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Revision of trachyderines related to *Sphaenothecus* from North America with description of three new genera, and new species of *Lophalia* Casey, 1912, *Mannophorus* LeConte, 1854, and *Ischnocnemis* Thomson, 1864 (Coleoptera: Cerambycidae: Cerambycinae: Trachyderini)

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# Revision of trachyderines related to *Sphaenothecus* from North America with description of three new genera, and new species of *Lophalia* Casey, 1912, *Mannophorus* LeConte, 1854, and *Ischnocnemis* Thomson, 1864 (Coleoptera: Cerambycidae: Cerambycinae: Trachyderini)

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**Abstract.** The genera *Lophalia* Casey, 1912, *Mannophorus* LeConte, 1854 and *Ischnocnemis* Thomas, 1864 (Coleoptera: Cerambycidae: Cerambycinae: Trachyderini) are recharacterized by providing additional morphological features to enhance the delineation of these genera. Two species *Lophalia cribricollis* Bates, 1892 and *Ischnocnemis luteicollis* (Bates, 1885) are transferred to a new genus *Lophaliamorpha* Eya with *Lophaliamorpha luteicollis* (Bates) **new combination** as the type species. *Ischnocnemis skillmani* Chemsak and Hovore, 2010 is transferred to a new genus *Paramannophorus* Eya with *Paramannophorus skillmani* (Chemsak and Hovore) **new combination** as the type species. A new genus *Microteroschema* is created to accommodate two additional species from Mexico: *Microteroschema parvum* Eya **new species** (Oaxaca and Chiapas) and *Microteroschema pseudolaetum* Eya **new species** (Chiapas) with *M. parvum* as the type species. Additional new species from Mexico include: *Lophalia nigricollis* Eya **new species** (Morelos and Michoacán), *Mannophorus tricostatus* Eya **new species** (Chiapas), *Ischnocnemis edmundi* Eya **new species** (Chiapas), and *Ischnocnemis brevis* Eya **new species** (Michoacán and Guerrero). Other **new combinations** include: three species previously included in *Neotaranomis* Chemsak and Linsley, 1982 (*N. australis*, Chemsak and Linsley, 1982, *N. sinaloae* Chemsak and Linsley, 1982 and *N. atropurpurea* Chemsak and Noguera, 2001) are transferred to *Cyphosterna* Chevrolat, 1862; *Lophalia auricomis* Chemsak and Linsley, 1979 is transferred to *Zalophia* Casey, 1912; and two species, *Chemsakiella virgulata* (Chemsak, 1987) and *Ischnocnemis minor* Bates, 1880 are transferred to *Mannophorus* LeConte, 1854. Furthermore, *Ischnocnemis virescens* Eya, 2010 is also transferred to *Mannophorus* as a **new combination** and **new subspecies** of *Mannophorus virgulata* (Chemsak). New synonymies include two species previously in *Ischnocnemis*, i.e., *I. cribellatus* (Bates, 1892), and *I. cyaneus* Bates, 1892 synonymized with *Mannophorus laetus* LeConte, 1854 and *I. caerulescens* Bates, 1885, respectively. A key to *Sphaenothecus*-like trachyderines, which includes all the above-mentioned genera, and keys to species of *Lophalia*, *Lophaliamorpha*, *Mannophorus*, *Ischnocnemis*, *Microteroschema*, and *Cyphosterna* are provided. Illustrations of the available species in color are included.

**Key words.** Identification key, Mexico, Central America, taxonomy.

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## Introduction

Currently, *Sphaenothecus* Dupont and genera that can be considered as *Sphaenothecus*-like trachyderines based on the previous designation (Bates 1880, 1885) or by association (Chemsak and Noguera 1998; Chemsak and Linsley 1982) consist of the following seven genera, which include thirty-five species: ***Sphaenothecus*** Dupont (*S. argenteus* Bates, *S. bilineatus* (Gory), *S. cylindricollis* (Casey), *S. facetus* Chemsak and Noguera, *S. maccartyi* Chemsak and Noguera, *S. picticornis* Bates, *S. toledo* Chemsak and Noguera, *S. trilineatus* Dupont, and *S. vandenberghaei* Wappes and Santo Silva); ***Zalophia*** Casey (*Z. funebris* (Bates)); ***Lophalia*** Casey (*L. auricomis* Chemsak and Linsley, *L. cavei* Chemsak and Hovore in Eya, *L. cribricollis* (Bates), *L. cyanicollis* (Dupont), *L. prolata* Chemsak and Linsley, and *L. quadrivittata* (Bates)); ***Ischnocnemis*** Thomson (*I. caerulescens* Bates, *I. costipennis* Thomson, *I.*

*cribellatus* (Bates), *I. cyaneus* Bates, *I. eyai* Chemsak and Noguera, *I. glabra* Chemsak and Linsley, *I. luteicollis* (Bates), *I. minor* Bates, *I. sexualis* Bates, *I. similis* Chemsak and Noguera, *I. skillmani* Chemsak and Hovore in Eya, *I. subviridis* Chemsak and Hovore in Eya, and *I. virescens* Eya); **Mannophorus** LeConte (*M. forreri* Bates, and *M. laetus* LeConte); **Cyphosterna** Chevrolat (*C. quadrilineatum* Chevrolat), and **Neotaranomis** Chemsak and Linsley (*N. sinaloae* Chemsak and Linsley, *N. australis* Chemsak and Linsley, and *N. atropurpurea* Chemsak and Noguera). According to Bates (1885: 329), the elevated prominent mesosternum “is the only constant character that distinguishes *Sphaenothecus* from *Ischnocnemis* and *Mannophorus*.” *Sphaenothecus* also relies on other characters such as “the vertical front of mesosternum, elongate scutellum, and short posterior tarsi” when compared to other genera such as *Entomosterna* Chevrolat (Bates 1880: 84) with non-protuberant mesosternum, short triangular or cordate scutellum, and elongated metatarsi. *Ischnocnemis* “is closely allied to *Mannophorus*” differing in the “greater length of the basal tarsomeres of the hind tarsi,” elongate body form and longer antennae (Bates 1880: 83). However, Bates notes that there are “no characters of sufficient importance to separate the” two, and if these genera are combined then *Mannophorus* will be the name with priority (Bates 1885: 328). *Mannophorus* has thorax that is broader and rounded or broadly tuberculate on sides with shorter antennae compared to *Ischnocnemis* with more elongate and narrower thorax (Bates 1885: 327). In 1912, Casey established the genera *Zalophia* and *Lophalia* based on the pronotum that is either broadly angulate to tuberculate or rounded on sides and differentiating these genera from *Sphaenothecus* with pronotum that is conical and tapered apically. Casey established *Lophalia* as a non-hirsute genus with slender antennae, and *Zalophia* as a hirsute genus with basally stout antennomeres (Casey 1912: 333). Chemsak and Linsley (1982: 71) introduced the genus *Neotaranomis*, which “bear a superficial resemblance to *Sphaenothecus*” but differing by “the broad, laterally excavated, and tuberculate pronotum.” Chemsak and Noguera (1998: 12) reviewed the genus *Sphaenothecus* Dupont, and subsequently synonymized *Zalophia spissicornis* Casey with *Sphaenothecus funebris* Bates as *Z. funebris* (Bates), and provisionally placed *Sphaenothecus cribellatus* Bates and *S. luteicollis* Bates into *Ischnocnemis* Thomson as new combinations. Also, *Taranomis bivittata* (Dupont) was synonymized with *Sphaenothecus* as *S. bivittatus* Dupont (or *S. bilineatus* (Gory) based on the original designation).

Since the above-mentioned species in the seven genera are differentiated by relatively few key characters such as the protuberance of mesosternal intercoxal process and shapes of the pronotum, each of the above species are studied more carefully to propose additional morphological characters so the species can be regrouped based on their intergeneric commonalities and differences to define each genus more adequately. By doing so the validity of current assignment or need of reassignment are determined. Recently, we have provisionally placed several species into *Ischnocnemis* without adequately evaluating the characteristics of this genus (Chemsak and Noguera 1998, and Chemsak and Hovore in Eya 2010). Also, while investigating these trachyderines, I have discovered that species placement into their respective genera cannot be adequately performed by reviewing a single genus at a time when the intergeneric differences are not sufficiently addressed. Therefore, several closely related genera are evaluated simultaneously for the placement of the species. As an example, examination of *Neotaranomis australis* Chemsak and Linsley indicates that this species is conspecific with *Cyphosterna quadrilineatum* Chevrolat; therefore, *N. australis* is synonymized with *C. quadrilineatum* (**new synonymy**). Two other species of *Neotaranomis* (i.e., *N. sinaloae* Chemsak and Linsley and *N. atropurpurea* Chemsak and Noguera) enter the genus *Cyphosterna* Chevrolat as *C. sinaloanum* (Chemsak and Linsley) **new combination**, and *C. atropurpureum* (Chemsak and Noguera) **new combination**. Also, while identifying and revising cerambycids from Mexico and Central America, subsequent arrival of interesting new species of *Lophalia* (i.e., *L. nigricollis* Eya, **new species**), *Mannophorus* (i.e., *M. tricostatus* Eya, **new species**), *Ischnocnemis* (i.e., *I. edmundi* Eya, **new species**, and *I. brevis* Eya, **new species**), and *Microteroschema* Eya **new genus** (i.e., *M. parvum* Eya, **new species**, and *M. pseudolaetum* Eya, **new species**) are discovered. Due to the unique nature of these species, descriptions are provided. The taxonomic changes proposed in this article, and new species introduced are summarized in Table 1. Furthermore, a key to genera and species of *Sphaenothecus*-like trachyderines and keys to species of *Lophalia*, *Lophaliomorpha*, *Mannophorus*, *Ischnocnemis*, *Microteroschema* and *Cyphosterna* are provided.

**Table 1.** Tabulation of proposed taxonomic changes.

<b>Proposed changes</b>	<b>Previous designations</b>
<b>New genera (gen. nov.)</b>	
<i>Lophaliomorpha</i> Eya, <b>gen. nov.</b>	<i>Sphaenothecus luteicollis</i> Bates, 1885; <i>Ischnocnemis luteicollis</i> Chemsak and Noguera 1998; <i>Sphenothecus cribricollis</i> Bates, 1892; <i>Lophalia cribricollis</i> Casey, 1912
<i>Microteroschema</i> Eya, <b>gen. nov.</b>	No previous designation
<i>Paramannophorus</i> Eya, <b>gen. nov.</b>	<i>Ischnocnemis skillmani</i> Chemsak and Hovore, 2010
<b>Revised combination with new genera</b>	
<i>Lophaliomorpha cribricollis</i> (Bates, 1892), <b>comb. nov.</b>	<i>Lophalia cribricollis</i> (Bates, 1892)
<i>Lophaliomorpha luteicollis</i> (Bates, 1885), <b>comb. nov.</b>	<i>Ischnocnemis luteicollis</i> (Bates, 1885)
<i>Paramannophorus skillmani</i> (Chemsak and Hovore, 2010), <b>comb. nov.</b>	<i>Ischnocnemis skillmani</i> Chemsak and Hovore, 2010
<b>New synonymy</b>	
<i>Cyphosterna</i> Chevrolat, 1862	<i>Neotaranomis</i> Chemsak and Linsley, 1982, <b>syn. nov.</b>
<i>Cyphosterna quadrilineatum</i> Chevrolat, 1862	<i>Neotaranomis australis</i> Chemsak and Linsley, 1982, <b>syn. nov.</b>
<i>Ischnocnemis caerulescens</i> Bates, 1885	<i>Ischnocnemis cyaneus</i> Bates, 1892, <b>syn. nov.</b>
<i>Mannophorus laetus</i> LeConte, 1854	<i>Sphenothecus cribellatus</i> Bates, 1892; <i>Ischnocnemis cribellatus</i> Chemsak and Noguera, 1998, <b>syn. nov.</b>
<b>Revised combination with existing genera</b>	
<i>Cyphosterna sinaloanum</i> (Chemsak and Linsley, 1982), <b>comb. nov.</b>	<i>Neotaranomis sinaloae</i> Chemsak and Linsley, 1982
<i>Cyphosterna atropurpureum</i> (Chemsak and Noguera, 2001), <b>comb. nov.</b>	<i>Neotaranomis atropurpurea</i> Chemsak and Noguera, 2001
<i>Mannophorus minor</i> (Bates, 1880), <b>comb. nov.</b>	<i>Ischnocnemis minor</i> Bates, 1880
<i>Mannophorus virgulata</i> (Chemsak, 1987), <b>comb. nov.</b>	<i>Linsleyella virgulata</i> Chemsak, 1987; <i>Chemsakiella virgulata</i> (Chemsak, 1987)
<i>Zalophia auricomis</i> (Chemsak and Linsley, 1979), <b>comb. nov.</b>	<i>Lophalia auricomis</i> Chemsak and Linsley, 1979
<b>Revised combination as new subspecies</b>	
<i>Mannophorus virgulata virescens</i> (Eya, 2010), <b>comb. nov. and sp. nov.</b>	<i>Ischnocnemis virescens</i> Eya, 2010
<b>New species (sp. nov.)</b>	
<i>Ischnocnemis brevis</i> Eya, <b>sp. nov.</b>	No previous designation
<i>Ischnocnemis edmundi</i> Eya, <b>sp. nov.</b>	No previous designation
<i>Lophalia nigricollis</i> Eya, <b>sp. nov.</b>	No previous designation
<i>Mannophorus tricostatus</i> Eya, <b>sp. nov.</b>	No previous designation
<i>Microteroschema parvum</i> Eya, <b>sp. nov.</b>	No previous designation
<i>Microteroschema pseudolaetum</i> Eya, <b>sp. nov.</b>	No previous designation

## Materials and Methods

Specimens from the following collections were examined and these acronyms are used throughout the manuscript:

- BKEC** (Bryan K. Eya Collection, Davis, CA, USA)  
**CASC** (California Academy of Science, San Francisco, CA, USA)  
**CSCA** (California State Collection of Arthropod, Sacramento, CA, USA)  
**DJHC** (Daniel J. Heffern Collection, Houston, TX, USA)  
**EMEC** (Essig Museum of Entomology, University of California, Berkeley, CA, USA)  
**FSCA** (Florida State Collection of Arthropods, Gainesville, FL, USA)  
**FWSC** (Fred W. Skillman Collection, Phoenix, AZ, USA)  
**LGBC** (Larry G. Bezark Entomological Collection, Sacramento, CA, USA)

This study was performed based on detailed examination of the external structures. To preserve the integrity of the borrowed materials, comparative morphological examination of the endoskeleton, wings, and terminalia were not performed. Articles by Hubweber and Schmitt (2006, 2010) should be consulted for a discussion concerning examination and use of genitalia for the taxonomy of this group of beetles. Each taxon name in this article is followed by author(s), publication year (if applicable), and new status (if applicable). In keys, figure captions, and table the new statuses are abbreviated as follows: **comb. nov.** (*combinatio nova* or new combination); **sp. nov.** (*species nova* or new species); and **syn. nov.** (*synonymy nova* or new synonymy). The parenthetical abbreviations following the page are as follows: biology (biol.); biological distribution (dist.); catalogue (cat.); host plant (host); lectotype (lect.); mimicry (mimi.), and synonymy (syn.). Also, the following three letter abbreviations for the country and two letter abbreviations for the state within the United States are used for the figure captions: Costa Rica (CRI); Guatemala (GTM); Honduras (HND); Mexico (MEX); Nicaragua (NIC); United States of America (USA); and Arizona (AZ) and Texas (TX).

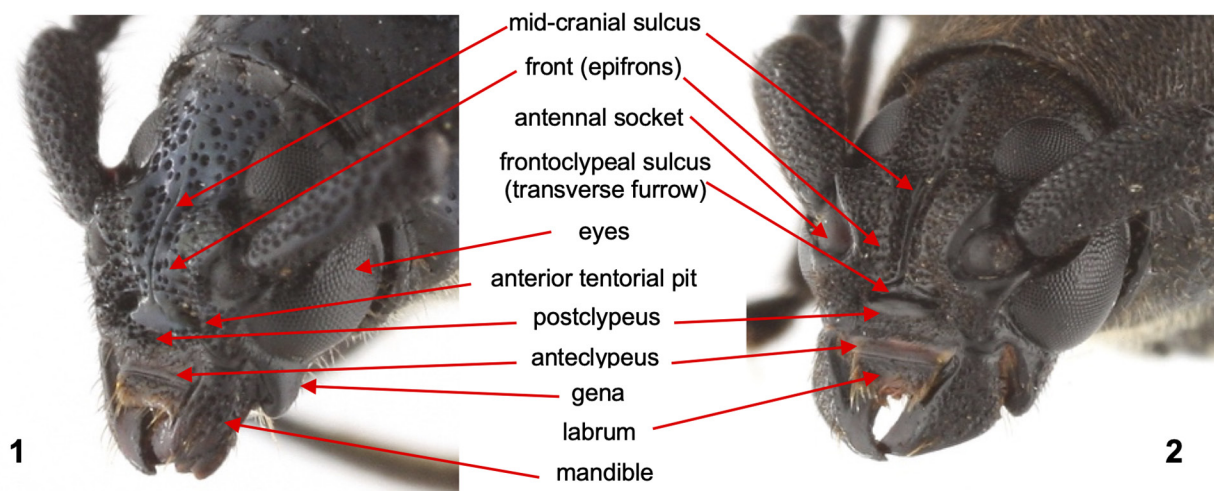
Photographs of the specimens were acquired using a Canon EOS 40D digital camera equipped with an EF 100 mm f/2.8 Macro USM lens or MP-E 65 mm f/2.8 Macro lens at a speed of 1/200 sec. aperture f/13 with Canon MT-24EX Macro Twin Lite Flash set at 1/8, 1/4 or 1/2 power using Kaiser Flash Shoes and Macrolite Adapter 72C mounted on a Beseler CS-14 copy stand. Each specimen was photographed on a layer of cotton placed on a unit tray as a background or was mounted on a Styrofoam microscope stage. Reference to photographs from a website (e.g., Bezark 2024) are provided with the identification number after the year in the following format: (Bezark 2024, id: #).

The information in the “Type Material” and “Material Examined” sections is provided in the following general order: 1) the country of origin; 2) name of province or state; 3) specific location where collected; 4) date as it appeared on each label; 5) name of collector(s); 6) number of male(s) and/or female(s) collected; 7) the abbreviation of collection where the specimen(s) was (were) procured; and 8) any serial number originally provided if found on the label. The data for each specimen examined were transcribed as they were found on each label when feasible.

The overall presentation style and terminologies used for the descriptions in this manuscript are as in Chemsak and Linsley (1982), Chemsak and Noguera (1998) and Hovore (1987). Additional or new morphological terms used include antennomeres and tarsomeres for antennal and tarsal segments, respectively. The terms hairs and setae are used interchangeably in descriptions of *Ischnocnemis glabra* Chemsak and Linsley (1988: 132), and *Ischnocnemis similis* Chemsak and Noguera (1997: 12). Herein, the terms seta or setae are used exclusively instead of hair or hairs. Front and frons are also used interchangeably to describe the forehead or the frontal area of head between the antennal sockets. As examples, the term “front” was used to describe the forehead for *Lophalia auricomis* Chemsak and Linsley (1979: 267), *Neotaranomis atropurpurea* Chemsak and Noguera (2001: 51), *Ischnocnemis glabra* Chemsak and Linsley (1988:132), and *Ischnocnemis similis* Chemsak and Noguera (1997:12) while “frons” was used in the descriptions of *Neotaranomis sinaloae* Chemsak and Linsley (1982: 71) and *Neotaranomis australis* Chemsak and Linsley (1982: 74). Also, “frons” was used instead of “front” by Eya (2021: 1–23) per request by a reviewer of this journal. Linsley and Chemsak (1984: 67) used both “front” and “frons” in the same line describing the head of *Monochamus clamator* (LeConte). Front and frons are defined as the same area of the head according to Torre-Bueno (1989). However, in this article the “front” is the “epifrons” (DuPorte 1960:

656, 670) or “the median region of the parietal, which bears the antennae” and a sclerite divided by a sulcus. This sulcus (i.e., groove or furrow) is called the “midcranial sulcus” by DuPorte (1960: 657) and Snodgrass (1947: 34) and is also referred to as the “midline” for *Ischnocnemis skillmani* Chemsak and Hovore *in*: Eya (2010: 7) or the “median line” in the description of *Deltaspis subopaca* Chemsak and Linsley (1982: 74). However, the midline (or the median line) on the vertex between the upper eye lobes is usually a carina or a ridge. The “midcranial sulcus” is referred to as the “mid-cranial sulcus” (Fig. 1–2) in this article until a consensus is reached amongst the Coleopterist for a suitable name for this groove on the front. According to DuPorte (1960: 656), “the parietal region includes the vertex, which forms the entire dorsal region of the face, and the genae, and the two lateral lobes that extend to the ventral margin.” In many coleoptera the frons is absent because the parietal region is expanded forward, and “the epifrons grow anteriorly at the expense of frons until later is almost or completely suppressed” (DuPorte 1960: 659, 666). The absence of frons is described and is illustrated as figures in DuPorte’s two examples of cerambycid cranial morphology (i.e., *Derobrachus* Audinet-Serville, and *Monochamus* Megerle (Dejean, 1821)). The apical region below the front where the integument is not divided by the mid-cranial sulcus is the clypeus (DuPorte 1960: 673, fig. 29). The distal portion of the clypeus that is membranous is the anteclypeus, and the proximal sclerotized area of clypeus is the postclypeus (Daniels 1938: 7). The sclerite at the distal margin of anteclypeus is the labrum. The postclypeus is the triangular-shaped sclerite demarcated from the front by a transverse furrow (frontoclypeal sulcus) radiating arcuately between the deep pits on either side of the front below the antennal insertion, which meets the mid-cranial sulcus in the middle. I think I am correct in referring to these deep pits, as described for *Ischnocnemis glabra* Chemsak and Linsley (1988:132), as the anterior tentorial pits. These “pits retain the primitive position at the level of the mouth lying against or in the frontoclypeal sulcus” (when present) as described by DuPorte (1960: 667). In Coleoptera with heavily sclerotized cranium, “the facial sulci are reduced or lost” in many species as in *Lophalia* (Fig. 1), where the frontoclypeal sulcus is almost absent (DuPorte 1960: 657). The anteclypeus is reduced to a narrow strip in *Lophalia* and is vaguely visible while in *Lophaliamorpha* it is more prominent (Fig. 2).

The nomenclatural codes formalized by the grammatical requirement of agreement in gender as provided in the ICZN [International Commission on Zoological Nomenclature] Article 31.2 (ICZN 2012) are followed for the new combinations of genus and species names as provided in this manuscript. A list of compound and primary words commonly used for species names, which can either be changeable or unchangeable depending on the gender of word ending is provided in the gender agreement in Zoological Nomenclature, user guide (Welter-Schultes 2012). This user guide lists the changeable (or gender dependent) species name endings in the order of masculine, feminine and neuter genders. As an example, genera *Lophalia*, *Zalophia*, and *Lophaliamorpha* are genus-group names with Latinized feminine ending, and *Ischnocnemis* is a name that ends in a Greek word



Figures 1–2. Topographical features of the frontoparietal region of *Sphaenothecus*-like trachyderines. 1) *Lophalia cyanicollis* (Dupont, 1838). 2) *Lophaliamorpha cribricollis* (Bates, 1892) **comb. nov.**

“-*cnemis* or “*kními*” (κνήμη), which is feminine. Therefore, the subsequent species names may have a feminized Latin ending such as *prolata* (-*lata*), *quadrivittata* (-*vittata*), and *glabra* (-*ra*). *Mannophorus* with a Latinized suffix “-*phorus*” is masculine genus name, and therefore, the subsequent species name may have a masculine species name such as *laetus*. Both feminine and masculine genus names can also have species names that are the third-declension two-termination adjectives such as *cyanicollis*, *nigricollis*, *luteicollis*, and *cribricollis* with an unchangeable ending (-*collis*) or third-declension two-termination adjectives that are changeable but are the same for both masculine and feminine gender such as *funebri*, *costipennis* (-*pennis*), *similis* or *sexualis* (-*is*) or third-declension one-termination adjectives that can be masculine, feminine, or neuter gender such as *caerulescens* and *virescens* (Wiktionary 2024). Furthermore, a genus name that is or ends in a Greek word will have a subsequent species name that ends in Latin or Latinized adjective, which agree with the generic name when combined, e.g., genus name *Cyphosterna*, with a “-*sterna*” ending that is gender neutral will be combined with a gender-neutral species name “*quadrilineatum*” that is converted from a feminine singular adjective “*quadrilineata*.” The definitive article “the” for the Greek nouns are different for each gender (i.e., masculine, feminine and neuter) as follows, “ο” masculine, “ἡ” feminine, and “το” neuter. An online resource (e.g., Verkerk 2024) that provides the definitive article for Greek genus name endings can be used to determine the gender of the Greek names.

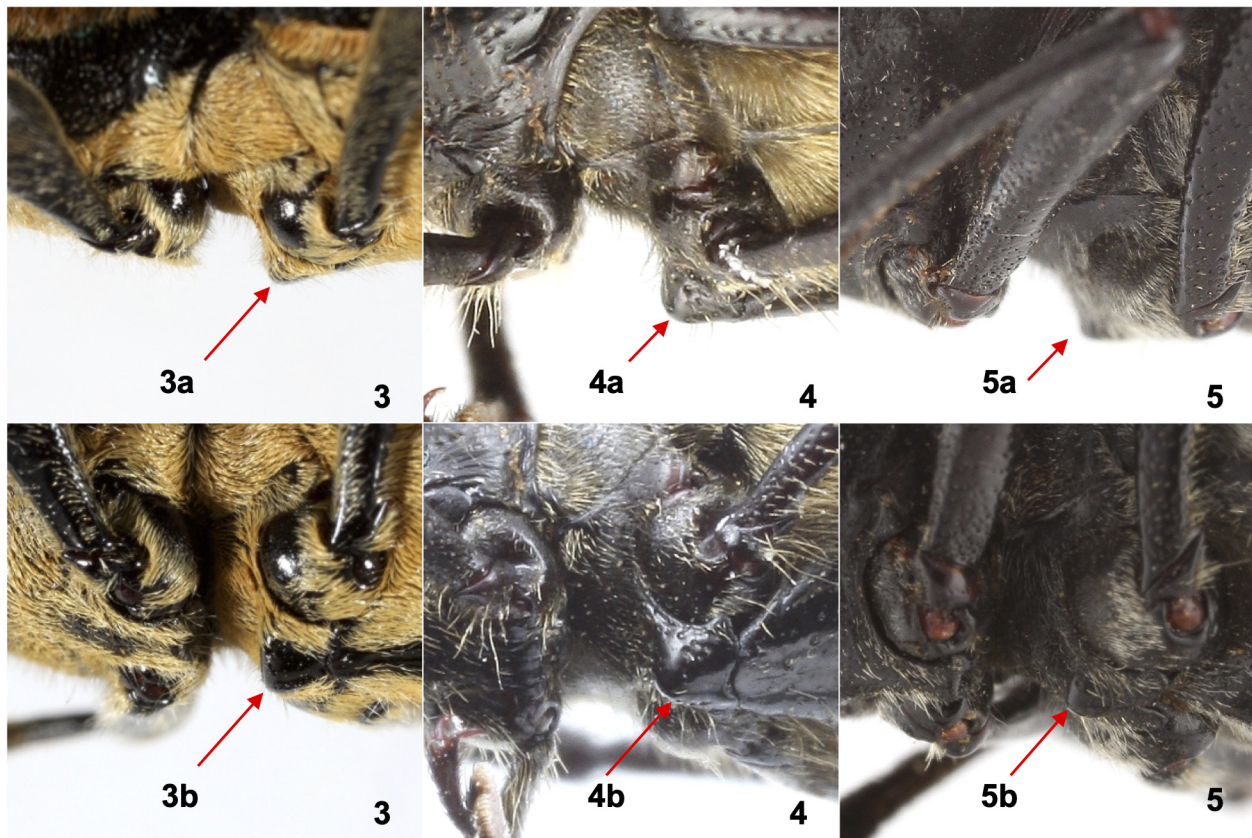
A brief description for the potential origin for the generic names used in this document are also included to properly assign the species name endings for each combination. Proper gender for the species names cannot be determined without an understanding of the origin of each generic name. As an example, a genus name ending in “-*a*” can either be feminine in Latin (e.g., *Zaloph*-“*ia*” Casey) or neuter gender in Greek (e.g., *Hydra*-“*schema*” Thomson). In many instances, the founding authors did not provide the etymology for the assigned generic names; therefore, the possible origin of the names are provided if not described by the original authors.

## Results

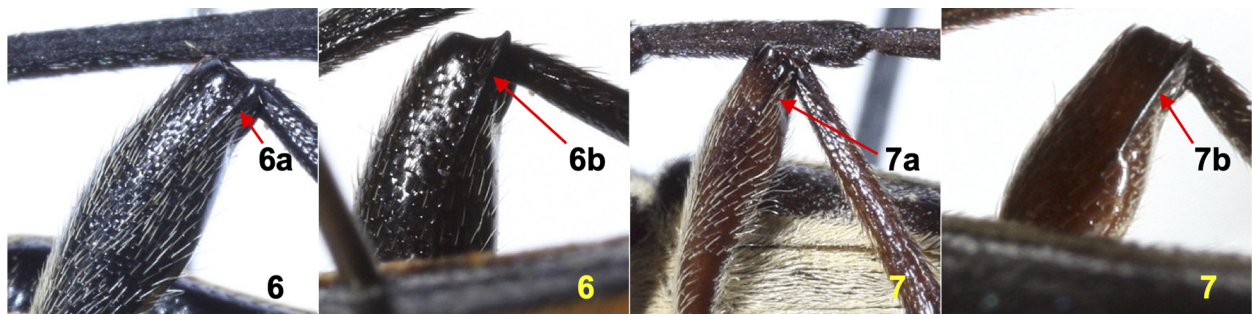
There are five genera of *Sphaenothecus*-like trachyderines, which shares the commonality of protuberant mesosternal process elevated above mesocoxae (Fig. 3–5) as in *Sphaenothecus* Dupont (i.e., *Cyphosterna* Chevrolat, *Zalophia* Casey, *Lophalia* Casey, *Lophaliomorpha* Eya **new genus** and *Neotaranomis* Chemsak and Linsley). A morphological character of *Sphaenothecus* that is not found in these five genera is the carinate apical region of mesofemora as described by Chemsak and Noguera (1998: 13). In all *Sphaenothecus* species the dorsal and ventral surfaces of the apical half of mesofemora are carinate (Fig. 6–7). Often the dorsum of mesofemora is more strongly carinate than the ventral surface. In some species the apices of metafemora (e.g., *S. bilineatus* (Gory) and *S. trilineatus* Dupont) or both pro- and metafemora are also carinate (e.g., *S. facetus* Chemsak and Noguera). This character is used in differentiating these five genera with protuberant mesosternum from *Sphaenothecus*.

There are few *Entomosterna*-like trachyderine genera such as *Axestoleus* Bates, *Entomosterna* Chevrolat, *Gambria* Chevrolat, *Gortonia* Hovore, and *Parathetesis* Linsley with apically carinate mesofemora (Fig. 8–11) with facies that are quite different from *Sphaenothecus*. These genera are grouped together and differentiated from other genera without carinae in the subsequent studies. The significance of carinate femora, whether it implies any phylogenetic affinity between genera or whether there is any functional purpose for the carinae for species with this character is uncertain. These five genera also have in common a front that is vertical and subquadrate with antennal insertion well separated from the base of mandible (Fig. 12–14). The front lacks the deep pits (i.e., anterior tentorial pits) and transverse excavation (frontoclypeal sulcus) above postclypeus, and the front is almost seamlessly fused with postclypeus or vaguely marked with narrow sulcus. Also, the genae are prominent, subquadrate, and obliquely inclined anteriorly or vertical. The front of *Sphaenothecus* and *Sphaenothecus*-like trachyderines is short, and vertical or declivous anteriorly (Fig. 15). In *Sphaenothecus* the antennal sockets lie very close to the base of mandibles near the frontoclypeal sulcus due to the “reduction in distance between the antennae and the clypeus” (DuPorte 1960: 659), and the postclypeus is usually more clearly demarcated from the front by an oblique transverse furrow (frontoclypeal sulcus). Also, the genae of *Sphaenothecus* and *Sphaenothecus*-like trachyderines are narrower and the anterior margin of lower eye lobes are closer to the base of mandibles. There are currently two published species that are placed in *Lophalia* and *Ischnocnemis* with carinate mesofemora with cranial morphology similar to the *Entomosterna*-like trachyderines, i.e., *Lophalia cavei* Chemsak and Hovore, and

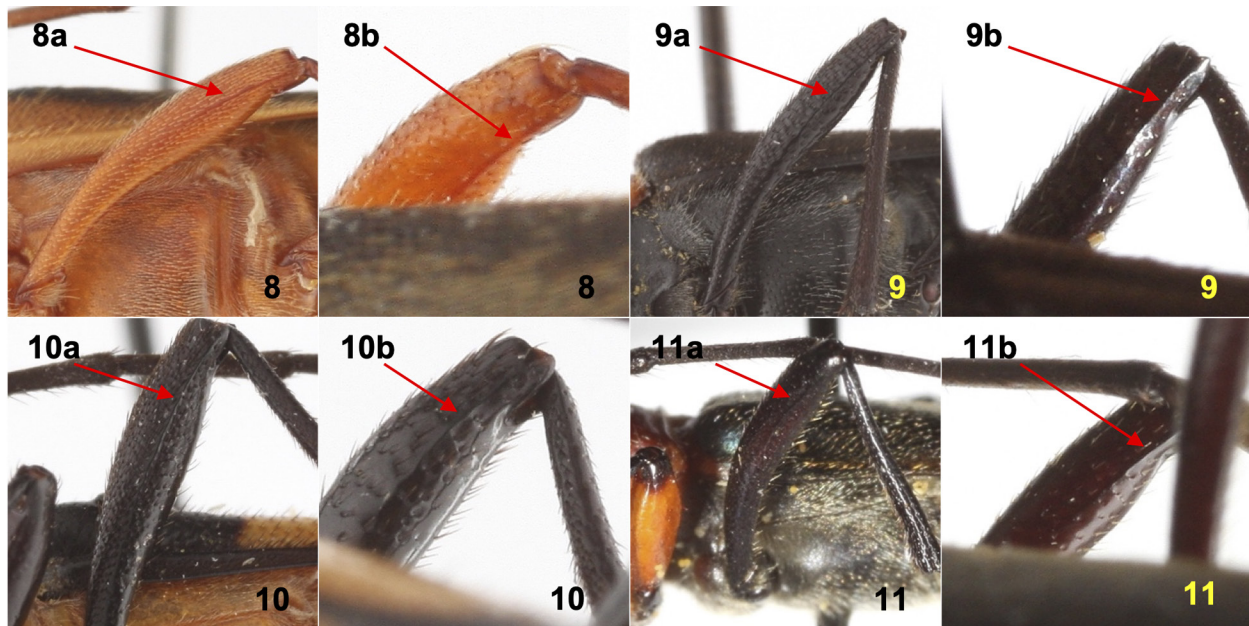




**Figures 3–5.** Mesosternal intercoxal process of *Sphaenothecus* and *Sphaenothecus*-like trachyderines. **3)** *Sphaenothecus trilineatus* Dupont (male). Lateral profile (**3a**), and lateral-tilted profile (**3b**) of *S. trilineatus* with mesosternal process elevated above mesocoxae and abruptly declivous anteriorly. **4)** *Zalophia auricomis* (Chemsak and Linsley, 1979) **comb. nov.** (male, holotype). Lateral profile (**4a**), and lateral-tilted profile (**4b**) of *Z. auricomis* with mesosternal process elevated above mesocoxae and abruptly declivous anteriorly. **5)** *Cyphosterna quadrilineatum* Chevrolat (male, paratype). Lateral profile (**5a**) and lateral-tilted profile (**5b**) of *C. quadrilineatum* with mesosternal process elevated above mesocoxae and abruptly declivous anteriorly.



**Figures 6–7.** *Sphaenothecus* with carinate apical half of mesofemora. **6)** *Sphaenothecus trilineatus* Dupont (male) with ventral carina (**6a**), and dorsal carina (**6b**). **7)** *Sphaenothecus facetus* Chemsak and Noguera (female) with ventral carina (**7a**), and dorsal carina (**7b**).



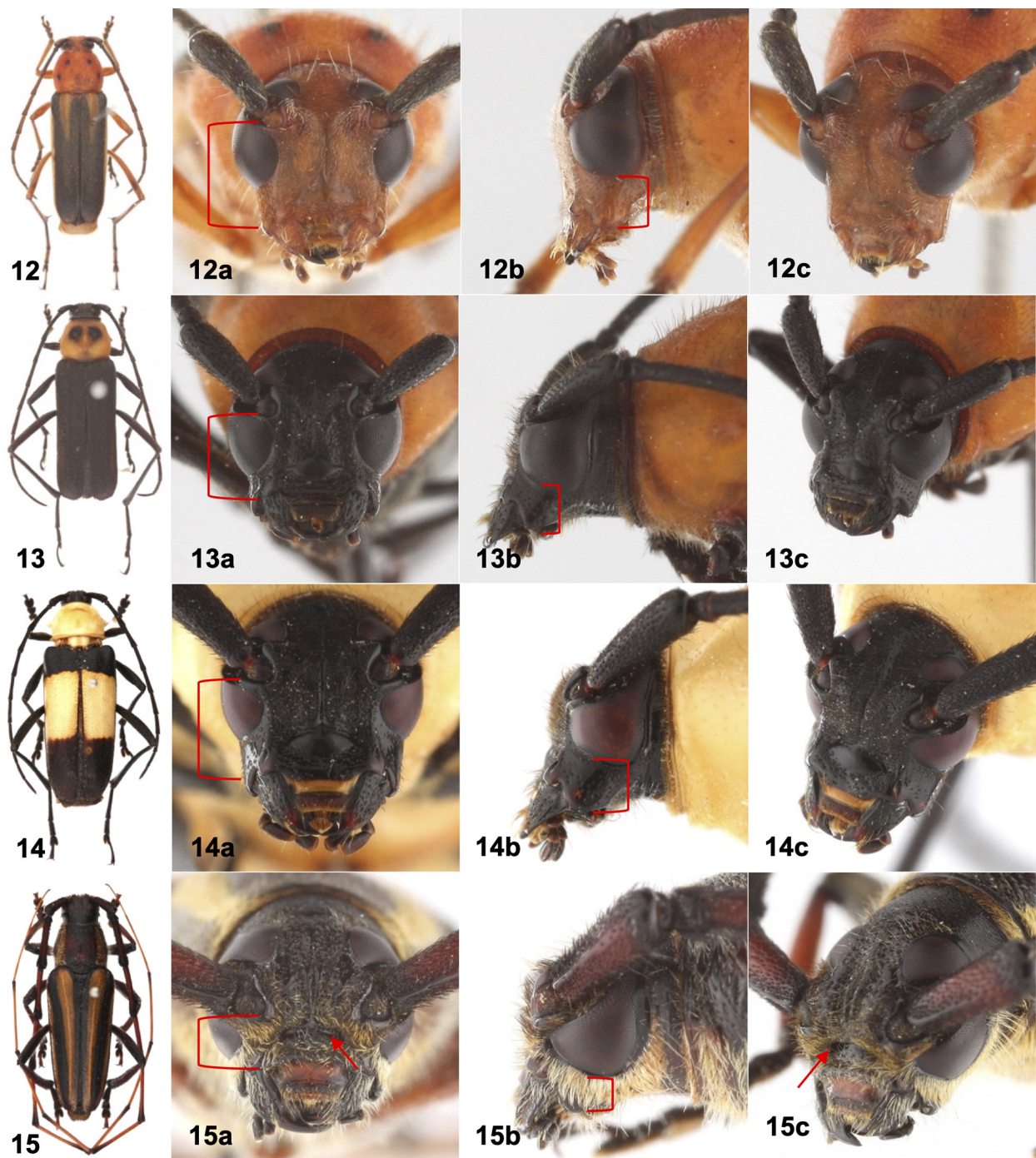
**Figures 8–11.** Examples of other trachyderine genera with carinate apical half of mesofemora. **8)** *Axstoleus quinquepunctatus* Bates with ventral carina (**8a**), and dorsal carina (**8b**). **9)** *Entomosterna cruentata* Chevrolat with ventral carina (**9a**), and dorsal carina (**9b**). **10)** *Gambria bicolor* (Chevrolat) with ventral carina (**10a**) and dorsal carina (**10b**). **11)** *Gortonia linsleyi* Hovore with ventral carina (**11a**), and dorsal carina (**11b**).

*Ischnocnemis subviridis* Chemsak and Hovore. These two species will be reexamined and regrouped under genera related to *Entomosterna* in a subsequent article.

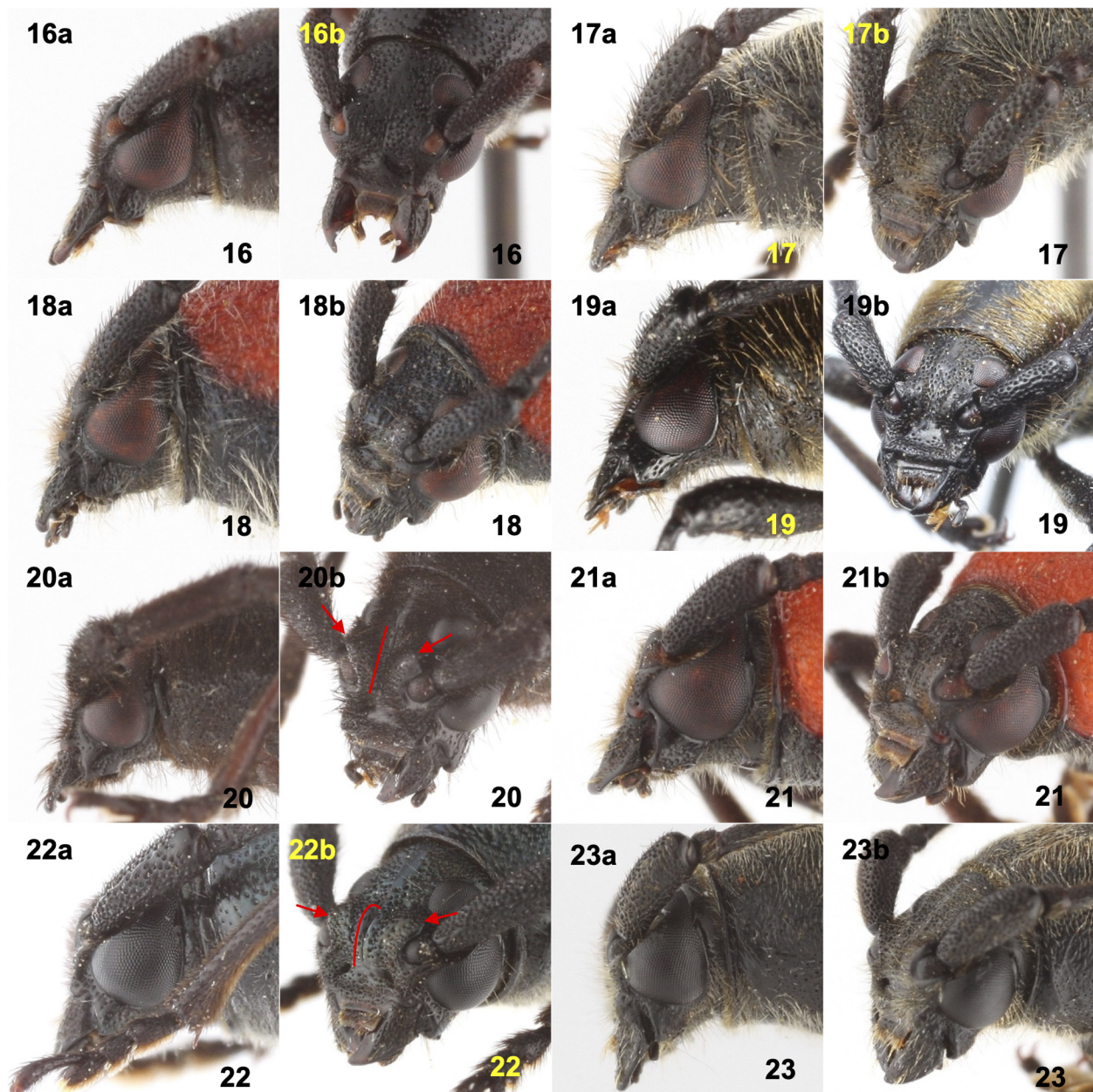
The morphological characteristics of the frontoparietal region of the head capsule (Fig. 1–2) are also used to further differentiate the *Sphaenothecus*-like trachyderines. In *Microteroschema* Eya **new genus**, *Paramannophorus* Eya **new genus**, *Mannophorus*, *Zalophia*, and *Lophaliomorpha* Eya **new genus** the front is declivous or inclined anteriorly in the middle along the mid-cranial sulcus, and the antennal tubercles are divergent with integument between tubercles deeply impressed forming a V-shaped valley sloping down to the mid-cranial sulcus (Fig. 16–21). In *Lophalia* and *Ischnocnemis* the front is convex, subvertical to vertical and the mid-cranial sulcus is arcuated from the postclypeus to vertex. Also, the integument between the antennal tubercles is not or barely impressed (Fig. 22–23).

According to LeConte (1873: 313), *Sphaenothecus*-like trachyderines are categorized under “Group III–Stenaspes,” which includes *Mannophorus* LeConte, *Entomosterna* Chevrolat, *Amannus* LeConte, and *Batyle* Thomson with front moderate sized, short, and “not abruptly defined on each side” of genae. The other trachyderines in this group include *Stenaspis* Audinet-Serville, *Crioprosopus* Audinet-Serville, *Tragidion* Audinet-Serville, *Purpuricenus* Dejean, and *Aethecerinus* Fall and Cockerell with “front large, square, perpendicular, and abruptly separated from the anteocular space.” I have reviewed *Crioprosopus* and *Stenaspis* in my previous articles (Eya 2015, 2021). The above-mentioned Group III–Stenaspes genera along with “Group I–Megaderi” (or *Megaderus*, Dejean) and “Group II–Trachyderes” (e.g., *Dendrobias* LeConte) have mandibles with apices that are acute or simple. These three groups are separated from the “Group IV–Tyloses” with apices of mandibles emarginated-truncate (Eya 2019: 4).

