than long, convex, apex rounded, passing apex of urosternite V.

Legs: ratio length front/middle/hind leg 1.0:1.2:3.8; and body length/length of leg 2.4, 2.0, 0.9 respectively. Front and middle legs moderately robust, long; femoral claws somewhat tumid mesally, and widest at middle (when viewed from above). Front leg: tibia narrow at base, gradually widening to apex; apico-lateral margin weakly oblique, not toothed. Middle leg: femur 1.25 longer than tibia; lengths femoral clava/peduncle 1.94; length of femur/lateral width of clava 3.57; tibia moderately slender, gradually widening to apex. Hind leg: noticeably slender, and long (13.15 mm); femora moderately pedunculate-clavate, clava fusiform, long, weakly abrupt, peduncle weakly flattened, narrow, long (lengths clava/peduncle 0.70); femoral apex passes abdomen at middle of clava; tibiae slightly longer than femora (lengths femur/tibia 0.89); tibia weakly bisinuate (when viewed from above and from the side), hardly thickened to apex; tarsus rather short, about 2/5 length of tibia, and not much narrower than apex of tibia; metatarsomere I robust, cylindrical, long, 1.44 longer than lengths of II+III; II base pediculate, short, weakly trapezoidal; lobes of metatarsomere III moderately large, wide and divergent.

Genitalia (Fig. 10). Aedeagus (dorsal aspect examined in situ): tegmen somewhat caliper-shaped, twisted and moderately chitinized; lateral lobes moderately long and narrow, about four times longer than wide, weakly divergent at base, towards apex abruptly diverging and narrowed to acuminate apex; the latter clothed with moderately dense, long, thick setae. Median lobe not visible.

Male variation. Color: of the 17 male paratypes two match the holotype (Fig. 7), eleven match the rufous form of the allotype (Fig. 8), and four are intermediates (black body parts and elytra becoming dark chestnut, antennae as holotype, legs hardly darker than rufous form). **Structure:** holotype is one of the largest male specimens; in smaller specimens, length of forebody (f) and abdomen (a) subequal (f/a 1.07). Rostrum may be slightly more transverse in smaller specimens (w/l 2.13), less so in largest ones (w/l 1.91); and sides of rostrum may be slightly excavate and divergent. Frontal suture even shorter in many paratypes. Antenna: apex may reach base of urosternite III, and may pass elytra at apex of

antennomere VII; VI a little more serrate; serration on XI stronger or weaker (but detectable in all paratypes), apical cone may be shorter and less acuminate. Prothorax: in general pronotal punctures larger in rufous forms; sides of pronotum may lack smooth areas; nearer quadrate in two paratypes (length/width 1.09), significantly longer in smallest paratype (l/w 1.20): in half the paratypes sides straight (or even slightly excavate) for apical half, and in two of these widest well behind middle (prothoracic quotient 1.50); paired lateral calli may be stronger or weaker, but present in all paratypes; apical constriction stronger in paratypes with excavate sides. Elytra: puncturation as holotype in nearly all paratypes (in one denser, in another larger on translucent panels); humero-apical costa strongest in holotype, in nearly all paratypes weaker (not prominent and areas with smooth interstices reduced), and in one absent; apical half weakly fissate in most paratypes, in few more fissate, in several simply dehiscent.

Description of female allotype (Fig. 9). Robust; total length 11.75 mm. Forebody 1.42 longer than abdomen. Prothorax subcylindrical, 1.27 wider than head with eyes.

Surface features. Color (Fig. 8): similar to rufous males; but slightly paler (forebody, pro- and mesofemora distinctly so). Other differences: scutellum, meso- and metathorax, and metatibiae chestnut or black (metatibiae different in colour, one black, one chestnut); abdomen dusky-rufous; antennal scape rufous, all antennomeres black; nearly all of metafemoral peduncle yellow. **Surface ornamentation:** distinctly less pubescent than male; head and prothorax almost glabrous; abdomen (with recumbent, silver pubescence much reduced on urosternite II, absent from apical segments). Metatibial brushes slightly stronger and longer than in males. Puncturation on dorsad and elytra as in males; reduced but not absent on underside.