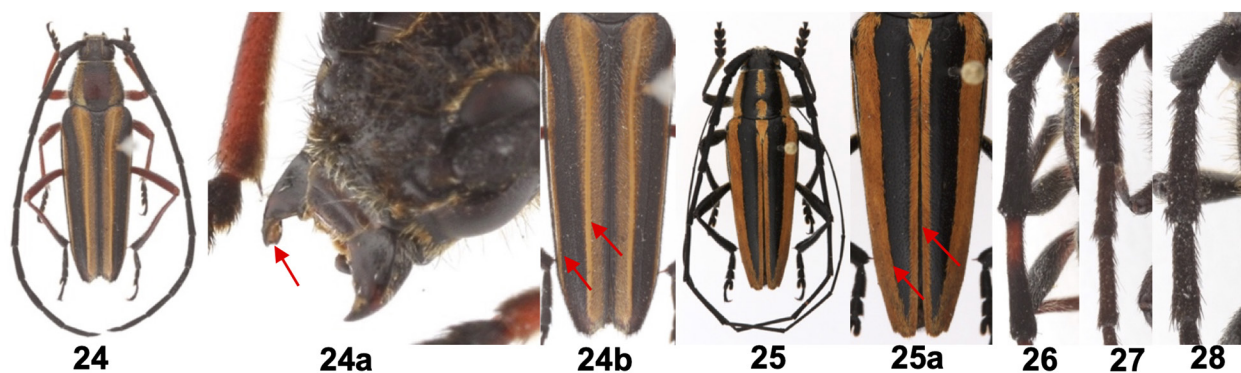
It is noteworthy that *Sphaenothecus* is composed of species that can be sexually dimorphic or interspecifically variable in characteristic (LeConte 1873: 313). As an example, some species have apices of the mandibles that are simple (Fig. 15c), and others have apices narrowly emarginated (Fig. 24a). LeConte (1873: 315) included *Sphaenothecus bilineatus* (Gory) (i.e., *S. bivittatus* Dupont) in Group IV–Tyloses since the apices of mandibles can be described as “truncate-emarginate” (Linsley 1962: 95). Also, *Sphaenothecus* consists of species with a variable number of antennomeres where the males of *S. bilineatus* (Gory), *S. picticornis* Bates, and *S. maccartyi* Chemsak



**Figures 12–15.** Frontoparietal topographical characteristics of trachyderines with carinate mesofemora. **12**) *Axestoleus quinquepunctatus* Bates, **13**) *Entomosterna cruentata* Chevrolat, and **14**) *Gambria bicolor* (Chevrolat) with (**12a–14a**) front vertical, subquadrate, lacking deep pits, antennal insertion well separated from base of mandibles (red brackets), and (**12b–14b**) genae broad, subquadrate, vertical (**12b**) or obliquely inclined (**13b–14b**) (red brackets). **12c–14c**) frontolateral profiles of *A. quinquepunctatus*, *E. cruentata*, and *G. bicolor*. **15**) *Sphaenothecus toledoï* Chemsak and Noguera with (**15a**) front short, vertical, antennal insertion close to base of mandible (red bracket), deep frontoclypeal sulcus (red arrow), and (**15b**) genae narrow, short, lower eyes closer to mandibles. **15c**) frontolateral profile of *S. toledoï* with front demarcated from postclypeus by frontoclypeal sulcus and deep pit (red arrow) on each side below antennal socket.



**Figures 16–23.** Lateral and frontolateral profiles of *Sphaenothecus*-like trachyderines with declivous front (16–21) versus species with convex, subvertical to vertical front (22–23). 16) *Microteroschema parvum* Eya **sp. nov.**, 17) *Paramannophorus skillmani* (Chemsak and Hovore) **comb. nov.**, 18) *Mannophorus laetus* LeConte., 19) *Zalophia auricomis* (Chemsak and Linsley) **comb. nov.**, 20) *Zalophia funebris* (Bates), and 21) *Lophaliamorpha luteicollis* (Bates) **comb. nov.** with front declivous or inclined anteriorly in middle. 20b) red line showing contour of front along mid-cranial sulcus of *Zalophia funebris* with antennal tubercles (red arrows) divergent, and integument between tubercles impressed forming a V-shaped valley sloping down to mid-cranial sulcus. 22) *Lophalia quadrivittata* (Bates), and 23) *Ischnocnemis costipennis* Thomson with front convex, either subvertical (22a, 22b) or vertical (23a, 23b), and mid-cranial sulcus arcuated from postclypeus to vertex. 22b) red arc showing contour of front along mid-cranial sulcus of *L. quadrivittata* with integument between antennal tubercles (red arrows) vaguely impressed.



**Figures 24–28.** Variable characters of *Sphaenothecus*. **24**) *Sphaenothecus bilineatus* (Gory) with (**24a**) apex of mandible narrowly emarginate (red arrow), and each elytron (**24b**) with two longitudinal ivory costae (red arrows). **25**) *Sphaenothecus trilineatus* Dupont with each elytron (**25a**) with two longitudinal, densely appressed pubescent vittae (red arrows). **26**) *Sphaenothecus picticornis* Bates, **27**) *Zalophia funebris* (Bates), and **28**) *Zalophia auricomis* (Chemsak and Linsley) **comb. nov.** with densely pubescent antennomeres 1–3.

and Noguera have twelve antennomeres versus all females and other male species (i.e., *S. argenteus* Bates, *S. toledo* Chemsak and Noguera, *S. facetus* Chemsak and Noguera, and *S. trilineatus* Dupont) having eleven antennomeres. Other interspecific variabilities include sculpture of elytra such as presence (Fig. 24b) or absence (Fig. 25a) of costae, and in the morphology of antennae where in some species the antennae are stout with third antennomere as thick as the scape and densely clothed as in *S. picticornis* (Fig. 26) or antennae slender with third antennomere narrower than the scape as in *S. bilineatus*.

The *Sphaenothecus*-like trachyderine genera described below all have mandibles with apices that are acute or simple, and eleven segmented antennae in both sexes. As in *Sphaenothecus*, the front of these genera is short, vertical, or declivous anteriorly, and not abruptly defined on each side of genae. However, unlike *Sphaenothecus* these genera have apically non-carinate mesofemora. In this article, the trachyderines are grouped together based on the commonality of characteristics and structural affinity to *Sphaenothecus*. *Zalophia* Casey is characterized first since this genus is most closely related to *Sphaenothecus* with similar cranial morphology (i.e., short front, and narrow genae), protuberant mesosternal intercoxal process, and thick, densely pubescent antennomeres. *Lophalia* and *Lophaliamorpha* which share some of the cranial morphologies and protuberant mesosternum are discussed subsequently so their characters are compared and differentiated from *Zalophia*. Thereafter, *Manophorus*, *Paramannophorus*, *Ischnocnemis* and *Microteroschema* with non-protuberant mesosternal process are examined comparing the morphology of their cranium and pronotum. Finally, *Cyphosterna* with cranial morphology closer to *Entomosterna* (i.e., front that is subquadrate, seamlessly fused to postclypeus and prominent genae) is characterized. The existing species in each genus are either redescribed or discussed first followed by descriptions of new species so their characteristics can be compared and differentiated.

**Key to genera closely allied to *Sphaenothecus* Dupont, 1838**

- 1. Mesofemora carinate apically (Fig. 6–7) ..... 2
- Femora not carinate apically ..... 3
- 2(1). Front short, antennal sockets close to base of mandibles with deep pits above postclypeus on either side below antennal insertion or with frontoclypeal sulcus deeply excavated (Fig. 15a, c), pronotum and elytra tapered from base to apex; elytra with longitudinal ivory costae or vittae (Fig. 15, 24, 25); mandibles simple or narrowly emarginated at apices (Fig. 15c, 24a); metatarsi short, explanate (Fig. 15); mesosternum with intercoxal process prominently protruding above coxae, and abruptly declivous anteriorly (Fig. 3) ..... ***Sphaenothecus* Dupont**
- Front subquadrate, vertical, antennal sockets well separated from base of mandibles (Fig. 12–14) without deep pits near base of mandibles or transverse excavation above postclypeus, front seamlessly fused

- with postclypeus or vaguely marked with narrow sulcus, pronotum rounded at sides with or without tubercles, elytra parallel-sided without distinct longitudinal costae or vittae; metatarsi cylindrical, elongate (Fig. 12, 13, 14); mesosternum variable . . . . .
- . . . . . **genera not treated herein (e.g., *Axestoleus* Bates, *Entomosterna* Chevrolat, *Gambria* Chevrolat, *Gortonia* Hovore, and *Parathetesis* Linsley)**
- 3(1). Mesosternum with intercoxal process prominently protruding above coxae, abruptly declivous anteriorly (Fig. 4, 5, 29) . . . . . **4**
- Mesosternum with intercoxal process level with coxae, feebly convex, gradually declivous anteriorly (Fig. 30–31) . . . . . **7**
- 4(3). Pronotum moderately inflated, broad (L/W: 0.65–0.79), sides tuberculate; disc laterally excavate and dorsally callused with prominent median callus on posterior half, base transversely impressed behind median callus; metafemora extending to apex of abdomen or longer than elytral apices; scape and antennomeres III–XI externally carinate (Fig. 32) . . . . . ***Cyphosterna* Chevrolat**
- Pronotum convex or with basal  $\frac{2}{3}$ <sup>rd</sup> flattened or impressed, sides rounded, unarmed or obtusely angulate; disc lacking distinct callus (Fig. 33–35); metafemora falling short of elytral apices, not exceeding apex of fourth abdominal sternite; scape without carina or vaguely carinate externally, antennomere III without external carina or at most vaguely carinate near apices . . . . . **5**
- 5(4). Antennomeres I–V stout, densely clothed with short, suberect setae; head with pubescence moderately dense, dark, suberect; pronotal disc densely clothed with erect and depressed setae (Fig. 27, 28, 19, 20, 33) . . . . . ***Zalophia* Casey**
- Antennomeres I–V slender, thinly clothed with setae; head and pronotum sparsely clothed with setae (Fig. 34–35) . . . . . **6**
- 6(5). Integument dark, glabrous, shiny; pronotum convex, sides shallowly rounded, unarmed (Fig. 34); each elytron with one or two longitudinal glabrous ivory-like vittae, apex with outer angle dentate; head convex, mid-cranial sulcus shallow or absent; antennal tubercles horizontal, level with mid-cranial sulcus (Fig. 1, 22); mandibles with sides arcuate (not angulated near base); genae short, lower eye lobe well separated from base of mandibles . . . . . ***Lophalia* Casey**
- Integument with coarse punctures; pronotum hexagonal with sides obtusely angulate, disc with basal  $\frac{2}{3}$ <sup>rd</sup> flattened or impressed (Fig. 35), sides above lateral tubercles vaguely impressed; each elytron with three longitudinal, glabrous costae, apex with exterior angle obtusely angulate or rounded; head with front declivous, mid-cranial sulcus deeply canaliculate; antennal tubercles moderate elevated, divergent (Fig. 2, 21); mandibles retracted with sides near base angulated; genae narrow between lower eye lobes and base of mandibles . . . . . ***Lophaliamorpha* Eya, gen. nov.**
- 7(3). Front declivous in middle, antennal tubercle divergent, integuments between tubercles forming a V-shaped valley sloping down to mid-cranial sulcus (Fig. 16–18); mandibles extended forward; first tarsomere of metatarsi usually subequal to or shorter than following two together (Fig. 36–38); female usually with antennae attaining body length or shorter; overall form stout (pronotum, L/W: 0.78–1.0 ×; elytra, L/W: 2.4–2.7 ×) . . . . . **8**
- Front convex, subvertical to vertical, mid-cranial sulcus arcuated from postclypeus to vertex (Fig. 23), integument between antennal tubercles barely impressed; mandibles retracted, strongly angulated near base; first tarsomere of metatarsi narrow, elongate, longer or subequal to following two together (Fig. 39a), pronotum with anterior margin without collar-like projection on sides (Fig. 39b); female usually with antennae longer than body; overall form narrow, elongate (pronotum, L/W: 0.9–1.06 ×; elytra, L/W: 2.5–3.1 ×), punctures fine, sparsely pubescence . . . . . ***Ischnocnemis* Thomson**
- 8(7). Pronotum with anterior margin without collar-like projection on sides; pronotum with punctures coarse but shallow, discrete to subcontiguous (Fig. 36b, 37b) . . . . . **9**
- Pronotum with anterior margin with collar-like projection on sides; pronotum with punctures coarse, deep, and frequently confluent (Fig. 38b–c) . . . . . ***Mannophorus* LeConte**

- 9(8). Pronotum with sides angulate, disc coarsely punctate and densely clothed with long, erect setae (Fig. 36b–c), antennae black with distal antennomeres pale brown . . . *Paramannophorus* Eya, **gen. nov.**  
 — Pronotum with sides rounded, disc with punctures finer with short, erect pubescence (Fig. 37b–c), antennae wholly black . . . . . *Microteroschema* Eya, **gen. nov.**

### *Zalophia* Casey, 1912

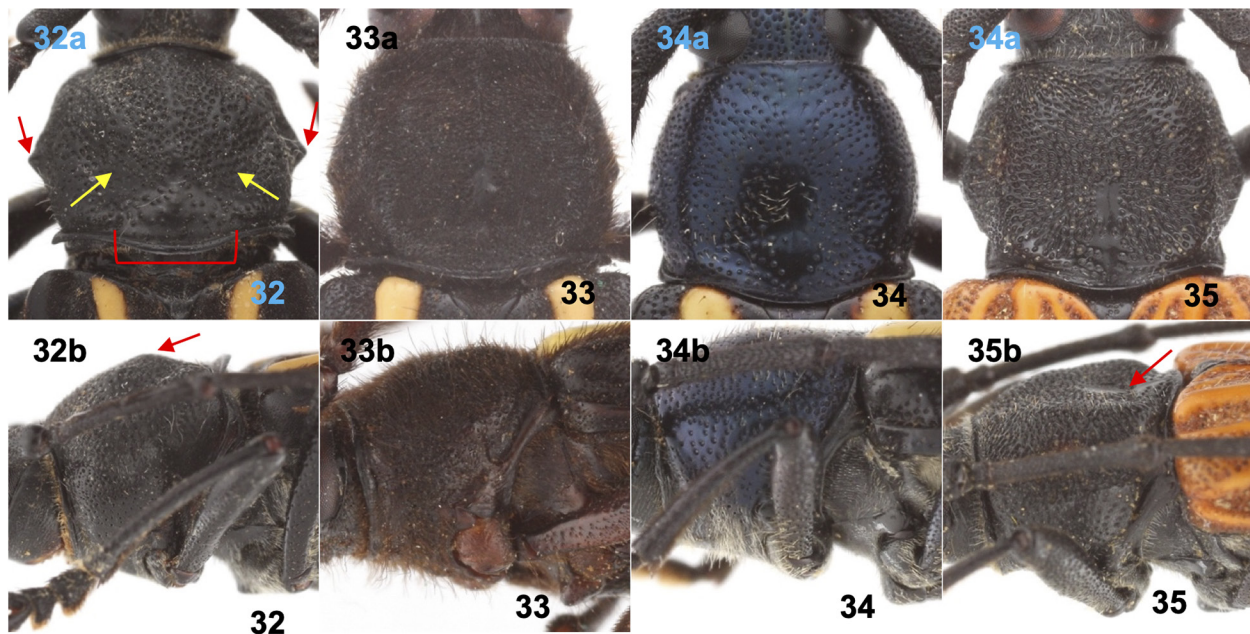
**Type species.** *Zalophia funebris* Casey, 1912 (monobasic).

*Zalophia* Casey 1912: 333, 335; Monné 1994: 80

**Redescription.** **Form** moderate sized, slightly tapered posteriorly. **Head** with front short, declivous in middle, mid-cranial sulcus narrow, deep, extending from postclypeus to anterior margins of upper eye lobes; pubescence moderately dense; genae prominent, anterior margins of lower eye lobe separated from base of mandibles; palpi short, subequal, last segment ovate, not expanded, apices truncate, sides vaguely impressed; mandibles with apices simple; eyes moderately large, finely faceted, upper lobe small, well separated, lower lobe large; antennal tubercles prominent, divergent; integument between tubercles deeply impressed; antennae elongate, 11-segmented, basal antennomeres I–V short, stout, cylindrical, densely clothed with short, suberect setae, scape conical, 11<sup>th</sup> antennomere slender with apical fourth to third vaguely appendiculate. **Pronotum** tapered apically, broader than long, narrower than base of elytra at humeri, sides broadly rounded or tuberculate on basal half, disc densely clothed; prosternum with intercoxal process level with coxae, apex abruptly declivous behind, procoxal cavities wide open



**Figures 29–31.** Characteristics of mesosternal intercoxal process of *Sphaenothecus*-like trachyderine. **29** *Cyphosterna quadrilineatum* Chevrolat. Lateral profile (**29a**) and lateral-tilted profile (**29b**) of *C. quadrilineatum* with mesosternal process protuberant above mesocoxae (red arrows). **30** *Ischnocnemis costipennis* Thomson and **31** *Mannophorus laetus* LeConte. Lateral profiles (**30a**, **31a**) and lateral-tilted profiles (**30b**, **31b**) of *I. costipennis* and *M. laetus* with non-protuberant mesosternal process that are level with mesocoxae (red arrows).

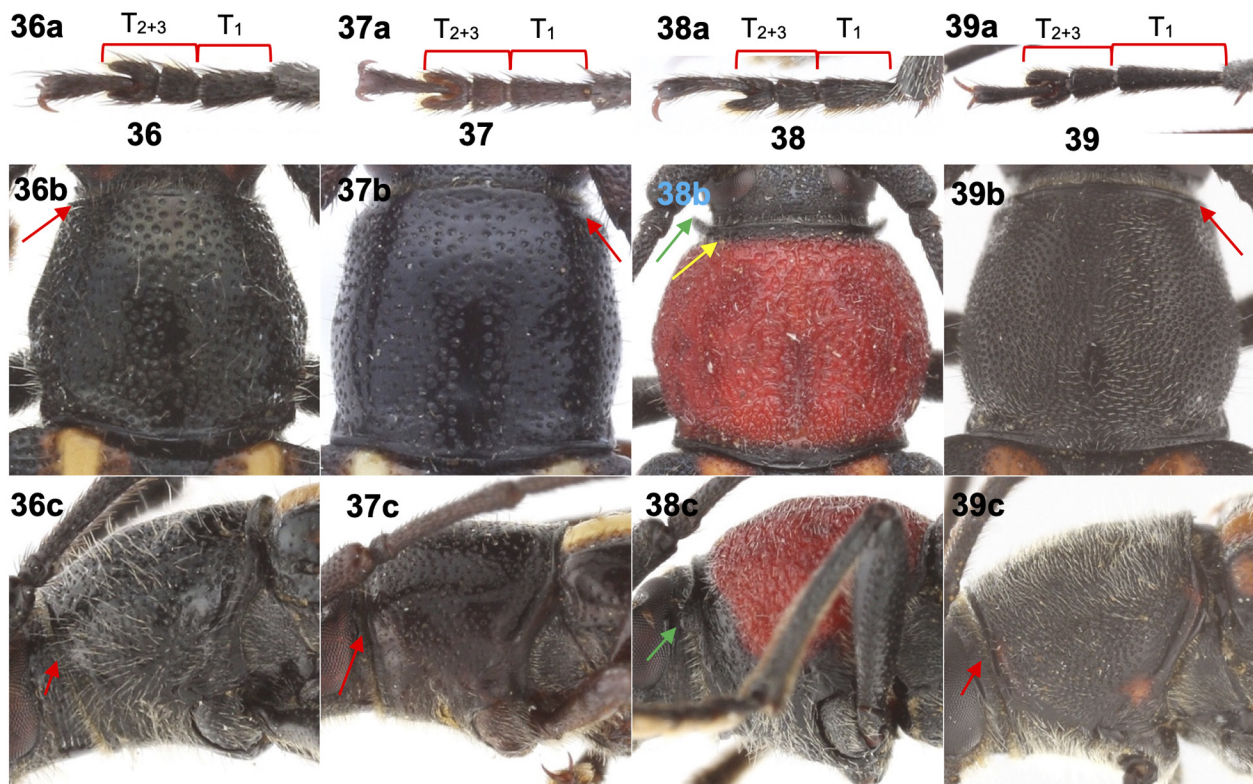


**Figures 32–35.** Pronotum of *Sphaenothecus*-like trachyderine with protuberant mesosternal process. **32** *Cyphosterna quadri-lineatum* Chevrolat with pronotum (**32a**) broad, inflated, laterally excavated (yellow arrows), sides tuberculate (red arrows), and base transversely excavate (red bracket) with prominent dorsal callus (**32b**) on posterior half (red arrow). **33** *Zalophia funebris* (Bates) with sides obtusely angulate and integument densely pubescent (**33a**), disc convex, lacking prominent callus, basal  $2/3^{\text{rd}}$  depressed (**33b**). **34** *Lophalia cyanicollis* (Dupont) with sides rounded, unarmed, disc sparsely clothed (**34a**), disc convex, lacking callus, basal  $2/3^{\text{rd}}$  flattened (**34b**). **35** *Lophaliomorpha luteicollis* (Bates, 1885) **comb. nov.** with sides obtusely angulate, disc sparsely clothed (**35a**), basal half of pronotum impressed (red arrow) (**35b**).

behind; mesosternum with intercoxal process prominent, protuberant above coxae, abruptly declivous and excavate anteriorly; posterior margins with sides vaguely overlapping mesocoxae. **Scutellum** triangular, attenuate apically, longer than wide to as long as wide. **Elytra** each with two longitudinal glabrous ivory-like vittae; apices sinuate truncate with outer angle unarmed or angulate, sutural angle minutely dentate. **Legs** moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomere I subequal to tarsomeres II and III combined. **Abdomen** normally segmented. The following species are included in *Zalophia*: *Z. funebris* (Bates) and *Z. auricomis* (Chemsak and Linsley) **new combination**.

**Discussion.** *Zalophia* Casey can be distinguished from other *Sphaenothecus*-like trachyderines by the combination of the following characters: (1) head and pronotum densely clothed with long, pale, erect setae (Fig. 44–49, 56–61); (2) front that is declivous with prominent and divergent antennal tubercles (Fig. 46, 58); (3) antennomeres I–V that are cylindrical, short, stout, and densely clothed with suberect setae (Fig. 27, 28, 65, 66); (4) mesosternal intercoxal process that is protuberant above mesocoxae (Fig. 49, 61); (5) each elytron with a broad, glabrous, subsutural longitudinal yellowish vitta almost attaining apex (Fig. 50, 62), and a narrow submarginal vitta beginning behind humerus (Fig. 51, 63); and (6) apices of elytra that are sinuate truncate with outer angles unarmed and obtusely angulate (Fig. 50, 62). *Zalophia* can be differentiated from *Sphaenothecus* by the non-carinate mesofemora, and from *Lophaliomorpha* **new genus** and *Lophalia* by the densely clothed head, antennae and pronotum, subsutural ivory vittae on elytra that almost attains apices, and submarginal vittae that begins behind the humeri. The subsutural costae of *Lophaliomorpha* and subsutural ivory vittae of *Lophalia* ends well short of attaining the elytral apices. The submarginal costae or the ivory submarginal vittae of *Lophaliomorpha* and *Lophalia*, respectively, starts at the base of each elytron below the humerus. *Lophaliomorpha* has divergent and prominent antennal tubercles, and elytron with exterior angle unarmed as in *Zalophia* but the pronotum is sparsely pubescent (Fig. 35), and the antennomeres are slender, elongate and clothed with minute, dark,





**Figures 36–39.** Metatarsi and pronotal characteristics of *Sphaenothecus*-like trachyderine. **36)** *Paramannophorus skillmani* (Chemsak and Hovore, 2010). **37)** *Microteroschema parvum* Eya **sp. nov.** **38)** *Mannophorus laetus* LeConte. **39)** *Ischnocnemis costipennis* Thomson. **36a–38a)** *P. skillmani*, *M. parvum*, and *M. laetus* with metatarsomeres stout, tarsomere 1 ( $T_1$ , red bracket) subequal to or shorter than tarsomeres 2+3 ( $T_{2+3}$ , red bracket). **39a)** *I. costipennis* with metatarsomeres elongate, tarsomere 1 ( $T_1$ , red bracket) subequal to or longer than tarsomeres 2+3 ( $T_{2+3}$ , red bracket). Approximate ratio of ( $T_1 / T_{2+3}$ ): **36a)** *P. skillmani* ( $T_1 / T_{2+3}$ : 0.78). **37a)** *M. parvum* ( $T_1 / T_{2+3}$ : 0.89). **38a)** *M. laetus* ( $T_1 / T_{2+3}$ : 0.90). **39a)** *I. costipennis* ( $T_1 / T_{2+3}$ : 1.30). **36b–c, 37b–c, 39b–c)** *P. skillmani*, *M. parvum*, and *I. costipennis* with anterior margin of pronotum without collar-like projection on sides (red arrows). **38b–c)** *M. laetus* with anterior margin of pronotum raised with collar-like projection on sides (green arrows), narrowly excavated behind (yellow arrow). **36b–c)** *P. skillmani* with sides of pronotum obtusely angulate, disc coarsely punctate, densely clothed with long erect setae. **37b–c)** *M. parvum* with sides of pronotum rounded, disc finely, sparsely punctate, setae short, erect.

depressed setae (Fig. 68). *Lophalia* has a glabrous, sparsely clothed integument, outer angles of elytral apices that are distinctly dentate, front that is convex with integument between antennal tubercles flat or feebly impressed, and antennomeres that are slender (Fig. 67).

Casey (1912) did not provide any etymology for the name *Zalophia*. However, “*Zalophus*” (as in *Zalophus* Gill) is a genus name for the small eared seals, which is a compound word formed from two components in New Latin, *za-*, and *-lophus* (from Greek *lophos* or “crest”) (Merriam-Webster 2024). Therefore, the name *Zalophia* may be derived from “*za-*”, an intensive or augmentative prefix sometimes used in forming modern scientific words to emphasize the character or quality which means “very”, and *lófos* or *lophos* (λόφος)(crested or hill), referring to the “very crested” or “very ridged” mesosternum. The “-os” ending of “*Zalophos*” can then be changed to a Latinized ending “-ia” to form a taxonomic name of feminine gender.

### Key to species of *Zalophia* Casey, 1912

1. Pronotum with sides broadly angulate with small tubercle on basal half; disc densely alveolate punctate, apical half with keeled median line terminating as a small glabrous callus (Fig. 47–48), basal half vaguely depressed in center, pubescence dense, dark; each elytron with submarginal vitta beginning from basal fifth behind humerus, often dark on basal half and yellowish apically (Fig. 51) . . . . . *Z. funebris* (Bates)
- Pronotum with sides rounded; disc moderately, coarsely, densely punctate with transverse, appressed golden pubescence (Fig. 59–60), and glabrous longitudinal median line; each elytron with submarginal yellowish vitta beginning behind humerus (Fig. 63) . . . . . *Z. auricomis* (Chemsak and Linsley), **comb. nov.**

### *Zalophia funebris* (Bates, 1880)

(Fig. 40–51)

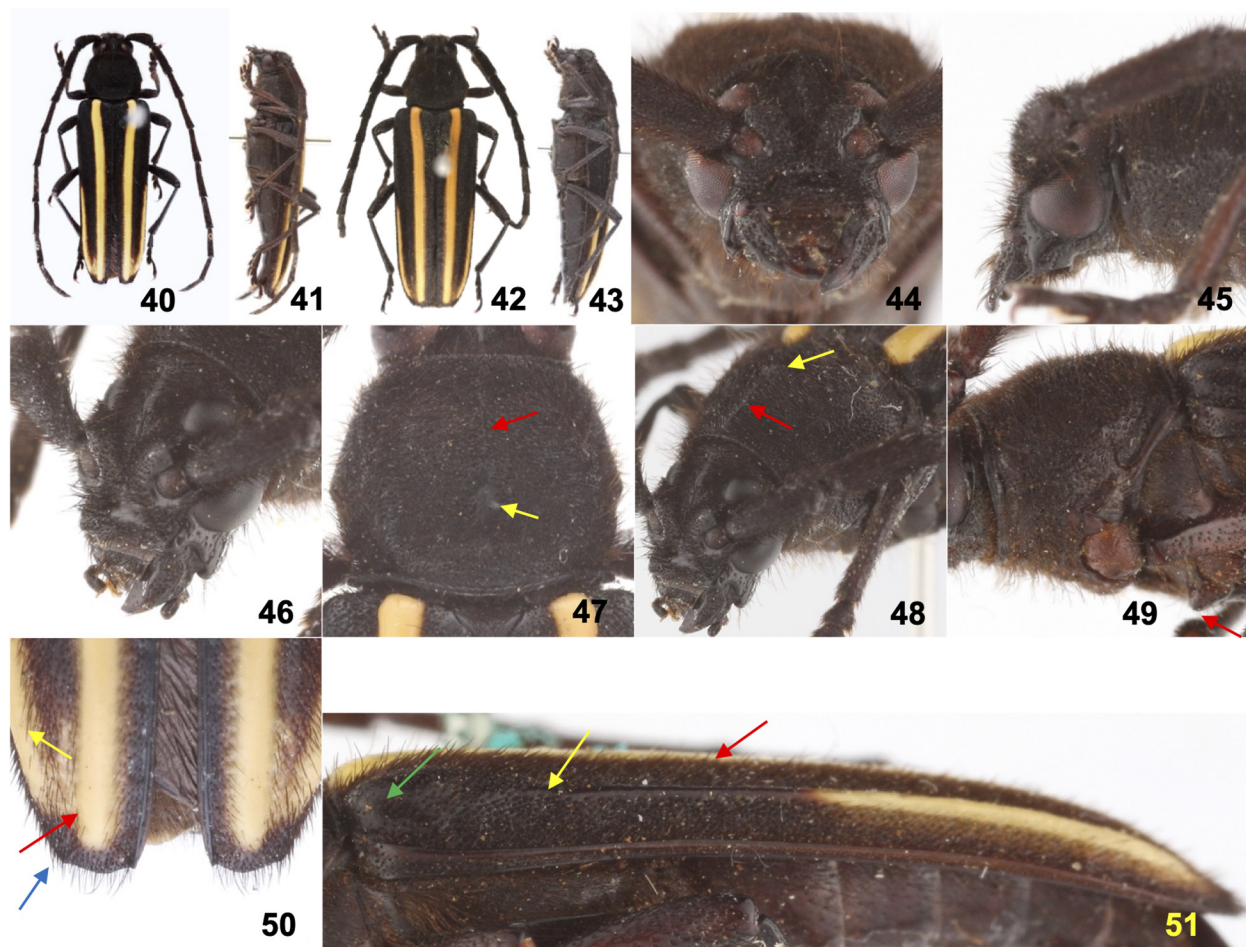
*Zalophia* Casey 1912: 333, 335; Monné 1994: 80

*Sphenothecus funebris* Bates 1880: 85; Lameere 1883b: civ (cat.)

*Zalophia funebris* Chemsak and Noguera 1998: 12 (syn., comb. nov.); Hovore 2006: 374 (dist.)

*Zalophia spissicornis* Casey 1912: 336; Blackwelder 1946: 590 (cat.); Monné 1994: 80 (cat.); Monné and Giesbert 1994: 155 (cat.); Lingafelter et al. 2014: 323 (holotype)

**Redescription. Male:** Length 13–16 mm. **Form** moderate sized, slightly tapered posteriorly; integument black, undersurface occasionally dark reddish brown, each elytron with two glabrous longitudinally elevated, yellowish vittae almost connected apically. **Head** small; vertex with polished and raised median line, integument finely, densely, contiguously punctate; front deeply, irregularly punctate, mid-cranial sulcus narrow extending from postclypeus to anterior margins of upper eye lobes; antennal tubercles with apices acute, deeply, irregularly punctate; postclypeus triangular, finely, densely, deeply punctate with a median impunctate, glabrous area; genae nitid, sparsely punctate; pubescence dense, dark and erect; mandibles with sides impressed, striate-punctate, sparsely covered with depressed setae; antennae exceeding elytral apices by an antennomere, inner and outer surface of antennomeres not carinate; antennomeres I–V finely, densely punctate, densely clothed with short, suberect, black setae, remaining antennomeres apically expanded laterally, finely, densely punctate, densely clothed with very short, appressed pubescence, antennomere VI with longer, depressed setae intermixed underneath and on apex, VII–XI with longer, depressed setae limited to apices; antennomere III longer than I; IV subequal to I; V, VI, VII, and VIII subequal to III; IX shorter than VIII; X subequal to IX; XI longest, vaguely appendiculate on apical fourth. **Pronotum** slightly broader than long (L/W: 0.83 ×), sides broadly angulate with small lateral tubercle on basal half; disc densely alveolate punctate, apical half with keeled median line terminating as a small glabrous callus near middle, basal half depressed in center and broadly callused on each sides near margin, sides above lateral tubercles shallowly impressed; apical margin slightly elevated, very narrowly impressed transversely behind; base constricted on sides, lobed at middle, margin slightly elevated; pubescence dense, dark, erect intermixed with depressed, transverse setae; proepisternal area irregularly, moderately, densely punctate; prosternum barely impressed, apical half transversely striate, basal half longitudinally impressed in middle and integument rugose, vaguely elevated on either sides, punctures irregular, coarse, pubescence long, erect; mesosternum nitid, sparsely punctate, obscurely, sparsely clothed with long, depressed setae; metasternum subglabrous in middle with median line shallowly excavate, sides sparsely punctate, pubescence obscure, long, suberect to depressed; metepisterna nitid, densely, minutely punctate, sparsely intermixed with larger punctures, pubescence moderately dense, depressed and erect setae intermixed. **Scutellum** triangular, elongate, narrowly attenuated apically, base broadly depressed in middle, integument discretely punctate, pubescence dark, depressed. **Elytra** 2.4 times as long as broad; each elytron with broad subsutural, yellowish costa extending from base almost attaining apex, and a narrower submarginal one beginning at basal fifth behind humerus with basal half often dark, and apically yellowish; basal punctures between suture and subsutural costa irregular, discrete, becoming finer apically, punctures between costae, and between submarginal costa and epipleural margin dense, discrete; pubescence dense, short, dark, suberect, sparsely interspersed with long, erect setae near base. **Legs** slender; femora nitid, slightly clavate, apices coarsely, rugosely punctate, base sparsely punctate, dorsum sparsely clothed with appressed setae,



**Figures 40–51.** *Zalophia funebris* (Bates), dorsal and lateral images: **40–41** Male, 14 mm., GTM. **42–43** Female, 15 mm., Capital de Guatemala, GTM. Head: **44**) Frontal image. **45**) Lateral profile. **46**) Frontolateral profile. Pronotum: **47**) Disc, sides broadly angulate with small tubercles, apical half with keeled median line (red arrow) terminating as callus (yellow arrow). **48**) Disc, frontolateral image, keel (red arrow), callus (yellow arrow). Thorax lateral image: **49**) Mesosternal intercoxal process protuberant (red arrow). Elytra: **50**) Apices, outer angle, angulate, unarmed (blue arrow), subsutural vitta (red arrow), submarginal vitta (yellow arrow). **51**) Lateral profile, humerus (green arrow), each elytron with submarginal vitta beginning from basal fifth of elytra behind humerus (yellow arrow).

inner surface with pubescence dark, suberect, metafemora not extending to apices of elytra; protibiae with inner surface minutely, densely punctate, densely clothed with short suberect pubescence, outer surface coarsely punctate; meso- and metatibiae coarsely punctate, clothed with short, depressed setae. **Abdomen** nitid, very sparsely, finely punctate, pubescence sparse, long erect, sides minutely, densely punctate, pubescence short and appressed; last sternite with apex vaguely emarginate at middle.

**Female:** Length 15–18 mm. Form more robust. Antennae shorter than body, attaining apical fifth of elytra. Abdomen with last sternite broadly truncate at apex.

**Materials examined.** MEXICO: *Chiapas*: Municipio Chiapa de Corzo El Chorreadero, 753 m, 1 Nov. 1976, D.E and J.A. Breedlove (1 female, EMEC); Chiapas (1 female, EMEC). GUATEMALA: Tippmann Coll. '57, 213112 (1 male, EMEC); 1884, F. Tippmann, Wien, Tippmann Coll. '57, 213112 (1 female, EMEC); Gua. (3 males, 3 females, EMEC); Capital de Guatemala, R. (1 male, 1 female, EMEC). NICARAGUA: *Estelí*: Regadio Paraiso Mountain, 4 Nov. 2017, P. Kaufman #14770, 4157 ft, 16P 557765, 1456982 UTM, Pablo Yoder (1 female, FWSC). PANAMA: *Darien Prov.*: El Real St. Maria, F.C. Bowditch (2 males, EMEC).

**Discussion.** According to Bates (1880: 85) *Sphenothecus funebris* (or *Zalophia funebris*) is robust, black, slightly narrowed posteriorly with nitid underside. Head, thorax, antennae, and legs are covered with black hairs. Thorax is narrowed anteriorly with conical tubercles on each side in middle, and base is slightly lobate. Scutellum is elongate and attenuated apically with base broadly depressed. Elytra on each side are two elevated eburneous vittae which are connected apically, and space in between and toward base are black and intervals rugose and punctate. Mesosternum is strongly protuberant. The antennae of female are robust and shorter than body. Length is 8 lines (17 mm), and the habitat reported by Bates is Guatemala, Cachil. Casey (1912: 333) adds that the “lateral carinae of the elytra do not attaining humeri” referring to the submarginal elevated, polished costa, which start at the basal fifth of elytra behind humeri.

The Latin meaning of the species name “*funebris*” is “funeral” or “death”, and this name is occasionally given to species that are black with either whitish stripes or bands as in *Rosalia funebris* Motschulsky. The species name “*funebris*” refers to “the dark ground color” of an animal as in *Gymnothorax funebris* Ranzani or green moray eel (Bester and Robins 2024).

### ***Zalophia auricomis* (Chemsak and Linsley, 1979), new combination**

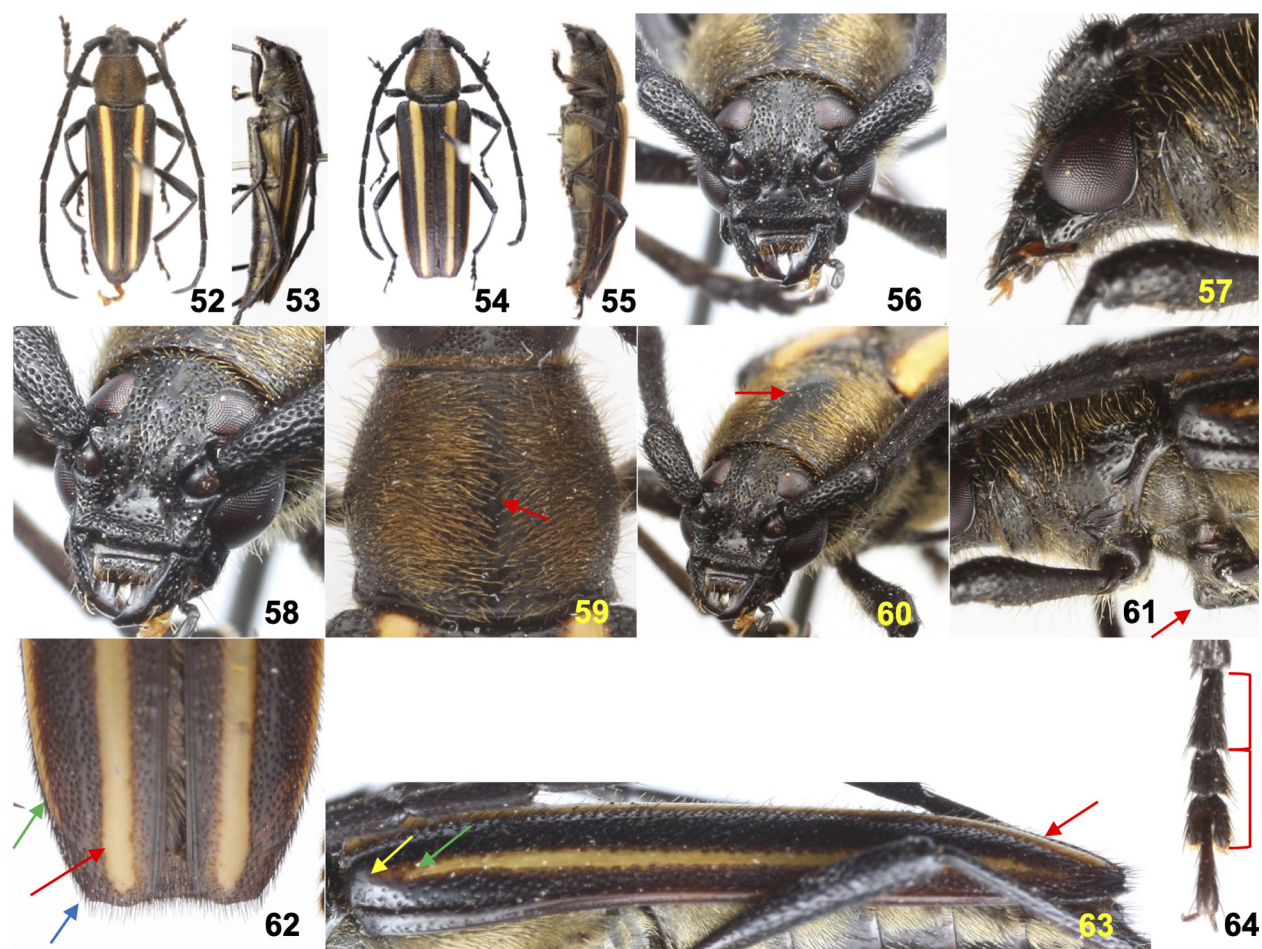
(Fig. 52–64)

*Lophalia auricomis* Chemsak and Linsley 1979: 267; Chemsak et al. 1992: 84; Monné and Giesbert 1994: 146; Monné 1994: 33; Turnbow et al. 2003: 17

**Materials examined.** Holotype, male, HONDURAS: *Yoro*, Yoro, 28 Dec. 1977, J.V. Mankins (CASC). Two paratypes from HONDURAS: *La Paz*: El Taladro, 26 Dec. 1977, J.V. Mankins (1 male, EMEC); *Cortés*: Omoa, 30 Dec. 1977, J.V. Mankins (1 female, EMEC). Other materials examined: HONDURAS: *Francisco Morazán*: Uyuca-Masicaran, 13°58'20.81"N, 87°3'22.70", 1000 m, 8 Sept. 2017, van den Berghe (1 male, FSCA).

**Discussion.** According to Chemsak and Linsley (1979: 267), this species is “moderate in size (14–16 mm) and slightly tapering with integument black.” “Each elytron has two glabrous, slightly elevated, longitudinal, yellowish vittae,” a broad, subsutural vitta almost attain apex, and “a narrow submarginal one beginning behind humerus not attaining apex.” The antennae are “stout, extending slightly beyond elytra” in males, and antennomeres I–V “minutely, densely punctate,” and “densely clothed with dark, suberect and subdepressed setae.” The pronotum is moderately, coarsely, and densely punctate with transverse, appressed, golden pubescence “except for a glabrous longitudinal median line.” The mesosternal “intercoxal process is elevated above coxae and abruptly declivous” anteriorly. The apex of each elytron is noted as “sinuate-truncate with outer angle usually dentate;” however, the tooth on outer angle in males is minute and obtuse, and in the female the outer angle is unarmed.

*Lophalia auricomis* Chemsak and Linsley is placed under the genus *Zalophia* Casey since the overall appearance more closely resembles *Zalophia funebris* (Bates) than *Lophalia* Casey. Similarity includes the overall dimensions of pronotum (L/W 0.85–0.946 ×) and elytra (L/W: 2.32–2.44 ×), more prominent mesosternal process, short and stout antennae, and densely pubescent head, pronotum and antennomeres I–V. In both *Z. funebris* (Bates) and *Z. auricomis* (Chemsak and Linsley) **new combination** the front is declivous, antennal tubercles are divergent, and the outer angles of elytra are either unarmed, obtusely angulate, or minutely dentate. *Zalophia auricomis* can be differentiated from *Z. funebris* by the pronotum that is rounded at sides, and the disc that is coarsely, densely punctate with transverse, appressed golden pubescence, and glabrous longitudinal midline. The pronotum of *Z. funebris* is angulate and tuberculate on sides, and the disc is alveolate punctate, longitudinally keeled in middle on apical half, which terminates as a glabrous callus, and the basal half is vaguely depressed in the center with pubescence dense and dark. The submarginal yellow costa on the elytron of *Z. auricomis* start immediately behind the humerus, while in *Z. funebris* the costa starts from the basal fifth of elytra, which is often darker on basal half and apically yellowish. *Lophalia* Casey can be differentiated from this species by the glabrous, sparsely clothed integument, front that is convex with integument between antennal tubercles that is not or barely impressed, outer angles of elytral apices that are distinctly dentate, and antennomeres I–V that are sparsely pubescent and comparatively slenderer. The species name “*auricomis*” is derived from “*auricomus*”, which is an adjective meaning “*aurum*” (“gold”) and “*coma*” (“hair of the head”) referring to the golden pubescence on the pronotum of this species.



**Figures 52–64.** *Zalophia auricomis* (Chemsak and Linsley, 1979) **comb. nov.**, dorsal and lateral images: 52) Male, paratype, 13 mm, El Taladro, HND. 53) Male, holotype, 13 mm, Yoro, HND. 54–55) Female, paratype, 15 mm, Omoa, HND. Head: 56) Frontal image. 57) Lateral profile. 58) Frontolateral profile. Pronotum: 59) Disc with appressed golden pubescence, and glabrous longitudinal median line (red arrow), and sides rounded. 60) Disc, frontolateral image, longitudinal median line (red arrow). Thorax lateral image: 61) Mesosternal intercoxal process protuberant (red arrow). Elytra: 62) Apices, outer angle, unarmed, angulate (blue arrow), subsutural vitta (red arrow), submarginal vitta (green arrow). 63) Lateral profile, humerus (yellow arrow), submarginal vitta beginning behind humerus (green arrow). Metatarsi: 64) Metatarsomeres stout, broad, tarsomere 1 ( $T_1$ ) shorter (red bracket) than tarsomeres 2+3 ( $T_{2+3}$ ), ( $T_1/T_{2+3}$ : 0.78).

### *Lophalia* Casey, 1912

**Type species.** *Lophalia cyanicollis* Casey, 1912 (monobasic).

*Lophalia* Casey 1912: 333; Linsley 1962: 96; Arnett 1962: 863, 881; Monné 1994: 33

*Entomosterna* LeConte 1873: 314; LeConte and Horn 1883: 299; Leng 1886a: 60

**Redescription.** **Form** small to moderate sized, sides subparallel. **Head** with front short, convex, subvertical, mid-cranial sulcus narrow or vague, extending from postclypeus to posterior margin of antennal tubercles; genae short, anterior margin of lower eye lobe separated from base of mandible; palpi short, subequal, last segments not expanded, apices truncate; mandibles simple, sides arcuate not angulated at base; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large; antennal tubercles horizontal; integument between tubercles not or barely impressed; antennae elongate, 11-segmented, basal antennomeres I–V slender, scape conical, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** slightly broader or about as broad as long, narrower than base of elytra at humeri, apex narrower than base, sides unarmed, shallowly rounded;



**Figures 65–68.** Antennae of *Sphaenothecus*-like trachyderines with protuberant mesosternal process. **65)** *Zalophia funebris* (Bates) male, GTM. **66)** *Zalophia auricomis* (Chemsak and Linsley, 1979) **comb. nov.**, male, El Taladro, HND. **67)** *Lophalia cyanicollis* (Dupont), male, Tamaulipas, MEX **68)** *Lophaliamorpha luteicollis* (Bates, 1885) **comb. nov.**, male, Jalisco, MEX. **65–66)** Antennomeres I–V short, stout, densely clothed with suberect setae. **67–68)** Antennomeres I–V slender, elongate, clothed with minute, dark, setae.

prosternum with intercoxal process level with coxae, narrower than coxal cavity, occasionally impressed medially, apex abruptly declivous behind, coxal cavities wide open behind; mesosternum with intercoxal process moderately prominent, protuberant above coxae, vertical or abruptly declivous and excavated anteriorly; posterior margins vaguely overlapping coxae. **Scutellum** triangular, slightly longer than wide to as long as wide. **Elytra** each with one to two longitudinal, glabrous, ivory-like vittae; apices obliquely sinuate or bisinuate truncate with sutural and outer angle dentate. **Legs** moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomere I subequal to tarsomeres II and III combined. **Abdomen** normally segmented. The following species are included in *Lophalia*: *L. cyanicollis* (Bates), *L. nigricollis* **new species**, *L. prolata* Chemsak and Linsley and *L. quadrivittata* (Bates).

**Discussion.** *Lophalia* is characterized by the following combination of characters: (1) overall form that is subparallel and glabrate with dark bluish or aenescent black or black integument; (2) mesosternal intercoxal process that is protuberant above coxae, and abruptly declivous and excavated anteriorly; (3) each elytron with one or two longitudinal glabrous ivory-like vittae with apex that is obliquely sinuate or bisinuate truncate with sutural and outer angle dentate; (4) head with front that is short, convex and subvertical; (5) antennal tubercles that are flat (or horizontal) and level with integument between tubercles or barely impressed in middle; (6) mid-cranial sulcus (median line) that is shallow or absent extending arcuately from postclypeus over to vertex; (7) genae that are short with anterior margins of lower eye lobes well separated from base of mandibles; (6) antennae that are elongate with antennomeres I–V slender, and glabrate; (7) pronotum with sides that are evenly rounded and disc evenly convex; and (9) scutellum that is triangular, glabrous, longer than wide to as long as wide. *Lophalia* can

be differentiated from *Sphaenothecus* by the non-carinate mesofemora, and from the other genera by the overall form that is subparallel with dark polished integument, protuberant mesosternal intercoxal process, one or two longitudinal glabrous ivory vittae on each elytron, and strongly dentate outer angles of elytral apices. The front of *Lophalia* is convex and subvertical with integument between antennal tubercles not or vaguely impressed, and mandibles that are arcuate at sides. Both *Zalophia* and *Lophaliomorpha* **new genus** have front that are declivous in middle, and antennal tubercles that are divergent forming a V-shaped valley sloping down to mid-cranial sulcus, and exterior angles of elytra that are unarmed and angulate.

Casey (1912) did not provide any etymology for the genus name *Lophalia*. However, “*Lophelia*” (as in *Lophelia* Milne-Edwards and Haime) is a genus name of a cold-water coral (*Lophelia pertusa* (Linnaeus)), which is a compound word from Greek (λόφος or “lophos”) and (ήλιος or “helioi” or “ilius”), meaning “a tuft of suns”, referring to the individual sun-like coral polyps (Lophelia 2024). Therefore, as in “*Zalophus*” and “*Lophelia*”, the genus name *Lophalia* can be derived from the Greek adjective (λόφος or “lóphos”) meaning crested or ridged and “-alia” (Latin feminine of *alius*) meaning other or another. Therefore, referring to another genus that resembles *Zalophia* or *Sphaenothecus* with ridged mesosternum. Casey (1912: 333, 335) established *Lophalia cyanicollis* as the type species based on *Sphaenothecus cyanicollis* Dupont, and redescribed *Lophalia cribricollis* (Bates). The species name “*cyanicollis*” and “*cribricollis*” are referring to the color of “-collis” from the Latin “*collum*” or the neck (i.e., pronotum) with “*ciano*” or dark blue color for “*cyanicollis*” and “*cribri*” from “*cribrum*” meaning perforated and sieve-like punctures for “*cribricollis*”.

### Key to species of *Lophalia* Casey, 1912.

1. Each elytron with single subsutural ivory vitta ..... 2
- Each elytron with two ivory vittae, a broad subsutural vitta and a narrower submarginal one beginning below humerus ..... 3
- 2(1). Form small (10–14 mm), stout; front, vertex and pronotum with punctures coarse, deep; elytra about 2.4–2.7 times longer than broad, and 3.6–3.7 times longer than length of pronotum (Fig. 69–78) ..  
..... *L. cyanicollis* (Bates)
- Form moderate sized (12–19 mm), elongate; front, vertex and pronotum with punctures sparse, shallow; elytra almost three times longer than broad (2.8–2.9 ×), and four times longer than length of pronotum (4–4.2 ×) (Fig. 79–88) ..... *L. prolata* Chemsak and Linsley
- 3(1). Form small to moderate sized (14–17 mm), head and pronotum with metallic bluish or aenescent sheen; apices of elytra bi-emarginate-truncate, exterior angle with prominent spine longer than the one on sutural angle; front with frontoclypeal sulcus frequently deep and transversely excavate (Fig. 89–98) ..... *L. quadrivittata* (Bates)
- Form moderate sized (16–18 mm), head and pronotum black; apices of elytra serrate to sinuate truncate, exterior angles with a short spine not longer than ones on sutural angles; front with wide, shallow depression on either side below antennal insertion, frontogenal ridge prominent (Fig. 99–108) ...  
..... *L. nigricollis* Eya, **sp. nov.**

### *Lophalia cyanicollis* (Dupont, 1838)

(Fig. 69–78)

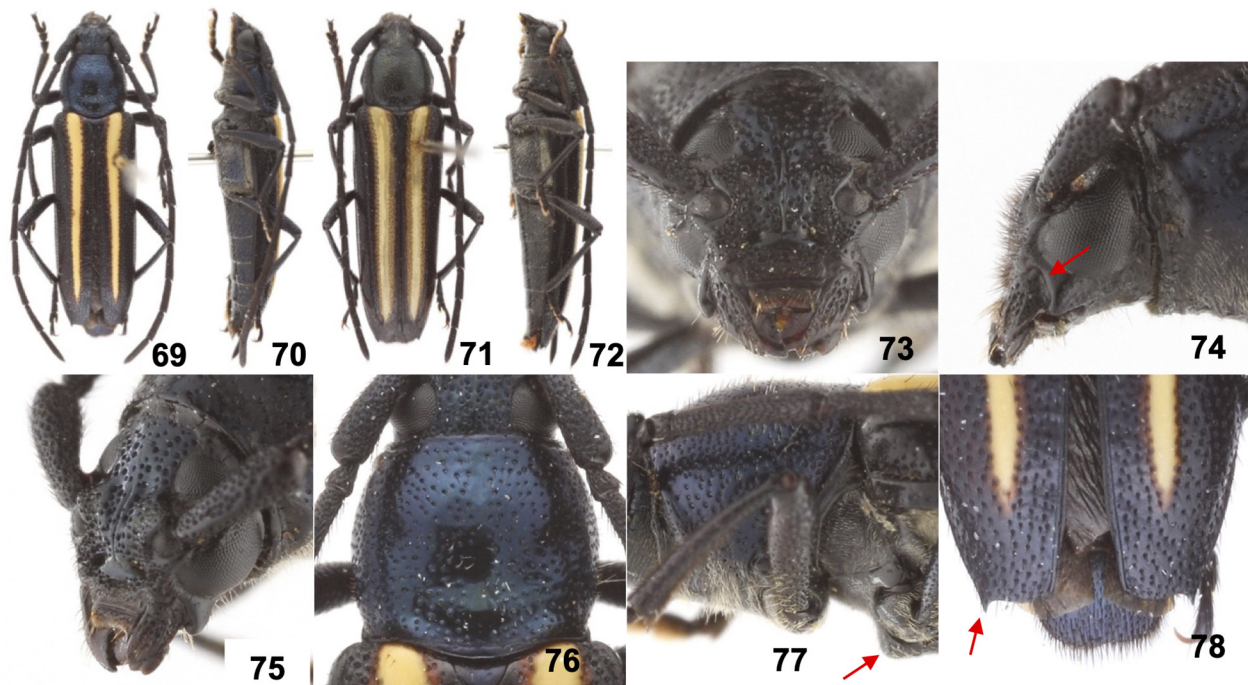
*Lophalia cyanicollis* Casey 1912: 335; Blackwelder 1946: 590 (cat.); Linsley 1962: 96 (biol.); Hovore et al. 1987: 297 (dist.); Chemsak et al. 1992: 84 (cat.); Monné 1994: 34 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.); Toledo-Hernández et al. 2002: 529 (dist., biol.); MacRae et al. 2012: 180 (biol.); Morales-Morales et al. 2012: 38, 44 (dist., biol.); Garcia Morales et al. 2014: 106 (dist.); Santos-Silva et al. 2018: 203 (dist.)

*Sphaenothecus cyanicollis* Dupont 1838: 59; White 1853: 86; Lacordaire 1869: 184; Aurivillius 1912: 472 (cat.)

*Sphenothecus cyanicollis* LeConte 1858: 40 (dist.); Gemminger and Harold 1872: 2973 (cat.); Bates 1880: 85; Bates 1885: 329 (dist.).

*Sphaenothecus* (*Lophalia*) *cyanicollis* Linsley 1935: 100 (dist.)

*Entomosterna cyanicollis* LeConte 1873: 314; LeConte and Horn 1883: 300; Leng 1886b: 83



**Figures 69–78.** *Lophalia cyanicollis* (Dupont), dorsal and lateral images: 69–70) Male, 11 mm, Tamaulipas, MEX. 71–72) Female, 13 mm, Oaxaca, MEX. Head: 73) Frontal image with punctures coarse, deep. 74) Lateral profile with genae short (red arrow). 75) Frontolateral profile with short, convex and subvertical front, mid-cranial sulcus shallow. Pronotum: 76) Disc, polished with sides rounded, punctures coarse, deep. Thorax lateral image: 77) Mesosternal intercoxal process protuberant (red arrow). Elytra: 78) Each elytron with single subsutural ivory vitta, apices with exterior angles dentate (red arrow).

**Redescription. Male:** Length 11–14 mm. **Form** small, stout; integument polished, head and pronotum metallic dark bluish-black or black tinted with blue, antennae, elytra, and legs black, underneath black, or black tinted with blue; each elytron with a single glabrous, slightly elevated, longitudinal, yellowish vittae. **Head** small; vertex shallowly convex, coarsely, irregularly punctate, middle between eyes vaguely carinate; front finely, irregularly punctate, mid-cranial sulcus narrow or vague extending from postclypeus over to posterior margin of antennal tubercles, each side of front below antennal insertion with a small, deep pit; postclypeus irregularly punctate, integument above vaguely to non-excavate; genae with anterior margins of lower eye lobes narrowly separated from base of mandible, glabrous to sparsely punctate, beneath densely contiguously punctate; pubescence moderately dense, short, dark, erect; mandibles with outer edge impressed striate-punctate, sparsely covered with depressed setae; antennae slender, exceeding elytral apices by one to two antennomeres; scape densely, coarsely punctate with short, suberect setae above and longer depressed setae underneath; antennomeres II–VI minutely, densely punctate, densely clothed with dark, depressed setae, remaining antennomeres finely, densely punctate, densely covered with short, appressed pubescence with a few depressed setae at apices; antennomeres from V vaguely carinate on outside, inside uncarinate; antennomere III longer than I; IV shorter than III; V longer than IV; VI, VII, VIII and IX subequal to V; X shorter than IX; XI longest, apical third vaguely appendiculate. **Pronotum** wider than long ( $L/W: 0.88 \times$ ), sides broadly, shallowly rounded from base to apex; disc convex, nitid, basal two-third slightly flattened in middle, dorsum sparsely, irregularly punctate, sides more coarsely, irregularly punctate, setae arising from each puncture, short, golden, erect; apical margin with sides vaguely elevated and narrowly impressed behind, basal margin vaguely elevated, lobed at middle; proepisternal area sparsely, discretely punctate; prosternum not impressed, apical half transversely striate-punctate, basal half coarsely punctate with vaguely impressed, transverse subrectangular area on each side above coxae, pubescence obscure, dense, erect; mesosternum impressed in middle, minutely, densely punctate, densely pubescent with fine, depressed setae; metasternum nitid, punctures coarse, shallow and sparse with depressed, golden setae arising from each puncture, area adjacent to mesocoxae with fine punctures densely interspersed between coarser ones and densely



pubescent with golden setae; metepisterna densely pubescent with golden, appressed setae. **Scutellum** triangular, longer than wide, black, or dark bluish-black, glabrous, nitid, occasionally minutely, sparsely punctate near base. **Elytra** 2.6 times as long as broad; each elytron with a broad glabrous, subsutural, longitudinal, yellowish vitta narrowing apically and not attaining apex; basal punctures on sutural intervals moderately coarse, discrete, becoming finer apically; pubescence short, suberect, and dark; apices bi-emarginate to sinuate with sutural and outer angles strongly dentate. **Legs** slender; femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface sparsely clothed with suberect, golden setae; metafemora arcuate near base, falling far short of elytral apices; tibiae coarsely, deeply, contiguously punctate clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, golden pubescence. **Abdomen** nitid, finely, sparsely punctate and clothed with suberect golden setae, sides very finely punctate and clothed with appressed golden pubescent; last sternite with apex truncate to vaguely emarginate at middle.

**Female:** Length 10–14 mm. Form slightly more robust than male. Prosternum lacking the delimited punctate area before coxae, apical half transversely striate-punctate, basal half sparsely punctate in middle, transversely striate-punctate on sides. Antennae shorter or exceeding elytra by a half of antennomere. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Tamaulipas*: 2–5 km SW Ciudad Victoria, Hwy 10, 24 Oct. 2004, B.K. Eya (13 males, 11 females, BKEC), 25 Oct. 2004, B.K. Eya (6 males, 9 females, BKEC); 33 km NE Jaumave, Hwy 101, 23 Oct. 2004, B.K. Eya (males, 1 female, BKEC). *Nuevo Leon*: 19 km W Linares, Hwy 58, 22 Oct. 2004, B.K. Eya (1 males, 4 females, BKEC); Carretera Linares-Iturbide, km 10–15, 4 Nov. 1982, J. Flores (2 females, EMEC). *Oaxaca*: 18 km N. Jct. Hwy 175/200 (3 km S Comala), 20 Oct. 2005, B.K. Eya (1 male, BKEC); Los Morales, 1600 m. 3 Oct. 2005, D. Curoe. *Yucatán*: Piste 15 Sept 1967, E.C. Welling (1 female, BKEC), 22 Sept. 1967, E.C. Welling (1 male, BKEC). *Quintana Roo*: km 8 Tilaco-Santa Inez Rd., 13 Oct. 1998, Chemsak, Barrera (3 males, 1 female, EMEC); 23 km W Felipe, Carrillo Puerto, 12 Oct. 1988, C.D. Michener (1 male, EMEC); Lk. Coba Ruins, 11/14 Nov. 1965, J.G. Edwards (1 female, EMEC). *Veracruz*: Veracruz, 24 Sept. 1961, R&K Dreisbach (1 female). *Chiapas*: San Jerónimo, Volcán Tacaná, 1 Oct. 1970 (1 male, BKEC), 24 Oct. 1970 (1 female, BKEC).

**Discussion.** The single ivory vitta on each elytron will differentiate this species from *L. quadrivittata* (Bates) and *L. nigricollis* Eya **new species** with two ivory vittae. The smaller overall size, stout body form, and denser, coarser punctures on the head, pronotum, elytra and the underside will separate this species from *L. prolata* Chemsak and Linsley with finer punctures and more elongated form.

The type species of the genus *Lophalia* “was originally assigned to *Sphaenothecus*” as *S. cyanicollis* Dupont (1838: 59) (Linsley 1962: 96). Dupont (1838: 59) and Lacordaire (1869: 184) described *S. cyanicollis* as a species with dark blue integument, and a single longitudinal, calloused and eburneous costa on each elytron that is much smaller and subparallel in form compared to *Sphaenothecus trilineatus* Dupont and *S. bilineatus* (Gory, 1831). Lacordaire further noted that *S. cyanicollis* was similar in facies to *Entomosterna* but differing by the shorter metatarsi, and mesosternum that is protuberant and truncated anteriorly. Lacordaire footnoted in his manuscript “Histoire Naturelle des Insectes” that a new genus based on *S. cyanicollis* should be established immediately following *Galissus* Dupont but did not follow through with his proposal. Thereafter, LeConte and Horn (1883: 300) placed *S. cyanicollis* into *Entomosterna* noting that “variations in the proportions of the joints of the hind tarsi are not unusual in Cerambycidae.” Subsequently, Linsley (1962: 96) “adopted the name *Lophalia*” for *S. cyanicollis* as proposed by Casey (1912: 333) noting that the assignment of *S. cyanicollis* to *Entomosterna* did “not agree well with that genus as defined by Chevrolat (1862: 752).”

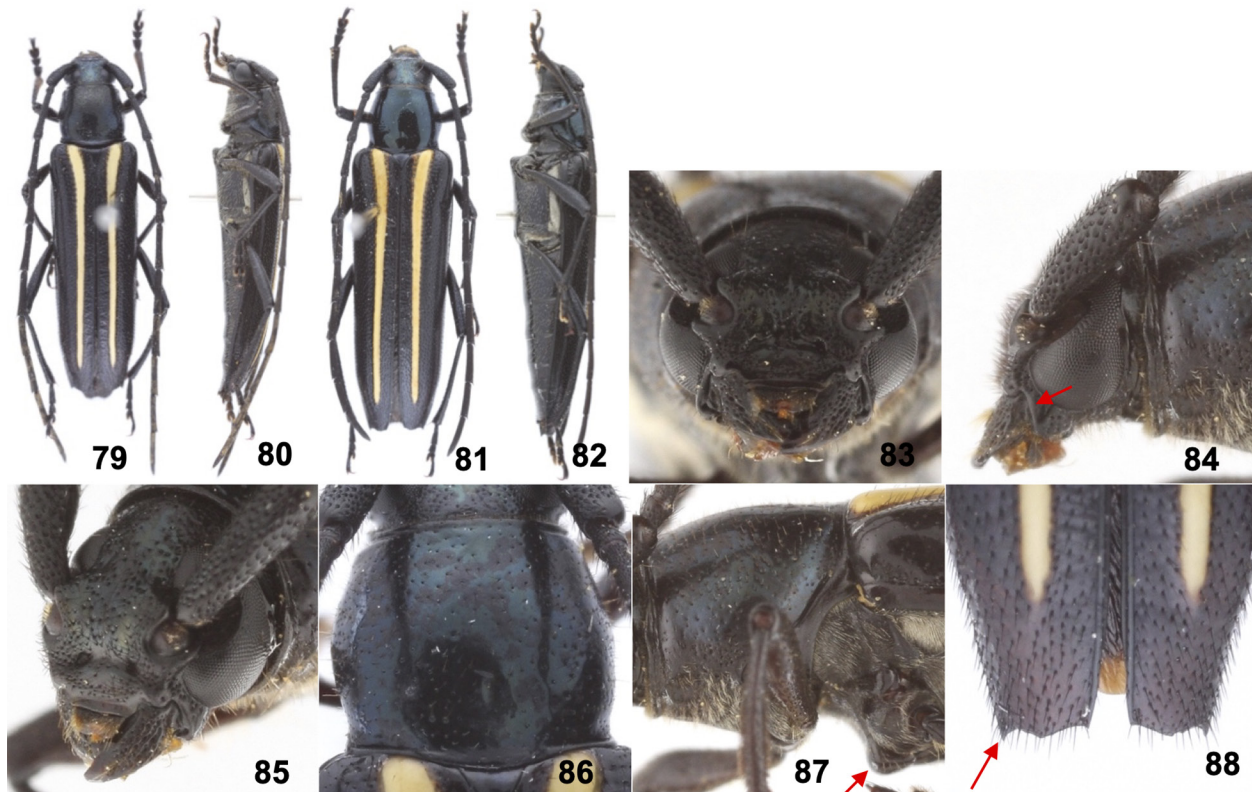
*Lophalia* consist of species with either single or paired longitudinally raised ivory-like vitta(e) on each elytron. Linsley (1962: 96) describes the genus *Lophalia* as having only one vitta on each elytron based on *L. cyanicollis* represented in the United States. However, Linsley’s characterization of *Lophalia* did not conform to this genus based on Casey’s description. Casey (1912: 333) designated *S. cyanicollis* as the genotype of *Lophalia*, and in the first couplet of his key to trachyderine genera he quoted, “*Elytra each with two pale costae.*” This characterization does not agree with *S. cyanicollis*. Apparently, the first couplet of Casey’s key should have been “*Elytra each with a pale costa*” based on the opposing first couplet, “*Elytra without costae.*” The subsequent fourth couplet ends with two species *Lophalia* (i.e., *S. cyanicollis*), with single ivory costa, and *Zalophia* with paired ivory costae on each elytron.

***Lophalia prolata* Chemsak and Linsley, 1988**

(Fig. 79–88)

*Lophalia prolata* Chemsak and Linsley 1988: 127; Chemsak et al. 1992: 84 (cat.); Chemsak and Noguera 1993: 63 (dist.); Monné and Giesbert 1994: 146 (cat.); Monné 1994: 34 (cat.); Noguera and Chemsak 1996: 402 (dist.); Noguera et al. 2002: 624 (dist.); Zaragoza-Caballero and Pérez-Hernández 2017: 34 (holotype)

**Materials examined.** MEXICO: *Jalisco*: 5.2 km S El Tuito, HWY 200, 25 Oct. 1995, B.K. Eya (1 female, BKEC); 5.8 km S El Tuito, HWY200, 12 Oct. 1995, B.K. Eya (4 males, 1 female, BKEC); 6.9 km S. El Tuito, HWY200, 13 Oct. 1995, B.K. Eya (9 males, 4 females, BKEC); 13.8 km S El Tuito, HWY200, 31 Oct. 1995, B.K. Eya (8 males, 1 female, BKEC); Estación de Biología Chamela, 23 Oct. 1995, B.K. Eya (2 males, BKEC); 8 km N Melaque Jct. HWY200, 22 Oct. 1995, B.K. Eya (4 males, 1 female, BKEC); 8 km N Melaque Jct. HWY200, 14 Oct. 1995, B.K. Eya (3 males, 1 female, BKEC); 8 km NW Melaque, 16–23 Oct. 1986, J.A. Chemsak (paratypes: 1 male, 1 female, BKEC); 35.9 km NE Melaque, Jct., HWY80, 29 Oct. 1995, B.K. Eya (8 males, 2 females, BKEC); 4.8 km S La Huerta, HWY80, 15 Oct. 1995, B.K. Eya (4 males, 3 females, BKEC); 4.8 km S La Huerta, HWY80, 24 Oct. 1995, B.K. Eya (1 females, BKEC); 25.1 km S La Huerta, HWY80, 15 Oct. 1995, B.K. Eya (1 female, BKEC); Microondas Puerto Los Mazos, Sierra de Manantlán, 15 Oct. 1995, B.K. Eya (1 male, BKEC); 21.6 km N St. Gabriel, Jct. 80/432, 28 Oct. 1995, B.K. Eya (3 males, 2 females, BKEC); 3.1 km NE San Gabriel, HWY432, 17 Oct. 1995, B.K. Eya (5 males, 2 females, BKEC); Planta La Mesa, 13.8 km NE San Gabriel, HWY432, 18 Oct. 1995, B.K. Eya (1 male, BKEC); Planta La Mesa, 22.7 km N Jct. HWY432, 28 Oct. 1995, B.K. Eya (1 male, 1 female, BKEC); Chápala, 1500 m, 9/10 Oct. 1996, G. Noguiera, (1 female, BKEC). *Sinaloa*: 30 km W El Palmito, 2–9 Oct. 1976, E. Giesbert (3 males, 1 female, FSCA).



**Figures 79–88.** *Lophalia prolata* Chemsak and Linsley, dorsal and lateral images: **79–80** Male, 14 mm, Jalisco, MEX. **81–82** Female, 15 mm, Jalisco, MEX. Head: **83**) Frontal image with punctures sparse, shallow. **84**) Lateral profile with genae short (red arrow). **85**) Frontolateral profile with short, convex and subvertical front, mid-cranial sulcus absent. Pronotum: **86**) Disc polished with punctures sparse, shallow, and sides rounded. Thorax lateral image: **87**) Mesosternal intercoxal process protuberant (red arrow). Elytra: **88**) Each elytron with single submarginal ivory vitta, apices with exterior angles dentate (red arrow).

**Discussion.** According to Chemsak and Linsley (1988: 127–128), this species is moderate in size (12–19 mm), elongate, and slightly tapered posteriorly with “integument shining black.” “Head and prothorax are dark metallic greenish, and each elytron is provided with a narrow, glabrous, slightly elevated, longitudinal, yellowish vitta.” The front is short, and each side of middle above postclypeus is “a deep, transverse pit.” The vertex is finely, sparsely punctate, and glabrous in the middle between eyes. The antennae are “slender extending about two segments beyond elytra” in males and “slightly longer than body” in females with basal antennomeres II–V shining and outer antennomeres VI–XI opaque. The antennae are vaguely carinate on the outer surface of antennomeres IV–VIII, and on the inner surface of V–VIII. The “pronotum is slightly broader than long, sides broadly rounded,” and “disc shining, sparsely punctate, and medially glabrous” with “pubescence sparse and short.” The mesosternal “intercoxal process is strongly produced between coxae.” The “elytra are almost three times as long as broad” with “apices sinuate-truncate and outer angles strongly dentate.” The scutellum is “glabrous, elongate, acute, and narrowed posteriorly.”

*Lophalia prolata* Chemsak and Linsley has a front of the head that is convex and subvertical with deep transverse pits on each side above the postclypeus (Chemsak and Linsley 1988: 129). The mid-cranial sulcus is narrow and vague extending arcuately from postclypeus over to the posterior margin of antennal tubercles. The sparsely punctate, metallic colored head and pronotum, and “elongate body form” combined with “the single vitta on each elytron will differentiate *L. prolata* from other species” in this genus. The species name “*prolata*” is Latin for “extended” referring to the elongate body form of this species (WordSense 2024).

### ***Lophalia quadrivittata* (Bates, 1892)**

(Fig. 89–98)

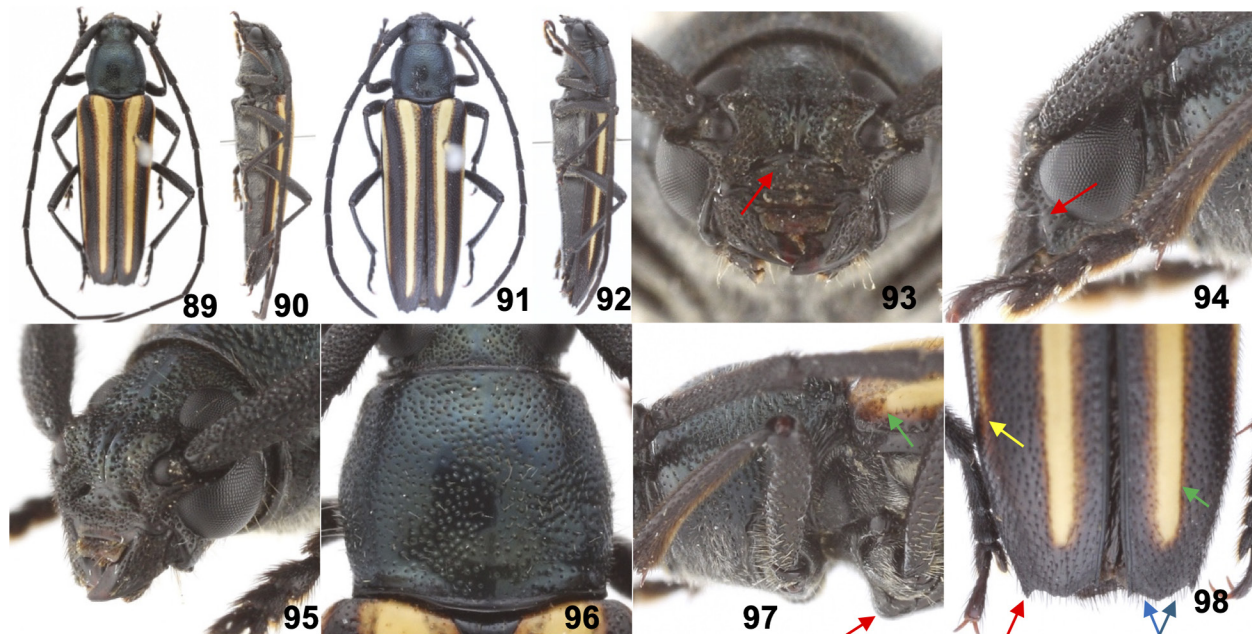
*Lophalia quadrivittata* Casey 1912: 335; Chemsak and Noguera 1993: 63 (dist.); Monné and Giesbert 1994: 146 (cat.); Monné 1994: 34 (cat.)

*Lophalia quadrivittatus* Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 84 (cat.); Noguera and Chemsak 1996: 402 (dist.)

*Sphenothecus quadrivittatus* Bates 1892: 179; Chemsak 1967: 80 (lect.)

*Sphaenothecus quadrivittatus* Aurivillius 1912: 472 (cat.)

**Redescription. Male:** Length 14–17 mm. **Form** small to moderate sized, stout; integument polished, head and pronotum metallic dark bluish black to aenescent black, antennae, legs and underneath black; each elytron with two glabrous, slightly elevated, longitudinal, yellowish vittae. **Head** small; vertex shallowly convex, contiguously punctate with median glabrous area between eyes; front, contiguously punctate, mid-cranial sulcus narrow extending from postclypeus over to posterior margin of antennal tubercles, each sides below antennal insertion with a deep, obliquely transverse pit, integument above pits shallowly impressed; postclypeus finely, densely punctate with a median, sparsely punctate area on upper half; genae short, nitid; pubescence opaque, short and erect, vertex with few longer, erect setae; mandibles with outer edges impressed, striate-punctate, sparsely clothed with depressed pubescence; antennae slender, exceeding elytral apices by two antennomeres; scape conical, densely, contiguously punctate with short suberect setae above and longer depressed setae underneath; antennomeres II–VI minutely, densely punctate, densely clothed with dark, depressed setae, remaining antennomeres finely, densely punctate, densely covered with short, appressed pubescence with a few depressed setae at apices; antennomeres from V carinate on outside and inner surface; antennomere III longer than I; IV subequal to I; V longer than IV, shorter than III; VI slightly longer than V; VII, VIII and IX subequal to VI; X shorter than IX, subequal to V; XI longest, apical third vaguely appendiculate. **Pronotum** wider than long ( $L/W: 0.87 \times$ ), sides broadly, shallowly rounded from base to apex; disc convex, basal two-third slightly flattened in middle, finely, discretely punctate, sides more contiguously punctate, each punctures with short, golden, erect setae; apical margin vaguely collared, very narrowly impressed behind; base vaguely impressed at sides, margin slightly lobed at middle; proepisternal area sparsely, discretely punctate; prosternum not impressed, transversely striate-punctate on apical half, basal half on each side above coxae with vaguely impressed, coarsely punctate, transverse subrect-angular area, integument densely clothed with erect golden setae; mesosternum impressed in middle, minutely, densely punctate, densely pubescent with fine depressed setae; metasternum nitid, punctures coarse, shallow and sparse, pubescence suberect and golden, area adjacent to mesocoxae with fine punctures densely interspersed



**Figures 89–98.** *Lophalia quadrivittata* (Bates), dorsal and lateral images: **89–90**) Male, 15 mm, Guerrero, MEX. **91–92**) Female, 14 mm, Guerrero, MEX. Head: **93**) Front with frontoclypeal sulcus deeply, transversely excavate (red arrow). **94**) Lateral profile with genae short (red arrow). **95**) Frontolateral profile with front short, convex and subvertical. Pronotum: **96**) Disc polished with metallic bluish or aenescent sheen, and sides rounded. Thorax lateral image: **97**) Mesosternal intercoxal process protuberant (red arrow), submarginal vitta on elytron beginning below humerus (green arrow). Elytra: **98**) Each elytron with two ivory vittae, broad subsutural (green arrow) and a narrow submarginal one (yellow arrow), apices bi-emarginate truncate (blue arrows), exterior angles with prominent spine (red arrow) longer than one on sutural angle.

with coarser ones, pubescence dense, golden; metepisterna densely pubescent with golden, appressed setae. **Scutellum** black, glabrous, triangular, longer than wide. **Elytra** 2.6 times as long as broad; each elytron with a broad glabrous, subsutural, longitudinal, yellowish vitta narrowing apically not attaining apex, and a narrower submarginal one beginning at base of elytron below humerus narrowing and reaching apical fourth; basal punctures on sutural intervals coarse, shallow, discrete, becoming finer apically, each punctures giving rise to a short, suberect dark setae; apices obliquely bi-emarginate with sutural and outer angle strongly dentate. **Legs** slender; femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface sparsely clothed with suberect golden setae; metafemora arcuate near base, falling far short of elytral apices; tibiae coarsely, contiguously punctate clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, golden pubescence. **Abdomen** nitid with broad median area finely, sparsely punctate and clothed with suberect golden setae, sides very finely, densely punctate and clothed with appressed golden pubescence; last sternite with apex truncate to vaguely emarginate at middle.

**Female:** Length 14–17 mm. Form more robust than male. Prosternum transversely, striate-punctate throughout, lacking coarsely punctate area before coxae. Antennae attaining or exceeding elytral apices by an antennomere. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Guerrero*: 5 km W. Ocotito, 14 Oct. F.T. Hovore (9 males, 1 female, CASC, CASC); 6 km W. Veintidós, 21 Oct. 1984, F. Hovore (2 males, 1 female, CASC); Acahuizotla, camino Acahual, 18 Oct. 1989, L. Delgado, J. Blackaller (3 males, 2 females, EMEC); Acapulco, 150 m, 19 Oct. 1989, R.L. Westcott (2 males, EMEC); 20 km S Petaquillas, 29 Sept. 1994, J.A. Chemsak (2 females, EMEC); 22.4 km S Petaquillas, oak-pine woodland, 1000 m, 18 Oct. 1989, R.L. Westcott (2 females, EMEC); Palo Blanco, 17 Oct. 1989, Alt 1100, L. Delgado, J. Blackaller (1 female, EMEC); 11.4 km S. Palo Blanco, 17°19', 99°29', 915 m, 10 Oct. 1989, R.L. Westcott (2 males, EMEC). *Jalisco*: Estación de Biología Chamela, 6 Dec. 1988, J.D. Mc Carty (1 female, EMEC).

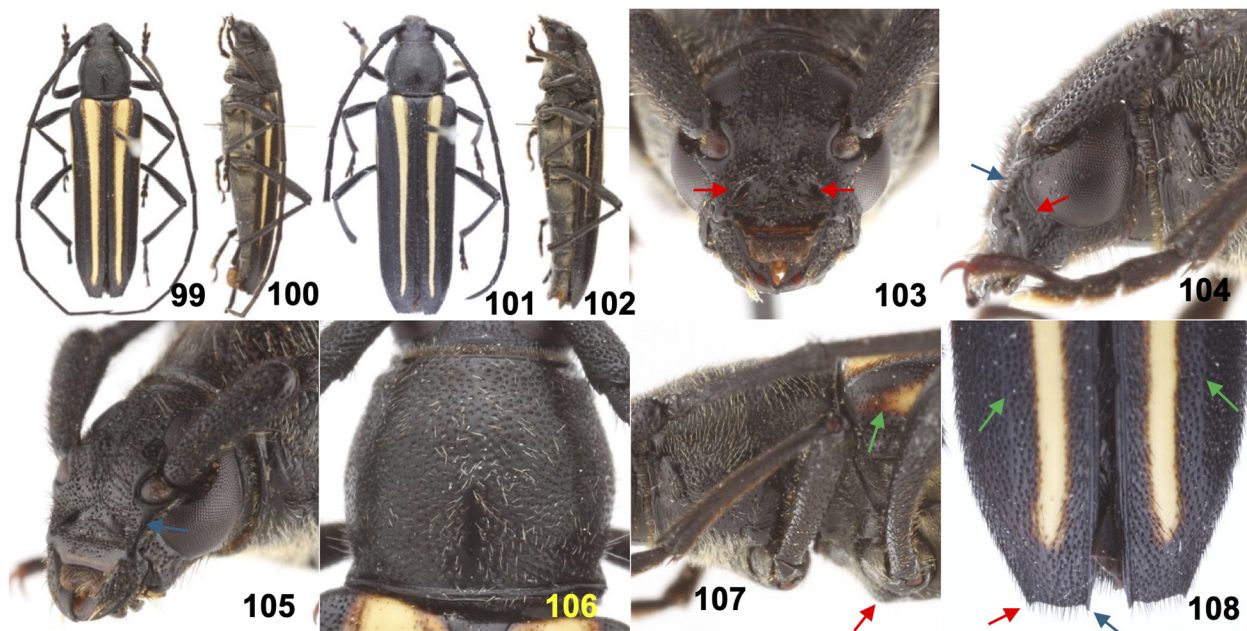
**Discussion.** According to Bates (1892: 179), *Lophalia quadrivittata* is similar in facies to *L. cyanicollis* (Dupont) but differs by having two yellow costiform vittae on each elytron. Integument is dark bluish black and polished, and the antennae, legs, and sternum black. On both sides of elytra are two convex vittae - one near the suture that is slightly dilated near base and not reaching the apices, and second submarginal vittae that are narrowed posteriorly and abbreviated. Thorax is like that of *L. cyanicollis* with middle slightly rotundate, slightly narrowed to apex, and disc sub-sparsely punctate. The interspace of smooth costae on elytra are punctures bearing setae, and apices of elytra are very flexuous-truncate with external angles acute and sutural angles with short spine. Original habitat as reported by Bates is Mexico, Dos Arroyos, R. Papagaio (1200 ft.), Venta de Pelegrino, Rincon (2800 ft.), Acaguizotla (3500 ft.), Hacienda de la Imagen (4000 ft.), and Acapulco, all in Guerrero.

The double vittae on each elytron will separate this species from *L. cyanicollis* and *L. prolata*. This species is differentiated from *L. nigricollis* Eya **new species** by the smaller overall size, metallic bluish black to greenish black head and pronotum, apices of elytra that are bi-emarginated truncate with prominent spine on the exterior angle, and frontoclypeal sulcus that is frequently deeply, transversely excavated. *Lophalia nigricollis* is larger in overall size, head and pronotum are black and the apices of elytra are serrate to sinuate truncate with short spine on the exterior angles.

### *Lophalia nigricollis* Eya, new species

(Fig. 99–108)

**Description. Male:** Length 16–17 mm. **Form** moderate sized, elongate; integument polished, head, pronotum, antennae, legs and underneath all black; each elytron with two glabrous, slightly elevated, longitudinal, yellowish vittae. **Head** small; vertex vaguely convex, contiguously punctate; front, short, punctures coarse, subcontiguous, mid-cranial sulcus narrow, vaguely visible, each side of front below antennal insertion with a broad obliquely



**Figures 99–108.** *Lophalia nigricollis* Eya sp. nov., dorsal and lateral images: 99–100) Male, 18 mm, Michoacán, MEX. 101–102) Female, 18 mm, Morelos, MEX. Head: 103) Front with wide, shallow depression on each side below antennal insertion (red arrows). 104) Lateral profile with genae prominent (red arrow), lower eyes separated from base of mandibles, each side of front with elevated frontogenal ridge or carina (blue arrow). 105) Frontolateral profile with frontogenal ridge or carina elevated (blue arrow), mid-cranial sulcus vague. Pronotum: 106) Disc polished, black with sides rounded. Thorax lateral image: 107) Mesosternal intercoxal process protuberant (red arrow), submarginal vitta on elytron starting below humerus (green arrow). Elytra: 108) Elytron tricostate with vague, dark costa (green arrow) on outside of submarginal vitta, apices sinuate truncate, exterior angles with short spine (red arrow) not longer than one on sutural angle (blue arrow).

transverse excavate area; postclypeus finely, irregularly punctate; genae prominent, nitid, sparsely punctate, frontogenal ridges elevated (Fig. 104–105); antennal tubercles horizontal, integument between tubercles vaguely impressed; pubescence obscure, short, dark, erect; mandibles irregularly, rugosely punctate on sides; antennae exceeding elytra by two antennomere; scape conical, finely, densely, punctate with short suberect setae above and few, longer, depressed setae underneath; antennomeres II–V finely, densely punctate, densely clothed with short, dark, depressed setae and few, suberect setae on apices, remaining antennomeres opaque, minutely, densely punctate, densely covered with minute, appressed pubescence with a few, short setae on apices and underneath; antennomeres from V vaguely carinate on outside, and inner surface; antennomere III longer than I; IV shorter than III, longer than I; V longer than IV and shorter than III; VI, VII and VIII subequal to V; IX shorter than VIII; X subequal to IX; XI longest, apical third vaguely appendiculate. **Pronotum** wider than long (L/W: 0.9 ×), sides broadly, shallowly rounded from base to apex; disc convex, densely, discretely, punctate, each punctures shallow with short, golden, suberect setae, integument vaguely raised longitudinally in middle with narrow, elongate, impunctate area on basal two-third, sides with punctures subcontiguous; apex very narrowly impressed, base vaguely impressed at sides; proepisternal area shallowly, irregularly punctate; prosternum transversely striate-punctate on apical half, basal half with vaguely impressed, transverse subrectangular area on each side above coxae with coarse punctures and densely clothed with erect golden setae; prosternal intercoxal process glabrate, finely, sparsely punctate; mesosternum impressed in middle, minutely, densely punctate, densely pubescent with fine, depressed setae; metasternum nitid, punctures shallow and sparse with depressed, golden setae arising from each puncture, area adjacent to mesocoxae with finer punctures densely interspersed, and densely clothed with golden pubescence; metepisterna densely pubescent with golden, appressed setae. **Scutellum** black, glabrous, triangular, as long as wide. **Elytra** 2.8 times as long as broad; each elytron with a broad, glabrous, subsutural, longitudinal, yellowish vitta which narrows apically and not attaining apex, and a narrower, submarginal longitudinal yellowish vitta beginning below humerus narrowing and reaching apical fifth, and another vague, dark costa between subsutural and submarginal vittae starting from basal tenth and reaching apical tenth; basal punctures on sutural intervals fine, shallow and discrete, becoming denser, finer and deeper apically, punctures between vittae, fine, deeper than ones on sutural intervals, becoming denser and deeper towards middle and shallower and sparser near apices; pubescence between vittae short, dark and depressed becoming denser and appressed apically with short, suberect, golden setae on either side of subsutural vittae; apices sinuate with sutural and outer angle dentate, spines on outer angle short, not longer than one on sutural angles. **Legs** slender; femora slightly clavate, coarsely, densely punctate, dorsum clothed with short, depressed setae, inner surface clothed with suberect golden setae; metafemora arcuate near base, falling far short of elytral apices; tibiae coarsely, contiguously punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, golden pubescence; metatarsomere I, elongate, slightly longer than tarsomeres II and III combined. **Abdomen** nitid with broad median area finely, sparsely punctate and clothed with suberect golden setae, sides very finely, densely punctate and clothed with appressed, golden pubescent; apex of last sternite truncate.

**Female:** Length 18 mm. Head with punctures fine, subcontiguous, vertex with glabrous area in middle between eyes; front with punctures fine, irregular and subcontiguous, antennae exceeding elytra by an antennomere; antennomere III longer than I; IV shorter than III, subequal to I; V longer than IV and shorter than III; VI and VII subequal to V; VIII shorter than VII; IX subequal to VIII; X shorter than IX; XI subequal to V, apical one-fourth vaguely appendiculate. Pronotum with disc nitid, finely, discretely, punctate, basal half with broad, glabrous, impunctate area in middle; proepisternal area with punctures sparse, shallow; prosternum not impressed to vaguely impressed, transversely striate-punctate on apical half, basal half densely, minutely punctate, without transverse, subrectangular area above coxae as in male. Elytra 2.7 times as long as broad; each elytron with submarginal yellow vittae beginning below humerus reaching apical third; basal punctures between sutural intervals fine, separated, integument becoming rugulose apically. Metatarsi with tarsomere I subequal to tarsomeres II and III combined. Abdomen with apex of last sternite broadly rounded.

**Etymology.** This species is named after the black pronotum, Latin for “black-necked” (i.e., *nigricollis*), i.e., New Latin from *niger* “black” and *collum* “neck” referring to the pronotum.

**Type materials.** Holotype, male, MEXICO: *Michoacán*, 16.6 km S. Zumpimito, Hwy 37, km 98, 1150 m, 14 Oct. 1988, Mudge and Westcott (CSCA) deposited in CSCA; allotype, female, MEXICO: *Morelos*, Jalastoc, 14 Sept.

1951, F. Mendoza P. (EMEC 1327431) deposited in EMEC. Four paratypes, all from MEXICO: *Michoacán*: 16.6 km S. Zumpimito, Hwy 37, km 98, 1150 m, 14 Oct. 1988, Mudge and Westcott (2 males, LGBC); 30.6 km N. La Mira, Hwy 37, 700 m, 12 Oct. 1988, Mudge and Westcott (1 male, LGBC); 33 km NE Arteaga, 980 m, (Hwy 37, K242), 10 Nov. 1976, E. Fischer, P. Sullivan (1 male, FWSC).

**Discussion.** *Lophalia nigricollis* **new species** can be differentiated from the other species by the larger overall size, black head and pronotum that lacks any metallic bluish or aenescent sheen. This species is included in *Lophalia* based on the overall glabrous form, small but dentate outer angle of elytral apices, and mandibles that are arcuate on sides. The genae of *L. nigricollis* is prominent with elevated frontogenal ridges (Fig. 104–105), and therefore, the anterior margins of lower eyes are well separated from the base of mandibles. The mesosternal intercoxal process is vaguely elevated, and not as prominent and abruptly declivous anteriorly as in other species. Other *Lophalia* species have head and pronotum with metallic bluish to greenish luster, outer angles of elytral apices more prominently spined, and genae that are much shorter with eyes closely set near the base of mandibles. Each elytron of *L. nigricollis* is tricostate with a vague, dark costa in between the two-ivory vittae, and the disc is more densely punctate, and densely pubescent with depressed dark setae. Other *Lophalia* species have sparsely pubescent glabrous elytra with either one or two costae on each elytron. The scutellum of *L. nigricollis* is triangular and is as long as wide while the other species of *Lophalia* have scutellum that is longer than wide. The males of *L. nigricollis* have pronotum that is densely punctate with punctures shallow and flattened, and the basal two-thirds of disc with a narrow, elongate, impunctate area in the middle. The pronotum of female is finely, sparsely punctate with the impunctate area in the middle of the disc that is broader than in males.

### *Lophaliamorpha* Eya, new genus

**Type species.** *Sphenothecus luteicollis* Bates, 1885

A new genus *Lophaliamorpha* is created to include *Ischnocnemis luteicollis* Bates and *Lophalia cribricollis* Bates, and the following new combinations are proposed: *Lophaliamorpha luteicollis* (Bates, 1885) **new combination**, and *L. cribricollis* (Bates 1892) **new combination**.

**Description.** **Form** moderate sized, sides subparallel. **Head** with front short, declivous in middle, mid-cranial sulcus (or median line) deeply canaliculate or well defined, extending from postclypeus towards vertex past antennal tubercles, each side above postclypeus below antennal insertion with a deep pit, frontoclypeal sulcus transversely excavated between pits; genae very short, anterior margins of lower eye lobes almost contiguous with base of mandibles; palpi short, subequal, last segments not expanded, outer edges of maxillary palpi impressed, apices truncate; mandibles with sides strongly angulated near base then arcuate towards apices, outer edges vaguely impressed and striate-punctate; apices simple, narrowly rounded or truncate; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large; antennal tubercles divergent, moderately elevated above vertex, apices angulate; integument between tubercles deeply impressed; antennae elongate, slender, 11-segmented, 11<sup>th</sup> antennomere vaguely to non-appendiculate. **Pronotum** hexagonal, slightly broader than long, narrower than base of elytra at humeri, sides obtusely tuberculate to angulate; disc arcuately impressed above lateral tubercles and basal two-thirds distinctly flattened or impressed in middle; prosternum with intercoxal process level with coxae, narrower than coxal cavity, occasionally impressed medially, apex vertically concave, coxal cavities wide open behind; mesosternum with intercoxal process prominent, protuberant above coxae, vertical or abruptly declivous and excavated anteriorly; posterior-lateral margins vaguely overlapping coxae. **Scutellum** triangular, glabrous, apex attenuating to a narrow point. **Elytra** each with three, distinct, longitudinal, glabrous costae; apices obliquely truncate, serrate with sutural angles minutely dentate, exterior angles obtusely angulate to rounded or minutely dentate. **Legs** moderately short; metafemora falling short of elytral apices in both sexes; metatarsomere I subequal to or slightly longer than tarsomeres II and III combined. **Abdomen** normally segmented.