Structure. Head: rostrum longer (width/length 1.92). Labrum significantly larger and more rectangular. Frons longer and flatter. Inferior lobes of eyes smaller (1.17 longer than wide); front margins closer to genae; less convex and flatter, about coplanar with interocular, the latter much wider than in males (width of one lobe/interocular distance 1.33). Superior lobes as in male; but separated by three times their width. Antennal tubercles further apart, separated by 2.17 width of scape. **Antennae:** about as long as male; apex reaching middle of urosternite II, and passing apex of elytra at middle of antennomere IX. Structure of antennomeres similar to males, but more robust, same ones serrate (including XI); III 1.38 longer than scape. Lengths (mm) antennal segments as follows: scape 0.80, pedicel 0.25, III 1.10, IV 0.65, V 0.95, VI 0.85, VII 0.80, VIII 0.75, IX 0.70, X 0.55, XI 0.65.

Prothorax: quadrate, length 2.10 mm; cylindrical, sides more rounded towards base, widest at middle (prothoracic quotient 2.10); calli slightly less tumid; apical constriction slightly stronger; apical and basal margins equally wide. Prosternum hardly declivous, coplanar with base of prosternal process. Prosternal process as male; but base 6.6 times narrower than procoxal cavities and apical triangle flat.

Mesothorax: scutellum larger and wider. Elytra slightly flatter and shorter (2.55 mm), not passing middle of metacoxae; 1.09 longer than wide, regularly narrowed to apex, laterally almost straight, somewhat fissate for apical 2/5ths (leaving elytral apices parallel to each other and well separated). Humero-apical costa ill defined. Apex of elytron broader and flatter. Mesosternum shorter; mesosternal process flat; base wider (3.5 times narrower than width of coxal cavity); apex bilobed (being more widely notched at apex, and sides more divergent than in male). Length of mesosternum/length of metasternum 0.73.

Metathorax: broader (2.2 mm), body length/width metathorax 5.22; sides as in male, but slightly less rounded. Metasternum less tumid than in male. Metepisternum more acuminate at apex.

Abdomen: strongly vespiform, broad, widest (2.15 mm) at middle of urosternite II; rather short; more strongly convex; less annulated (but constriction between urosternites I and II still apparent); urosternites I-IV narrowest at apex of IV (1.10 mm). Urosternite I very robust, broad, transverse (length 1.40 mm), and conical (with sides strongly rounded); II (1.00 mm) cylindrical, strongly transverse; III (0.9 mm) wide and trapezoidal; IV (0.70 mm) narrower and trapezoidal. Urosternite V (0.85 mm) conical moderately down-turned, apical margin subacuminate. Abdominal process exceptionally robust, base coplanar

with abdomen, apex broad and slightly up-turned. Apical tergite conical, elongate, flat, apex rounded (and just passing apex of urosternite V).

Legs: ratio length front/middle/hind leg 1.0:1.2:3.1; and body length/length of leg 2.4, 2.0, 0.8 respectively. Middle leg: femur 1.30 longer than tibia; length of femur/lateral width of clava 3.71. Hind leg: noticeably slender, and long (15.15 mm); pedunculate-clavate (lengths clava/peduncle 0.72); femoral apex passes abdomen before middle of clava; tibiae longer than femora (lengths femur/tibia 0.90), bisinuate (when viewed from above), straight and not thickened to apex (when viewed from the side); tarsus rather long, about 2/5 length of tibia; metatarsomere I less robust, 1.47 longer than lengths of II+III.

Color variation in females. Paratypes somewhat darker than allotype; forebody and elytra suffused with dark brown; meso- and metathorax dusker; antennae slightly paler (sepia); pro- and mesofemora darker (pale chestnut); metatibiae blacker. In one paratype abdomen similar to allotype, in the others mostly suffused with black. In one paratype metatibial brush as in allotype (black), in the others sepia.

Diagnosis. Males of *Phygopoides maxwelli* have both black and rufous forms (all males of *Phygopoides pradosiae* Peñaherrera-Leiva and Tavakilian, 2003, described from 16 specimens, are black).

This basic diagnostic cannot be validated for *Phygopoides talisiaphila* Peñaherrera-Leiva and Tavakilian, 2003 (described from one male and one female). However, in males of *P. maxwelli*, the antennal apex fails to reach apex of urosternite II; (in male *P. talisiaphila*, antennae reach IV); prosternal process six times narrower than width of procoxal cavity (in male *P. talisiaphila* four times narrower).

Females of *P. maxwelli* almost lack black color on body and legs (in both French Guiana species body is partly black and legs almost entirely so).

Species sample data.