**Discussion.** *Lophaliamorpha* Eya **new genus** is characterized as follows: (1) head with front short, declivous in middle (Fig. 121, 135); (2) mid-cranial sulcus (median line) deeply canaliculate or well defined, extending from postclypeus to vertex past the antennal tubercles (Fig. 119); (3) mandibles with sides strongly angulated near base (Fig. 121, 135); (4) genae narrow, lower eye lobes almost contiguous with mandibles (Fig. 120, 134); (5) antennal tubercles moderately elevated, divergent, and the integument between tubercles deeply impressed

forming a V-shaped valley sloping down to mid-cranial sulcus (Fig. 121, 135); (6) pronotum hexagonal with sides impressed above lateral tubercles (Fig. 122, 136) and basal two-thirds distinctly flattened or impressed in middle (Fig. 123, 137); (7) mesosternal intercoxal process that is protuberant above coxae, vertical or abruptly declivous anteriorly (Fig. 123, 137); (8) each elytron with three, distinct, longitudinal, glabrous costae (Fig. 124, 138) with apex truncate to obliquely truncate with exterior angle obtusely angulate (Fig. 126, 138), minutely dentate (Fig. 125) or rounded; (9) scutellum triangular with apex attenuating to a narrow point; and (10) metatarsomere I subequal to or slightly longer than tarsomeres II and III combined (Fig. 127).

*Lophaliamorpha* can be separated from *Lophalia* Casey by the three, distinct, longitudinal, glabrous costae on each elytron, hexagonal pronotum that is cribriform or alveolate punctate with basal two-thirds distinctly flattened or impressed in middle, and obliquely truncate elytral apices with exterior angles usually angulate and unarmed. The front is declivous in middle and the mid-cranial sulcus is deeply canaliculate from the frontoclypeal sulcus on to vertex. The mandibles are strongly angulated at sides, and genae narrow with anterior margins of lower eyes almost contiguous with the base of mandibles. The antennal tubercles are moderately elevated and divergent with the integument between tubercles deeply impressed. *Lophalia* can be differentiated from *Lophaliamorpha* by the subparallel form, dark polished integument, broadly rounded sides of pronotum, and strongly dentate exterior angle of elytral apices. The front of *Lophalia* is convex and subvertical with integument between antennal tubercles is not or barely impressed. *Lophalia* has mandibles that are arcuate at sides, and the mid-cranial sulcus is shallow or vague. The metatarsomeres are more elongate in *Lophaliamorpha* (Fig. 127) compared to *Lophalia* (Fig. 128). *Lophaliamorpha* can be differentiated from *Zalophia* by the elongate and slender basal antennomeres (Fig. 68) and cribriform or alveolate punctate pronotum that are not obscured by pubescence. *Zalophia* has short and stout basal antennomeres (Fig. 65) and pronotum that are densely hirsute.

**Etymology.** The etymology of the name *Lophaliamorpha* refers to the shape or appearance that resembles *Lophalia*. The suffix “-morpha” is Latin from “-morphus” or “shaped” from Ancient Greek μορφή (*morphē*, “shape, appearance”). *Lophaliamorpha* is a genus-group name with Latinized feminine ending.

### Key to species of *Lophaliamorpha* Eya, new genus

1. Each elytron with three raised, longitudinal, glabrous, narrow costae (Fig. 124); pronotum and/or elytra ochraceous or reddish . . . . . *L. luteicollis* (Bates), **comb. nov.**
- Each elytron with two raised, glabrous, yellowish vittae, and a narrow, impunctate, dark costa in between (Fig. 138); pronotum and elytra black to dark reddish-brown . . . *L. cribricollis* (Bates), **comb. nov.**

### *Lophaliamorpha luteicollis* (Bates, 1885), new combination

(Fig. 109–127)

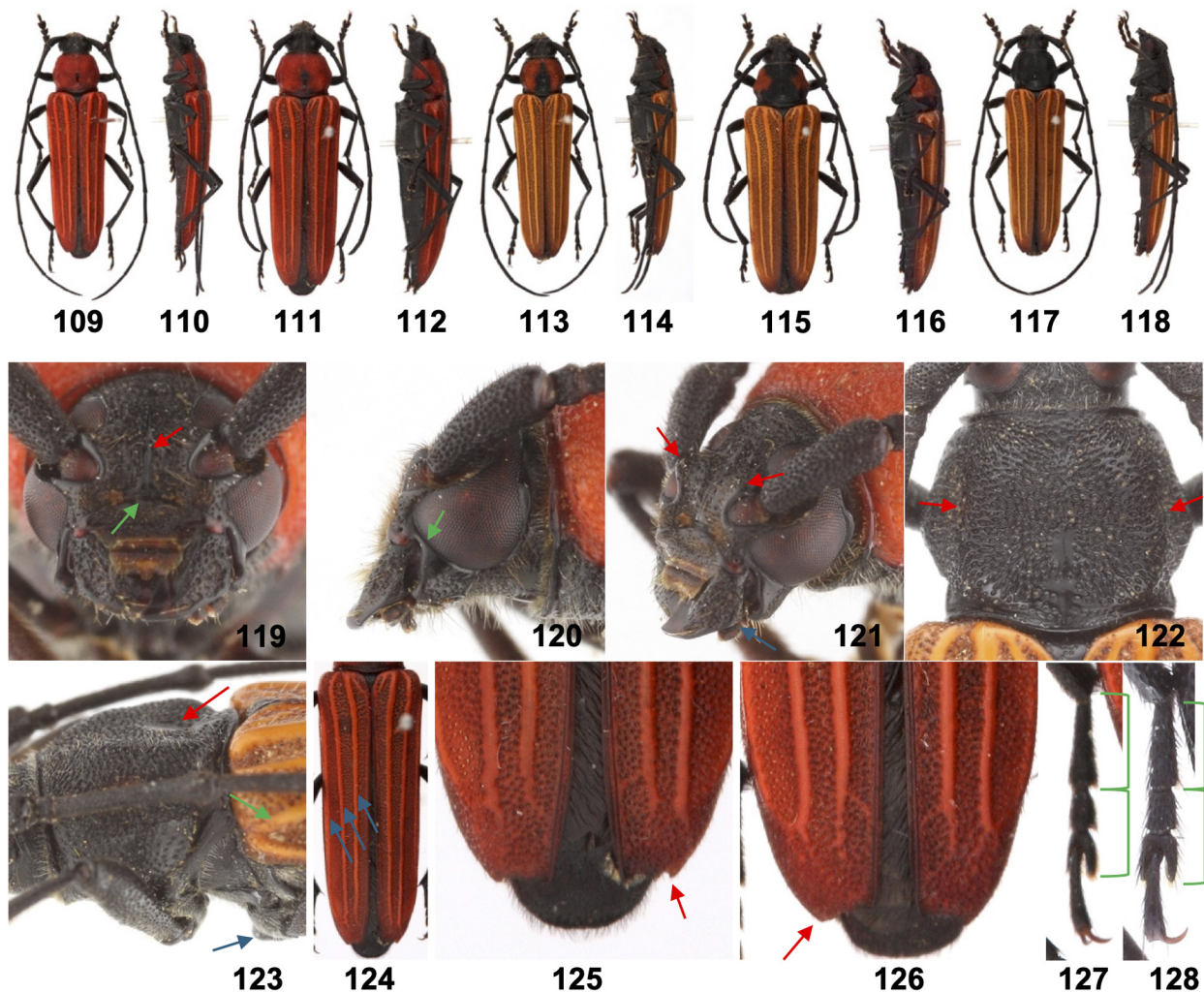
*Sphenothecus luteicollis* Bates 1885: 329; Chemsak 1967: 79 (lect.)

*Sphaenothecus luteicollis* Aurivillius 1912: 472 (cat.); Blackwelder 1946: 589 (cat.); Chemsak et al. 1992: 86 (cat.); Monné 1994: 63 (cat.); Monné and Giesbert 1994: 151 (cat.); Noguera and Chemsak 1996: 403 (dist.).

*Ischnocnemis luteicollis* Chemsak and Noguera 1998: 12 (comb. nov.); Toledo-Hernández 2005: 419 (dist.)

**Redescription. Male:** Length 15–22 mm. **Form** moderate sized, elongate; head, antennae, sternum, legs black, abdomen dark reddish, pronotum ochraceous or reddish with irregular black macula usually in middle of basal half or disc occasionally all black, elytra ochraceous or reddish, scutellum dark reddish black to black; each elytron with three glabrous, elevated, longitudinal vittae. **Head** small; vertex coarsely, confluent punctate; front finely, confluent punctate; postclypeus finely, densely punctate on lower half, upper half with impunctate or irregularly punctate median polished area; genae glabrous, bottom half triangular, finely punctate beneath; labrum finely punctate; pubescence moderately dense, short, erect around base of antennal insertion, postclypeus and labrum; antennae exceeding elytral apices by two antennomeres; scape conical densely, contiguously punctate with very short suberect setae above and longer depressed setae underneath; antennomeres II–VI minutely, densely punctate, densely clothed with short, dark, depressed setae, remaining antennomeres opaque, minutely, densely punctate, densely covered with minute, appressed pubescence with few longer depressed setae on apices; antennomeres from apical half of III vaguely carinate on outer and inner surface; antennomere III longer than I; IV shorter than III; V longer than IV, subequal to III; VI shorter than V, subequal to IV; VII, VIII, IX and X subequal





**Figures 109–127.** *Lophaliamorpha luteicollis* (Bates) **comb. nov.**, dorsal and lateral images: 109–110) Male, 19 mm, Jalisco, MEX. 111–112) Female, 20 mm, Jalisco, MEX. 113–114) Male, 19 mm, Jalisco, MEX. 115–116) Female, 20 mm, Jalisco, MEX. 117–118) Male, 19 mm, Jalisco, MEX. Head: 119) Front short, mid-cranial sulcus (red arrow) deeply canaliculate extending from frontoclypeal sulcus (green arrow) to vertex. 120) Lateral profile with gena narrow (green arrow). 121) Frontolateral profile with antennal tubercles elevated, divergent (red arrows), side of mandibles angulate (blue arrow). Pronotum: 122) Disc hexagonal, sides arcuately impressed (red arrow) above lateral tubercles. Thorax lateral image: 123) Basal  $\frac{2}{5}$ <sup>rd</sup> of pronotal disc impressed in middle (red arrow), mesosternal intercoxal process protuberant (blue arrow), submarginal costa of each elytron starting below humerus (green arrow). Elytra: 124) Each elytron with three distinct costae (blue arrows). 125) Apices obliquely truncate, exterior angle minutely dentate (red arrow). 126) Apices with exterior angle obtusely angulate (red arrow). Metatarsi: 127) Metatarsomere 1 ( $T_1$ ) subequal (green brackets) to or longer than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.10. Comparison of metatarsi to *Lophalia*: 128) Metatarsi of *Lophalia cyanicollis*, male, metatarsomere 1 ( $T_1$ ) subequal (green brackets) to or shorter than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.92.

to VI; XI longest, apical two-fifth vaguely appendiculate. **Pronotum** wider than long (L/W: 0.77), sides obtusely tuberculate; disc with basal two-thirds impressed in middle, apical half with broad callus on each side, basal half also broadly callused on each sides near margin, sides above lateral tubercles arcuately impressed, surface cribriform or alveolate punctate with small, elongate, polished, black, impunctate area near base; setae short, erect arising from each puncture; apex narrowly constricted, margin collared; base impressed at sides; proepisternal area moderately, densely, irregularly punctate; prosternum shallowly impressed, apical half transversely plicate or striate-punctate, basal half on each side above coxae with delimited, finely punctate, transverse subrectangular

area with erect, golden setae; mesosternum finely, densely punctate, glabrous on sides below mesepisterna, pubescence short, opaque, erect; metasternum nitid, punctures sparse, coarse and shallow, pubescence short, opaque, depressed, area adjacent to mesocoxae more densely punctate; metepisterna finely, densely, contiguously punctate with larger punctures interspersed, densely clothed with short, appressed, whitish setae. **Scutellum** sparsely punctate, reddish brown to black, darker than elytra. **Elytra** 2.7 times as long as broad; each elytron with three raised costae not attaining apex, punctures on sutural intervals and between costae coarse, alveolate with dark center; pubescence minute, suberect; apices serrate truncate with exterior angle obtusely angulate, sutural angle minutely dentate or angulate. **Legs** slender; femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface clothed with suberect, golden setae, meso- and metafemora arcuate near base; metafemora falling far short of elytral apices; tibiae coarsely, deeply, contiguously punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, golden pubescence; metatarsomere I subequal to or slightly longer than tarsomeres II and III combined. **Abdomen** nitid, sparsely, punctate in middle, clothed sparsely with long depressed setae, sides more densely punctate, clothed with shorter appressed setae; apex of last sternite truncate.

**Female:** Length 17–22 mm. Form slightly more robust than male, parallel-sided. Prosternum with basal half cribrate or alveolate punctate, lacking the delimited, punctate area before coxae; proepisternal area cribrate punctate. Antennae shorter, not attaining apices of elytra. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Jalisco*: 5.2 km S. El Tuito, Hwy 200, 25 Oct. 1995, B.K. Eya (9 males, 3 females, BKEC); 5.8 km S. El Tuito, Hwy 200, 12 Oct. 1995, B.K. Eya (1 male, 1 female, BKEC); 6.9 km. S. El Tuito, Hwy 200, 13 Oct. 1995, B.K. Eya (2 males, 1 female, BKEC); 12.3 km S. El Tuito, Hwy 200, 12 Oct. 1995, B.K. Eya (1 female, BKEC); 35.9 km. N.E. of Melaque Jct. Hwy 80, 29 Oct 1995, B.K. Eya (4 males, BKEC); 4.8 km S. La Huerta, Hwy 80, 15 Oct. 1995, B.K. Eya (1 male, BKEC); Volcan de Tequila, 1300 m, 13/15 Oct. 2009, G. Noguiera (2 males, BKEC); 4.3 km. N.E. Talpa de Allende near San Rafael, 20 Oct. 1995, B.K. Eya (1 female, BKEC); 15 mi. N.E. Guadalajara, 17 Sept. 1970, R.M. Bohart (1 male, BKEC); Ajijic, Lake Chapala, 19 Oct. 1995, B.K. Eya (12 males, 1 female, BKEC); Chapala, 1500 m, 9/10 Oct. 1996, G. Noguiera (1 female, BKEC); Chapala, 1500 m, 08 Oct. 1999, G. Noguiera (1 male, BKEC); 9.3 km S. of Sayula, Hwy 432, 18 Oct. 1995, B.K. Eya (6 males, 4 females, BKEC); 9.3 km S. of Sayula, Hwy 432, 26 Oct. 1995, B.K. Eya (2 males, BKEC). *Nayarit*: 14.4 rd mi. E. Ixtlan del Rio, 4 Oct. 1970, T.J. and J.W. Cohn (1 female, BKEC).

**Discussion.** According to Bates (1885: 329) this species is very elongate and sublinear. Dorsum is depressed and the body is black and nitid. Thorax above is yellowish orange with black, irregular, smooth macula, and elytra are testaceous-yellow. Head and thorax are coarsely, confluent punctate. Thorax is relatively short with middle dilated and angulate laterally. Scutellum is wide triangular with apex prolonged and acute. Elytra of male are gradually narrowed posteriorly, those of female are elongate and oblong, and apices are truncate. There are three, prominent, smooth costate on each elytron, which is closely punctate on either side. Mesosternum is triangular and protuberant. Antennae are longer than body in male, those of female are scarcely shorter, and antennomere 11 is not appendiculate. Tarsi are broad and short. Length 8–9 lines (16–19 mm), male and female. Habitat reported by Bates is Mexico, Guanajuato.

Bates (1885: 329) notes that this species was “named *Ischnocnemis luteicollis* by Dugès,” and was found in the Sallé collection, but apparently it was undescribed. Bates further notes, “although its form and color are similar to the female *I. costipennis* Thomson it cannot be referred to as an *Ischnocnemis* Thomson due to the elevated and prominent mesosternal intercoxal process, which is the only constant character at the time that distinguishes *Sphaenothecus* Dupont from *Mannophorus* LeConte and *Ischnocnemis*.” Also, Bates (1892: 179) considers *Sphaenothecus cribellatus* Bates with facies of *Sphaenothecus* but with less prominent mesosternal intercoxal process as an indication of “a transition-form to *Ischnocnemis*.” Subsequently, Chemsak and Noguera (1998: 12) in their review of the genus *Sphaenothecus* provisionally transferred *Sphaenothecus cribellatus* Bates and *Sphaenothecus luteicollis* Bates into *Ischnocnemis* as new combinations noting that, “a study of the genus will be necessary to determine the validity of the reassignments.”

*Lophaliamorpha luteicollis* **new combination** can easily be distinguished from other species by the reddish to ochraceous elytra with three prominent, glabrous, narrow costae. The pronotum is hexagonal and angulate at sides, and the disc is cribrate or alveolate punctate, and depressed in middle of basal half. The species name

“*luteicollis*” or “yellow neck” is in reference to its reddish yellow pronotum as in *Peltodonia luteicollis* (Pace), Coleoptera, Staphylinidae (Pace 2014).

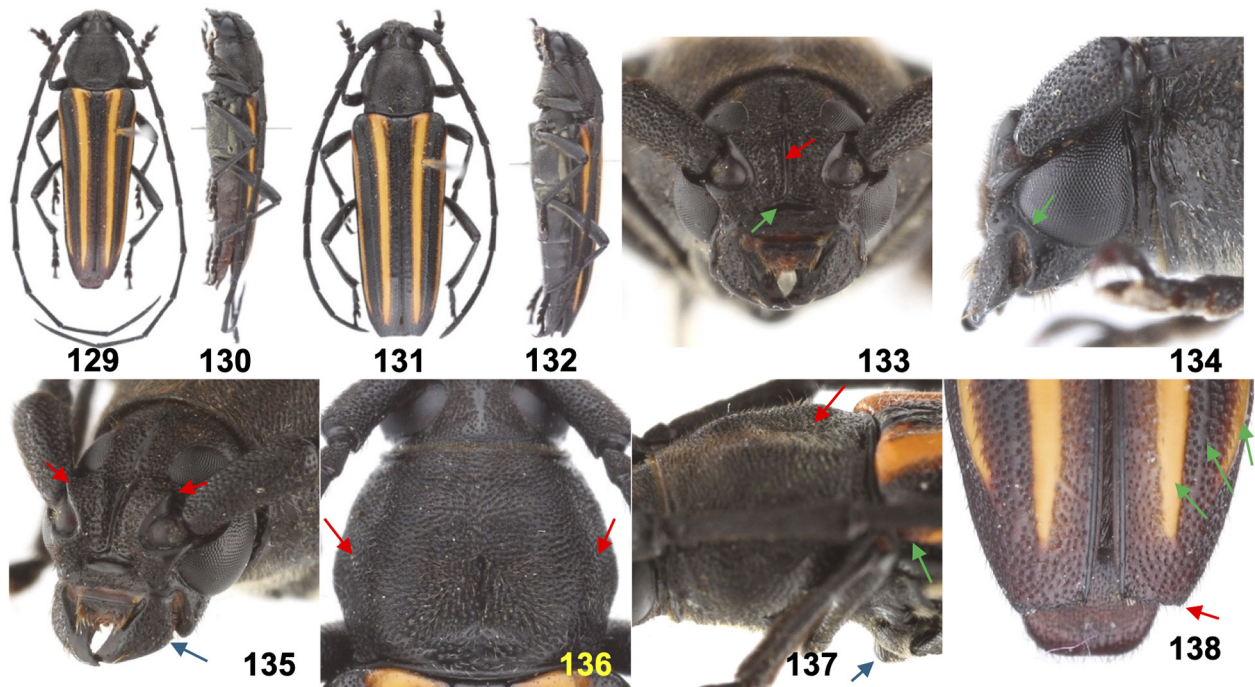
***Lophaliamorpha cribricollis* (Bates 1892), new combination**

(Fig. 129–138)

*Lophalia cribricollis* Casey 1912: 355; Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 84 (cat.); Monné and Giesbert 1994: 146 (cat.); Monné 1994: 33 (cat.); Noguera and Chemsak 1996: 402 (dist.).

*Sphenothecus cribricollis* Bates 1892: 179; Aurivillius 1912: 472 (cat.); Chemsak 1967: 79 (lect.).

**Redescription. Male:** Length 12–17 mm. **Form** moderate sized, elongate, tapering posteriorly; integument black, abdomen dark reddish brown, metasternum black, occasionally partly dark reddish, scutellum black, elytra black to dark reddish brown, each elytron with two glabrous, elevated, yellowish vittae, and a narrower, elevated, impunctate costa between yellow vittae. **Head** small; vertex densely, confluent punctate with glabrous area in middle between eyes; front finely, densely punctate; postclypeus finely, contiguously punctate with a median opaque, impunctate area on upper half; genae nitid, sparsely irregularly punctate to impunctate, lower half triangular, finely, closely punctate beneath; pubescence short, dark, erect around base of antennal insertion and postclypeus; labrum finely punctate with longer, golden, suberect setae; antennae exceeding elytral apices by three to four antennomeres; scape conical densely, deeply, contiguously punctate with very short, depressed setae; antennomeres II–V finely, densely punctate, densely clothed with short, dark, depressed setae, remaining antennomeres minutely, densely punctate, densely covered with minute, appressed pubescence and few longer, depressed setae on apices; antennomeres IV–VI vaguely carinate on outside, V–X carinate on inside; antennomere III longer



**Figures 129–138.** *Lophaliamorpha cribricollis* (Bates) **comb. nov.**, dorsal and lateral images: **129–130** Male, 17 mm, Guerrero, MEX. **131–132** Female, 17 mm, Guerrero, MEX. Head: **133** Front short, mid-cranial sulcus (red arrow) deeply canaliculate extending from frontoclypeal sulcus (green arrow) to vertex. **134** Lateral profile with gena narrow (green arrow). **135** Frontolateral profile with antennal tubercles elevated, divergent (red arrows), sides of mandibles angulate (blue arrow). Pronotum: **136** Disc hexagonal, sides arcuately impressed above lateral tubercles (red arrow). Thorax lateral image: **137** Basal  $\frac{2}{3}$  of pronotal disc impressed in middle (red arrow), mesosternal intercoxal process protuberant (blue arrow), submarginal costa of each elytron starting below humerus (green arrow). Elytra: **138** Each elytron with three distinct raised costae (green arrows), elytral apices obliquely truncate, exterior angle obtusely angulate (red arrow).

than I; IV subequal to III; V longer than IV; VI, VII, VIII, IX and X subequal to V; XI longest, apical three-fifth vaguely appendiculate. **Pronotum** wider than long (L/W: 0.8), sides broadly angulate; disc with basal two-thirds impressed in middle, sides above lateral angles arcuately impressed, surface cribriform or alveolate punctate with yellowish seta arising from each puncture; apex with margin collared, narrowly constricted behind; base impressed at sides; proepisternal area rugulose, coarsely, densely punctate; prosternum shallowly impressed, apical half transversely plicate or striate-punctate, basal half on each side above coxae with delimited, finely punctate, transverse, subrectangular area with erect, yellowish setae; mesosternum finely, densely punctate, pubescence short, erect, integument between mesepisterna and mesocoxae glabrate; metasternum sparsely punctate and nitid in middle, sides discretely, shallowly punctate, pubescence depressed and suberect; metepisterna densely clothed with appressed, golden pubescence. **Scutellum** black, very sparsely punctate to impunctate. **Elytra** 2.4 times as long as broad; each elytron with raised subsutural yellow vitta not attaining apex, raised submarginal yellow vitta, and dark, glabrous, narrower costa in between; punctures on sutural intervals fine, rather sparse near base, denser and contiguous apically, punctures between costae coarser, deeper than sutural intervals; pubescence minute, dark, suberect. **Legs** slender, femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface clothed with suberect golden setae, meso- and metafemora arcuate near base, metafemora falling far short of elytral apices; tibiae coarsely, deeply, contiguously punctate clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, golden pubescence. **Abdomen** nitid, sparsely punctate in middle, pubescence golden, sparse, short, depressed intermixed with few, longer, suberect setae, sides more densely punctate, more densely clothed with short, appressed setae; apex of last sternite truncate, and vaguely emarginate at middle.

**Female:** Length 13–18 mm. Form slightly more robust than male, parallel-sided, abdomen usually all black. Prosternum with basal half densely, coarsely, contiguously punctate, and lacking the delimited, finely punctate area before coxae; proepisternal area coarsely, shallowly punctate. Antennae shorter, attaining apices to an antennomere longer than elytra. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Guerrero*: 17 km. S. Terra Colorado, 25 Oct. 2005, B.K. Eya (1 female, BKEC); 6 km. W. Veintidos, 21 Oct. 1984, F. Hovore (5 males, 6 females, LGBC, CASC, CSCA); Acapulco, 17 Oct. 1949 (1 male, CASC); Kobele Co. (1 female, CASC). *Oaxaca*: 18 km. N. Jct. 175/200 (3 km. S. Comala), 20 Oct. 2005, B.K. Eya (1 female, BKEC).

**Discussion.** According to Bates (1892: 179), this species is similar in appearance to *Lophalia quadrivittata* (Bates). Each side of elytra is flavo-bicostate but differs by the subopaque, densely, sub-rugosely punctate thorax. The body is black except for the two elevated yellowish vittae on each elytron. Head and base of antennae are densely, confluent punctate. Thorax is wider with sides broadly rounded in middle and posterior of the disc is foveate (i.e., pitted with numerous, regular depression or pit) and depressed. The yellow vittae on both sides of elytra almost reach the apices. The subsutural vittae near base is not as dilated (i.e., as in *L. quadrivittata*). The interspaces of vittae are densely punctate with a sub-elevated impunctate line in the middle. The apices are obtusely truncate with external angles without spine. The sternum is moderately, densely punctate with gray setae arising from each puncture. Length is 14–16 mm for both sexes. Habitat reported by Bates is Mexico, Venta de Pelegrino, Dos Arroyos (1000 ft) and Tierra Colorado (2000 ft), all from Guerrero.

*Lophaliamorpha cribricollis* **new combination** can be distinguished from *L. luteicollis* (Bates) by the dark elytra with a pair of raised, glabrous, yellowish vittae on each side. The glabrate, alveolate punctate pronotum that is depressed will differentiate this species from the other *Sphaenothecus*-like trachyderines with the paired yellow costae on each elytron. The front is declivous in middle and antennal tubercles divergent on each side of mid-cranial sulcus (Fig. 135); however, the lateral profile appears subvertical due the perpendicular frontogenal ridge and antennal tubercle (Fig. 134).

### ***Mannophorus* LeConte, 1854**

Type species *Mannophorus laetus* LeConte, 1854 (monobasic).

*Mannophorus* LeConte 1854: 442; Thomson 1864: 333; LeConte 1873: 314; Bates 1880: 82; LeConte and Horn 1883: 299; Leng 1886a: 60; Bradley 1930: 241; Arnett 1962: 863, 881; Linsley 1962: 94; Monné 1994: 31

**Redescription. Form** small to moderate sized, sides subparallel. **Head** with front short, declivous, mid-cranial sulcus (median line) narrow, deeply canaliculate, extending over from postclypeus to anterior margin of upper eye lobes, integument above postclypeus below antennal insertion with a small, deep pit on either sides, frontoclypeal sulcus transversely excavate between pits; genae short, anterior margin of lower eye lobes narrowly to well separated from base of mandibles; palpi short, subequal, last segments not expanded, apices truncate, outer edge of maxillary palpi flattened to vaguely impressed; mandibles simple, sides arcuate to strongly angulated near base, outer margin excavate, striate, rugulose; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large, posterior-lateral margins emarginate; antennal tubercles divergent, moderately elevated, apices obtusely angulate; integument between tubercles deeply impressed along mid-cranial sulcus; antennae elongate, 11-segmented, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** broader than long, narrower than base of elytra at humeri, sides evenly rounded to obtusely angulate; apex narrower than base, apical margin elevated with collar-like projection on sides, narrowly constricted behind; base also margined and more broadly constricted on sides; prosternum with intercoxal process level with coxae, narrower than coxal cavity, apex vertical; coxal cavities wide open behind; mesosternum with intercoxal process level with coxae, gradually declivous anteriorly and excavated in middle; posterior-lateral margins lobed, slightly overlapping mesocoxae. **Scutellum** triangular or cordate, as broad as long. **Elytra** each with two ivory-like vittae or three longitudinal costae; elytral apices rounded. **Legs** moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomere I subequal or shorter than tarsomeres II and III combined. **Abdomen** normally segmented.

**Discussion.** LeConte (1854: 442) describes *Mannophorus* LeConte as a genus with a “very curious acute collar which surrounds the apex of the thorax, and which projects very conspicuously at the sides.” Other characteristics described by LeConte include simple, non-protuberant mesosternum, subacute mandibles, rotundate and unarmed thorax with apex transversely constricted and margin prominently fortified, and elytral apices lacking spines. Bates (1880: 83) notes that *Ischnocnemis* Thomson is “closely allied to *Mannophorus*” and “the chief differences lying in the greater length of the basal joint of the hind tarsi,” elongate form, and longer antennae. Bates (1885: 327) under his comments for *Mannophorus forreri* Bates further notes that *Mannophorus* has broader and rounder thorax, and male antennae that are “shorter and not much longer than the body.” In his commentary for *Ischnocnemis*, Bates (1885: 328) stated that “there remains no character of sufficient importance to separate the genus (i.e., *Ischnocnemis* Thomson) from *Mannophorus* LeConte, which the name (*Mannophorus*) will have priority if the genera are to be united.” “The simple mesosternum (i.e., non-protuberant mesosternal process) is the sole constant character which separates the genus from *Sphaenothecus* (or *Sphaenothecus*) sensu Dupont.”

*Mannophorus* can be differentiate from the other genera by the combination of following characters: (1) apical margin of pronotum that is elevated and narrowly excavated behind with collar-like projections on sides (Fig. 153–155, 157–159); (2) front that is declivous with antennal tubercles divergent and integument deeply impressed between tubercles forming a V-shaped valley sloping down to mid-cranial sulcus (Fig. 154, 158); (3) non-protuberant mesosternal intercoxal process that is level with coxae and gradually declivous anteriorly (Fig. 160–161); (4) elytral apices that are rounded or truncate with exterior angles unarmed (Fig. 162–163); and (5) posterior-lateral margins of lower eyes that are notched to accommodate the lateral collar-like projection of the pronotum (Fig. 157).

*Mannophorus* with non-protuberant mesosternal process can be differentiated from the other genera by the collar-like projections on the sides of apical margin of the pronotum. *Zalophia* Casey, *Lophalia* Casey and *Lophaliomorpha* Eya **new genus** have protuberant mesosternal intercoxal process. *Ischnocnemis* Thomson with non-protuberant mesosternal process can also be differentiated by the overall form and the morphology of the head capsule. *Ischnocnemis* is more elongate in form with cylindrical pronotum. *Ischnocnemis* has mouthparts that are retracted, and the front is subvertical to vertical and convex along mid-cranial sulcus. The integument between the antennal tubercles is horizontal or barely impressed. *Mannophorus* has a front that is declivous along the mid-cranial sulcus with divergent antennal tubercles, and the mouthparts are extended forward or prognathous. The following five species are included in *Mannophorus*: *Mannophorus laetus* LeConte, *M. forreri* Bates, *M. minor* (Bates) **new combination**, *M. virgulata* (Chemsak) **new combination**, and *M. tricostratus* Eya **new species**, and a new subspecies *M. virgulata virescens* (Eya 2010) **new combination and new synonymy**.

The etymology of the generic name “*Mannophorus*” is not provided by LeConte (1854: 442). The name *Mannophorus* means “bearing or wearing a collar”, where  $\mu\alpha\nu\nu\omicron$  or “manno”, “a collar” in Greek (Liddell and Scott 1871) with the Latin suffix “-phorus”, which is used to form a noun naming an organism that bear something, and in this instance a collar.

### Key to species of *Mannophorus* LeConte, 1854

1. Each elytron with two ivory vittae, integument black or dark metallic bluish black or greenish . . . . . 2
- Each elytron with three costae, integument yellowish-brown or metallic bluish with greenish luster . . . . . 5
- 2(1). Pronotum with punctures contiguous, cribriform or alveolate, integument opaque, disc reddish, black or dark bluish with pubescence short (Fig. 155, 159, 185) . . . . . 3
- Pronotum with punctures coarse, irregular, integument shining, disc metallic greenish or bluish with long flying setae (Fig. 205, 209, 212, 216) . . . . . 4
- 3(2). Form elongate; pronotum tapering apically, metallic dark bluish to aeneous black with an elongate, impunctate area in middle of basal half (Fig. 185); antennal tubercles flattened, abruptly declivous on either side of mid-cranial sulcus (Fig. 182, 184); dorsal half of genae narrow with anterior margins of lower eyes almost contiguous with base of mandibles (Fig. 183); mandibles with sides strongly angulated (Fig. 184) . . . . . *M. minor* (Bates), **comb. nov.**
- Form stout, pronotum evenly rounded on sides, disc reddish with apical and basal margins black, all black or all dark bluish, punctures coarse and contiguous throughout; antennal tubercles gradually declivous from apex to mid-cranial sulcus; dorsal half of genae broader with margins of lower eye lobes well separated from base of mandibles; sides of mandibles arcuate (Fig. 152–159) . . . . . *M. laetus* LeConte
- 4(2). Antennae stout, male with antennomeres IV, IX and X subequal to or slightly longer than I (Fig. 218), female with distal antennomeres expanded, antennomeres IV–VII shorter than I (Fig. 220); subsutural raised ivory vittae narrow from base to near apex; pronotum coarsely, subconfluently punctate (Fig. 205, 212) . . . . . *M. virgulata virgulata* (Chemsak), **comb. nov.**
- Antennae slender, male with antennomeres IV, IX and X much longer than I (Fig. 219), female with antennomere IV subequal to I and V–VII slightly longer than I (Fig. 221); subsutural raised ivory vittae broader anteriorly; pronotum moderately, coarsely punctate (Fig. 209, 216) . . . . . *M. virgulata virescens* (Eya), **comb. nov., syn. nov.**
- 5(1). Integument yellowish-brown; pronotum with seven black maculae, and apical third to half of elytra black (Fig. 164–177) . . . . . *M. forreri* Bates
- Integument metallic bluish with greenish luster; sides of pronotum broadly tuberculate; front, vertex, pronotum, prosternum, and basal half of elytra clothed with long flying erect setae (Fig. 222–234) . . . . . *M. tricostatus* Eya, **sp. nov.**

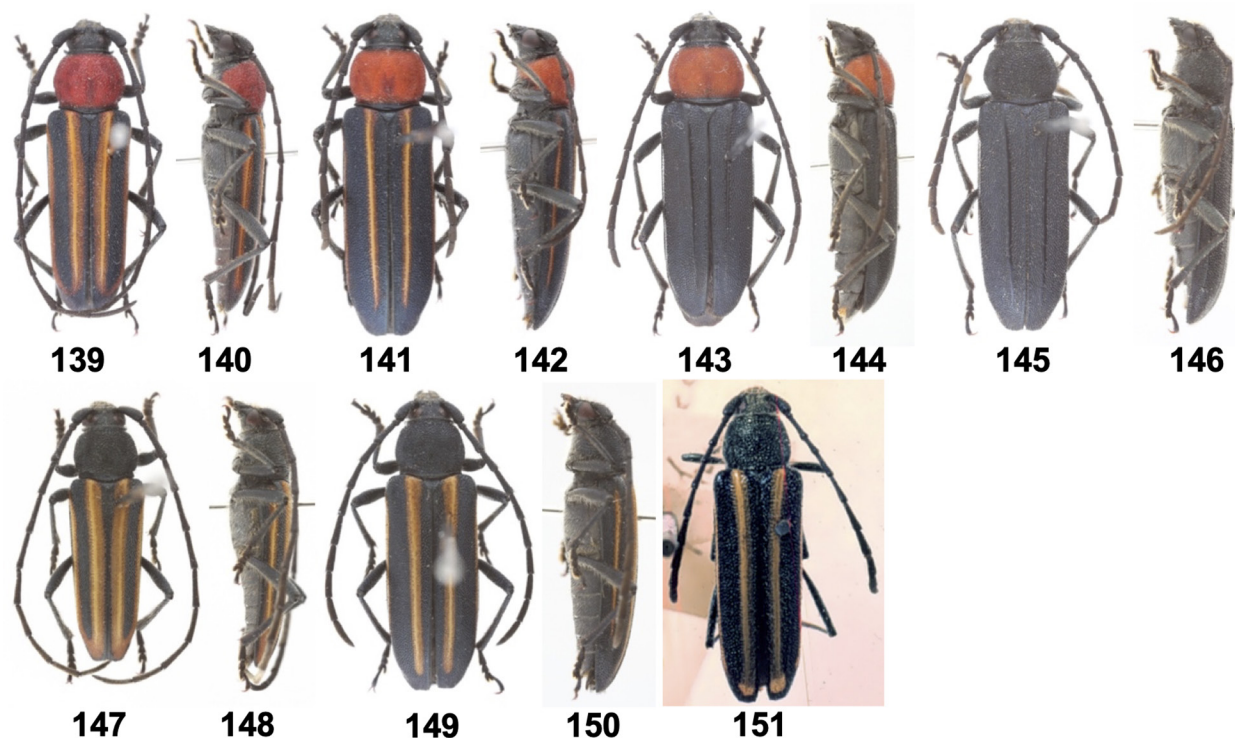
### *Mannophorus laetus* LeConte, 1854

(Fig. 139–163)

*Mannophorus laetus* LeConte 1854: 442; LeConte 1858: 40 (dist.); Thomson 1864: 333; Gemminger and Harold 1872: 2940 (cat.); Bates 1880: 82; Leng 1886b: 83; Aurivillius 1912: 473 (cat.); Blackwelder 1946: 590 (cat.); Vogt 1949: 178 (biol.); Linsley 1962: 94 (biol.); Chemsak and Linsley 1974: 182 (syn.); Hovore and Giesbert 1976: 354 (biol.); Hovore et al. 1978: 99 (correction); Hovore et al. 1987: 296 (dist.); Chemsak et al. 1992: 84 (cat.); Monné and Giesbert 1994: 146 (cat.); Monné 1994: 32 (cat.); Noguera and Chemsak 1996: 402 (dist.); Linsley and Chemsak 1997: 394 (host); Monné 2001: 71 (host); Garcia Morales et al. 2014: 106 (dist.); Gutierrez and Noguera 2015: 145 (dist.).

*Mannophorus ferreus* Bates 1880: 82; Lameere 1883a: 37 (cat.); Aurivillius 1912: 473 (cat.); Blackwelder 1946: 590 (cat.); Chemsak 1967: 77 (lect.).

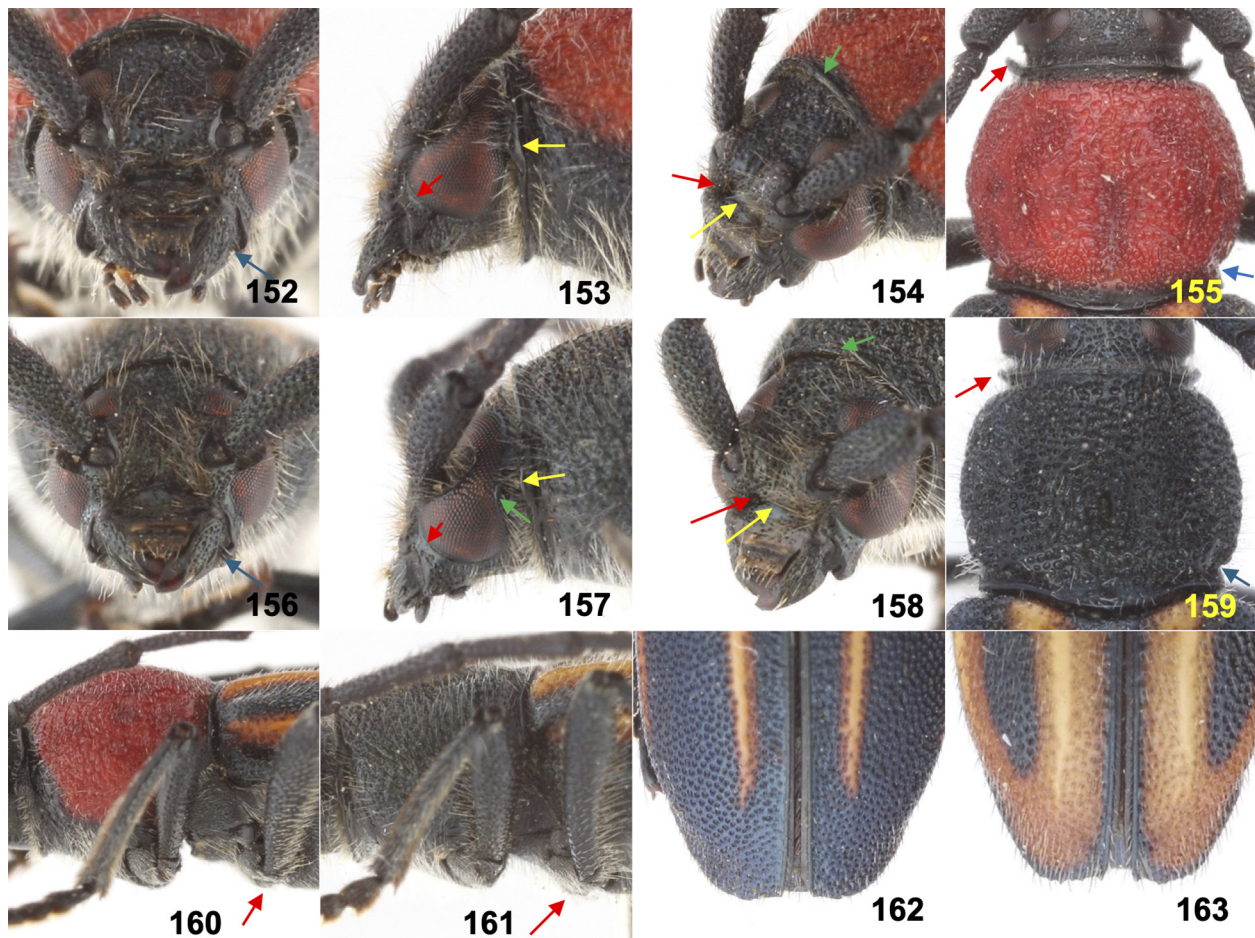
*Sphenothecus cribellatus* Bates 1892 (**new synonymy**); *Sphenothecus cribellatus* Bates 1892: 179; Aurivillius 1912: 472 (cat.); Blackwelder 1946: 589 (cat.); Chemsak et al. 1992: 85 (cat.); Monné 1994: 63 (cat.); Monné and Giesbert 1994: 151 (cat.); Noguera and Chemsak 1996: 403 (dist.).



**Figures 139–151.** *Mannophorus laetus* LeConte dorsal and lateral images: **139–140)** *Mannophorus laetus* LeConte: **139–140)** Male, 14 mm, Nuevo León, MEX. **141–142)** Female, 13 mm, Nuevo León, MEX. **143–144)** Female, 15 mm, Duval Co., TX, USA. **145–146)** Female, 14 mm, Nuevo León, MEX. **147–150)** *Mannophorus laetus* (i.e., *Sphenothecus cribellatus* (Bates 1892), **syn. nov.**): **147–148)** Male, 11 mm, Hidalgo, MEX. **149–150)** Female, 12 mm, Querétaro, MEX. **151.** *Sphenothecus cribellatus* Bates, female, holotype, (Xalapa or Jalapa), Veracruz, MEX (Bezark 2024, id: 18510).

*Ischnocnemis cribellatus* Chemsak and Noguera 1998 (**new synonymy**); *Ischnocnemis cribellatus* Chemsak and Noguera 1998: 12

**Redescription. Male:** Length 10–15 mm. **Form** small, moderately robust, stout; integument black, aenescent-black or metallic bluish black, pronotum red with anterior and posterior margins black, occasionally with black maculae or disc all black, abdomen black to dark reddish brown, scutellum and elytra black to black with metallic bluish cast; each elytron with two glabrous, narrow, elevated, yellowish costae; punctuation coarse, dense; pubescence short, obscure, suberect. **Head** small; vertex coarsely, densely, confluent punctate occasionally with vague impunctate line at middle between eyes; front coarsely, subconfluent punctate; postclypeus coarsely, irregularly punctate; antennal tubercles with apices angulate; genae short, anterior margin of lower eye lobes separated from base of mandible, integument nitid, sparsely irregular punctate to impunctate, beneath coarsely punctate; labrum finely punctate; pubescence, long, erect on vertex around upper eye lobes, antennal tubercles, dorsal anterior margins of genae, and labrum; mandibles with sides arcuate, pubescence sparse, depressed; antennae slender, exceeding elytral apices by two antennomeres; scape conical densely, deeply, contiguously punctate, clothed with short, suberect setae; antennomeres II–VI coarsely, densely, deeply punctate, pubescence short, depressed, remaining antennomeres minutely, densely punctate, densely covered with minute appressed pubescence with few longer, depressed setae at apices; antennomeres from IV vaguely carinate on outer and inner surface; antennomere III longer than I; IV shorter than III; V longer than III; VI, VII, VIII, IX subequal to V; X shorter than IX subequal to III; XI longest, apical four-fifth vaguely appendiculate. **Pronotum** wider than long (L/W: 0.85–0.92), sides rounded; disc convex, coarsely, densely, confluent punctate with erect setae; apex narrowly constricted, margin collared; basal margin lobed in middle, lateral constriction about as wide as third antennomere; propiternal area rugulose, coarsely, contiguously punctate to alveolate punctate; prosternum with apical half transversely plicate, basal half rugulose, coarsely, confluent punctate, thinly clothed with pale setae longer than



**Figures 152–163.** *Mannophorus laetus* LeConte, head, pronotum, thorax and elytral apices: 152–155, 160, 162) *M. laetus* LeConte. 156–159, 161, 163) *M. laetus* (i.e., *Sphenothecus cribellatus* (Bates, 1892), **syn. nov.**). Head: 152, 156) Front short, mandibles arcuate at sides (blue arrow). 153, 157) Lateral profile with dorsal half of genae broad (red arrow) with lower eye lobes well separated from mandibles, apical margin of pronotum with collar-like projection laterally (yellow arrow), posterior-lateral margin of lower eye lobe emarginate (green arrow). 154, 158) Frontolateral profile with front declivous in middle, and antennal tubercles divergent, each side of frontoclypeal sulcus (yellow arrow) with small, deep pit (red arrow), apical margin of pronotum elevated (green arrow), narrowly constricted behind. Pronotum: 155, 159) Apical margin with collar-like projection on sides (red arrow), base margined and more broadly constricted on sides (blue arrow), disc with sides evenly rounded. Thorax lateral image: 160, 161) Pronotal disc convex, and mesosternum non-protuberant (red arrow). Elytra: 162, 163) Each elytron with two ivory vittae and apices rounded.

those on pronotum; mesosternum coarsely, contiguously punctate on sides, integument in middle depressed and sparsely punctate, pubescence long, suberect; mesepimera and mesepisterna finely, densely punctate, pubescence short, dense, appressed; metasternum with integument nitid, punctures coarse, dense, moderately clothed with depressed and suberect setae, integument in middle sparsely punctate; metepisterna densely clothed with appressed pubescence. **Scutellum** nitid, sparsely punctate. **Elytra** 2.4–2.5 times as long as broad; each elytron with two raised, narrow glabrous costae, subsutural yellow costa not attaining apex, and submarginal yellow costa slightly shorter; integument between costae uniformly, coarsely, densely punctate over basal three-quarters, more finely punctate apically, punctures adjacent to suture finer than intervals between costae; pubescence sparse, short, suberect, setae denser, longer and depressed apically; apices separately rounded, occasionally truncate, suture minutely dentate or unarmed. **Legs** slender, femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface clothed with pale, suberect setae; meso- and



metafemora arcuate near base; metafemora falling far short of elytral apices; tibiae coarsely, deeply, contiguously punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I subequal to or slightly shorter than tarsomeres II and III combined. **Abdomen** finely, discretely punctate in middle, sparsely clothed with pale, depressed setae, sides more finely, densely, contiguously punctate, densely clothed with appressed setae; apex of last sternite narrowly truncate.