Measurements (mm): 24 males, 4 females: total length 8.50-11.15/11.75-12.2; length of pronotum 1.50-2.00/2.10-2.25; width of pronotum 1.25-1.75/2.05-2.10; length of elytra 2.10-2.55/2.40-3.00; width at humeri 1.50-1.85/2.20-2.25.

Type material: Holotype male, BOLIVIA, *Santa Cruz*, Hotel Flora and Fauna, 5 km SSE of Buena Vista, 17°29'96"S/63°39'13"W, 440 m, on/flying to flowers of "Ramoneo", 13.VIII.2008 (MNKM).

Paratype with almost same data as holotype: male, 25.X.2000, R. F. Morris col. (RFMC); 2 males and female, 1-8. XI. 2002, J. Wappes col. (ACMT); male, 10-29.XI.2003. B. K. Dozier col. (FSCA); male, 14.VIII.2008 (RCSZ).

Paratypes with same data as holotype, but different host flowers: on/flying to flowers of "Sapaimosi chico", male, 1-10.XI.2002, S. W. Lingafelter col. (SLPC); on/flying to flowers of "Sapaimosi" male, 21.XII.2005 (EMEC); male, 28.VIII.2008 RCSZ). On/flying to flowers of "Sama blanca", male, 8.XII.2005 (RCSZ); female, 23.XI.2006 (BMNH); male, 27.XII.2007 (RCSZ). On/flying to flowers of "Sama blanca chica", 2 males, 21.X.2006 (RCSZ); male 21.IX.2009 (BMNH). On/flying to flowers of "Tutumillo espinoso", 4 males, 29.X.2006 (RCSZ); male, 31.X.2006 (NMNH); same data (CMNH); same data (MZSP); male and female (allotype), 22.XI.2007 (RCSZ); female, 23.XI.2009 (RCSZ); male, 24.XI.2009 (FSCA).

Distribution. The genus is a new Bolivian record; Monné (2016) registered it for Surinam, French Guiana and Brazil.

Etymology. This species is named after Maxwell Barclay (BMNH) for his public promotion of the importance of taxonomy; and his defense of the rights of the many private individuals who pioneered this science in the past, and still do so today.

Discussion. Over the years the author has published a number of taxonomic papers confirming the well understood link between geographical distribution and speciation. Briefly (and there may be exceptions), Rhinotragini species of the western Amazonian fauna are rarely conspecific with those of the eastern Amazonian fauna; and those from the "Guianas" and northern Brazil are more like each other than they are to those from southern Brazil. Species from the Chaco forests of north-western Argentina

and southern Bolivia are not conspecific with the Amazonian fauna of Bolivia, nor with the Amazonian/Cerrado/Mata Atlantica fauna of Brazil.

In this context, *P. fugax* Thomson, 1864 (probably described from “northern” Brazil) seems to have too big a distribution to be one species; GO, BA, MG, ES, RJ, SP (“northern” States) and PR, SC (“southern” States). For example, the metatibial brushes of my male and female from Espírito Santo (Baixo Guandu) look much more like *P. longiscopifera* than Thomson’s holotype (see Carelli and Monné’s Fig. 17) and the drawing by Carelli and Monné (Fig. 52).

In their list of specimens examined Carelli and Monné refer to seven male specimens from Baixo Guandu (collected at the same time by the same collector as mine). Close examination of the genitalia becomes a prerequisite to resolve whether or not specimens with an unusually wide distribution are conspecific.

Acknowledgments

Valuable assists by Esteban Abadie for a male specimen of *Neophygopoda exilis*; and David Skinner for forwarding the HD figures to Insecta Mundi editors.

Sincere gratitude to Insecta Mundi editors (David Plotkin and Michael Thomas) and my manuscript reviewers (James Wappes, San Antonio, TX and Donald Thomas, Weslaco, TX).

Many thanks to two plant experts, Michael Nee, Curator of the New York Botanical Gardens (ret.) for identifying the plants; and Señor Ruperto Vargas for providing their local names.