**Female:** Length 9–15 mm. Form slightly more robust than male, parallel-sided; color of integument same as in male, occasionally with pronotum reddish and elytra all black, or pronotum and elytra all black with metallic bluish cast (e.g., *Mannophorus ferreus* Bates). Prosternum with basal half coarsely, contiguously, striate-punctate. Antennae shorter than body. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** USA: *Texas*: Starr Co., 6–14 mi. E. El Sauz, 12 Oct. 1977, J.B. Wappes (1 male, BKEC); Duval Co. 3 m N. Freer, 24 Sept. 1995, Wappes, Morris (1 female, BKEC); Live Oak Co. 10 mi. S. George West, 10 Oct. 1971, B.A. Tilden (1 male, BKEC). MEXICO: *Nuevo León*: 19 km W. Linares, Hwy 58, 19 Oct. 2004, B.K. Eya (1 male, BKEC), 22 Oct. 2004, B.K. Eya (1 male, 4 females, BKEC); 54 km W. Linares, Hwy 58, 19 Oct. 2004, B.K. Eya (1 female, BKEC); 5 mi. W. Dr. Arroyo, 23 Sept. 1976, 6200', J.A. Chemsak, J. Powell, A. and M. Michelbacher (1 male, BKEC); 3 mi. E. Galeana Jct. 6000', 15 Sept. 1976 J.A. Chemsak, J. Powell, A. and M. Michelbacher (2 males, 1 female, BKEC); 4 mi. W. Iturbide, 5500', 22 Sept. 1975, J. Powell, J. Chemsak, T. Friedlander on *Selloa glutinosa* (1 female, BKEC); Carr. Linares-Iturbide, km 10–14, 4 Nov. 1982, J. Flores (2 females, EMEC); Carr. Linares-Iturbide, km 10–15, 4 Nov. 1982, J. Flores (1 male, 1 female, EMEC). *Tamaulipas*: 32 km NE. Juamave, Balcon de Chihue, 25 Oct. 2004, B.K. Eya (1 male, BKEC). *Querétaro*: 3–5 km E. La Sierra, 41 km E. Jalpan, 27 Oct. 2004, B.K. Eya (1 male, 1 female, BKEC); 41–48 km E. Jalpan, Hwy 120, La Sierra, 28 Oct. 2004, B.K. Eya (6 males, 7 females, BKEC). *Hidalgo*: 3 mi E. Zimapan, 6200', 28 Sept. 1975, J. Powell, J. Chemsak, T. Friedlander on *Zaluzania augusta* (1 female, BKEC). *Querétaro*: km 8, Tilaco-Santa Inez Rd., 13 Oct. 1998, Chemsak and Barrera (10 males, 8 females, EMEC); Rd. to Bucareli, S of Jalpan, 14 Oct. 1998, Chemsak and Barrera (1 female, EMEC). *Hidalgo*: 14 mi S Jacala, 6800' 28 Sept. 1975, J. Powell, J. Chemsak, and Friedlander, *cribellatus* Bates, det. J.A. Chemsak (1 male, EMEC); 3 mi E Zimapan, 6200', 28 Sept. 1975, J. Powell, J. Chemsak, and Friedlander, on *Zaluzania augusta* (1 male, EMEC); 14 mi S Jacala, 6800', 28 Sept. 1975, J. Powell, J. Chemsak, and Friedlander (1 male, EMEC).

**Discussion.** According to LeConte (1854: 442), *Mannophorus laetus* is characterized by the “very curious acute collar which surrounds the apex of the thorax, and which projects very conspicuously at the sides.” LeConte and Horn (1883: 299) and LeConte (1873: 314) further characterizes this species as having a front that is “short, declivous, and not abruptly defined on each side,” apex of “prothorax margined, mesosternum declivous,” and each elytron with “two ivory vittae.”

*Ischnocnemis cribellatus* (Bates, 1892) or *Sphenothecus cribellatus* Bates is synonymous with *M. laetus* LeConte and is a color variant of *M. laetus* (**new synonymy**). Chemsak and Noguera (1998: 12) in their review of the genus *Sphaenothecus* provisionally moved *S. cribellatus* Bates along with *S. luteicollis* Bates (i.e., *Lophalia-morpha luteicollis* (Bates), **new combination**) as new combinations to *Ischnocnemis* stating that further study will be needed “to determine the validity of the reassignment.” Examination of *Ischnocnemis cribellatus* from Hidalgo and Querétaro, Mexico, and *M. laetus* from Texas did not reveal any difference in their external morphology, except for the color of integument. *Ischnocnemis cribellatus* (Bates) has the same characteristics found in *M. laetus*, which include: pronotum with disc that is densely, contiguously punctate, and the anterior margin with acute collar-like lateral projection (Fig. 155, 159); front that is declivous with antennal tubercles divergent and moderately prominent; first metatarsomere that is subequal to or shorter than the following two tarsomeres; and antennae that are short, especially in females, which do not exceed the apices of elytra. The density of pubescence, especially on the antennae and ventral surfaces is variable in *M. laetus*.

According to Bates (1892: 179), *S. cribellatus* is dark blue, densely punctate, and densely pubescence with elongate, erect setae intermixed. Elytra on either side are two, elevated, yellowish, smooth vittae. The inner vittae with yellow margins are straight almost reaching the apices, and outer vittae are slightly shorter posteriorly. Head and base of antennae are densely, confluent punctate. Thorax is densely, subalveolate punctate, slightly rounded and dilated from base and narrowed to apex. Elytra are bright blue with interspace between costate densely but discretely, fairly, coarsely, evenly punctate, and apices are obtuse, flexuous-truncate with external angle rounded.

The sternum is dark blue green, densely punctate and pubescent. Mesosternum is convex but not prominent. The antennae of female are much shorter than body. The length is 12 mm, based on single female example. Habitat reported by Bates is Mexico, Jalapa.

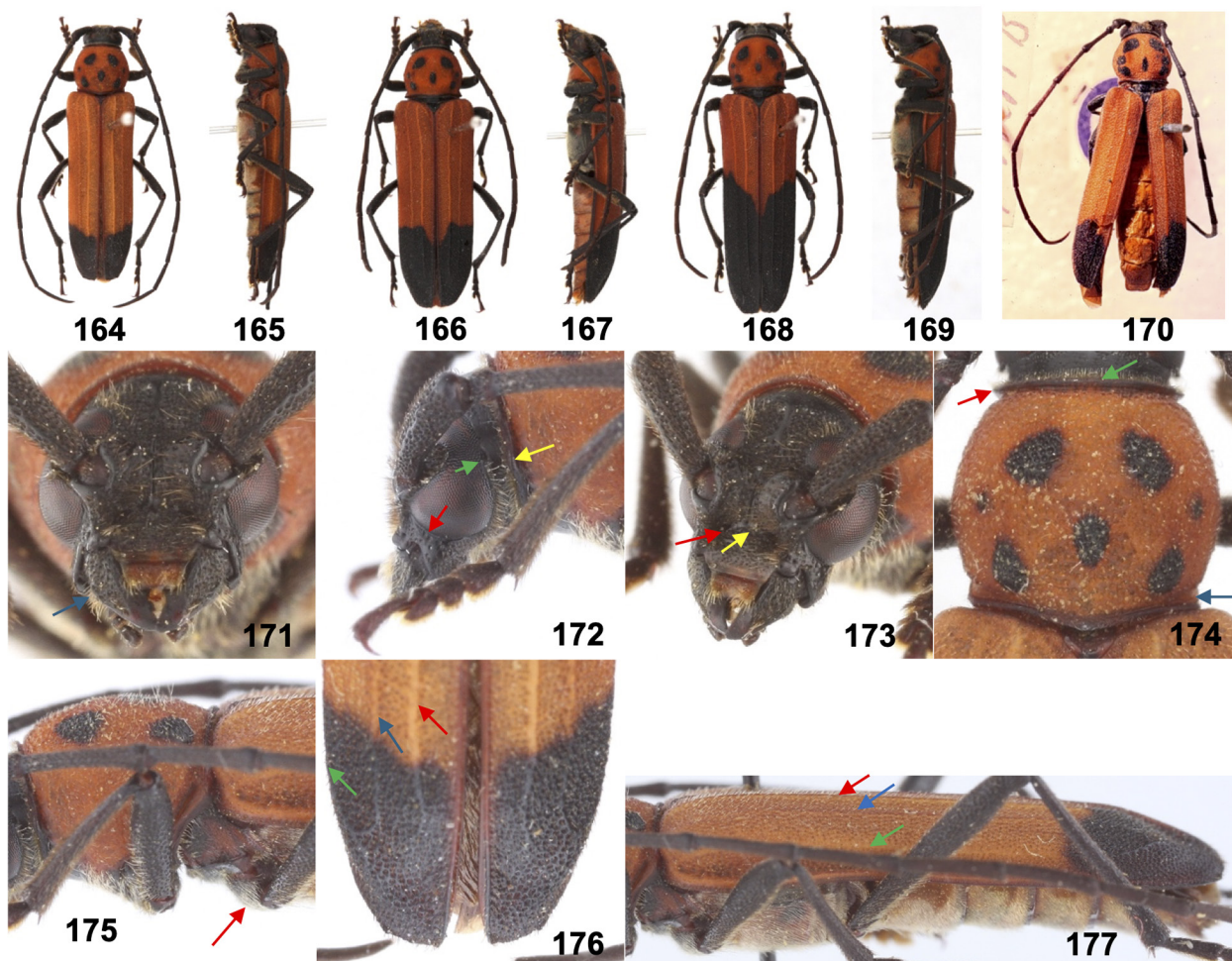
*Mannophorus laetus* ranges in distribution from USA, Texas down to southeastern Mexico, which include Nuevo León, Hidalgo, Querétaro, and further south to Tabasco (Jalapa). Specimens from Texas to Nuevo León are the typical “*M. laetus* form” with dark margined red pronotum and elytra with two ivory vittae or elytra all black, or integument all aenescent-black as in female, i.e., “*M. ferreus* form.” Further south into Hidalgo, Querétaro, Veracruz, and Tabasco the “*M. cribellatus* form” with dark bluish integument, and elytra with two ivory vittae and yellowish apically margins are more prevalent. The etymology for the species name “*laetus*” is not provided by LeConte; however, in Latin “*laetus*” means “cheerful,” which may be referring to the bright red cheerful color of the pronotum as in the cheerful buttercup, *Ranunculus laetus*, with a bright yellow flowerhead.

### ***Mannophorus forreri* Bates, 1885**

(Fig. 164–177)

*Mannophorus forreri* Bates 1885: 327, 436; Aurivillius 1912: 473 (cat.); Blackwelder 1946: 590 (cat.); Linsley 1961: 633 (mimicry); Chemsak 1967: 77 (lectotype); Marqua 1976: 37 (dist.); Giesbert and Hovore 1976: 98 (dist.); Terrón 1992: 289 (dist.); Chemsak et al. 1992: 84 (cat.); Monné and Giesbert 1994: 146 (cat.); Monné 1994: 32 (cat.); Noguera and Chemsak 1996: 402 (dist.); Noguera et al. 2009: 88 (dist.);

**Redescription. Male:** Length 15–19 mm. **Form** moderate sized, elongate, parallel-sided; integument yellowish to reddish brown; head, antennae, legs, scutellum, maculae on pronotum, apical third to half of elytra, base of coxae, mesosternum, and parts of epipleura, epimeron, metepisterna and metasternum darker or black; dorsum confluent punctate; each elytron with three narrow elevated costae. **Head** small; vertex alveolate punctate, with glabrous midline between eyes; front rugulose, subconfluent punctate, each side below antennal insertions and above postclypeus with a deep pit, integument in middle between pits broadly, obliquely impressed along frontoclypeal sulcus; postclypeus confluent punctate; antennal tubercles coarsely, subconfluent punctate; genae short, anterior margins of lower eye lobes well separated from base of mandibles, integument nitid, irregular punctate, beneath confluent punctate; labrum finely punctate; pubescence, long, erect on antennal tubercles, dorsal anterior margins of genae, and labrum; mandibles with sides arcuate, pubescence sparse, depressed; antennae exceeding elytral apices by two antennomeres; scape conical densely, deeply, contiguously punctate, outside margin vaguely carinate, pubescence short, pale, suberect; antennomeres II to basal half of VI rugulose and coarsely, densely, contiguously punctate with short, depressed setae, remaining antennomeres from apical half of VI opaque, densely, minutely punctate covered with minute, appressed pubescence with few, longer, depressed setae on apices; antennomeres vaguely carinate on dorsum from III–VI, carinate on outside from apical half of III–X, and on inside of V–X; antennomer III longer than I; IV shorter than III and subequal to I; V longer than IV and subequal to III; VI, VII, VIII, IX subequal to V; X slightly shorter than IX; XI longest, apical third vaguely appendiculate. **Pronotum** wider than long (L/W: 0.92) with anterior and posterior margins narrowly darker or black, sides rounded; disc convex with seven dark or black maculae, one each on either side of anterior half, three on basal half, one in middle and one each on either side closer to base, and a smaller macula on each side in middle near outer edges (Fig. 174); integument coarsely, densely, confluent punctate with short, pale erect setae; apical margin collared, narrowly constricted behind, base impressed on sides; proepisternal area irregularly, finely punctate; prosternum with apical half transversely plicate, basal half rugulose, confluent punctate, integument thinly clothed with pale setae longer than those on pronotum; mesosternum coarsely, contiguously punctate, pubescence long, suberect; mesepimera and mesepisterna rugulose, contiguously punctate, obscurely pubescent; metasternum with integument densely, punctate, punctures sparser along midline, finer and denser near base of mesocoxae, pubescence dense, long, depressed and pale; metepisterna densely clothed with appressed, pale pubescence. **Scutellum** opaque, coarsely punctate. **Elytra** 2.6 times as long as broad; each elytron with three, narrow, raised costae not attaining apex, a subsutural impunctate costa, a partially punctate submarginal costa and another partially punctate narrower one in between (Fig. 176–177); integument between costae uniformly, coarsely, densely, contiguously punctate over basal four-fifths, more rugulose and deeply punctate on apical fifth; pubescence sparse, short, and suberect, setae on apical fifth slightly depressed; apices unarmed,



**Figures 164–177.** *Mannophorus forreri* Bates, dorsal and lateral images: **164–165** Male, 17 mm, Pima Co., AZ, USA. **166–167** Female, 20 mm, Chihuahua, MEX. **168–169** Female, 22 mm, Chihuahua, MEX. **170** Male, lectotype, Durango, MEX (Bezark 2024, id: 17269). Head: **171** Front short, mandibles arcuate at sides (blue arrow). **172** Lateral profile with genae short (red arrow), lower eye lobes well separated from mandibles, posterior-lateral margin of lower eye emarginate (green arrow), collar-like projection on apical margin of pronotum (yellow arrow). **173** Frontolateral profile with front declivous in middle, and antennal tubercles divergent, each side of frontoclypeal sulcus (yellow arrow) with small, deep pit (red arrow). Pronotum: **174** Disc with sides evenly rounded, apical margin elevated (green arrow) with collar-like projection laterally (red arrow), base margined and broadly constricted on sides (blue arrow). Thorax lateral image: **175** Disc convex, and mesosternum non-protuberant (red arrow). Elytra: **176, 177** Apices unarmed, rounded to truncate with coarse, intricate punctures, each elytron with three narrow raised costae, subsutural impunctate costa not attaining apex (red arrows), submarginal costa (green arrow), and third narrow, partially punctate costae (blue arrow).

rounded to truncate. **Legs** slender, femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface clothed with pale suberect setae; meso- and metafemora slightly arcuate near base; metafemora falling far short of elytral apices; tibiae coarsely, deeply, contiguously punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I subequal to or slightly longer than tarsomeres II and III combined. **Abdomen** very densely, finely punctate, punctures sparser in middle, finer and denser on sides, integument densely clothed with long depressed, pale pubescence; apex of last sternite narrowly truncate, and vaguely emarginate at middle.

**Female:** Length 18–22 mm. Form slightly more robust and larger than male. Proepisternal area more confluent, densely punctate; prosternum densely, contiguously striate-punctate throughout. Antennae shorter than body. Abdomen with apex of last sternite broadly truncate, and vaguely emarginate at middle.

**Materials examined.** USA: *Arizona*: Pima Co.: Kitt Peak, 29 Aug. 1974, F. Hovore, 4000', (1 male, CASC), 4200' (1 male, CASC); 4400' (1 male, CASC), 4500' (4 males), 4800' (1 male, CASC); 4900' (1 male, CASC); 5000' (1 male); 20 Sept. 1970, 4200', F. Hovore (1 male, CASC); 23 Sept. 1970, 4200', F. Hovore (6 males, CASC). MEXICO: *Chihuahua*: Guasaparis, 13 Oct. 1951, J. Marquis. M. Marquis (2 females, CASC); 15 Oct. 1951, J. Marquis. M. Marquis (2 females, CASC).

**Discussion.** According to Bates (1885: 327), this species “agrees better generically with *Mannophorus laetus* than with *Ischnocnemis* due to the broader, rounder thorax,” and shorter antennae especially in males, which are “not much longer than the body.” The body is very elongate, almost cylindrical, and yellow reddish in color. The head, antennae, legs, maculae on pronotum, scutellum and apical third of elytra are darker or black. The dorsum is confluent punctate, and the base of the thorax is constricted and constriction extending to the rear corners. The apices of elytra are obliquely truncate with coarse intricate punctures.

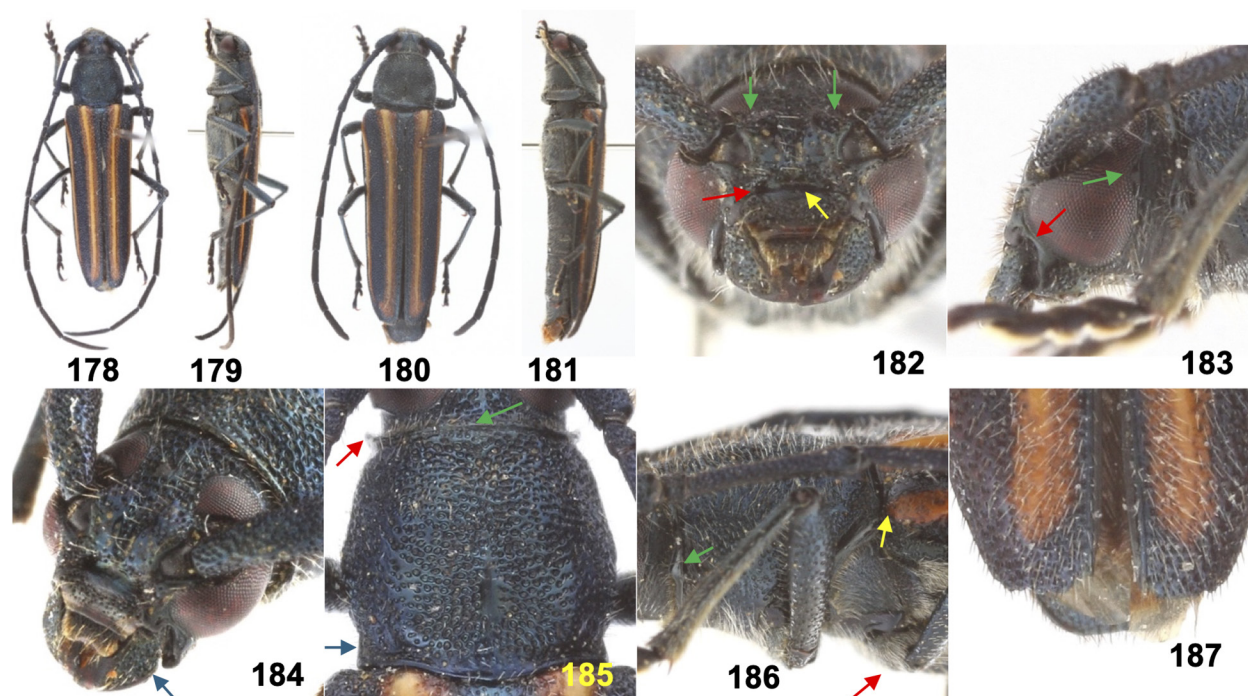
*Mannophorus forreri* Bates can easily be distinguished from the other *Mannophorus* species by the yellowish color of its integument with seven black maculae on the pronotum and darker or black apices of elytra. The three narrow costae on each elytron will also separate this species from others with two ivory vittae. The lateral collar-like projection on the apex of the pronotum is not as prominent in this species compared to *M. laetus* LeConte. Also, the sides of scape and the dorsum of antennomeres III–VI are vaguely carinate in this species in addition to the lateral carinae on the outer and inner surfaces. Also, the dorsum of antennomeres appears to be vaguely excavated adjacent to the dorsal carina in females from apical half of III to VI.

### ***Mannophorus minor* (Bates, 1880), new combination**

(Fig. 178–187)

*Ischnocnemis minor* Bates 1880: 83; Lameere 1883b: civ (cat.); Bates 1885: 328 (dist.); Aurivillius 1912: 473 (cat.); Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 83 (cat.); Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.).

**Redescription. Male:** Length 13 mm. **Form** small, elongate, slightly tapered apically; integument metallic bluish black, sternum and femora metallic bluish black with aeneous luster, each elytron with two elevated, narrow, yellowish costae, subsutural yellow costa reaching apical tenth, submarginal costa shorter, reaching slightly beyond apical fifth; pubescence on dorsum and femora short, pale, suberect to erect. **Head** small; vertex confluent punctate; front finely, irregularly punctate; postclypeus finely, confluent punctate on bottom half, upper half with impunctate area in middle; antennal tubercles flattened, integument between tubercles abruptly declivous in middle to mid-cranial sulcus; genae narrow, anterior margins of lower eyes almost contiguous with base of mandibles, integument nitid, impunctate, lower half triangular, finely punctate beneath; pubescence on antennal tubercles, dorsal anterior margins of genae and upper margin of eyes, sparse and erect, setae on lower half of genae sparse, short and depressed; labrum finely, densely punctate, densely clothed with depressed pubescence; mandibles with sides strongly angulate near base then arcuate to apices, pubescence sparse, depressed; antennae slender, exceeding elytral apices by two antennomeres; scape conical densely, deeply, contiguously punctate, pubescence short, pale, suberect; antennomeres II to basal half of VII rugulose, coarsely, densely punctate with short depressed setae, remaining antennomeres from apical half of VII opaque, densely, micro-punctate, pubescence minute and appressed with few longer, depressed setae on apices; antennomeres vaguely carinate on outside from IV–VI, on inside of IV–VIII, and on dorsum of III–IV; antennomer III longer than I; IV shorter than III, longer than I; V longer than IV; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX; XI longest non-appendiculate. **Pronotum** wider than long (L/W: 0.93), sides rounded slightly behind middle; disc shallowly convex with five vague dorsal calli, one each on either side of anterior half, three on basal half, one longitudinally elongate, glabrous one in middle and one each on either side closer to the base (Fig. 185); integument densely, confluent punctate with short, erect, pale setae; apical margin collared, sides narrowly constricted behind, base impressed on sides; proepisternal area more irregularly, sparsely punctate compared to disc; prosternum slightly concave with apical half transversely plicate, basal half densely, confluent punctate with puncture in middle coarser than those on the sides above coxae, pubescence long, pale, erect; mesosternum nitid, glabrous, concave and depressed in middle, densely contiguously punctate on sides and above mesocoxae, pubescence sparse, pale, suberect; mesepisterna finely, densely, contiguously punctate, sparsely clothed with appressed setae; mesepimera



**Figures 178–187.** *Mannophorus minor* (Bates) **comb. nov.**, dorsal and lateral images: **178–179** Male, 13 mm, Puebla, MEX. **180–181** Female, 13 mm, Puebla, MEX. Head: **182** Front with small, deep pits (red arrow) on each side of frontoclypeal sulcus (yellow arrow), antennal tubercles flattened (green arrows) then abruptly declivous in middle on either side of midcranial sulcus. **183** Lateral profile with dorsal half of genae very narrow (red arrow), posterior-lateral margin of lower eye lobe emarginate (green arrow). **184** Frontolateral profile with mandibles strongly angulated at sides (blue arrow). Pronotum: **185** Disc closely confluent punctate with apical margin elevated (green arrow) and narrowly constricted behind with collar-like projection on sides (red arrow), base margined and more broadly constricted on sides (blue arrow), sides rounded slightly behind middle, tapered apically. Thorax lateral image: **186** Pronotal disc shallowly convex, and mesosternum non-protuberant (red arrow), and submarginal costae starting from base of elytra (yellow arrow). Elytra: **187** Apices unarmed, rounded, vaguely serrate.

densely clothed with short, appressed pubescence; metasternum finely, densely, deeply, punctate, punctures in middle on either side of midline sparser and integument glabrous, punctures near base of mesocoxae and along sides finer, denser and contiguous, pubescence obscure, long and depressed; metepisterna densely clothed with appressed, pale pubescence. **Scutellum** dark metallic blue, sparsely punctate. **Elytra** 2.6 times as long as broad; each elytron with two narrowly raised, glabrous, yellowish costae, subsutural costa with yellowish vittae on either side attaining apical tenth, submarginal costa starting below humerus attaining apical fifth; integument between costae closely, uniformly punctate; pubescence sparse, short, suberect, and pale; apices unarmed, rounded, vaguely serrate. **Legs** slender; femora slightly clavate, finely, densely punctate, dorsum sparsely clothed with short, depressed setae, inner surface clothed with longer, pale, suberect setae; metafemora slightly arcuate near base, falling far short of elytral apices; tibiae densely punctate clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I subequal to tarsomeres II and III combined. **Abdomen** aeneous metallic dark blue with reddish tint, nitid, sparsely, finely punctate in middle, pubescence pale, suberect, sides very densely, minutely, punctate, densely clothed with appressed pubescence; apex of last sternite narrow and rounded.

**Female:** Length 12–13 mm. Form slightly more robust than male, parallel sided. Prosternum coarsely striate-punctate throughout. Antennae about an antennomere longer than apices of elytra, carinae on inner, outer, and dorsal surface less pronounced than in male. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Puebla*: 56 km SE Jct. 115/160, 14 Oct. 2005, B.K. Eya (1 male, BKEC); MX 190, 5

km E Izucar Matamoros, 16 Oct. 2001, F. Skillman and J. Davidson (1 female, EMEC); Microondas Xuchapa Hwy 190, 11 km SE Izucar de Matamoros, N18°31'46", W98°25'05", 8/16 Oct. 2005, F.W. Skillman (1 male, FWSC).

**Discussion.** According to Bates (1880: 83), this species is narrow, elongate, brassy-black, or chalybeous black in color. Each elytron has two elevated, eburneous costae, which nearly reach the apices. The integument of elytra between the costae are interspersed with close, uniform punctures, and the apices are rounded. The thorax is distinctly narrowed at apex with disc unequally, closely, confluent punctate. The scutellum is wide at base and subelongate and acute apically. Antennae of female are scarcely longer than the body. The first tarsomere of metatarsi is subequal to the following two combined. The body underneath is metallic steel-blue, nitid, glabrate and discretely punctate. The length of female is 5 ½ lines (i.e., 1.2 cm.), and the habitat reported by Bates is Mexico. Bates (1885: 328) further notes that “the precise locality of this species is Puebla based on Sallé collection” and differs from *Ischnocnemis costipennis* Thomson by the slenderer form and underside that is very shiny, “deep brass or chalybeous black.” Based on the photo of *Ischnocnemis minor*, holotype (Bezark 2024, id: 16963) from MNHN, the collection location is also noted as Puebla, Mexico. The three specimens that I have in hand, which are all from Puebla, appear to be this species.

*Mannophorus minor* (Bates) **new combination** closely resembles *Lophaliamorpha* based on the overall form and morphology of the head capsule. The front is declivous in the middle, base of mandibles is angulate, and genae are very narrow where the anterior margins of lower eyes are almost contiguous with the base of mandibles. However, unlike *Lophaliamorpha* Eya **new genus** the mesosternal process is not protuberant, and the apical margin of the pronotum is distinctly collared laterally as in *Mannophorus laetus*. Also, the antennal tubercles of this species are flattened, and the integument between tubercles is abruptly declivous in the middle on either side of mid-cranial sulcus. Other *Mannophorus* species have short but more prominent genae with the anterior margins of lower eyes well separated from the base of the mandibles and the sides of mandibles that are arcuate.

*Mannophorus minor* differs from *Mannophorus virgulata* (Chemsak, 1987) **new combination** by the shorter pubescence on the head, thorax, sternum, and femora. The pronotal disc is unequally closely, confluent punctate, and metasternum is finely, densely punctate (Bates 1880: 83). The head, thorax, sternum, and femora of *M. virgulata* are covered with long, erect flying setae. The punctures on the pronotal disc are moderately coarse and subconfluent, and the metasternum is sparsely, shallowly punctate. The male and female pair of *M. minor* described above have the submarginal yellow costa starting at the base of elytra compared to *M. virgulata* which starts below the humeri.

### ***Mannophorus virgulata* (Chemsak, 1987), new combination**

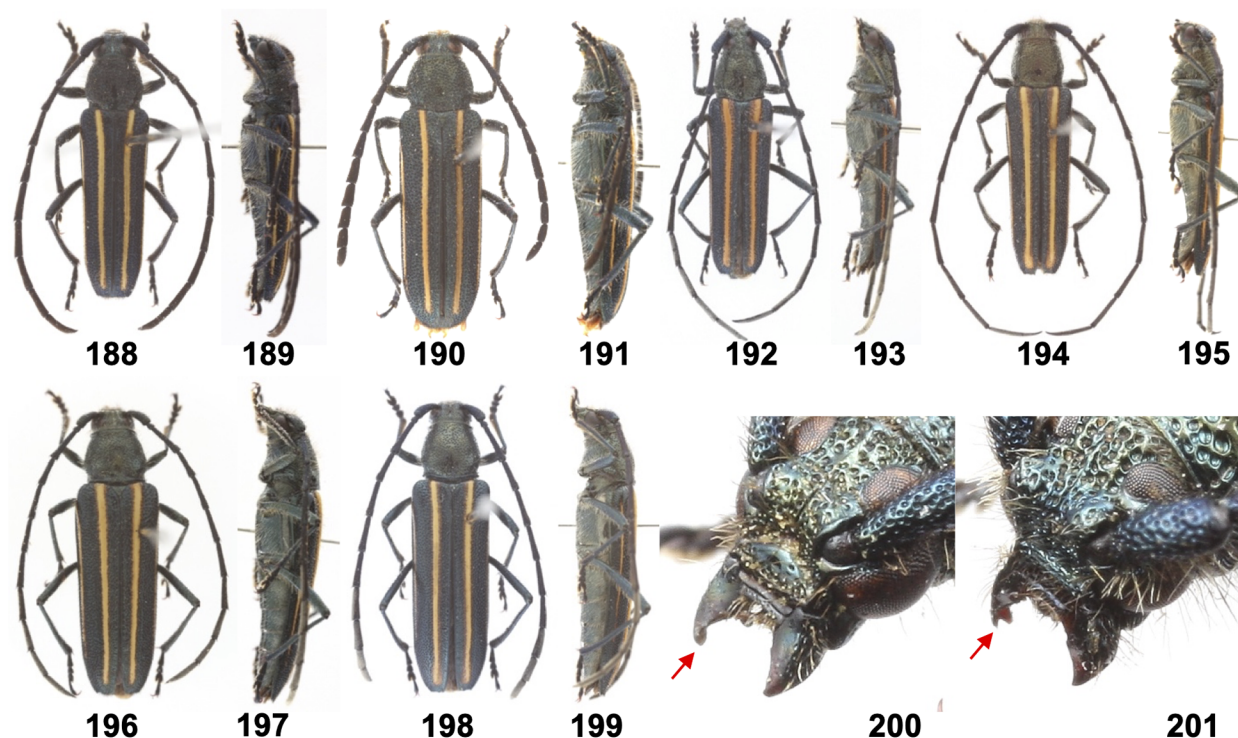
(Fig. 188–191)

*Linsleyella virgulata* Chemsak 1987: 145; Chemsak et al. 1992: 83 (cat.); Monné 1994: 38 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.)

*Chemsakiella virgulata* Monné 2006: 179 (cat.); Monné and Hovore 2006: 139 (cat.); MacRae et al. 2012: 179 (host, biology); Zaragoza-Caballero and Pérez-Hernández 2017: 34 (paratype); Eya 2019: 5 (figures)

**Materials examined.** MEXICO: *Puebla*: 4 mi SW Morelos Cañada, 20 Sept. 1977, J. Chemsak, A. and M. Michelbacher (paratypes: 1 male, 1 female, BKEC); 8 km E Azumbilla, 22 Aug. 1987, J.T. Doyen (1 male, 1 female, BKEC); 1 km SW Acatepec, 14 Oct. 1978, E. Giesbert (6 males, 3 females, FSCA); 3 km N Chapulco, 20 July 1976, E. Giesbert (1 male, 1 female, FSCA), 1 Aug. 1976, E. Giesbert (2 males, 1 female, FSCA); 10 km NE Chapulco, 15 Oct. 1978, E. Giesbert (5 males, 2 females, FSCA); Santa Ana, 6 km N Tehuacán, 1830 m, 21/23 Oct. 2005, B. Smith (2 males, FWSC); 11 km N Tehuacán Hwy to Orizaba, 23 Oct. 2005, B. Smith (2 males, FWSC).

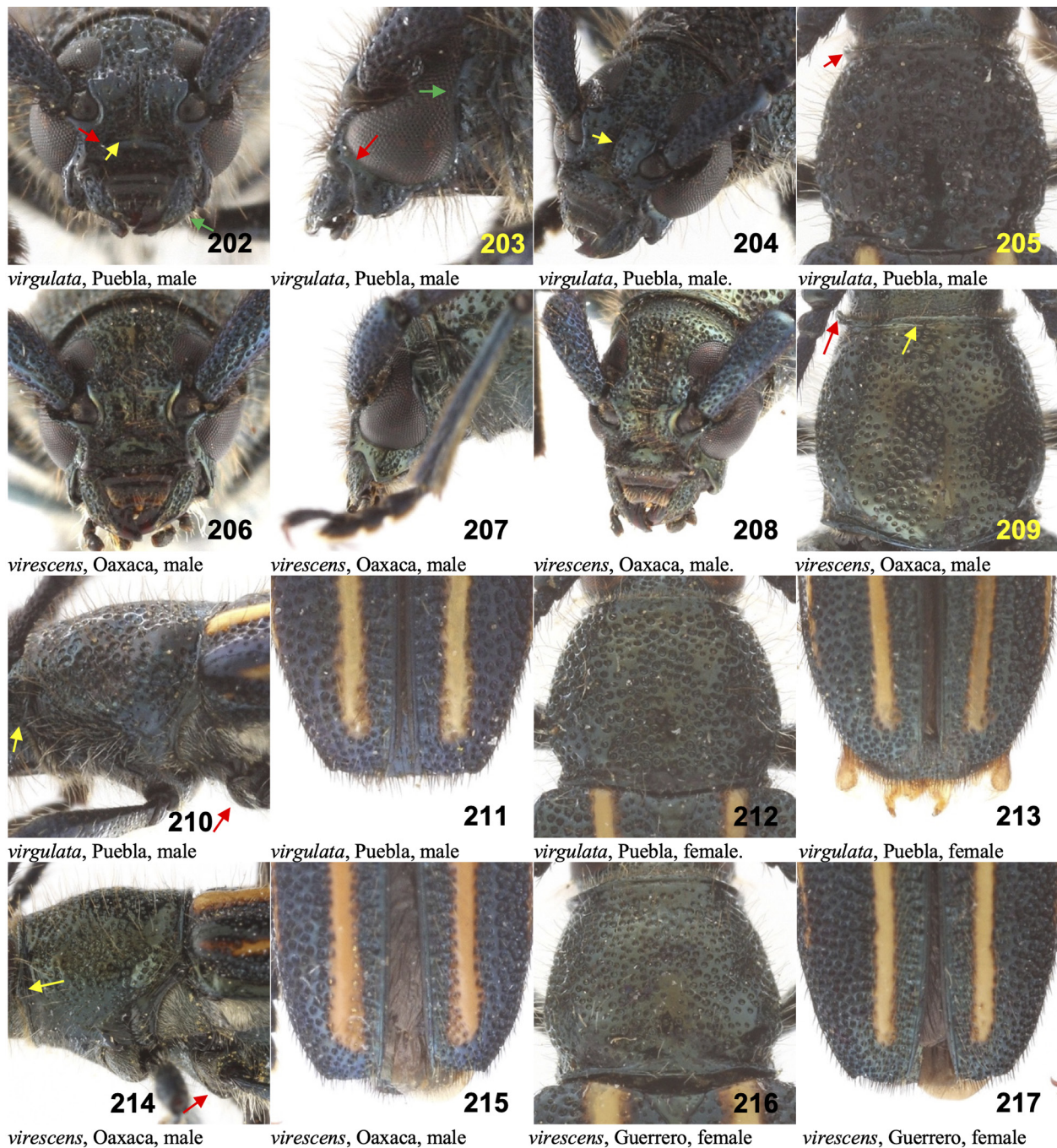
**Discussion.** *Mannophorus virgulata* (Chemsak) **new combination** is small (8–12 mm) and slightly tapered posteriorly. The “integument is dark metallic blue green” with two longitudinal, narrow eburneous costae on each elytron (Chemsak 1987: 145). The antennae are dark metallic blue with purplish cast. The pubescence on head, pronotum, sternum, elytra and femora are “pale, long, and erect.” The front is irregularly punctate with long, pale flying setae. The vertex is “coarsely, confluent punctate,” and clothed moderately densely with pale, long, flying setae. The genae are short and the base of mandibles is well separated from the anterior margins of lower eye lobes. The mandibles are arcuate from the base to apex. The antennal tubercles are divergent sloping down to mid-cranial sulcus, and apices rounded to obtusely angulate. The antennae extend about two antennomeres beyond



**Figures 188–201.** *Mannophorus virgulata virgulata* (Chemsak) **comb. nov.**, and *Mannophorus virgulate virescens* (Eya) **comb. nov., syn. nov.**, dorsal and lateral images: *Mannophorus v. virgulata*: **188–189**) Male, Puebla, 1 km SW Acatepec, MEX. **190–191**) Female, Puebla, 10 km NE Chapulco, MEX. *Mannophorus v. virescens*: **192–193**) Male, Oaxaca, 23 km N Huajuapán de León, MEX. **194–195**) Male, 6–8 km W Tixtla, Guerrero, Mex. **196–197**) Female, 10.5 km N Iguala, Guerrero, Mex. **198–199**) Female, Acahuizotla, Guerrero, Mex. Head: **200**) *Mannophorus v. virgulata*, male, Puebla, 8 km E Azumbilla, MEX., front declivous along mid-cranial sulcus, mandibular apices narrowly emarginate (red arrow). **201**) *Chemsakiella virescens* (Bates), female, Puebla, MEX., front short, vertical, mandibular apices bifid or emarginate-truncate (red arrow).

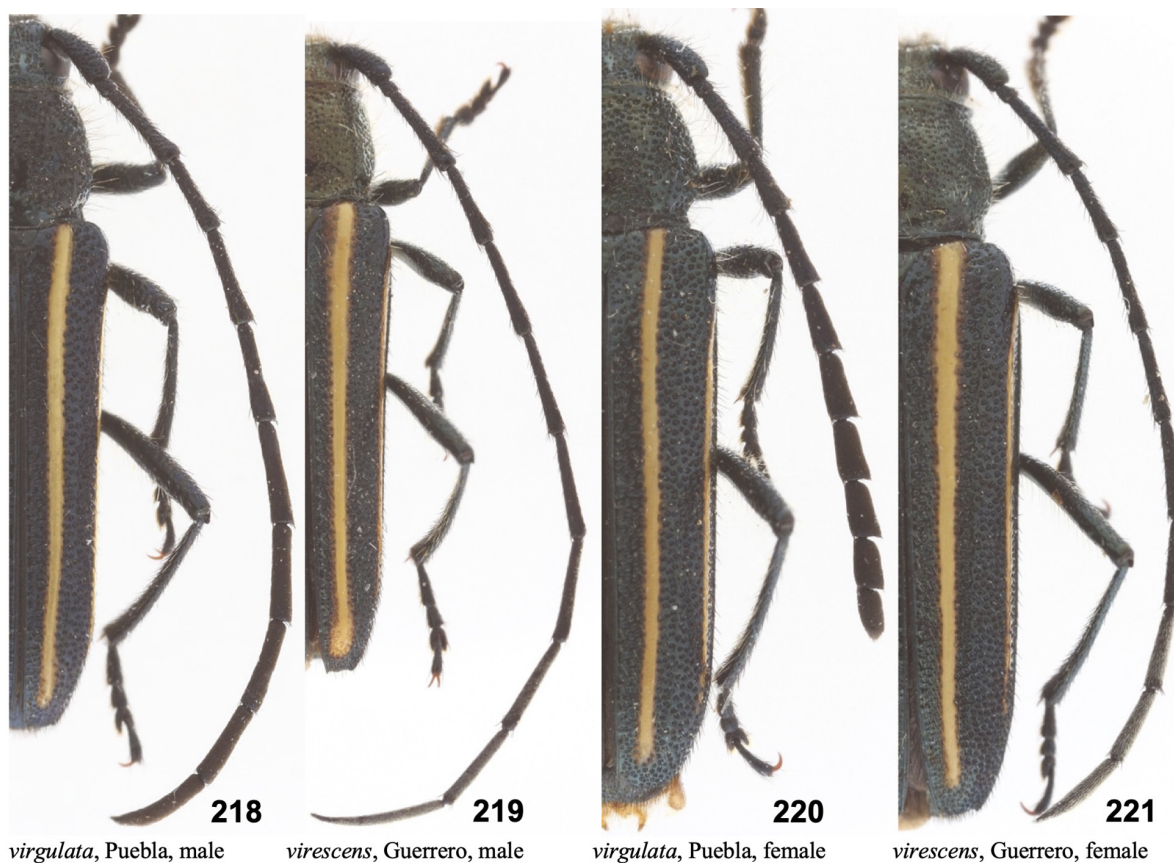
elytra in males, and antennomeres I–VII are slender, cylindrical and VIII–XI vaguely flattened and explanate apically. The antennae of the female are “shorter than body,” reaching the base of abdominal sternite IV, and the antennomeres from VI enlarged. The pronotum is slightly “broader than long,” sides are broadly “subangulate behind middle” to rounded. The disc is convex and sides of the pronotum are narrowly constricted anteriorly, and the base is widely constricted. The punctures on pronotal disc are “moderately coarsely, subconfluently punctate, often with a longitudinal, median, glabrous callus.” The prosternum is transversely striate-punctate on apical half, and basal half coarsely punctate in the middle with transverse finely punctate area on each side above coxae. The pubescence on prosternum is moderately dense, long, pale, and erect. Metasternum is deeply discretely punctate and densely clothed with long, pale, depressed pubescence. The elytra are 2.6 “times as long as broad,” dark metallic blue with epipleural margins of basal half metallic greenish, and sides slightly tapered towards middle. The eburneous longitudinal costae on each elytron are narrow. The subsutural costa extends from basal margin almost to apex, and the submarginal one is shorter starting behind humeri and extends to the apical tenth of elytron. The punctures between elytral costae are coarse and subconfluent with “pubescence long and erect.” The elytral apices are rounded or obliquely sinuate truncate with sutural angle minutely dentate.

This species was originally described as *Linsleyella* Chemsak (renamed as *Chemsakiella* by Monné) due to the resemblance to *Chemsakiella* Monné in the overall form, metallic color, coarsely, densely punctate integument and pubescence that are moderately dense, long, and erect. *Mannophorus virgulata* females also have the distal antennomeres that are expanded, which is one of the distinctive characteristics of *Chemsakiella*. This species differs from the other three *Chemsakiella* species by having the apex of mandibles that are simple or narrowly emarginate (Fig. 200), front that is declivous along the mid-cranial sulcus, pronotal disc that is apically tapered



**Figures 202–217.** *Mannophorus v. virgulata* (Chemsak) **comb. nov.**, and *Mannophorus v. virescens* (Eya) **comb. nov., syn. nov.**, comparative morphology. Head: **202, 206**) Front with small, deep pits (red arrow) on each side of frontoclypeal sulcus (yellow arrow), mandibles arcuate from base to apices (green arrow). **203, 207**) Lateral profile with gena short, prominent (red arrow), posterior-lateral margin of eyes emarginate (green arrow). **204, 208**) Frontolateral profile declivous along mid-cranial sulcus (yellow arrow). Pronotum: **205, 209, 212, 216**) Apical margin elevated (yellow arrow), narrowly constricted behind with collar-like projection on sides (red arrow). **205, 212**) Disc coarsely, subconfluently punctate (*M. v. virgulata*), clothed with long flying setae. **209, 216**) Disc with punctures smaller, sparser, and well separated in *M. v. virescens* compared to *M. v. virgulata*. Thorax lateral images: **210, 214**) pronotum with collar-like projection on apical margin (yellow arrow), disc shallowly convex, densely clothed with long flying setae, punctures coarser in *M. v. virgulata*. mesosternum non-protuberant (red arrow). Elytra: **211, 213, 215, 217**) Apices rounded or truncate, disc with punctures coarse, subconfluent.





**Figures 218–221.** *Mannophorus v. virgulata* (Chemsak) **comb. nov.** and *Mannophorus v. virescens* (Eya) **comb. nov., syn. nov.**, comparative morphology of antennae and dorsal habitus: **218)** *Mannophorus v. virgulata* male with antennae stout, antennomeres IV, IX and X subequal to or slightly longer than I, subsutural raised ivory vitta narrow from base to near apex. **219)** *Mannophorus v. virescens* male with antennae slender, antennomeres IV, IX and X much longer than I, subsutural raised ivory vitta broader anteriorly. **220)** *Mannophorus v. virgulata* female with antennae short, stout, distal antennomeres that are expanded, antennomeres IV–VII shorter than I, subsutural raised ivory vitta narrow from base to near apex. **221)** *Mannophorus v. virescens* female with antennae slender, elongate, antennomere IV subequal to I and V–VII slightly longer than I, subsutural raised ivory vitta broader anteriorly.

and usually subangulate behind middle (Fig. 205, 212), and elytra that are longitudinally costate. *Chemsakiella* have apex of mandibles that are bifid or emarginate-truncate (Fig. 201), front that is very short and vertical, and pronotal disc that is rounded, flattened, and abruptly delimited at sides. *Chemsakiella* species are all very similar in the overall form and appearance and lacks the longitudinal eburneous costae.