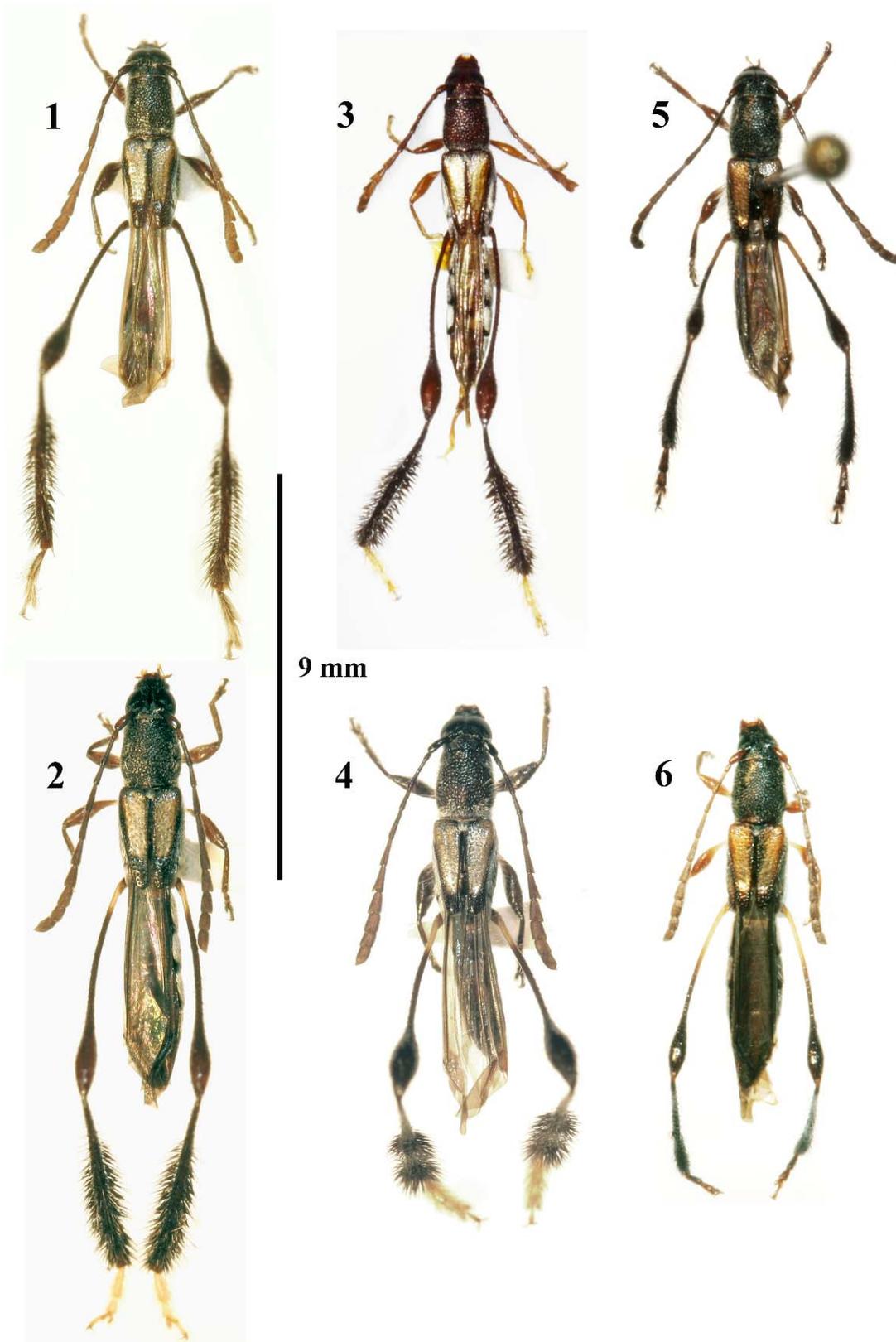
Lastly, special thanks to my wife, Sonia Zamalloa, for the many hours of help I have received from her in the field.

Literature Cited

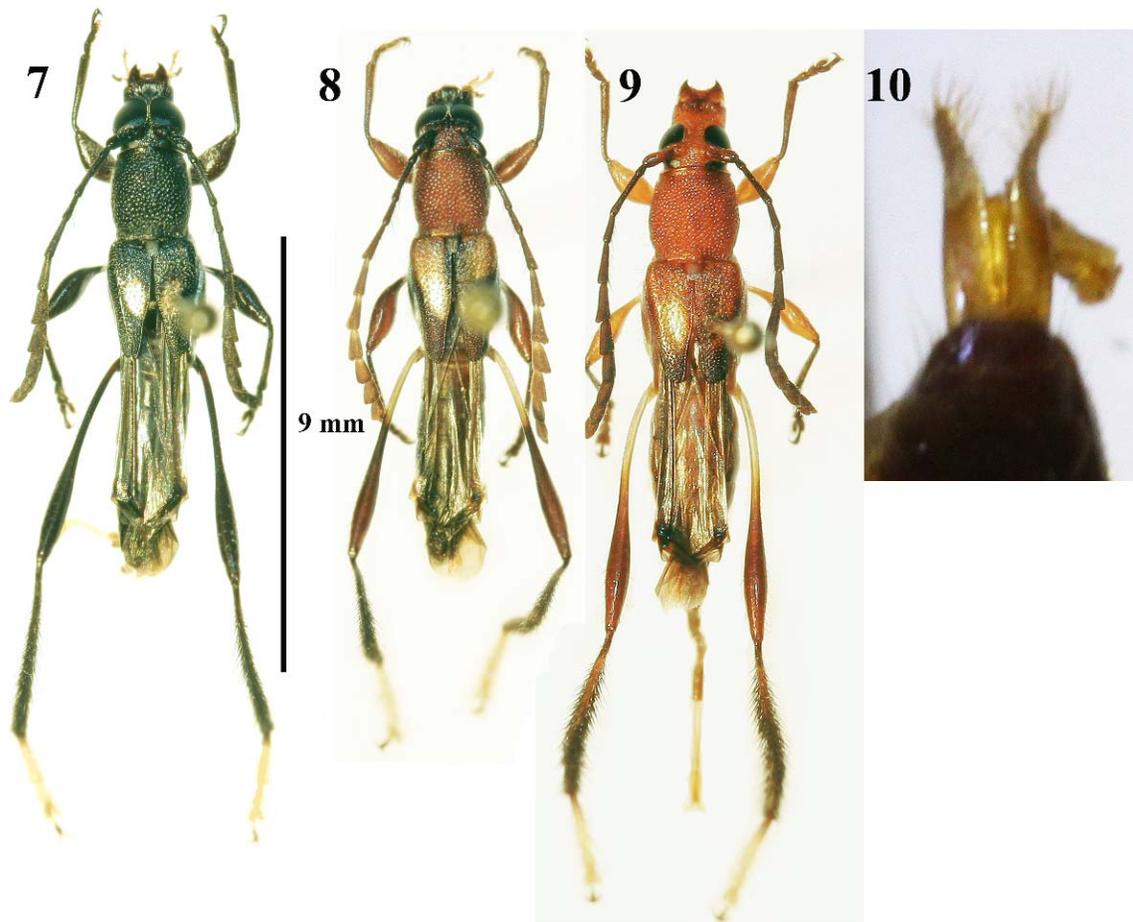
- Carelli, A., and M. Monné. 2015.** Taxonomic revision of *Phygopoda* Thomson, 1864 and *Pseudophygopoda* Tavakilian and Peñaherrera-Leiva, 2007 (Insecta: Coleoptera: Cerambycidae: Cerambycinae). *Zootaxa* 4021(2): 201-242.
- Clarke, R. O. S. 2015.** Revision of the genus *Acyphoderes* Audinet-Serville, 1833, with a brief synopsis of the genus *Bromiades* Thomson, 1864 (Coleoptera, Cerambycidae). *Insecta Mundi* 041: 1-92.
- Clarke, R. O. S. 2017.** Review of Carelli, A. and M.L. Monné, 2015. Taxonomic revision of *Phygopoda* Thomson, 1864 and *Pseudophygopoda* Tavakilian and Peñaherrera-Leiva, 2007 (Insecta: Coleoptera: Cerambycidae: Cerambycinae). *Insecta Mundi* 0567: 1-10.
- Monné, M. A. 2015.** Catalogue of the Cerambycidae (Coleoptera) of the Neotropical Region. Part I. Subfamily Cerambycinae. (Available at ~ <http://www.cerambyxcat.com/Part 1 Cerambycinae.pdf>, Last accessed February 2017).

Received May 27, 2017; Accepted July 13, 2017.

Review Editor Michael C. Thomas.



Figures 1-6. New species of *Phygopoda* Thomson, 1864. **Fig. 1-3.** *P. longiscopifera* **sp. nov.** 1) Male holotype. 2) Female allotype, black form. 3) Female paratype, rufous form. **Fig. 4.** *P. boliviensis* **sp. nov.**, male holotype. **Fig. 5-6.** *P. chaquensis* **sp. nov.** 5) Male holotype. 6) Female allotype.



Figures 7-10. *Phygopoides maxwelli* **sp. nov.** 7) Male holotype. 8) Male paratype, rufous form. 9) Female allotype, rufous form. 10) Genitalia male holotype, in situ, showing structure of tegmen.