This species is very closely allied to *M. minor* (Bates) **new combination** but can be differentiated from the later most notably by the long flying setae on the head, thorax, base of elytra, sternum, and inner surface of femora, and by the coarser punctures on the pronotal disc. *Mannophorus minor* (Bates) has pubescence on head and pronotum that are very short, disc of pronotum that is closely, confluent punctate, side of mandibles near base that are strongly angulate, and the dorsal half of genae that are very narrow with anterior margins of lower eyes almost contiguous with the base of mandibles. *Mannophorus virgulata* has side of mandibles that are arcuate, and the dorsal half of genae that are broader with anterior margin of lower eyes separated from the base of mandibles.

The etymology of the species name *virgulata* was not described in the original description of this species. The name is derived from the Latin word “*virgulatus*” (striped) or “*virgula*” (small rod) referring to the narrow ivory costae on the elytra. *Mannophorus virgulata* (Chemsak, 1987) is found in the northeastern half of the state of Puebla, Mexico, from Acatepec eastward to Chapulco and Tehuacán based on the data provided in the original description and the materials examined.

***Mannophorus virgulata virescens* (Eya, 2010), new combination and new synonymy**

(Fig. 192–199)

*Ischnocnemis virescens* Eya 2010: 10 (**new synonymy**)

**Materials examined.** MEXICO: *Oaxaca*: 23 km N Huajuapán de León, HWY 125, 15 Oct. 2005, B.K. Eya (paratype: 1 male, BKEC); 5 km S Huapanapan (Hwy 125), 6015 ft. gps, N18°06'30", W97°41'13", 18 Oct. 2004, CLB 899, C.L. Belamy, flowers of yellow composite (4 males, 2 females, CSCA); 1.2–1.8 km S Huapanapan, 1785–1815 m., 18°07', 97°40', 14 Oct. 1989, R.L. Westcott, on flower of *Asteraceous* shrub (1 male, EMEC); 63 km N Huajuapán 14 Oct. 1978, E. Giesbert (3 males, FSCA). *Puebla*: 5 km NW Petlalcingo, 1400 m., 13 Oct. 1989, R.L. Westcott, on flower of *Asteraceous* shrub (1 male, EMEC); MX190, 2.25 mi S Chila de las Flores, 13 Oct. 2019, F.W. Skillman, J.F. Limon, N17.94615 W97.87542, el. 5891' (3 males, 3 females, FWSC); 21 km NW Huajuapán 13 Oct. 1978, E. Giesbert (1 male, 2 females, FSCA). *Guerrero*: 6–8 km W Tixtla, 15–20 Oct. 1984, E. Giesbert (2 males, FSCA); 10 km E Tixtla, 18/22 Sept. 1982, elev. 1770, J.A. Powell, J.A. Chemsak (paratypes: 6 males, 9 females, EMEC); 10.5 km N Iguala, 12 Oct. 1994, E. Giesbert (1 female, FSCA); 10.5 km N Iguala, 19–21 Sept. 1989, ± 4000' E. Giesbert (1 female, FSCA); 39 km W Iguala, 5000', 18–21 Sept. 1989, E. Giesbert (1 male, 1 female, FSCA); 5–7 km NW Taxco, 14 Sept. 1982, 1850–1900 m., J.A. Powell, J.A. Chemsak (paratypes: 3 males, 2 females, EMEC); km 55, 5 km SW Jct. Iguala-Taxco Hwy, 27 Sept. 1994, Chemsak (paratypes: 2 males, EMEC); 10 km N Iguala, 26, Nov. 1994, F.A. Noguera (paratype: 1 male, EMEC); 16 km NW Iguala, 12/15 Sept. 1982, elev. 1160 m., J.A. Powell, J.A. Chemsak (paratypes: 1 male, 1 female, EMEC); 33 km W Iguala, 28 Sept. 1994, Chemsak (paratype: 1 female, EMEC); 12 km S of Ixcateopan, 13 Sept. 1982, 1530 m., J.A. Powell, J.A. Chemsak (paratype: 1 female, EMEC); 22 km NE Teloloapan, 16 Sept. 1982, 1530 m., J.A. Powell, J.A. Chemsak (paratypes: 3 males, EMEC); 6 km S of Petaquillas, 19 Sept. 1982, 1730 m., (paratype: 1 male, EMEC); Mochitlan, 24 Sept. 1964, E.G. Linsley, A.E. Michelbacher (paratype: 1 female, EMEC); Acahizotla, 18 Oct. 1989, J. Blackaller (paratype: 1 female, EMEC); 22 km E Chichihualco, 5200', 22 Sept. 1989, E. Giesbert (1 male, 1 female, FSCA). *Morelos*: 46 mi. S Cuernavaca, 5250 ft., 12 Sept. 1957, H.A. Scullen (paratypes: 2 males, 3 females, EMEC); Cañon de Lobos, 6/12 Sept. 1976, E. Barrera (paratype: 1 female, EMEC), 6/12 Sept. 1976, J. Butze (paratype: 1 male, EMEC), 7 Sept. 1976, S. Barrios (paratype: 1 male, EMEC), col. diurna, I. Riuas (paratype: 1 female, EMEC), col. Diurna, Y. Rico (paratype: 1 male, EMEC), 8 Sept. 1976, E. Flora (paratype: 1 male, EMEC), M. Ponce (paratype: 1 female, EMEC), 9 Sept. 1976, G. Ortega (paratype: 1 male, EMEC), col. Diurna, E. Flora (paratype: 1 female, EMEC), J.M. Pino (paratype: 1 female, EMEC), 10 Sept. 1976, col. Diurna, S. Suarez (paratype: 1 male, EMEC), col. Diurna, M. Mendez (paratype: 1 male, EMEC), J.M. Pino (paratype: 1 male, EMEC).

**Discussion.** Comparative examination of *Mannophorus virgulata virescens* (Eya) **new combination** and **new synonymy** reveals that *virescens* is structurally almost identical to the nominotypical subspecies *M. virgulata virgulata* (Chemsak). However, *M. v. virescens* is slightly larger in overall size (10–14 mm), punctures smaller shallower and sparser, erect pubescence comparatively shorter, and the integument of pronotal disc more frequently aeneous metallic green. Also, the subsutural eburneous costae of elytra tend to be broader anteriorly, and the lateral collar-like projections on the anterior margin of the pronotum are more prominent in *M. v. virescens*. This subspecies is slightly larger than *M. v. virgulata* and therefore, the antennae are longer and the antennomeres are more elongate due to the allometric development frequently observed in trachyderines (e.g., Linsley and Chemsak 1961: 28). The antennae of female *M. v. virescens* compared to *M. v. virgulata* are usually longer attaining elytral apices or exceeding apices by a half of antennomere while those of the *M. v. virgulata* female are shorter than body attaining the base of fourth abdominal sternite. In males the antennae exceed the elytral apices in both subspecies with those of *M. v. virescens* usually exceeding the apices by three antennomeres and *M. v. virgulata* usually by two. The most strikingly distinct hypoallometric feature in the female *M. v. virgulata* is the shortened antennae with enlarged or expanded distal antennomeres from antennomere VI as found in *Chemsakiella*. The distal antennomeres of *virescens* females are elongate, slender, and not enlarged. The comparative lengths of antennomeres for several female specimens examined showed that the *M. v. virgulata* female have antennomeres IV–VII that are shorter than I compared to the *M. v. virescens* females with antennomere IV subequal to I and V–VII slightly longer than I. Similar examination of several male specimens revealed that *M. v. virgulata* have antennomeres that are thickened or expanded with IV, IX and X that are subequal to or slightly longer than I, while *M. v. virescens* have antennomeres that are slender with IV, IX and X much longer than I. *Mannophorus v.*

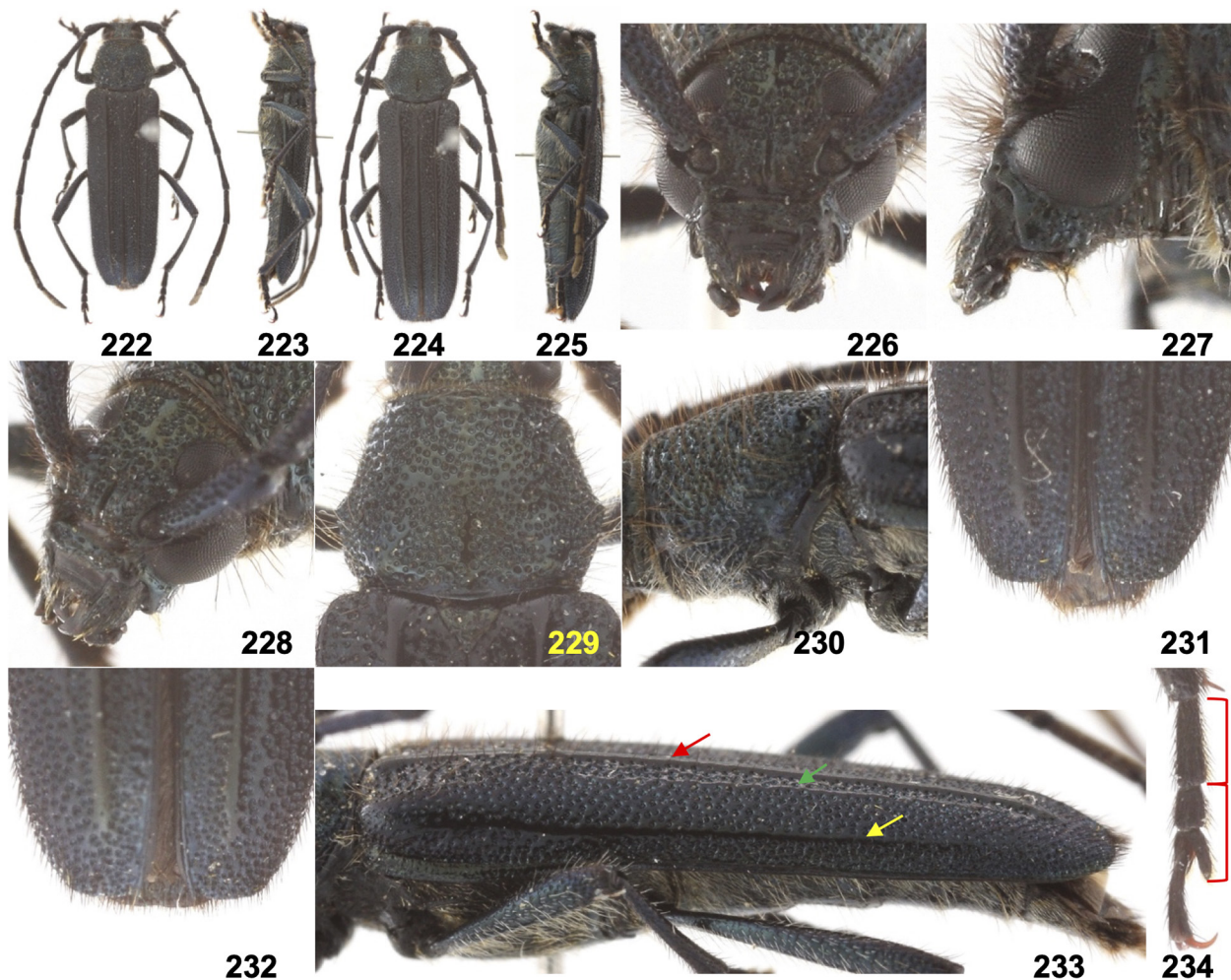
*virescens* is redesignated as a subspecies of *M. v. virgulata* since my comparative examination did not reveal any other striking difference (Fig. 202–217) except for the morphology of the antennae (Fig. 218–221). The examples of dorsal habitus as shown in the figures (Fig. 218–221) are the extreme forms of the two subspecies.

Based on the materials examined, *M. v. virescens* ranges from southern Puebla (i.e., Petlalcingo, and Chila de las Flores), southward to Oaxaca (i.e., Huajuapán de León), west into Guerrero (i.e., from Acahuizotla and Tixtla to Ixateopan), and northward to Morelos (near Cuernavaca).

### ***Mannophorus tricostatus* Eya, new species**

(Fig. 222–234)

**Description. Male:** Length 13 mm. **Form** small, elongate; integument nitid, metallic blue with greenish cast; each elytron with two glabrous, narrow, elevated, costae and another vague costa on apical half; punctation coarse, dense; pubescence long, erect on dorsum, long and depressed underneath. **Head** small; vertex alveolate punctate with vague impunctate, glabrous line in middle between eyes; front coarsely, subconfluently punctate; postclypeus finely, confluent punctate on sides, glabrate more sparsely punctate in middle; frontoclypeal sulcus, nitid, glabrous broadly excavate; mid-cranial sulcus narrow, deeply canaliculate; antennal tubercles with apices angulate; genae short, anterior margin of lower eye lobes separated from base of mandible, integument nitid, sparsely, irregular punctate, beneath coarsely, rugosely punctate; setae, long, flying on vertex around upper eye lobes, antennal tubercles, and dorsal anterior margins of genae; labrum finely punctate on sides, pubescence long, depressed; mandibles with sides arcuate, pubescence depressed; antennae slender, exceeding elytral apices by two antennomeres; scape conical densely, deeply, rugosely punctate, clothed with short, suberect setae; antennomeres II–VII coarsely, densely, rugosely punctate, pubescence short, depressed with few flying setae underneath, remaining antennomeres from VIII minutely, densely punctate, densely covered with minute, appressed, tawny pubescence with few longer, depressed setae on apices and few fly setae underneath; antennomeres vaguely carinate on outer surface of IV–VI and on inner surface of IV–VIII; antennomere III longer than I; IV shorter than III; V longer than IV, subequal to III; VI slightly shorter than V; VII longer than VI; VIII, IX slightly shorter than VII, subequal to V; X shorter than IX subequal to IV; XI longest, apical four-fifth vaguely appendiculate. **Pronotum** wider than long (L/W: 0.83), sides angulate with obtuse lateral tubercles slightly behind middle; disc convex, coarsely, densely, confluent punctate with long, erect, flying setae; apex narrowly constricted on sides, margin collared; basal margin vaguely lobed in middle, sides tapered to base of humerus; proepisternal area rugulose with large crater-like punctures interspersed with minute punctures, surface clothed with long, flying setae; prosternum with apical half transversely plicate, minutely punctate, basal half rugose, finely punctate on side and coarsely punctate in middle, surface thinly clothed with long, flying and depressed setae; mesosternum nitid, coarsely punctate on sides, integument in middle concave and sparsely punctate, pubescence long, appressed; mesepimera and mesepisterna finely punctate, pubescence short, appressed; metasternum with integument nitid, impunctate on either side of midline, sides discretely punctate with punctures finer and contiguous near base of mesocoxae, pubescence long, depressed, interspersed with suberect flying setae; metepisterna finely, densely punctate clothed densely with appressed pubescence. **Scutellum** coarsely, rugosely punctate. **Elytra** 2.6–2.7 times as long as broad; each elytron tricostate, subsutural and submarginal costae glabrous, narrow, elevated, and another vague costa in between; subsutural costa prominent, extending from base to beyond apical tenth, submarginal one shorter, starting well behind humerus extending to about apical fifth; vague costa in middle narrow, interrupted by punctures starting from basal third attaining apical tenth; punctures adjacent to suture, dense, deep, discrete, punctures between costae coarser, subcontiguous, those between submarginal costa and epipleura and near apices smaller, contiguous; pubescence on basal half, erect, near apices shorter, suberect; apices separately rounded, suture minutely dentate. **Legs** slender, nitid; femora slightly clavate, coarsely, densely punctate, dorsum sparsely clothed with depressed setae, inner surface clothed with long, pale, suberect setae; meso- and metafemora arcuate near base; metafemora falling far short of elytral apices; tibiae pitted with small contiguous punctures, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I subequal to or slightly shorter than tarsomeres II and III combined. **Abdomen** nitid, sparsely punctate in middle, sparsely clothed with long, pale, suberect setae and short, depressed setae, sides finely, densely, contiguously punctate, densely clothed with long, appressed setae; apex of last sternite narrowly truncate, and vaguely emarginate at middle.



**Figures 222–234.** *Mannophorus tricostatus* Eya **sp. nov.**, dorsal and lateral images: 222–223) Male, Chiapas, 48 km SE Jct. 190/199, MEX. 224–225) Female, Chiapas, 48 km SE Jct. 190/199, MEX. Head: 226) Front. 227) Lateral profile. 228) Frontolateral profile. Pronotum: 229) Disc, sides broadly tuberculate. Thorax lateral image: 230) mesosternal intercoxal process non-protuberant. Elytra: 231) Male, apices. 232) Female, apices. 233) Elytron lateral image with three costae, subsutural costa (red arrow), submarginal costa (yellow arrow), costa in between (green arrow). Metatarsi: 234) Metatarsomere 1 ( $T_1$ ) subequal to or shorter than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.9.

**Female:** Length 13 mm. Form more parallel-sided than male. Pronotum wider than long (L/W: 0.78) with proepisternal area rugose, coarsely, confluent punctate. Antennae shorter than body attaining middle of fourth abdominal sternite; antennomeres from apical half of IV–VII vaguely carinate on outer surface; antennomere III subequal to I; IV shorter than III; V longer than IV, slightly shorter than III; VI, VII subequal to V; VIII and IX shorter than VII, subequal to IV; X shorter than IX; XI subequal to VIII. Abdomen with apex of last sternite broadly truncate, and emarginate at middle.

**Etymology.** This species is named after the tricostate elytron.

**Type materials.** Holotype, male (FSCA 00082451) and allotype, female (FSCA 00082452), MEXICO: *Chiapas*: 48 km SE Jct. 190/199, 18 Oct. 1988, J.E. Wappes, both types deposited in FSCA.

**Discussion.** This species closely resembles the darker form (i.e., *Mannophorus ferreus* Bates) of *M. laetus* LeConte but differs from the later by the elongate, narrower body form, broadly tuberculated sides of pronotum (Fig. 229), tricostate elytron (Fig. 233), and by the long flying erect setae on front, vertex, pronotum, prosternum (Fig.

226–230) and basal half of elytra (Fig. 233). Also, the inner surfaces of femora are covered by long suberect setae. The vertex and antennal tubercles are coarsely, alveolate punctate and the mid-cranial sulcus is deeply canaliculate. The collar-like projection on sides of the apical margin of the pronotum is not as prominent in this species compared to *M. laetus*. *Mannophorus tricostatus* **new species** is narrower than *M. laetus* with dimensions of the elytra 2.6–2.7 times as long as broad and elytra 3.9–4.0 times longer than length of pronotum, while *M. laetus* LeConte has elytra 2.4–2.5 times as long as broad, and elytra 3.3–3.6 times longer than pronotum. *Mannophorus laetus* also differs from this species by the rounded sides of pronotum, bicostate elytron, shorter erect setae on the dorsum and venter, and by the comparatively finer and denser punctures on the vertex, elytra, and femora. The integuments of *M. tricostatus* is brilliant metallic blue with greenish cast. The darker forms of *M. laetus* also have integuments with metallic bluish-greenish luster, however, the color is opaque compared to *M. tricostatus*.

### ***Paramannophorus Eya*, new genus**

**Type species.** *Ischnocnemis skillmani* Chemsak and Hovore in Eya 2010

A new genus *Paramannophorus* is created for *Ischnocnemis skillmani* Chemsak and Hovore, and the following new combination is proposed: *Paramannophorus skillmani* (Chemsak and Hovore, 2010), **new combination**.

**Description.** **Form** small, stout, sides subparallel. **Head** with front short, declivous, mid-cranial sulcus (median line) narrow, canaliculate, extending over from postclypeus to posterior margin of antennal tubercles, each side above postclypeus and below antennal insertions with a small pit, frontoclypeal sulcus transversely excavated in middle between pits; postclypeus declivous, subparallel with front; genae short, narrow, triangular, base of mandibles almost contiguous with anterior margins of lower eye lobes; palpi short, subequal, last segments not expanded, apex truncate or rounded, dorsoventrally flattened, outer margin vaguely impressed; mandibles simple, sides arcuate from base to apex, dorsum with outer edge vaguely impressed; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large; antennal tubercles divergent; integument between tubercles impressed; antennae elongate, 11-segmented, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** broader than long, narrower than base of elytra at humeri, sides obtusely angulate; apex narrower than base, apical margin not elevated on dorsum, narrowly constricted behind with lateral collar-like projection absent; base margined with sides broadly constricted; prosternum with intercoxal process level with coxae, narrower than coxal cavities, procoxae wide open behind; mesosternum with intercoxal process lying below top of coxae, gradually declivous anteriorly; posterior-lateral margins lobed and slightly overlapping mesocoxae. **Scutellum** triangular, as broad as long. **Elytra** with longitudinal, glabrous costae or ivory-like vittae; apices truncate, outer angles dentate. **Legs** slender, moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomeres explanate, tarsomere I shorter than tarsomeres II and III combined. **Abdomen** normally segmented.

**Etymology.** The name *Paramannophorus* refers to (*Para-*, closely resembling or near) and *Mannophorus*. *Paramannophorus* with the Latinized suffix “-phorus” is a masculine genus name.

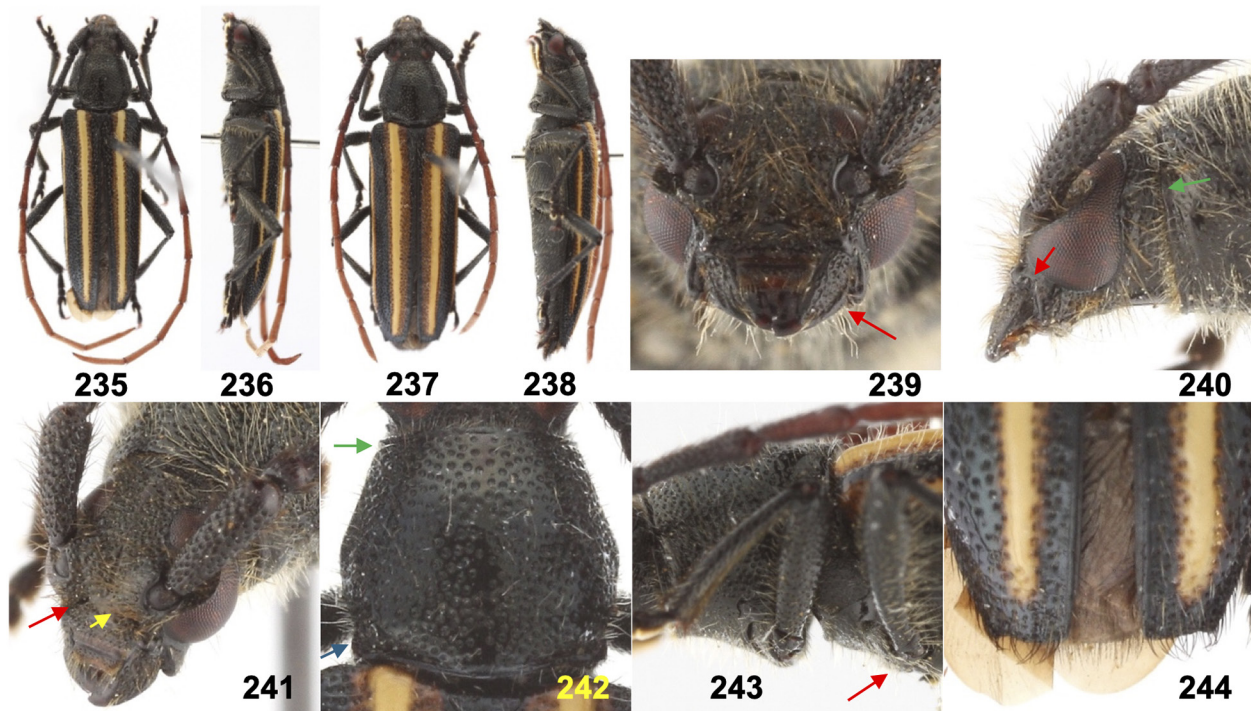
### ***Paramannophorus skillmani* (Chemsak and Hovore in: Eya, 2010), new combination**

(Fig. 235–244)

*Ischnocnemis skillmani* Chemsak and Hovore: in Eya 2010: 7; MacRae et al. 2012: 180 (bio.)

**Materials examined.** MEXICO: *Oaxaca*: MX 190 vic Matatlan (Matatlán), microwave tower, 19 Oct. 2001, F. Skillman and J. Davidson (paratypes: 6 males, 4 females; 1 male, EMEC); road to Micro. Ocotepc, 6 km S Matatlan (Matatlán), Hwy 190, 2000–2100 m, 16°49.37', 96°21.73', 7 Oct. 2003, N. Schiff (paratype: 1 male, EMEC); 6 km SE Santiago Matatlán, HWY 190, R.M.O. Ocotepc, 16 Oct. 2005, B.K. Eya (paratypes: 1 male, 1 female, BKEC); 21 Oct. 2005 B.K. Eya (paratype: 1 female, BKEC); Microondas, Ocotepc road, 6 km S Matatlán (Matatlán), 6800 ft, gps N 16°49.32', W 96°21.42', 16 Oct. 2004, C.L. Belamy (paratypes: 1 male, 1 female, EMEC).

**Discussion.** *Paramannophorus skillmani* (Chemsak and Hovore) **new combination** is small (8–13 mm), and subparallel. The “integument is shining black with vague, dark, greenish overtones,” and the antennae are “pale, brownish from the apices of third or fourth” antennomere (Chemsak and Hovore in Eya: 2010: 7). The pubescence is moderately dense, pale, and erect on the head, pronotum and prosternum, and long and depressed on the remainder of underside, and shorter and suberect on the elytra. There are two eburneous vittae on each



**Figures 235–244.** *Paramannophorus skillmani* (Chemsak and Hovore) **comb. nov.**, dorsal and lateral images: 235–236) Male, 10 mm, Oaxaca, MEX. 237–238) Female, 11 mm, Oaxaca, MEX. Head: 239) Frontal image, pubescence moderately dense, mandibles arcuate from base to apex (red arrow). 240) Lateral profile, genae narrow (red arrow), apical margin of pronotum without collar-like projection (green arrow). 241) Frontolateral profile, front with small deep pits (red arrow) on each side of frontoclypeal sulcus (yellow arrow), antennal tubercles divergent, integument declivous in middle sloping down to mid-cranial sulcus. Pronotum: 242) Disc, apical margin not elevated on dorsum and without collar-like projection laterally (green arrow), base margined and more broadly constricted on sides (blue arrow), sides obtusely angulated. Thorax lateral image: 243) Pronotal disc shallowly convex, mesosternum non-protuberant (red arrow). Elytra: 244) Apices truncate with outer angles dentate.

elytron, a broader subsutural vitta extending from base almost to apices, and a narrower submarginal vitta starting behind humerus extending to about apical one-tenth of elytra. Front is declivous with mid-cranial sulcus narrow, deeply canaliculate, and “punctures moderately coarse and subconfluent.” Vertex is coarsely, confluent punctate throughout, and the midline vaguely elevated. The antennal tubercles are divergent and the integument between tubercles is impressed forming a shallow V-shaped valley sloping down to the mid-cranial sulcus. The antennae are slender, extending about three antennomeres beyond the elytra in males, and attaining or about an antennomere longer than the elytra in females. The pronotum is “broader than long (L/W: 0.88), sides obtusely angulate” in middle with apical margin not elevated on the dorsum with lateral collar-like projection absent. The pronotal disc is coarsely and subcontiguously punctate with a shallow, longitudinally elongate, glabrous callus in the middle. The propisternal areas are confluent punctate. Prosternum is transversely rugulose and confluent punctate. The mesosternum is coarsely, sparsely punctate in middle, and confluent punctate on sides. The metasternum is nitid, coarsely, discretely punctate, and glabrous along midline. The elytra are “about two and half times as long as broad” (L/W: 2.5). The punctures on elytra between vittae are “dense and coarse becoming finer” apically, those between subsutural vittae and suture are shallower and sparser, and those between submarginal vittae and the epipleural margins are coarse and contiguous. The elytral apices are sinuate truncate with exterior angles dentate.

According to Chemsak and Hovore *in Eya* (2010: 8), “this is another *Ischnocnemis* species with longitudinal yellow vittate elytra. It differs generally from the other described vittate *Ischnocnemis* by its smaller size, pale brown distal antennal segments, and vaguely angulated sides of the pronotum.” Although this species superficially

resembles *Ischnocnemis*, the morphology of the head capsule with declivous front, divergent antennal tubercles, and prognathous mouthparts (Fig. 17a, 17b) differs from the later with convex, subvertical or vertical front and retracted mouthparts (Fig. 23a, 23b). This species also lacks the elevated collar-like lateral projection and raised anterior margin of pronotum, which are the key characters for *Mannophorus* as designated by LeConte. This species is therefore, moved to *Paramannophorus* Eya **new genus**. *Paramannophorus skillmani* (Chemsak and Hovore) resembles *Mannophorus laetus* LeConte in overall form with broader pronotum and elytra, declivous front, coarser texture of integument, and shorter and explanate metatarsomeres (Fig. 36a). This species has pronotum that is coarsely punctate and densely clothed with long, erect pubescence, and the exterior angle of elytral apices are obtusely dentate. The genae of *P. skillmani* are narrow as in *Ischnocnemis* and *Lophaliomorpha* Eya **new genus**; however, the mandibles are not retracted with sides arcuate from base to apex. The pale brown distal coloration of the antennae is variable, starting from the apex of third or from the fourth, fifth or sixth antennomere.

### *Ischnocnemis* Thomson, 1864

**Type species.** *Ischnocnemis costipennis* Thomson, 1864 (monobasic).

*Ischnocnemis* Thomson 1864: 199, 430; Lacordaire 1869: 185; Bates 1880: 83; Linsley 1935: 101; Monné 1994: 64

**Redescription. Form** small to moderate sized, sides subparallel. **Head** with front short, convex, vertical to subvertical, mid-cranial sulcus (median line) narrow, canaliculate or well defined, extending arcuately over from postclypeus to posterior margin of antennal tubercles, each side above postclypeus and below antennal insertion usually with a small, deep pit, frontoclypeal sulcus transversely excavated in middle between pits; genae short, anterior margins of lower eye lobes almost contiguous with base of mandibles, integument in between very narrow; palpi short, subequal, last segments not expanded, apex truncate, outer edge of maxillary palpi convex, usually not impressed on sides; mandibles retracted, sides strongly angulate near base then arcuate to apices, dorsum vaguely impressed on outer edges; apices simple, not emarginate; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large; antennal tubercles moderately prominent, elevated; integument between tubercles barely impressed; antennae elongate, 11-segmented, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** as broad as long to slightly broader, narrower than base of elytra at humeri, sides rounded, unarmed; apex narrower than base, apical margin with lateral collar-like projection absent; prosternum with intercoxal process level with coxae or slightly impressed between coxae, narrower than coxal cavity, apex vertical and concave behind, coxal cavities wide open behind; mesosternum with intercoxal process level with coxae, gradually declivous and usually excavate anteriorly; posterior-lateral margins lobed, slightly overlapping mesocoxae. **Scutellum** triangular or cordate, as broad as long. **Elytra** with apices truncate, each elytron with or without two longitudinal, narrow, glabrous costae or ivory-like vittae. **Legs** moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomere I elongate, longer than or subequal to tarsomeres II and III combined. **Abdomen** normally segmented.

The following species are included in this genus: *Ischnocnemis caerulescens* Bates (Fig. 245–309), 1885; *I. costipennis* Thomson, 1864 (Fig. 310–332); *I. eyai* Chemsak and Noguera, 1997 (Fig. 333–345); *I. glabra* Chemsak and Linsley, 1988 (Fig. 346–358); *I. sexualis* Bates, 1885 (Fig. 359–381); *I. similis* Chemsak and Noguera, 1997 (Fig. 382–395); *I. edmundi* Eya **new species** (Fig. 396–408); and *I. brevis* Eya **new species** (Fig. 409–427).

**Discussion.** According to Bates (1880: 83), *Ischnocnemis* Thomson “is closely allied to *Mannophorus* LeConte” with chief differences being the elongate form, longer antennae, longer “basal tarsomere of metatarsi, and attenuated and pointed apex of scutellum.” However, Bates (1885: 328) subsequently noted in his comment for *Ischnocnemis costipennis* Thomson that *Mannophorus forreri* Bates also shared the longer antennae in males, and “the scutellum was not always prolonged into a sharp point” in *Ischnocnemis*. Therefore, Bates concluded that “there remained no other character of sufficient importance to separate” the two genera and suggested that the name *Mannophorus* “will have priority” if they were to be united.

*Ischnocnemis* is characterized by the following combinations of characters: (1) overall form that is usually narrow and elongate; (2) front that is convex, subvertical (Fig. 270, 352, 371, 402) or vertical (Fig. 327, 339, 390, 419) with frontoclypeal sulcus deeply, transversely excavated above postclypeus; (3) mid-cranial sulcus that is arcuate from postclypeus over to the antennal tubercles; (4) dorsal half of genae that are usually narrow with

anterior margin of lower eyes almost contiguous with the base of mandibles (Fig. 271, 326, 338, 351, 370, 389, 401, 418); (5) mandibles that are retracted and strongly angulate near base (Fig. 270, 327, 337, 352, 371, 390, 402, 417) as in *Lophaliomorpha* Eya **new genus**; (4) mesosternal intercoxal process that is level with mesocoxae and declivous anterior (Fig. 272, 329, 341, 354, 375, 392, 404, 423); and (5) first tarsomeres of metatarsi elongate, narrow and longer than or subequal to the following two tarsomeres together.

*Ischnocnemis* has a narrowly margined apex of pronotum as in *Mannophorus* but lacks the lateral collar-like projection as described by LeConte (1854: 442). *Mannophorus* has a front that is declivous in the middle, and antennal tubercles that are divergent with the integument between tubercles impressed forming a V-shaped valley sloping down to the mid-cranial sulcus. *Mannophorus* has dorsal half of genae that are usually broader with lower eyes well separated from the base of the mandible. *Mannophorus minor* (Bates) **new combination** is the only species with a narrow genae and mandibles that are more retracted and strongly angulate near base as in *Ischnocnemis*; however, in this species the front is declivous in middle, and there are lateral collar-like projections on the apices of pronotum. Amongst the *Ischnocnemis* species *I. caerulescens* Bates, *I. edmundi* Eya **new species**, *I. sexualis* Bates, and *I. brevis* Eya **new species** have tarsomere I of metatarsi that are subequal to the following two tarsomeres combined (Fig. 309, 379, 408, 427). Other *Ischnocnemis* species with glabrous subsutural and submarginal ivory costae (i.e., *I. costipennis* Thomson, *I. eyai* Chemsak and Noguera, *I. glabra* Chemsak and Linsley, and *I. similis* Chemsak and Noguera) have elongate metatarsi with tarsomere I that are longer than the following tarsomeres II and III combined (Fig. 332, 345, 358, 395).

Both *Ischnocnemis* and *Mannophorus* have the mesosternal intercoxal process that is level with coxae and gradually declivous anteriorly, and the posterior margin of the process that is discontinuous with the anterior margin of metasternum. In *Lophalia* and *Lophaliomorpha* the mesosternal intercoxal process is protuberant above coxae, and the posterior margin of the process is continuous with metasternum separated by a suture. This sternal characteristic of *Lophalia* and *Lophaliomorpha* is shared with *Pleuromenus* (i.e., *Pleuromenus bacifer* Bates and *Chemsakia semicostata* (Bates)) as described by Bates (1872: 194), “*Mesosternum inter coxas valde elevatum, antice veticale, postice processu metasternali continuatum, sutura separatum*” or “mesosternal intercoxal process very elevated, front vertical, behind the process continues to metasternum with suture separating.”

The genus name *Ischnocnemis* is Greek for “slender tibia” where ισχνός, (ischnós) is “slim or slender” and κνημῖς (knēmís) is referring to the “shin or tibia”.

### Key to species of *Ischnocnemis* Thomson, 1864

1. Larger species (11–20 mm); elytra bicolorous, black with ivory vitta(e) or elytra testaceous and black with dark costae; each elytron with raised or glabrous subsutural costa or vitta and submarginal vitta or costa; metatarsomere 1 elongate, usually longer than tarsomeres 2 and 3 combined . . . . . **2**
- Smaller species (8–12 mm); elytra concolorous, all black or metallic bluish; each elytron with presence of costa variable, either with single vague, non-elevated subsutural costa, or costa absent, or with raised subsutural and vague submarginal costae; metatarsomere 1 subequal to tarsomeres 2 and 3 combined . . . . . **6**
- 2(1). Each elytron with glabrous subsutural and submarginal vittae or costae, interspace with or without a vague costa; dorsum of antennomeres finely punctate without any visible signs of scaring; mesosternum excavated anteriorly; integument black . . . . . **3**
- Each elytron with a single, narrow, ivory subsutural vitta, submarginal costa vague; dorsum of antennomeres III to VI striate-punctate or canaliculate; mesosternum not excavated anterior or depressed in the middle; integument black with metallic greenish to bluish sheen (Fig. 396–408) . . . . . ***I. edmundi* Eya, sp. nov.**
- 3(2). Integument with pubescence visible, elytra with short and suberect setae, sternum with golden and appressed pubescence; elytra with narrow subsutural and submarginal costae or vittae . . . . . **4**
- Integument glabrate, black with pubescence on dorsum and sternum obsolete, minute or very short; elytra with bright yellow subsutural vittae, and narrower submarginal costae showing variation in color with base usually yellowish to mostly dark and vaguely yellowish (Fig. 346–358) . . . . . ***I. glabra* Chemsak and Linsley**



- 4(3). Pronotum with pubescence sparse, obscure, or transparent ..... 5  
 — Pronotum with fine, golden, transversely appressed pubescence (Fig. 333–345) .....  
 ..... *I. eyai* Chemsak and Noguera
- 5(4). Form larger (16–20 mm); color of elytra variable, yellow on either side of costae with darker interspace,  
 or yellowish testaceous with epipleural margins dark, or dark basally and apically reddish brown;  
 each elytron with two elevated costae and usually with a vague, longitudinal costa between the two  
 elevated ones; vestiture underneath dense, appressed (Fig. 310–332) ..... *I. costipennis* Thomson  
 — Form smaller (11–16 mm); elytra black, each elytron with two ivory costae, interspace usually without  
 vague longitudinal costa; vestiture underneath sparse, integument unobscured, plainly visible (Fig.  
 382–395) ..... *I. similis* Chemsak and Noguera
- 6(1). Form elongate; elytra about three times as long as wide, apices truncate (Fig. 285–308, 376–378);  
 pronotum as long as wide, base vaguely constricted or weakly impressed on sides (Fig. 273–284,  
 372–374) ..... 7  
 — Form short, stout; elytra 2.5 times as long as wide, apices rounded, vaguely sinuate (Fig. 424–425); pro-  
 notum wider than long, base with sides impressed or constricted and margin expanded over humeri  
 (Fig. 420–422) ..... *I. brevis* Eya, sp. nov.
- 7(6). Elytra metallic bluish, each elytron with single vague, non-elevated subsutural costa or costa absent (Fig.  
 297–308); pronotum usually metallic bluish, nitid, punctures on center of disc subconfluent to dis-  
 cretely punctate, disc vaguely raised along midline (Fig. 273–284) ..... *I. caerulescens* Bates  
 — Elytra black or dark metallic steel blue, each elytron with raised subsutural costa, vague submarginal  
 costa and another vague longitudinal costa in between; pronotum opaque, black, or reddish, deeply,  
 confluent punctate, disc evenly convex (Fig. 359–381) ..... *I. sexualis* Bates

### *Ischnocnemis caerulescens* Bates, 1885

(Fig. 245–309)

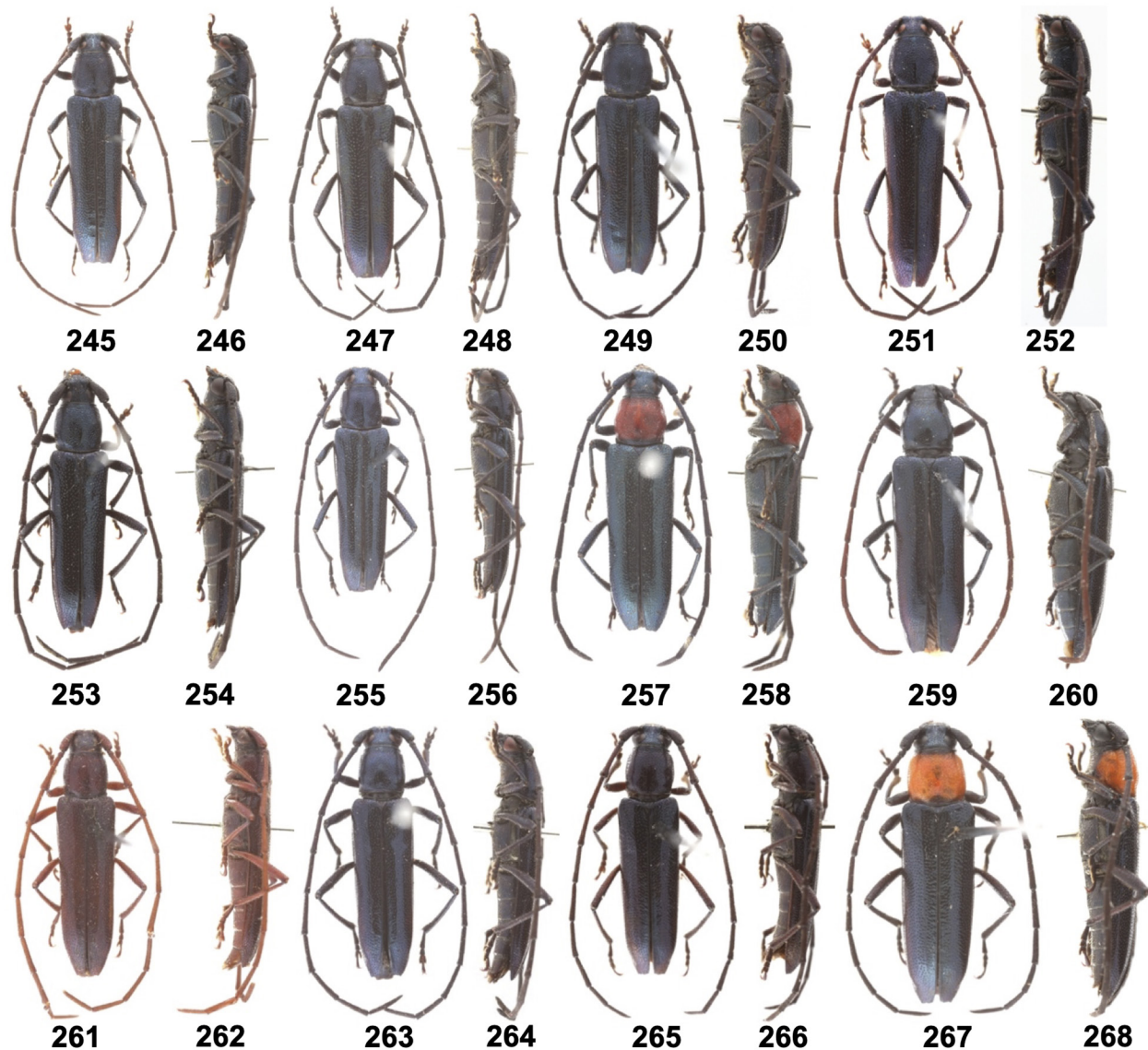
*Ischnocnemis caerulescens* Bates 1885: 328; Bates 1892: 178 (dist.); Casey 1912: 332; Blackwelder 1946: 590; Chemsak et al. 1992: 83; Chemsak and Noguera 1993: 63; Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.); Noguera et al. 2002: 624 (dist.); Toledo-Hernández et al. 2002: 529 (dist., biol.); Swift et al. 2010: 32 (dist.); MacRae et al. 2012: 180 (biol.).

*Ischnocnemis caerulescens* Aurivillius 1912: 473 (species name misspelled)

*Ischnocnemis cyaneus* Bates, 1892 (**new synonymy**); *Ischnocnemis cyaneus* Bates, 1892: 178; Aurivillius 1912: 473 (cat.); Chemsak et al. 1992: 83 (cat.); Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Santos-Silva et al. 2018: 203 (dist.).

*Ischnocnemis cyanea* Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 83 (cat.); Noguera and Chemsak 1996: 402 (dist.).

**Redescription. Male:** Length 8–12 mm. **Form** small, elongate, narrow, slightly tapered apically; integument black to dark metallic blue, abdomen black with metallic bluish to reddish cast, elytra, dorsum of head and pronotum dark metallic blue. **Head** small; vertex, moderately, densely punctate with vague, glabrous carina in middle; front irregularly punctate; postclypeus sparsely punctate; antennal tubercles vaguely elevated with apices obtusely angulate; genae with lower half triangular, irregularly punctate; pubescence obscure, short erect on vertex, antennal tubercles, lateral margins of postclypeus, and dorsal anterior margin of genae; labrum finely punctate, pubescence longer than front and depressed; antennae slender, exceeding elytral apices by three antennomers; scape conical densely, coarsely punctate, pubescence obscure, short, suberect; antennomeres II–VI cylindrical, integument finely, densely punctate, obscurely pubescent with short, depressed setae, remaining antennomeres opaque, densely, minutely punctate and densely covered with minute, appressed setae with few, short, suberect setae on apices; antennomeres from V carinate on inside surface; antennomere III longer than I; IV shorter than III, longer than I; V longer than IV, shorter than or subequal to III; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX; XI longest, non-appendiculate. **Pronotum** cylindrical, as long as wide (L/W: 1.0), sides shallowly rounded; disc shallowly convex, dorsal callus absent, very vaguely keeled longitudinally in middle, basal half frequently with longitudinally elongate, sparsely punctate area in middle; apical margin vaguely collared, sides narrowly constricted; base vaguely impressed at sides; punctures dense, discretely



**Figures 245–268.** *Ischnocnemis caerulelescens* Bates, dorsal and lateral images: 245–246) Male, 11 mm, Nayarit, MEX. 247–248) Male, 11 mm, Jalisco, MEX. 249–250) Female, 11 mm, Guerrero, MEX. 251–252) Male, 10 mm, Morelos, MEX. 253–254) Male, 11 mm, Oaxaca, MEX. 255–256) Male, 11 mm, Chiapas, MEX. 257–258) Female, 13 mm, Chiapas, MEX. 259–260) Female, 12 mm, Chiapas, MEX. 261–262) Male, 10 mm, GTM. 263–264) Male, 11 mm, Masaya, NIC. 265–266) Male, 9 mm, Guanacaste, CRI. 267–268) Female, 12 mm, Guanacaste, CRI.

to contiguously punctate; pubescence obscure, very short, erect with few longer setae near base; proepisternal area rugulose, punctures sparser than disc, pubescence obscure, sparse; prosternum flat to slightly concave, apical half transversely plicate, basal half densely, coarsely punctate, each side above coxae with vaguely visible, transverse, subrectangular, rugosely punctate area, pubescence dense, short, suberect; mesosternum rugulose, coarsely punctate in middle, punctures denser and finer near procoxae, pubescence obscure, pale, depressed to suberect; mesosternal intercoxal process as wide as coxal cavity; mesepisterna nitid, rugulose with shallow punctures, pubescence obscure, appressed; mesepimera with anterior half finely punctate, pubescence appressed, posterior half nitid, glabrous; metasternum evenly, discretely, coarsely punctate with long, depressed setae arising from each puncture, integument on either side of midline narrowly glabrous; metepisterna finely, densely, contiguously punctate, densely clothed with short appressed pubescence. **Scutellum** black, cordate to triangular,

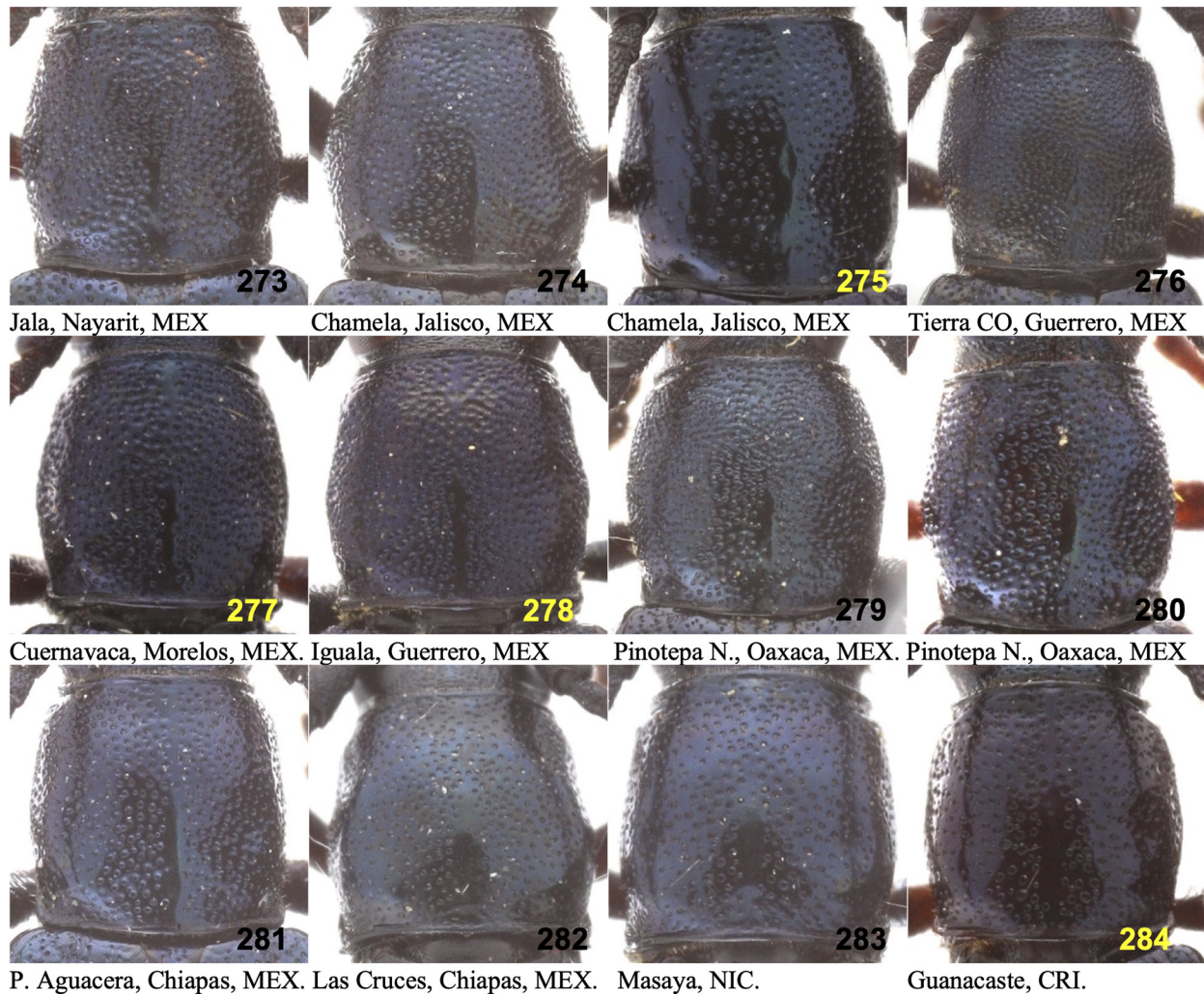


**Figures 269–272.** *Ischnocnemis caerulea* Bates. Head: **269–270**) Front subvertical, mandibles retracted. **271**) Lateral profile, dorsal half of genae narrow, anterior margin of eye lobe almost contiguous with base of mandibles (red arrow). Thorax lateral image: **272**) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow).

as long as wide, sparsely, coarsely punctate. **Elytra** 2.8–2.9 times as long as broad; each elytron with vague, sub-sutural costa, integument polished, moderately, densely, discretely punctate, punctures smaller and integument rugulose near apices; pubescence obscure, short, and suberect; apices obliquely or transversely truncate, exterior angle unarmed or minutely dentate. **Legs** slender; femora slightly clavate, coarsely, densely punctate, pubescence short, depressed, pubescence longer on inner surface of basal half; metafemora slightly arcuate near base, shorter than body and attaining fourth abdominal sternite; tibiae densely punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, pale pubescence; metatarsomere I elongate, subequal to tarsomeres II and III combined. **Abdomen** nitid, coarsely, discretely, punctate and clothed sparsely with depressed, pale setae, punctures and vestiture in middle sparser, sides with pubescence appressed; apex of last sternite truncate, and vaguely emarginate at middle.

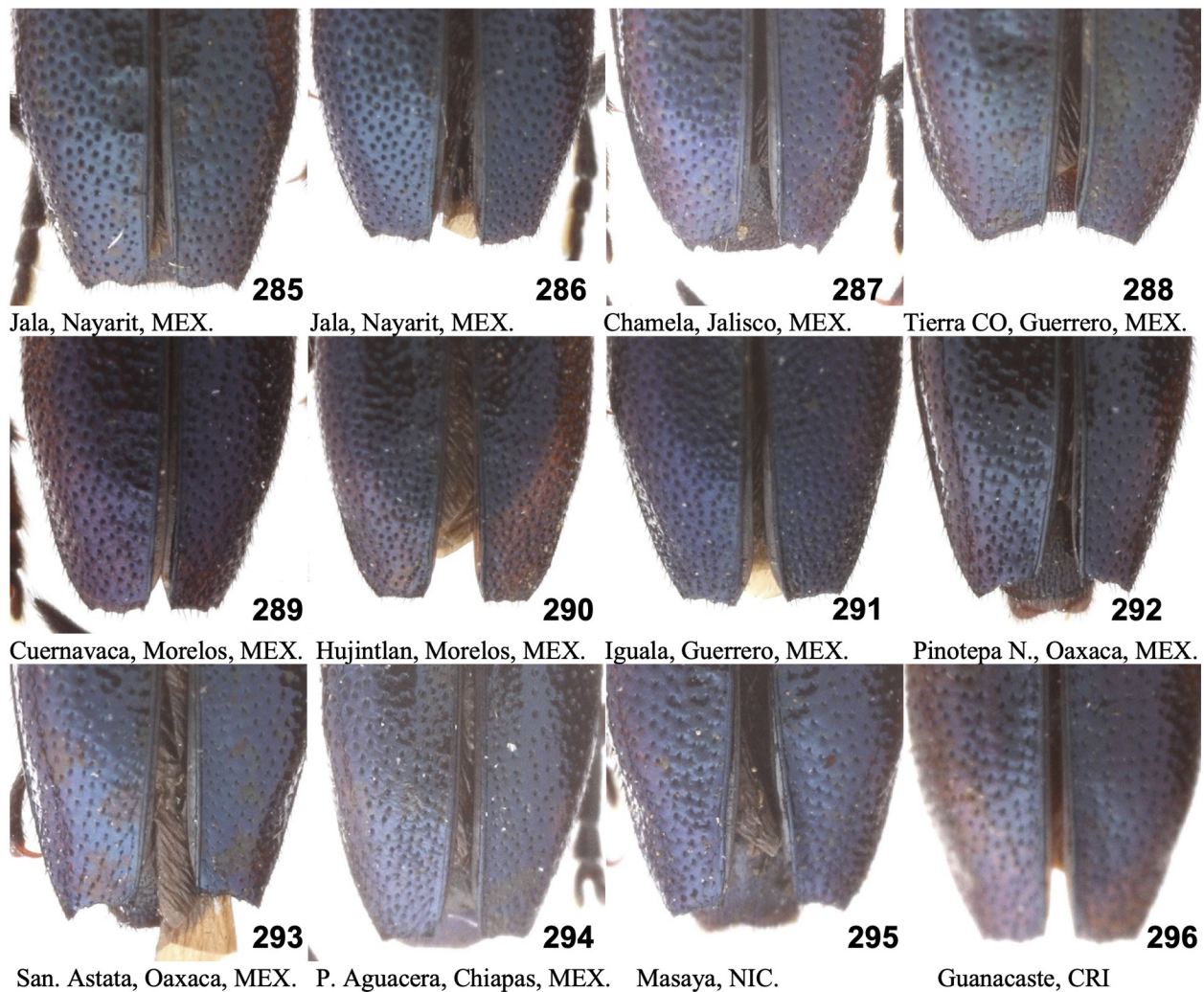
**Female:** Length 8–12 mm. Form slightly more robust than male, parallel-sided, integument similar in color and sculpturing to males. Pronotum occasionally reddish with apical and basal margins narrowly black or entirely black. Prosternum transversely plicate on apical half as in males, basal half rugulose, evenly, densely, contiguously punctate, pubescence obscure and dense throughout; transverse, subrectangular area above coxae absent. Antennae exceed elytra by one to two antennomeres, carina on inner surface from antennomere V absent. Abdomen with apex of last sternite broadly truncate, and vaguely emarginate at middle.

**Materials examined.** MEXICO: *Nayarit*: Volcan Cebroruco vic., Jala, 27 Sept. 1991, J.E. Wappes, (2 males, EMEC). *Jalisco*: Estación de Biología Chamela, 14/23 Oct. 1986, J.A. Chemsak (2 males, 1 female, BKEC), 14 Oct. 1995, B.K. Eya (2 males, BKEC), 21 Oct. 1995, B.K. Eya (9 males, 3 females, BKEC), 23 Oct. 1995, B.K. Eya (5 males, 3 females, BKEC); 6/12 Oct. 1988, F.T. Hovore, on blossoms (2 males, CASC); 9/10 Oct. 1988, R.L. Westcott (1 male, DJHC). *Morelos*: 6 mi E Cuernavaca, 1 Sept. 1974, W. Hanson, G. Bohart (1 male, EMEC), 12 Sept. 1973, W.J. Hanson, B.A. Haws (1 male, EMEC); Hujintlan, 22 Aug. 1956, R. and K. Dreisbach (1 male, EMEC); Cuernavaca, 15 Aug. 1954, R.R. Driesbach (2 males, 1 female, EMEC). *Puebla*: El Tepenene, 10 mi SE Izucar de Matamoros, 4500', 8 Oct. 1975, J. Powell, J. Chemsak, T. Eichlin and T. Friedlander (2 males, EMEC). *Guerrero*: 14 km SE Ayutla de los Libres, 25 Oct. 2005, B.K. Eya (3 males, BKEC); MX 125, Ayutla de los Libres, 25 Oct. 2005, F. Skillman, B. Eya (1 male, FWSC); MX125, 8 km W Ayutla de los Libres, 25 Oct. 2005, F. Skillman, B. Eya (4 males, FWSC); 6 km W Veintidós, 21 Oct. 1984, F. Hovore (4 males, 1 female, CASC); Acapulco, 150 m, 19 Oct. 1989, R.L. Westcott, in flower of *Tithonia* sp. (Asteraceae) (6 males, EMEC); 13 km NW Iguala, 12 Sept. 1982, elev. 1220 m, J.A. Powell, J.A. Chemsak (1 female, EMEC); 16 km NW Iguala, 12/15 Sept. 1982, elev. 1160 m, J.A. Powell, J.A. Chemsak (1 male, EMEC); 10 km N Iguala, 27 Sept. 1994, Chemsak (3 males, EMEC); 33 km W Iguala, 27 Sept. 1994, Chemsak (3 males, EMEC); 20 km S Petaquillas, 29 Sept. 1994, Chemsak (6 males, 3 females, EMEC); 33 km W Iguala, 28 Sept. 1994, Chemsak (1, male, EMEC); km 55, 5 km SW Jct. Iguala-Taxco Hwy, 27 Sept. 1994, Chemsak (1 male, EMEC); Venta de Peregrino, H.H. Smith (1 female, EMEC); 5mi SW Tierra Colorado, 18 Oct. 1966, R.F. Smith (1 female, EMEC). *Oaxaca*: ca. Pinotepa Nacional, 18 km W Jct. Hwy 125/200, 25 Oct. 2005, B.K. Eya (7 males, 4 females, BKEC); 62 km W Santiago Astata, Hwy 200 19 Oct. 2005, B.K. Eya (2 males, BKEC); Los Morales, 1600 m, 3 Oct. 2005, D. Curoe (3 males, BKEC); 15 km W, Salinas Cruz, Hwy 200, 19 Oct. 2005, B.K. Eya



**Figures 273–284.** *Ischnocnemis caerulescens* Bates, variation in pronotal puncture density from Nayarit, MEX to Guanacaste, CRI. **273)** Male, Volcan Cebroruco, Jala, Nayarit, MEX with punctures moderately confluent and discretely foveolate. **274–275)** Males, Chamela, Jalisco MEX with punctures variable. **274)** moderately confluent and shallowly punctate. **275)** very sparsely discretely punctate. **276)** Female, 5 mi SW Tierra Colorado, Guerrero, MEX (near type locality of *I. caerulescens*) with punctures finer, moderately confluent and discretely foveolate. **277)** Male, 6 mi E Cuernavaca, Morelos, MEX (32 km N of Yauatepec, Morelos, near type locality of *I. cyaneus* Bates, **syn. nov.**) with disc densely, coarsely, discretely punctate, posterior-median line smooth. **278)** Male, 33 km W Iguala, Guerrero, MEX (80 km SW of Yauatepec). **279–280)** Males, Pinotepa Nacional, Oaxaca, MEX with punctures variable. **279)** punctures fine, moderately confluent. **280)** punctures coarser, discrete. **281)** Male, Parque Aguacera, Chiapas, MEX with punctures coarse and shallow. **282)** Male, 13 km NE Las Cruces, Chiapas, MEX with punctures sparse, fine, and shallow. **283)** Male, Masaya, NIC with punctures coarse, sparse, and shallow. **284)** Male, Guanacaste, CRI with punctures coarse, sparse, and shallow.

(1 female, BKEC); 35 mW Tehuantepec, 16 Sept. 1974, G. Bohart, W. Hanson (1 female, EMEC); MX175, 5 km N Portillo de Rayo, 20 Oct. 2005, dead tree, F. Skillman, B. Eya (1 male, FWSC); MX200, 41 km E Pochutla, 22 Oct. 2001, F. Skillman, J. Davidson (4 males, FWSC); MX200, 62 km W Santiago Astata, 19 Oct. 2005, F. Skillman, B. Eya (5 males, FWSC); MX190, 2km W Chiapas Microwave Rd. past Hotel Paty, 18 Oct. 2005, F. Skillman, B. Eya (1 female, FWSC); MW190/200, 41 km W Zanatepec, 18 Oct. 2005, F. Skillman, B. Eya (1 male, FWSC). Veracruz: Atoyac, 22 Oct. 1963, A.B. Lau (1 female, EMEC).



**Figures 285–296.** *Ischnocnemis caerulescens* Bates, variation in shape of elytral apices from Nayarit, MEX to Guanacaste, CRI. **285–286** Males, Volcan Ceboruco, Jala, Nayarit, MEX, **(285)** apices sinuate truncate with exterior angle dentate, **(286)** apices transversely serrate truncate. **287** Male, Chamela, Jalisco, MEX with apices obliquely serrate truncate with exterior angle dentate. **288** Female, 5 mi SW Tierra Colorado, Guerrero, MEX (near type locality of *I. caerulescens*) with apices obliquely truncate. **289–291** Males with apices transversely truncate and both sutural and exterior angles nearly rectangular and equal, **(289)** 6 mi E Cuernavaca, Morelos, MEX (32 km N of Yauatepec, Morelos, near type locality of *I. cyaneus* Bates (**syn. nov.**)), **(290)** Hujintlan, Morelos, MEX, and **(291)** 33 km W Iguala, Guerrero, MEX (80 km SW of Yauatepec). **292–293** Males with apices obliquely truncate and exterior angles vaguely dentate, **(292)** Pinotepa Nacional, Oaxaca, MEX, and **(293)** 62 km W Santiago Astata, Oaxaca, MEX. **294–296** Males with apices transversely truncate, **(294)** Parque Aguacera, Chiapas, MEX, **(295)** Masaya, NIC, and **(296)** Guanacaste, CRI.

Also, tentatively assigned to this species are ten additional specimens from Chiapas, Mexico, 1 specimen each from Guatemala and Nicaragua, and seven specimens from Costa Rica as follows: MEXICO: *Chiapas*: Municipio de Cintalapa, 4–6 km NW La Cienega, 40 km NW Las Cruces, 1400 m, 1 Dec. 1980, D.E. and J.A. Breedlove (1 females, EMEC); Municipio de Cintalapa, La Mina, 914 m, 14 Sept. 1981, D.E. and P.M. Breedlove (1 female, EMEC); 9 km NW of Rio de Oro, 12 Oct. 1979, D.E. and J.A. Breedlove, Cal. Acad. Sci. Coll. (1 male, EMEC); Municipio Ocozocoatlá, El Aguacero de Derna, 12 Oct. 1979, D.E. and J.A. Breedlove, Cal. Acad. Sci. Coll. (1 female, EMEC); El Aguacero 21 Oct. 2001, F. Skillman, J. Davidson (1 male, FWSC); El Sumidero, 14 Sept. 1974, G. Bohart, W. Hanson (2 males, EMEC); 13 mi NE Las Cruces Jct., 20 Sept. 1973, J.W. Hanson, B.A. Haws (1

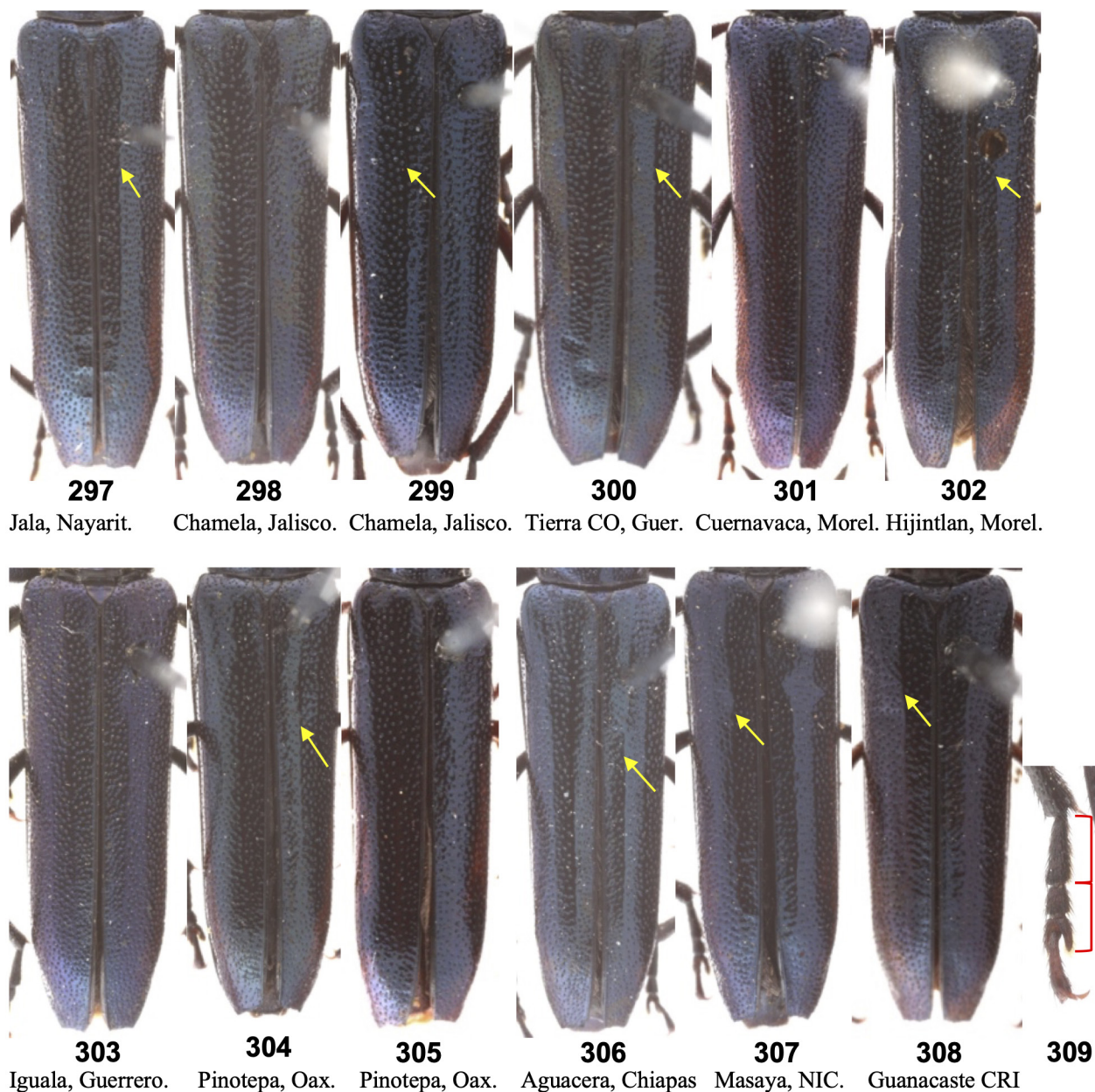
male, EMEC); Sumidero, 23 Sept. 1989, F.T. Hovore (1 female, CASC); Parque Aguacera, 27 Sept.–3 Oct. 1986, J. Wappes (1 male, EMEC). GUATEMALA: L. Conradt (1 male, EMEC). NICARAGUA: Masaya vic. Laguna de Apoyo, 23 Nov. 1992, E. van den Berghe (1 male, DJHC). COSTA RICA: *Guanacaste Prov.*: Est. Murciélago, P.N. Guanacaste, 100 m, 5–18 Nov. 1994, C. Cano, LN 320300\_347200 #3329 (2 males, 3 females, EMEC); Est. Murciélago, 8 km SE de Cuajiniquil, P.N. Guanacaste, 100 m, 10–29 Oct. 1993, F.A. Quesada, LN 320300\_347200 #2394 (1 male, EMEC); Playa Grande, 18/19 Nov. 1998, P.A. Opler (1, male, DJHC).

**Discussion.** According to Bates (1885: 328) *Ischnocnemis caerulescens* Bates (Fig. 245–268) is narrow, cylindrical, nitid, dark blue on the dorsum and black underneath. The thorax is cylindrical with base slightly constricted and moderately confluent and discretely foveolate (i.e., with deep small pits). The scutellum is triangular with apex not prolonged. The elytra are moderately, discretely punctate with one very vague costa on both sides and apices obtusely truncate. The antennae of females are longer than the body with the eleventh antennomere slightly longer than preceding ones. The metatarsi are short, and mesosternum is simple. The form of this species is similar to *I. sexualis* Bates; however, the elytra differ by not being costate. The length is 4.5 lines (9.5 mm). Bates (1892: 178) provided the distribution of *I. caerulescens* as Guerrero (i.e., “Dos Arroyos, 1000 ft., R. Papagaio, 1200 ft., Acaguizotla, 3500 ft., Venta del Pelegrino, Tierra Colorada, 200ft, and Hacienda de la Imagen, 4000 ft.”). The type localities for *I. caerulescens* appear to be all along the HWY 95D between Acapulco and Chilpancingo in Guerrero, Mexico, especially on the 64 km stretch between Dos Arroyos and Acaguizotla (or Acahuizotla).

Subsequently, Bates (1892: 178) describes another species, *Ischnocnemis cyaneus* Bates from Yautepec, Morelos, which is closely allied but considered to be sufficiently distinct from *I. caerulescens*. Yautepec, Morelos, is approximately 264 km north of Acahuizotla, Guerrero. According to Bates *I. cyaneus* (13 mm), based on a single male specimen, is distinctly broader, cylindrical in form, and bright blue in color with antennae black. Head and thorax densely, coarsely, discretely punctate with posterior-median line dilated and smooth. The punctures on “the thorax wider apart” than *I. caerulescens*. The thorax is slender, cylindrical, and ovate. The elytra are equally discretely punctate with the longitudinal, glabrous costa on each elytron, which is not to “the slightly degree elevated.” The elytral apices are “transversely truncate, and both sutural and exterior angles nearly rectangular and equal.” The sternites are evenly and less sparsely punctate. He further notes that the elytra of *I. caerulescens* are “very obliquely truncate with prolonged external angles.”

Based on the materials examined, the actual distribution of *I. caerulescens* in Mexico ranges from north-western states of Nayarit and Jalisco southeastward into Morelos, Puebla, Guerrero, Oaxaca, Veracruz, and Chiapas, and consist of individuals with diverse puncture density on the pronotum, and elytra with various apical shape and elevation of subsutural costae (Fig. 273–308). I have examined twelve specimens of *I. caerulescens* within 46–105 km of the type locality of *I. cyaneus* (Yautepec, Morelos) as follows: one from Hujintlan (ca. 46 km W of Yautepec); two from 6 mi E Cuernavaca (ca. 32 km N of Yautepec); and three from Cuernavaca (ca. 42 km N of Yautepec), two from Puebla (ca. 105 km E of Yautepec), and four from 16 km NW and 33 km W of Iguala, Guerrero (ca. 80 km SW of Yautepec). These twelve specimens are all like *I. cyaneus* in overall dimensions with transversely truncate apices of elytra (Fig. 289–291); however, they are slightly smaller in size (9–10 mm) with vaguely costate or non-costate elytra (Fig. 301–303). Also, specimens from Oaxaca (e.g., Pinotepa Nacional (Fig. 280) and La Luna, i.e., Bezark 2024, id: 66292) have elongate pronotum that is slightly longer than wide and disc with punctures wider apart as in the holotype (Bezark 2024, id: 16960). *Ischnocnemis caerulescens* from the same location (i.e., Chamela, Jalisco) also exhibits considerable variation in pronotal puncture density (Fig. 274–275), and elevation of subsutural costae on elytra (Fig. 298–299), where some may have widely separated punctures on pronotum and elytra without any hint of elevated costae as in *I. cyaneus*. Considering the variation found in forms throughout Mexico with variable puncture densities on pronotum (Fig. 273–284), varying elevation of elytral costae (Fig. 297–308), and shapes of elytral apices (Fig. 285–296), it is unlike that *I. cyaneus* represent a unique species different from *I. caerulescens*. Also, the intraspecific variation in the above mentioned characters of *I. caerulescens* within the same or nearby locations (Fig. 274–275, 279–280, 298–299, 304–305) precludes the possibility that *I. cyaneus* is a distinct species. *Ischnocnemis cyaneus* Bates; therefore, is synonymous with *I. caerulescens* Bates (**new synonymy**).

There are color-variants of *I. caerulescens* in Chiapas near Tuxtla Gutierrez, Mexico (Municipio de Cintalapa, a female, Fig. 257–258), and Guanacaste Prov., Costa Rica (Est. Murciélago, two females, Fig. 267–268)



**Figures 297–309.** *Ischnocnemis caerulea* Bates, variation in elytral costae from Nayarit, MEX to Guanacaste, CRI. **297)** Male, Volcan Ceboruco, Jala, Nayarit, MEX, each elytron moderately, discretely punctate with one vague costa (yellow arrow). **298–299)** Males, Chamela, Jalisco, MEX, (**298**) Elytra discretely punctate with glabrous costa absent, (**299**) Elytra discretely punctate with glabrous costa vaguely visible (yellow arrow). **300)** Female, 5 mi SW Tierra Colorado, Guerrero, MEX (near type locality of *I. caerulea*) with elytra discretely punctate and vaguely costate (yellow arrow). **301–303)** Males from vicinity of *I. cyaneus* Bates, **syn. nov.** type locality, Yautepec, Morelos, MEX, (**301**) 6 mi E Cuernavaca, Morelos, MEX (32 km N of Yautepec) elytra without visual sign of costa, (**302**) Hujintlan, Morelos, MEX (46 km W of Yautepec) elytra with costa vaguely visible (yellow arrow), (**303**) 33 km W Iguala, Guerrero, MEX (80 km SW of Yautepec) elytra with glabrous costa not elevated. **304–305)** Males, Pinotepa Nacional, Oaxaca, MEX, (**304**) Elytra with vaguely elevated costa (yellow arrow), (**305**) Elytra without visual sign of costa. **306)** Male, Parque Aguacera, Chiapas, MEX. with elevated costa visible on elytra (yellow arrow). **307)** Male, Masaya, NIC with elevated costa visible on elytra (yellow arrow). **308)** Male, Guanacaste, CRI with elevated costa visible on elytra (yellow arrow). Metatarsi: **309)** Male, metatarsomere 1 ( $T_1$ ) subequal to tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.0 (red brackets).

where females have red pronotum with apical and basal margin narrowly black, and integument and elytra that are aeneous to dark metallic bluish. Other specimens of both sexes from Chiapas are usually metallic dark bluish or black as those from other states of Mexico or have black pronotum. The males from Costa Rica have black or dark metallic blue pronotum with reddish overcast, dark metallic bluish elytra, and sternum reddish. In general, the punctures on pronotum of specimens from Chiapas southeastward into Costa Rica are sparser, shallower, and well separated (Fig. 281–284) compared to those from the northwest. A single male specimen from Nicaragua is entirely reddish brown with vague metallic bluish cast with vertex and front darker metallic bluish (Fig. 261–262).

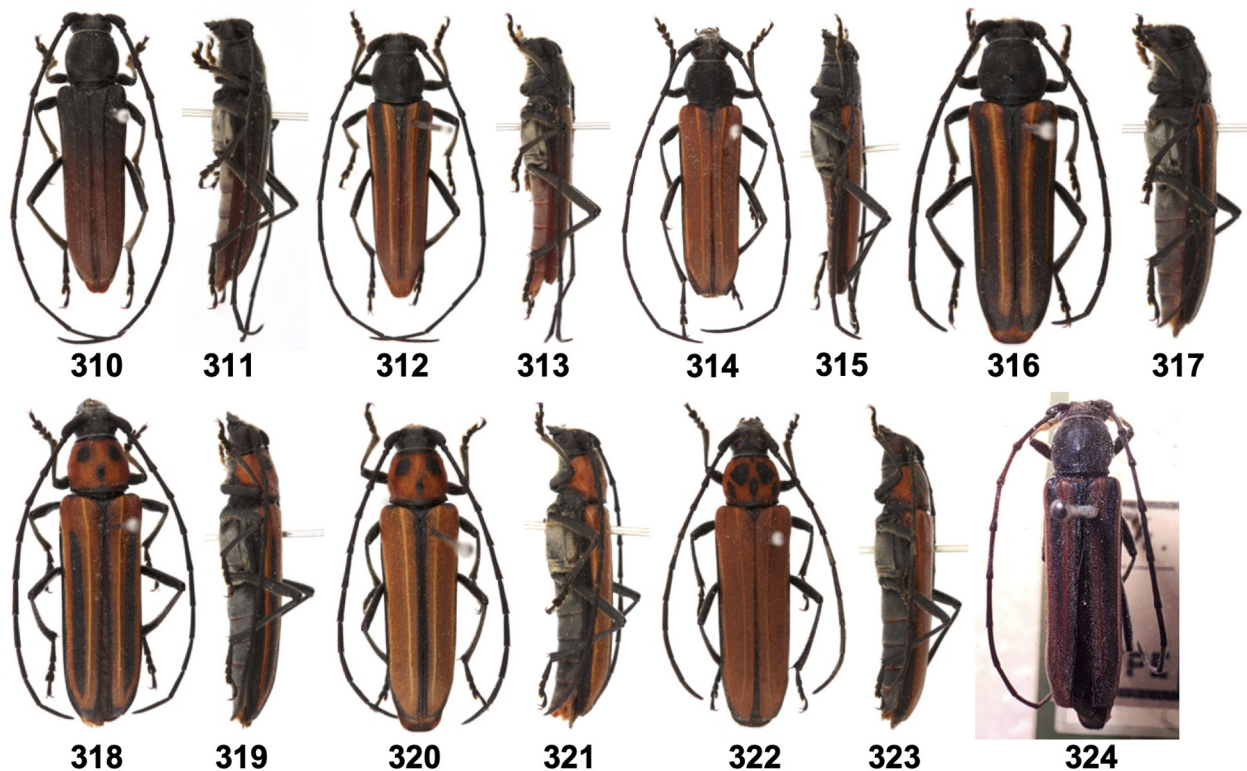
### *Ischnocnemis costipennis* Thomson, 1864

(Fig. 310–332)

*Ischnocnemis costipennis* Thomson 1864: 199; Lacordaire 1869: 185; Gemminger and Harold 1872: 2973 (cat.); Thomson 1878: 6 (types); Bates 1880: 83; Bates 1885: 327; Aurivillius 1912: 473 (cat.); Linsley 1935: 100 (dist.); Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 83 (cat.); Chemsak and Noguera 1993: 63 (dist.); Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.); Toledo-Hernández 2005: 419 (dist.)

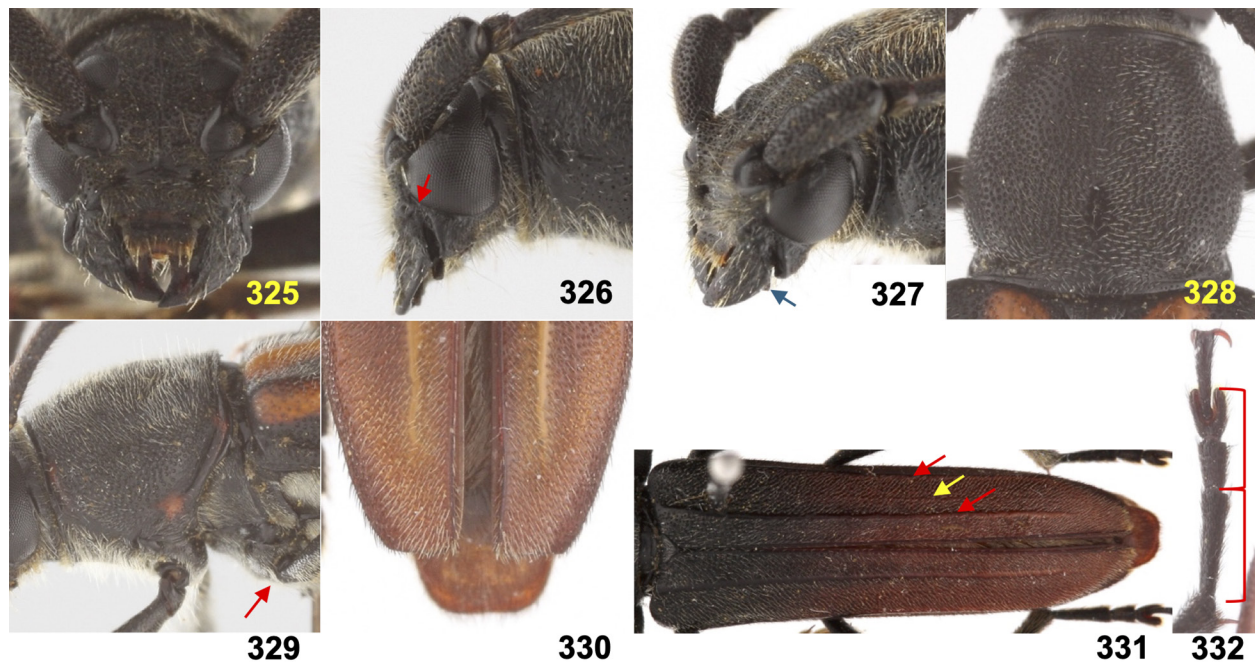
*Ischnocnemis tripunctata* Blackwelder 1946: 590 (cat.)

**Redescription. Male:** Length 16–18 mm. **Form** moderate sized, elongate, narrow, slightly tapered apically; integument black, abdomen dark reddish brown, elytra with color variable, frequently dark with four eburneous costae (Fig. 312), or basal half black and gradually reddish apically (Fig. 310), or entirely yellowish brown with epipleural margins black (Fig. 314). **Head** small; vertex, deeply, confluent punctate with midline glabrous, vaguely carinate; front vertical, finely punctate; postclypeus with upper margin glabrous, lower half finely punctate; antennal tubercles prominent with apices angulate; genae with lower half triangular, glabrous, finely punctate



**Figures 310–324.** *Ischnocnemis costipennis* Thomson, dorsal and lateral images: **310–311**) Male, 18 mm, 23 km W Iguala, Guerrero, MEX. **312–313**) Male, 18 mm, 10 km NW Iguala, Guerrero, MEX. **314–315**) Male, 17 mm, 12.7 km NE San Gabriel, Jalisco, MEX. **316–317**) Female, 17 mm, 10 km NW Iguala, Guerrero, MEX. **318–319**) Female, 18 mm, 14 km N Chilpancingo, Guerrero, MEX. **320–321**) Female, 16 mm, 32 km W Iguala, Guerrero, MEX. **322–323**) Female, 18 mm, Planta La Meza, Jalisco, MEX. **324**) Holotype male, MEX (Bezark 2024, id: 16959).





**Figures 325–332.** *Ischnocnemis costipennis* Thomson. Head: **325–326**) Front vertical, mandibles retracted, dorsal half of genae narrow (red arrow), mandibles almost contiguous with anterior margin of eye lobe. **327**) Frontolateral profile with mandibles angulated near base (blue arrow). Pronotum: **328**) Disc with sides rounded, apical margin without collar-like projections on sides. Thorax lateral profile: **329**) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: **330**) Apices truncate, unarmed. **331**) Each elytron with two narrow raised glabrous costae (red arrow), and a vague, punctate costa in between (yellow arrow). Metatarsi: **332**) Metatarsomere 1 (T<sub>1</sub>) longer (red brackets) than tarsomeres 2+3 (T<sub>2+3</sub>), T<sub>1</sub>/T<sub>2+3</sub>: 1.3.

beneath; pubescence on vertex, margins of postclypeus, antennal tubercles and dorsal anterior margin of genae moderately dense and obscure; labrum finely punctate, pubescence moderately dense and suberect; antennae slender, exceeding elytral apices by 2.5 to three antennomeres; scape conical densely, deeply, contiguously punctate, pubescence obscure, short, erect; antennomeres II–VI cylindrical with apices enlarged, integument finely, densely punctate, obscurely pubescent with short, depressed setae, remaining antennomeres opaque, densely, minutely punctate and densely covered with minute, appressed setae with few short suberect setae on dorsum, ventral surface and apices; antennomeres from IV vaguely carinate on inner and outer surface; antennomere III longer than I; IV shorter than III, longer than I; V longer than IV, subequal to III; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX; XI longest, vaguely appendiculate on apical third. **Pronotum** black as long as wide (L/W: 0.9–1.0), sides rounded; disc shallowly convex with five vague dorsal calli, one each on either side of anterior half, three on basal half, one longitudinally elongate, glabrous one in middle and one each on either side closer to base; punctures fine, dense, contiguous; pubescence obscure, transverse, appressed towards middle of disc; apical margin collared, narrowly constricted behind, base impressed at sides; proepisternal area rugulose, punctures shallower than disc, pubescence obscure, short, appressed towards dorsum; prosternum slightly concave, apical half transversely plicate, basal half shallowly, confluent punctate, on each side above coxae with vaguely visible, transverse, subrectangular area, pubescence long, moderately dense, suberect; mesosternum densely, coarsely, contiguously punctate on sides, punctures sparser in middle, pubescence obscure, pale, suberect; mesosternal intercoxal process as wide as coxal cavity; mesepisterna and mesepimera finely, densely punctate obscurely clothed with appressed, pale pubescence; metasternum densely punctate, densely pubescent with depressed, pale setae, integument along midline glabrate and punctures sparser, near base of mesocoxae and along periphery more densely finely punctate; metepisterna densely clothed with appressed, pale pubescence. **Scutellum** black, sparsely to densely punctate. **Elytra** 2.8–2.9 times as long as broad; each elytron with

two narrow raised, glabrous costae frequently with broadly yellowish band on either side narrowing apically and attaining apical tenth (Fig. 312), and interspace in between costae with another vague, punctate costa frequently visible (Fig. 331); integument between costae densely, closely punctate, puncture finer and coalescent apically; pubescence obscure, short, suberect, and pale, setae denser and depressed apically; apices truncate, unarmed. **Legs** slender; femora finely, densely punctate, clothed with short, depressed setae; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body and attaining fourth abdominal sternite; tibiae densely punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I elongate, longer than tarsomeres II and III combined. **Abdomen** very finely, densely punctate, densely clothed with appressed pubescence, punctures and vestiture sparser in middle; apex of last sternite truncate, and vaguely emarginate at middle.

**Female:** Length 16–20 mm. Form slightly more robust and parallel-sided than male. Integument black, abdomen dark reddish brown or black with apices of each sternite narrowly reddish, pronotal disc with color variable, all black (Fig. 316) or usually yellowish brown with three black maculae, two on either side of apical half and one in middle of basal half (Fig. 318, 320), and occasionally with two additional narrow, oblique maculae on either side of basal half (Fig. 322). Prosternum transversely plicate on apical half as in males, more coarsely, shallowly, striate-punctate on basal half, transverse subrectangular area above coxae absent; proepisternal area with punctures coarser and denser than males. Elytra yellowish brown with epipleural margin black (Fig. 322), more frequently with black marking extending narrowly from apices to base of elytra along sutural margin (Fig. 316, 318, 320) and in between the two yellow vittate on each elytron (Fig. 316, 318). Antennae attaining apex of elytra or longer than body by one to two antennomeres, antennomeres from IV vaguely carinate on inner and outer surface or carina absent. Abdomen with apex of last sternite broadly truncate, and vaguely emarginate at middle.

**Materials examined.** MEXICO: *Jalisco*: 12.7 km NE San Gabriel, Hwy 432, 18 Oct. 1995, B.K. Eya (1 male, BKEC); 3.1 km NE San Gabriel, Hwy 432, 17 Oct. 1995, B.K. Eya (1 female, BKEC); Planta La Meza, 22.7 km N of Jct. 80 and 432, 28 Oct. 1995, B.K. Eya (1 female, BKEC). *Guerrero*: 10 km NW Iguala, 14 Sept. 1982, elev. 1070 m, J.A. Powell, J.A. Chemsak (1 male, 1 female, BKEC); 16 km NW Iguala 12/15 Sept. 1982, elev. 1160 m, J.A. Powell, J.A. Chemsak (1 male, BKEC); 23 km W Iguala, 11/16 Sept. 1982, elev. 1040 m, J.A. Powell, J.A. Chemsak (1 male, BKEC); 32 km W Iguala, 11 Sept. 1982, elev. 1350 m, J.A. Powell, J.A. Chemsak (1 female, BKEC); 14 km N Chilpancingo, Hwy 95 cuato, 26 Oct. 2005, B.K. Eya (1 female, BKEC). *Puebla*: 27 km SE Jct Hwy 115/160, 14 Oct. 2005, B.K. Eya (1 male, BKEC); MX 160, 27 km SE Cuautla, 14 Oct. 2006, F. Skillman, B. Eya (2 males, FWSC).

**Discussion.** According to Thomson (1864: 199) the genus *Ischnocnemis*, based on this type species, *I. costipennis* Thomson, is elongate, parallel-sided and narrowed apically with front short and concave. The antennae are slender about a fifth longer than the body, and 11 segmented with antennomere III longer than I, V slightly longer than previous, V to X subequal in length, and XI divided (or appendiculate) and longer than previous. The mandibles are robust, and prothorax is cylindrical, convex, and unarmed at sides. The elytra are elongate, shorter than the abdomen, parallel-sided with apices narrowed and truncate.

Lacordaire (1869: 185) further noted that the front of the head is short and vertical with very short genae. The antennae are barely ciliated, longer than the body, and antennomere III longer than IV, and apices of III to V knotted (i.e., enlarged or expanded apically). The upper eye lobes are well separated above. The prothorax is cylindrical and oval with base truncate and margined. The elytra are depressed along the suture, elongate, somewhat attenuated apically with apices truncate, and each elytron with two elevated costae. The legs are elongate, femora slightly clavate, and metafemora slightly exceeding the third abdominal sternite. Tarsomere I of metatarsus is slightly longer than the following two combined. The mesosternal process is wide and sloping anteriorly, and the prosternal process is much narrower and sharply arched and declivous posteriorly. Lacordaire also footnoted that *Ischnocnemis costipennis* was catalogued by Dejean (1835: 323) as *Leptocnemus costipennis* and *L. tripunctatus*, which were names used with uncertainty, and noted that Dejean did not provide any generic characterization of *Leptocnemus*. Subsequently, this species was described by Thomson (1864: 199) as *Ischnocnemis* with *I. costipennis* as the type species and *L. tripunctatus* as a synonymy.

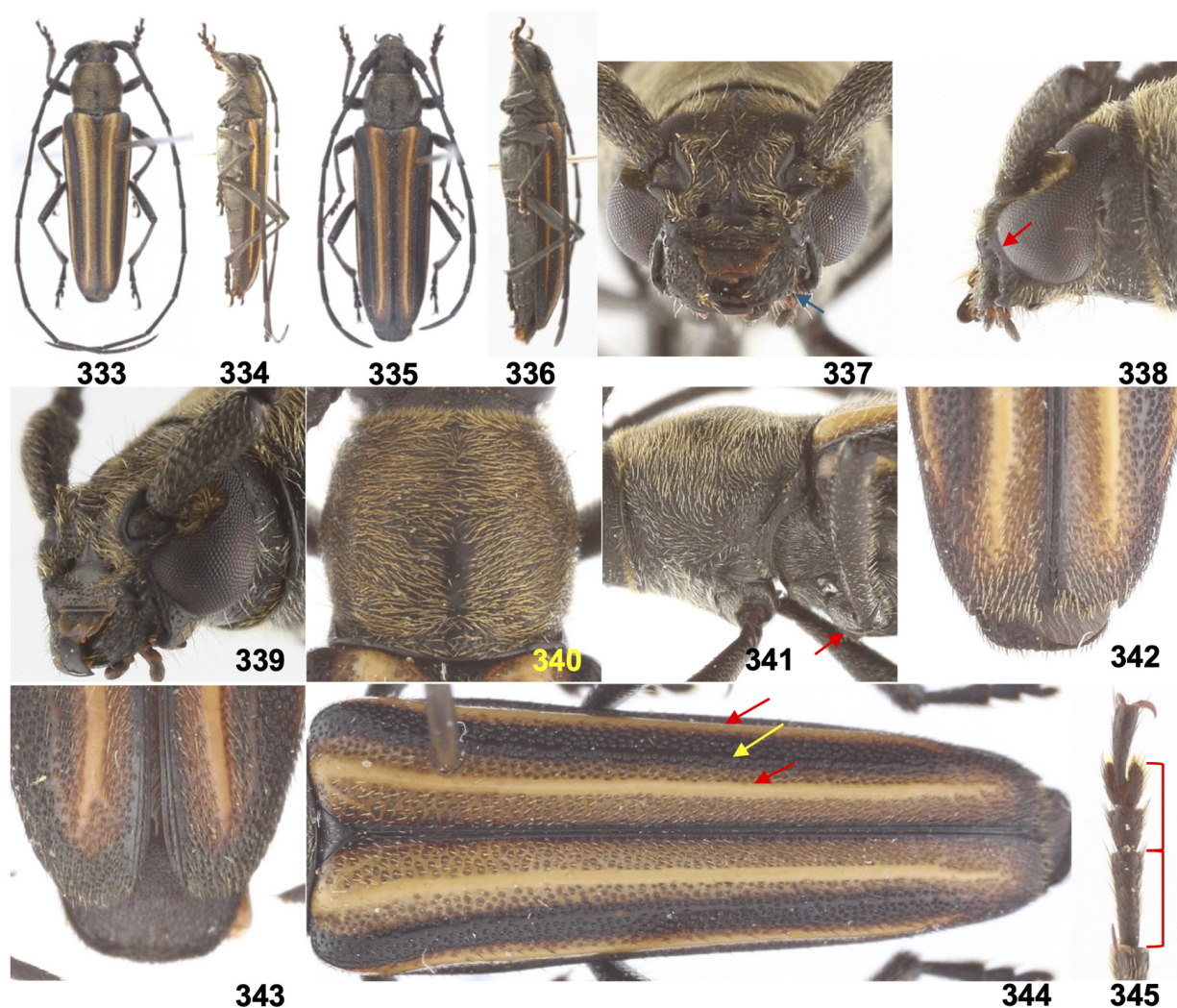
***Ischnocnemis eyai* Chemsak and Noguera, 1997**

(Fig. 333–345)

*Ischnocnemis eyai* Chemsak and Noguera 1997: 11; Monné and Hovore 2006: 144 (cat.)

**Materials examined.** MEXICO: Jalisco: 5.2 km S of El Tuito, 12 Nov. 1996, on flowers of *Cosmos*, J.A. Chemsak, (holotype male, allotype female, EMEC; paratypes: 10 males, 3 females, EMEC); B.K. Eya, 31 Oct. 1995 (paratypes: 5 males, 3 females, BKEC).

**Discussion.** *Ischnocnemis eyai* Chemsak and Noguera is “moderate sized (13–16.5 mm), elongate and slightly tapered posteriorly” (Chemsak and Noguera 1997: 11). The integument is black, and the “pubescence is short, golden, erect, and depressed” (Fig. 337–341). There are “four longitudinal, eburneous costae” on the elytra, a



**Figures 333–345.** *Ischnocnemis eyai* Chemsak and Noguera, dorsal and lateral images: 333–334) Male, 14 mm, 5.2 km S El Tuito, Jalisco, MEX. 335–336) Female, 15 mm, 5.2 km S El Tuito, Jalisco, MEX. Head: 337–339) Front vertical, mandibles retracted and angulated near base (blue arrow), dorsal half of genae narrow, base of mandibles almost contiguous with anterior margin of eye lobe (red arrow), integument clothed with short, golden pubescence. Pronotum: 340) Disc with sides broadly rounded, apical margin without collar-like projection on sides, integument clothed densely with golden, transverse, appressed pubescence. Thorax lateral profile: 341) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: 342) Male with apices bi-emarginate truncate. 343) Female with apices rounded. 344) Each elytron with two narrow raised glabrous costae (red arrow), and a vague, longitudinal costa in between (yellow arrow). Metatarsi: 345) Metatarsomere 1 ( $T_1$ ) longer (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.1.

subsutural “pair near suture” and submarginal “pair extends back from under the humeri” (Fig. 344). The front is moderately, finely subconfluently punctate, and vertex is subopaque, “moderately, finely, confluent punctate” with “short, golden, suberect” pubescence around the eyes. The “antennal tubercles are moderately produced.” The “antennae are slender, extending about three antennomeres beyond elytra” in males, and exceeding apices of elytra by an antennomere in females. The pronotum is “as broad as long (L/W: 0.9), side broadly rounded with apex very narrowly impressed” behind margin, and “base moderately broadly impressed” on sides. The pronotum is “finely, densely punctate with a longitudinal, glabrous callus” on basal half in middle, and integument covered densely with golden, transverse, appressed pubescence (Fig. 340). The metasternum is densely punctate, obscurely covered with appressed golden pubescence and integument on either side of midline glabrous. The elytra are two and a half times longer than wide, sparsely clothed with short, suberect pubescence, and “sutures are narrowly black.” There are three costae on each elytron, an elevated eburneous subsutural costa extending from base almost to the apex with “broad, yellowish, longitudinal” vittae on either side, a submarginal, narrower eburneous costa extending from under the humerus to apical one-tenth, and another vaguely visible, longitudinal costae in between the two eburneous ones (Fig. 344). The punctures on each elytron “between suture and costa,” and between costae are “fine, irregular, and separated, which becomes denser” apically, and punctures between the epipleural margin and submarginal costa are fine and subconfluent. The elytral apices are described as “vaguely sinuate-truncate” however, the apices of male (Fig. 342) and female (Fig. 343) examples are bi-emarginate truncate or rounded, respectively. The metatarsomere I is elongate and longer than tarsomeres II and III combined in this species (Fig. 345).

According to Chemsak and Noguera (1997: 11), “the fine, transversely appressed, golden pubescence on the pronotum makes this species distinctive.” The mesosternal intercoxal process of this species is described as “not elevated above coxae and abruptly declivous anteriorly.” The elytral apices of *I. eyai* are described to be “vaguely sinuate-truncate” by Chemsak and Noguera (1997: 11) but are variable ranging from serrate-truncate, bi-emarginate-truncate, truncate, or rounded. The exterior angle of elytral apices in some specimens appear dentate due to the serration.

This species superficially resembles *Zalophia auricomis* (Chemsak and Linsley) **new combination** from Honduras in coloration, and vestiture with “transversely appressed, golden pubescence” on pronotum (Chemsak and Linsley 1979: 268); however, the front of *I. eyai* is vertical as in other *Ischnocnemis* species whereas *Zalophia* has front that is declivous in middle and integument impressed between antennal tubercles. The mesosternal intercoxal process of *Z. auricomis* is prominent, elevated above mesocoxae, and perpendicular anteriorly. Other differences include characteristics typically found in *Ischnocnemis*, such as finely punctate, vaguely pubescent basal antennomeres, more elongate body form, elongate metatarsomere I compared to tarsomeres II and III combined (Fig. 345), and retracted mandibles with angulated base (Fig. 337). *Zalophia auricomis* is comparatively stouter in body form, basal antennomeres are short and densely clothed with pubescence (Fig. 66), and the first tarsomeres of metatarsi are explanate and subequal to tarsomeres II and III combined (Fig. 64).

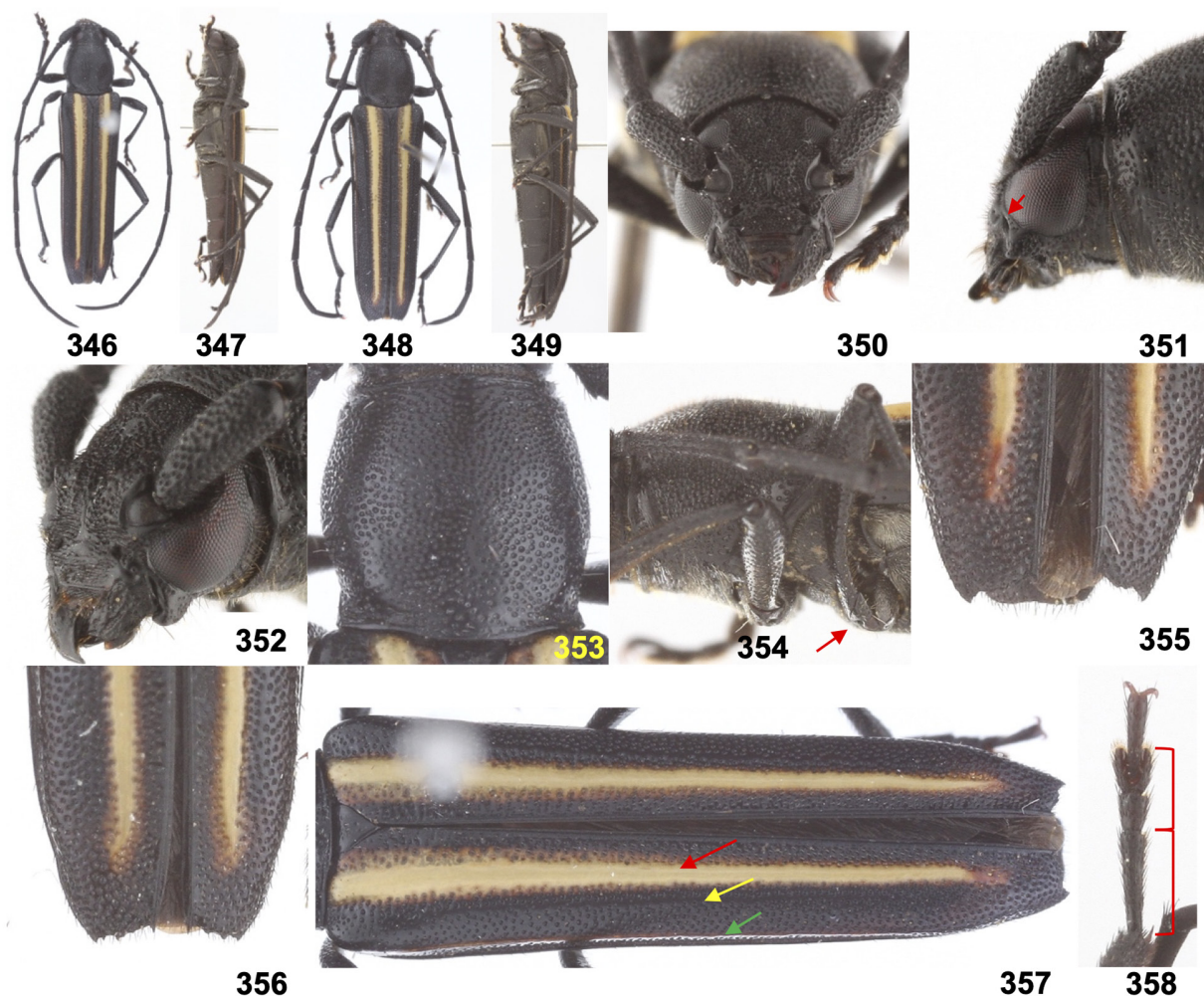
### ***Ischnocnemis glabra* Chemsak and Linsley, 1988**

(Fig. 346–358)

*Ischnocnemis glabra* Chemsak and Linsley 1988: 132; Chemsak et al. 1992: 83 (cat.); Chemsak and Noguera 1993: 63 (dist.); Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.)

**Materials examined.** MEXICO: *Jalisco*: 8 km NW Melaque, 16/23 Oct. 1986, J.A. Chemsak (holotype male, seven paratype males, and two paratype females, EMEC); Estación de Biología Chamela, 15 Oct. 1986, J.D. McCarty (1 paratype male, EMEC); 8 km NW Melaque, HWY 200, 13 Oct. 1992, J.D. McCarty (1 female, EMEC).

**Discussion.** *Ischnocnemis glabra* Chemsak and Linsley is “moderate sized (13–16 mm), elongate and slightly tapered posteriorly” (Chemsak and Linsley 1988: 132). The “integument is black with a vague metallic caste.” There are three costae on each elytron, a prominently elevated ivory subsutural costa extending from base to apical tenth attenuating apically, a narrow submarginal infusate ivory costa starting slightly below humerus attaining apical fifth, and a narrow dark costa on the outside margin of the subsutural costa (Fig. 357). The pubescence is obsolete (or opaque and minute). The front is confluent punctate, and the vertex is deeply contiguously punctate (Fig. 350–352). The “antennal tubercles are moderately produced,” and antennae extend “about two antennomeres beyond elytra” in males, and about an antennomere in females. Pronotum is as long as broad (L/W:



**Figures 346–358.** *Ischnocnemis glabra* Chemsak and Linsley, dorsal and lateral images: 346–347) Male, 14 mm, 8 km NW Melaque, Jalisco, MEX. 348–349) Female, 14 mm, Chamela, Jalisco, MEX. Head: 350–352) Front subvertical, mandibles retracted, dorsal half of genae narrow, base of mandibles almost contiguous with anterior margins of eye lobes (red arrow). Pronotum: 353) Disc with sides broadly rounded, apical margin without collar-like projection on sides, pubescence obsolete (very short). Thorax lateral image: 354) Pronotal disc convex, mesosternal process non-protuberant (red arrow). Elytra: 355) Male with apices sinuate truncate with margins dentate. 356) Female with apices obliquely serrate-truncate with margins dentate. 357) Each elytron with elevated, yellowish, glabrous subsutural costa (red arrow), vaguely yellowish submarginal costa starting slightly below humerus (green arrow), and another narrow glabrous costa (yellow arrow). Metatarsi: 358) Metatarsomere 1 ( $T_1$ ) longer (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.3.

1.0), “side broadly rounded,” and disc is “finely, densely punctate, and usually with a glabrous spot slightly behind the middle” (Fig. 353). The sternum is black, nitid, and glabrate with pubescence very short. The “elytra are three times longer than” wide ( $L/W$ : 3.1) with “punctures between costae moderately coarse and dense,” and between submarginal costae and epipleural margin “finer and denser.” The pubescence on elytra are obsolete, and elytral apices are sinuate truncate or “obliquely serrate-truncate with margins dentate” (Fig. 355–356). The metatarsomere I is elongate and longer than tarsomeres II and III combined in this species (Fig. 358).

“This species differs from most other *Ischnocnemis* presently included in this genus by the” black glabrate integument with brighter “yellowish vittae of the elytra” (Chemsak and Linsley 1988: 133), and the overall, more glabrous appearance that is more reminiscent of *Lophalia* than *Ischnocnemis*. According to Chemsak and Linsley, “the type series is uniform in coloration and only the submarginal costa of each elytron shows any variation” where the base is usually yellowish. In some specimens the submarginal costae are mostly dark and just vaguely yellowish.

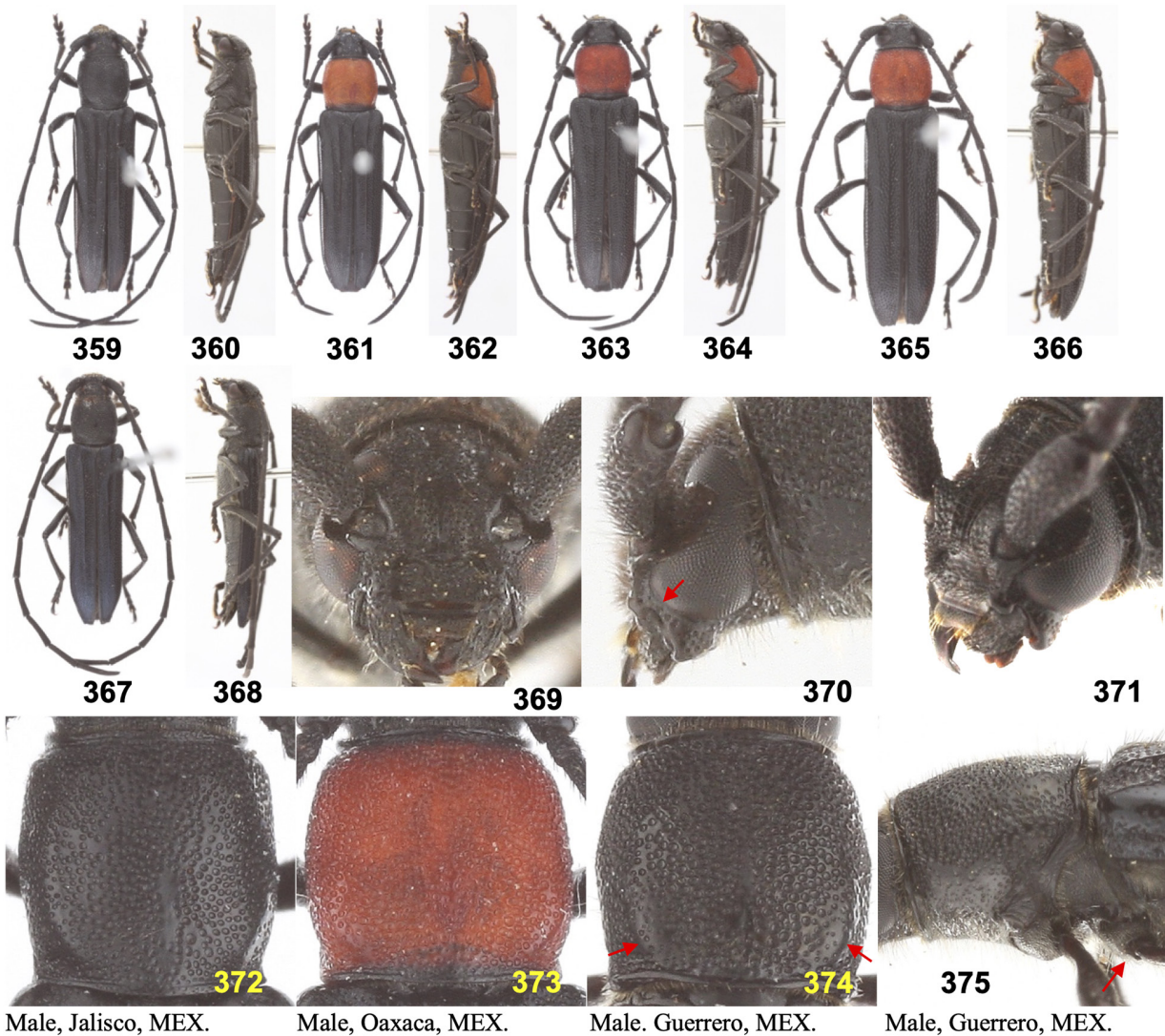
***Ischnocnemis sexualis* Bates, 1885**

(Fig. 359–381)

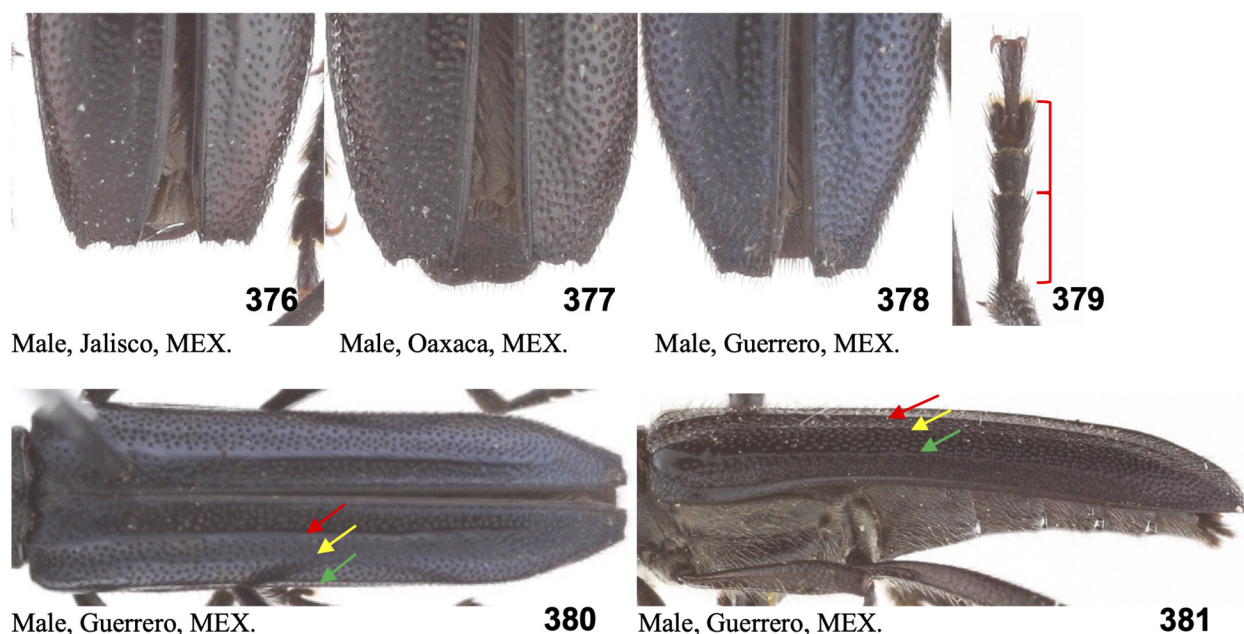
*Ischnocnemis sexualis* Bates 1885: 328; Aurivillius 1912: 473 (cat.); Blackwelder 1946: 590 (cat.); Chemsak et al. 1992: 83 (cat.); Chemsak and Noguera 1993: 63 (dist.); Monné 1994: 64 (cat.); Monné and Giesbert 1994: 146 (cat.); Noguera and Chemsak 1996: 402 (dist.); Swift et al. 2010: 32 (dist.); MacRae et al. 2012: 180 (biol.)

*Ischnocnemis sexualis* Linsley 1935: 100 (dist., genus name misspelled)

**Redescription. Male:** Length 10–12 mm. **Form** small, elongate, narrow, slightly tapered apically; integument entirely black (Fig. 359), pronotum occasionally reddish with anterior and posterior margins and prosternum



**Figures 359–375.** *Ischnocnemis sexualis* Bates, dorsal and lateral images: 359–360) Male, 11 mm, 25.1 km S La Huerta, Jalisco, MEX. 361–362) Female, 13 mm, 25.1 km S La Huerta, Jalisco, MEX. 363–364) Male, 11 mm, 1 km N Jct. HWY200/S.P. Huamelula, Oaxaca, MEX. 365–366) Female, 9 mm, 1 km N Jct. HWY200/S.P. Huamelula, Oaxaca, MEX. 367–368) Male, 10 mm, 33 km W Iguala, Guerrero, MEX. Head: 369–371) Front subvertical, mandibles retracted, dorsal half of genae narrow, base of mandibles almost contiguous with anterior margin of eye lobe (red arrow). Pronotum: 372–374) Disc with sides vaguely rounded, apical margin without collar-like projection on sides, pubescence obsolete (very short), (372) Male, Jalisco, MEX, (373) Male, Oaxaca, MEX with punctures denser and more contiguous than male from Jalisco, (374) Male, Guerrero, MEX with dorsal calli (red arrows) on basal half more prominent and puncture coarser than males from Jalisco and Oaxaca. Thorax lateral image: 375) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow).



**Figures 376–381.** *Ischnocnemis sexualis* Bates. Elytra: 376) Male, Jalisco, MEX with apices, serrate-truncate. 377) Male, Oaxaca, MEX with apices, sinuate-truncate. 378) Male, Guerrero, MEX with apices truncate. Metatarsi: 379) Metatarsomere 1 ( $T_1$ ) subequal (red brackets) to tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1 / T_{2+3}$ : 1.0. Elytra dorsal and lateral habitus: 380–381) Male, Guerrero, MEX, with prominent, narrow, subsutural costae (red arrow), vague submarginal, glabrous costae (green arrow), and faint costae in between (yellow arrow).

black (Fig. 363), elytra all black (Fig. 359–366, 376–377) or black with vague bluish-violet cast (Fig. 367, 378, 380). **Head** small; vertex, finely, confluent punctate; front finely, irregularly punctate (Fig. 369–371); postclypeus glabrate to irregularly punctate, distal margin finely punctate; antennal tubercles moderately prominent with apices angulate; genae with lower half triangular, finely, irregularly punctate (Fig. 370); pubescence on margins of postclypeus, antennal tubercles, and dorsal anterior margin of genae obscure, short and erect, setae along margins of upper eyes, sparse, long and erect; labrum minutely, densely punctate, pubescence moderately dense and suberect; antennae slender, exceeding elytral apices by three antennomeres; scape conical densely, deeply, contiguously punctate, pubescence obscure, very short, depressed; antennomeres II–VI cylindrical with apices slightly enlarged, integument finely, densely punctate, obscurely pubescent with short depressed setae, remaining antennomeres opaque, densely, minutely punctate and densely covered with minute, appressed setae with few short depressed setae on apices; antennomeres from V carinate on inside surface; antennomere III longer than I; IV shorter than III, longer than I; V longer than IV, subequal to III; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX; XI longest vaguely appendiculate on apical third. **Pronotum** as long as wide ( $L/W$ : 0.97–1.06), cylindrical, sides slightly rounded; disc shallowly convex, opaque, basal half with three vaguely visible sparsely punctate calli, a longitudinally elongate one in middle and one each on either side near base; apical margin collared, narrowly constricted behind; basal margin vaguely impressed on sides (Fig. 372–374); punctures dense and contiguous; pubescence absent; proepisternal area more sparsely, irregular punctate than pronotal disc, pubescence sparse, obscure, minute, erect; prosternum barely impressed, apical half transversely plicate, basal half confluent punctate, area above coxae on each sides rugulose, pubescence short, suberect; mesosternum densely, coarsely punctate, pubescence short, obscure, suberect, mesosternal intercoxal process as wide as coxal cavity; mesepisterna and mesepimera with punctures fine, dense, contiguous, obscurely clothed with appressed, pale pubescence; metasternum with integument nitid, coarsely, densely, discretely punctate, sparsely clothed with depressed setae, punctures sparser on either sides of midline; metepisterna finely, contiguously punctate, obscurely clothed with appressed, pale pubescence. **Scutellum** black, triangular, irregularly punctate. **Elytra** 2.9 times as long as broad; each elytron with raised subsutural and vague submarginal glabrous costae and

another faint costa frequently visible in middle (Fig. 380–381), integument between costae densely, discretely punctate, pubescence absent or sparse, very short and suberect; apices either serrate-truncate (Fig. 376), sinuate-truncate (Fig. 377), or truncate (Fig. 378), exterior angle unarmed. **Legs** slender, nitid; femora finely, densely punctate, obscurely clothed with minute, depressed setae on dorsum and sides, setae longer on ventral surface; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body and attaining fourth abdominal sternite; tibiae densely punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, pale pubescence; metatarsomere I subequal to tarsomeres II and III combined (Fig. 379). **Abdomen** nitid, very finely, discretely punctate, pubescence obscure, sparse, short, and appressed, punctures sparser in middle, finer and denser on sides; last sternite with apex truncate, and vaguely emarginate at middle.

**Female:** Length 9–14 mm. Form slightly more robust and parallel-sides than male. Integument black as in male, pronotum and proepisternal area usually reddish with anterior and posterior margins and prosternum black (Fig. 361, 365) or pronotum all black with reddish cast. Prosternum with apical half transversely plicate as in male, basal half transversely, contiguously punctate. Antennae attaining apex of elytra or longer than body by an antennomere. Abdomen with apex of last sternite broadly truncate.

**Materials examined.** MEXICO: *Jalisco*: 25.1 km S La Huerta, Hwy 80, 15 Oct. 1995, B.K. Eya (5 males, 6 females, BKEC); Estación de Biología Chamela, 23 Oct. 1995, B.K. Eya (1 female, BKEC); 14/23 Oct. 1986, J.A. Chemsak (1 male, 1 female, BKEC). *Morelos*: Cuernavaca, Nov. 1902, Koebele Col. (1 male, CASC); Morelos, Koebele Col. (1 male, CASC); Cañón Lobos near Cuernavaca, 17/18 Oct. 1984, F. Hovore (1 male, 1 female, CASC). *Oaxaca*: 1 km N Jct. Hwy 200/S.P. Huamelula, 19 Oct. 2005, B.K. Eya (3 males, 2 females, BKEC). *Guerrero*: Iguala, Sept., Barrett, A. Fenyes Col. (1 female, EMEC); 25 km W Iguala, 19 Oct. 1984, F. Hovore (6 males, 1 female, CASC); 33 km W Iguala, 27 Sept. 1994, J.A. Chemsak (2 males, 1 female, EMEC); Mochitlán, 24 Sept. 1964, E.G. Linsley, A.E. Michelbacher (1 male, EMEC); 6 km W Tixtla, 15 Oct. 1984, F. Hovore (1 female, CASC); 6 km W Tixtla, 20 Oct. 1984, F. Hovore (3 males, 2 females, CASC).

**Discussion.** Bates (1885: 328) describes this species as similar and close to *Mannophorus ferreus* Bates (i.e., female of *M. laetus* LeConte) but narrower and sublinear in form. The elytra are metallic steel blue black, subnitid, closely punctured with two narrow shiny costae on each side, and apices truncate. The thorax is narrow, oblong, slightly rotundate, and closely but not as coarsely, confluent punctate (as in *M. ferreus*). The scutellum is wide and triangular. The antennae of males are longer than elytra. Length: 5 lines (i.e., 10.6 mm), male. Habitat reported by Bates is Mexico.

According to Bates (1885: 328), this species was “named as *Leptocnemus sexualis*, Chevrolat, in Salle collection;” however, noted that this “choice of name was enigmatic” because the female was not “represented in the same collection.” He notes that Chevrolat may have been referring to *M. ferreus* as the probable female, in which case the name *sexualis* “would be applicable,” although “the differences between the two species in form and sculpture” are remarkably different.

*Ischnocnemis sexualis* Bates can be distinguished from the other species by all black integument, and a prominent subsutural costa on each elytron (Fig. 380). The pronotum is opaque and densely contiguously punctate. Bates refers to this species as having two narrow shiny costae on each side of elytra, which is describing the prominent subsutural, and longitudinal costae between the subsutural and submarginal ones visible on the dorsum of each elytron (Fig. 380–381). The submarginal costae on the sides are often vaguely visible in this species. The elytra are more prominently costate in specimens from Jalisco and Guerrero than those from Oaxaca. The pubescence on dorsum is nearly obsolete or very short as in *I. glabra* and *I. caerulescens*. Specimens from Guerrero have dark metallic blue-black elytra (Fig. 367, 378, 380) with very short, suberect setae, more distinct calli on basal half of pronotal disc (Fig. 374), and sternum that are more densely clothed with longer, erect setae. Individuals from Jalisco and Oaxaca have black, nitid elytra devoid of pubescence (Fig. 376–377), pronotum with dorsal calli nearly absent, and sternum with pubescence very short and sparse or almost obsolete. Females from Jalisco and Oaxaca have reddish pronotum, while the disc of a females from Guerrero are all black with reddish cast.

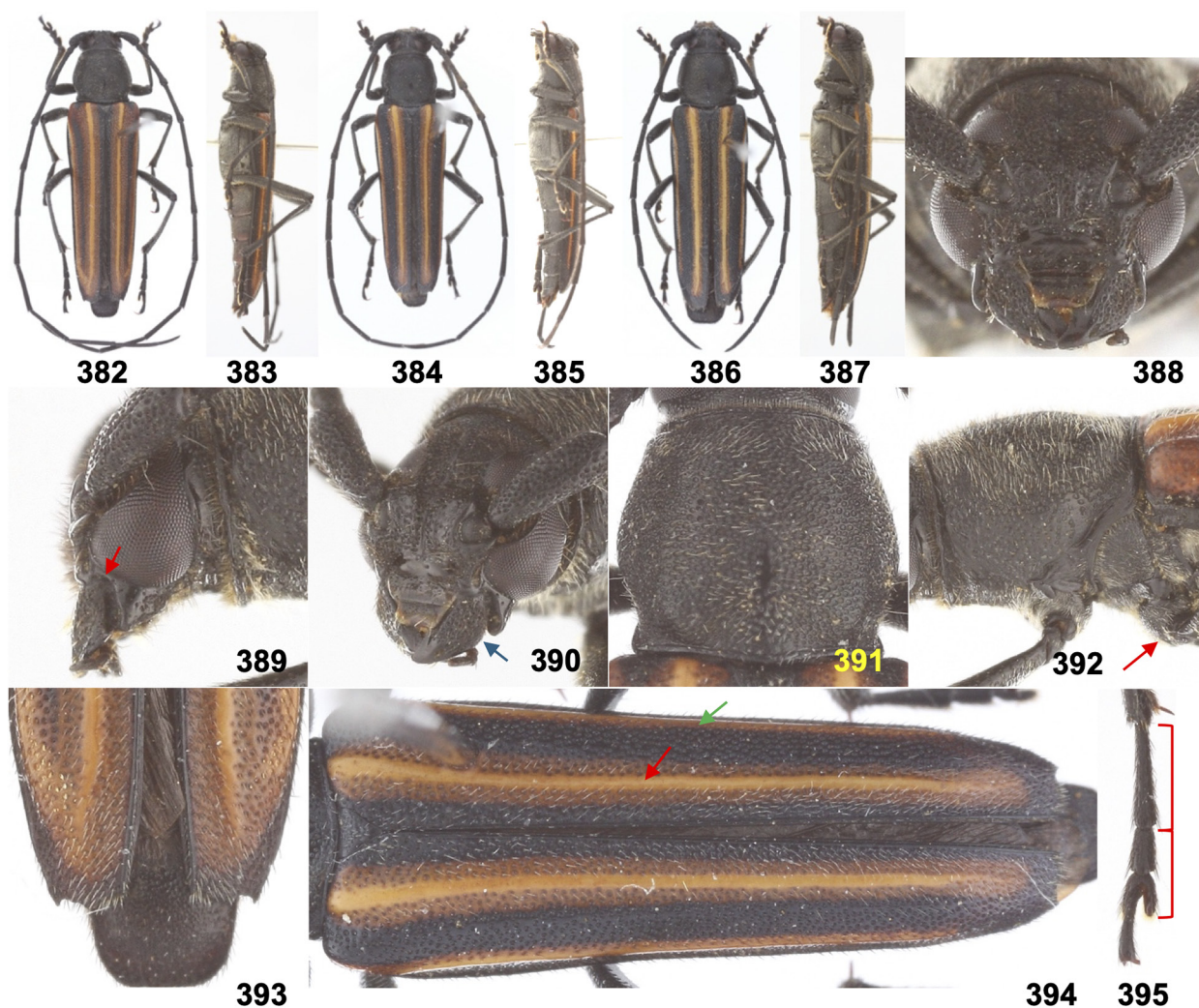


***Ischnocnemis similis* Chemsak and Noguera, 1997**

(Fig. 382–395)

*Ischnocnemis similis* Chemsak and Noguera 1997: 12; Monné and Hovore 2006: 144 (cat.); Ordóñez-Reséndiz and Martínez-Ramos 2017: 828 (dist.).

**Materials examined.** MEXICO: *Jalisco*: 14 km NE of San Gabriel, 1920 m, 9 Nov. 1995, Chemsak and Katsura (holotype male, allotype female, EMEC; paratypes: 1 male, 1 female, BKEC). Eighteen paratypes, all from MEXICO: *Jalisco*: Puerto Los Mazos, Sierra de Manantlán, 24 Oct. 1995, B.K. Eya (3 males, 1 female, BKEC), 27 Oct. 1995, B.K. Eya (3 males, BKEC), 22 Oct. 1996, B.K. Eya (2 males, BKEC); Microondas Puerto Los Mazos, Sierra



**Figures 382–395.** *Ischnocnemis similis* Chemsak and Noguera, dorsal and lateral images: 382–383) Male, 16 mm, Puerto Los Mazos, Jalisco, MEX. 384–385) Male, 13 mm, 19.2 km N St. Gabriel, Jalisco, MEX. 386–387) Female, 15 mm, Puerto Los Mazos, Jalisco, MEX. Head: 388–390) Front vertical, mandibles retracted, and sides strongly angulated near base (blue arrow), dorsal half of genae narrow, base of mandibles almost contiguous with anterior margins of eye lobes (red arrow). Pronotum: 391) Disc with sides broadly rounded, apical margin without collar-like projection on sides, integument glabrate, punctures fine, subconfluent, pubescence sparse, short, and depressed. Thorax lateral image: 392) Pronotal disc convex, mesosternal process non-protuberant (red arrow). Elytra: 393) Apices sinuate truncate with exterior angle dentate. 394) Each elytron with elevated, yellowish, subsutural costa (red arrow), and submarginal costa starting from base of humerus (green arrow). 395) Metatarsi with tarsomere 1 (T<sub>1</sub>) longer (red brackets) than tarsomeres 2+3 (T<sub>2+3</sub>), T<sub>1</sub>/T<sub>2+3</sub>: 1.2.

de Manantlán, 16 Oct. 1996, B.K. Eya (1 male, 1 female, BKEC), 21 Oct. 1996, B.K. Eya (2 males, BKEC); 5.4 km NE San Gabriel, Hwy 432, 17 Oct. 1996, B.K. Eya (1 female, BKEC); 19.2 km N San Gabriel, Jct. 80/432, 28 Oct. 1995, B.K. Eya (2 males, BKEC); 20.9 km N San Gabriel, Jct. 80/432, 28 Oct. 1995, B.K. Eya (2 males, BKEC). Additional materials examined from *Jalisco*: 6 km W Autlán, 16/17 Oct. 2000, F.T. Hovore (4 males, 4 females, CASC); 15 km S Autlán 29 Sept. 1991 J.E. Wappes (1 female, FWSC).

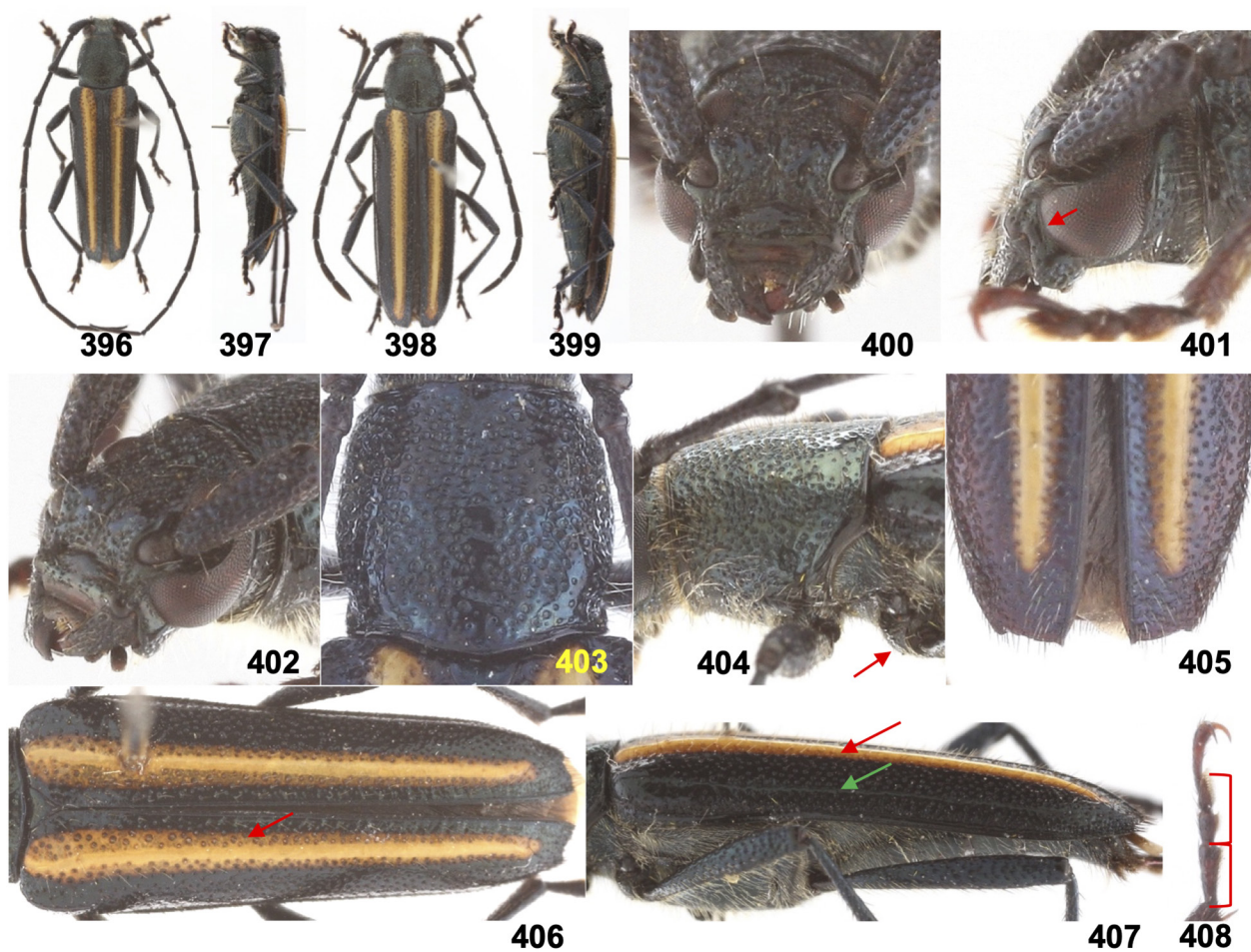
**Discussion.** *Ischnocnemis similis* Chemsak and Noguera is “moderate sized (11–16 mm), elongate and slightly tapered posteriorly” (Chemsak and Noguera, 1997: 12). The integument is black, and the pubescence is sparse above, and pale, suberect and appressed underneath. There are four narrow eburneous costae on elytra, a subsutural pair “extending from base almost to apex, which are usually broader yellow along sides, and submarginal pair that are slightly narrower extending from the base at humeri to about apical one-tenth” (Fig. 394). The integument along suture of elytra is broadly black. Front is subconfluently punctate, and sparsely pubescent (Fig. 388–390), and “vertex is finely, densely punctate,” and sparsely clothed with long, erect setae. The “antennal tubercles are moderately produced.” The antennae are slender, “extending about three antennomeres beyond elytra” in males, and about an antennomere to one and a half antennomere longer in females. The pronotum is as long as broad (L/W: 0.92), sides broadly rounded with apex behind margin is “very narrowly impressed transversely, and base moderately broadly impressed at sides” (Fig. 391). The disc of pronotum is “moderately, coarsely, densely, subconfluently punctate with an irregular, elongate, glabrous callus” in middle of basal half. The pronotum is clothed sparsely with short, depressed pubescence (Fig. 392). Prosternum is transversely rugulose, clothed sparsely with pale, erect pubescence, and “meso- and metasternum are finely, densely punctate at sides” and glabrate in middle. The “elytra are about three times as long as broad” (L/W: 2.9) with “punctures fine, sparse, and well separated” near base becoming denser apically with “pubescence sparse, short and subdepressed.” The elytral apices are sinuate truncate or serrate truncate with exterior angles obtusely angulate or dentate (Fig. 393). The metatarsomere I is elongate and longer than tarsomeres II and III combined (Fig. 395).

According to Chemsak and Noguera (1997: 12), “this species is structurally very similar to *I. costipennis* Thomson,” which is much larger in size with most individuals having a reddish abdomen and finer punctures. The elytra of *I. costipennis* differs by “having a vague longitudinal costa between the two elevated ones.” *Ischnocnemis costipennis* is usually sexually dichromatic, while in *I. similis* the sexes are more uniform in coloration. The vestiture underneath of *I. costipennis* is denser and appressed obscuring the surface of integument while the sternum of *I. similis* is sparsely clothed, and the integument unobscured and plainly visible. *Ischnocnemis eyai* is also similar in size and form to this species but can be distinguished by the denser, “transversely appressed golden pubescence on the pronotum, and by the vague longitudinal costa between two elevated ones” on elytra as found in *I. costipennis* (Chemsak and Noguera 1997: 11–12). The name *similis* refers to the similarity in overall appearance to *I. costipennis*.

### *Ischnocnemis edmundi* Eya, new species

(Fig. 396–408)

**Description. Male:** Length 12–13 mm. **Form** small, elongate, narrow; integument black with greenish to bluish metallic cast, elytra dark brownish black with vague bluish-violet cast, each elytron with an elevated, ivory, subsutural costa (Fig. 406–407). **Head** small; vertex, coarsely, subconfluently punctate with erect setae; front coarsely, irregularly punctate (Fig. 400–402); postclypeus glabrous, distal margin finely, irregularly punctate; antennal tubercles horizontal with apices broadly angulate; genae short, nitid, sparsely, irregularly punctate, punctures finer, denser beneath (Fig. 401); pubescence on antennal tubercles and dorsal anterior margin of genae obscure, short and erect; labrum finely, densely punctate, pubescence moderately dense and suberect; antennae slender, exceeding elytral apices by three antennomeres; scape conical coarsely, rugosely punctate, pubescence sparse, short, suberect; antennomeres II–VI cylindrical with apices slightly enlarged, integument rugulose, coarsely, striate-punctate and canaliculate, pubescent sparse, depressed; remaining antennomeres opaque, densely, minutely punctate and densely covered with minute, appressed setae with few short depressed setae on apices; antennomeres V–VI carinate on outer surface, VI–X carinate on inner surface; antennomere III longer than I; IV shorter than III, longer than I; V longer than III; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX; XI longest, apical fifth arcuate. **Pronotum** as long as broad (L/W: 1.0), sides slightly rounded; disc shallowly



**Figures 396–408.** *Ischnocnemis edmundi* Eya **sp. nov.**, dorsal and lateral images: 396–397) Male, 11 mm, 2–6 km S La Trinitaria, Chiapas, MEX. 398–399) Female, 14 mm, 2–6 km S La Trinitaria, Chiapas, MEX. Head: 400–402) Front subvertical, dorsal half of genae broader than other species (red arrow). Pronotum: 403) Disc with sides broadly rounded, apical margin without collar-like projection on sides, integument with bluish or greenish metallic cast, coarsely, subconfluently punctate, pubescence on sides obscure, long. Thorax lateral image: 404) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: 405) Apices obliquely truncate, gradually tapered to suture, exterior angle unarmed. 406) Each elytron with single ivory, subsutural costa (red arrow). 407) submarginal costa vague (green arrow). Metatarsi: 408) Metatarsomere 1 ( $T_1$ ) subequal (red brackets) to tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.9.

convex, coarsely, subconfluently punctate with elongate, longitudinally glabrous, impunctate area in middle of basal half; apex margined, narrowly constricted behind; base vaguely impressed at sides (Fig. 403); pubescence sparse, short in middle, obscure, long and erect on sides; proepisternal area more contiguously punctate than disc, pubescence sparse, obscure, long, erect; prosternum vaguely impressed, apical half transversely plicate, basal half confluent punctate, area above coxae on each side with rugulose, confluent punctate area, pubescence obscure, moderately dense, long and erect; mesosternum coarsely, irregularly punctate in middle, finely, contiguously, rugulose punctate at sides, pubescence long, erect; mesosternal intercoxal process as wide as coxal cavity; mesepisterna and mesepimera rugulose with punctures fine, dense, contiguous, pubescence obscure, appressed and pale with few long, erect setae; metasternum with integument nitid, coarsely, discretely punctate, punctures sparse on each side of midline, finer and denser near posterior margin of mesocoxae, pubescence moderately, dense and suberect; metepisterna densely clothed with short, appressed, pale pubescence. **Scutellum** black with bluish violet to greenish cast, triangular, impunctate to sparsely punctate on dorsum. **Elytra** 2.8 times as long as broad; each elytron with raised, narrow, impunctate, subsutural ivory costa with sides broadly yellow, integument

sparsely, discretely punctate near base, more densely, closely punctate towards apices, punctures adjacent to epipleural margin fine, dense; pubescence sparse, long and erect near base, shorter and suberect near apices; apices obliquely truncate, slightly tapered to sutural margin, exterior angles unarmed, angulate (Fig. 405). **Legs** slender, nitid; femora coarsely, densely punctate, obscurely clothed with minute, depressed setae on dorsum, setae longer on ventral surface; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body and attaining fourth abdominal sternite; tibiae densely, rugosely punctate, sparsely clothed with short, depressed setae; protibiae with inner surface densely clothed with short depressed, pale pubescence; metatarsomere I subequal to tarsomeres II and III combined (Fig. 408). **Abdomen** nitid, punctures sparse, shallow, and fine, pubescence sparse, long and suberect, sides more minutely, densely punctate, pubescence short and appressed; apex of last sternite truncate, and vaguely emarginate at middle.

**Female:** Length 11–14 mm. Form stouter than male. Antennae shorter than male, attaining to slightly shorter than elytral apices; antennomeres II–V with pubescence denser than male, antennomeres from V externally angulate and gradually flattened to XI, inner and outer surface from VI vaguely carinate; antennomere III longer than I, IV slightly shorter than III, V–VI subequal to III, VII slightly shorter than VI, VIII shorter than VII, IX subequal to VIII, X shorter than IX, XI subequal to IV. Prosternum rugulose, striate-punctate throughout. Elytra 2.6 times as long as broad, apices truncate to sinuate truncate, exterior angles unarmed. Abdomen with apex of last sternite broadly truncate, and vaguely emarginate at middle.

**Etymology.** The species is dedicated to Edmund F. Giesbert in recognition of his many contributions to the study of Cerambycidae.

**Type materials.** Holotype, male (FSCA 00082449), and allotype, female (FSCA 00082450); MEXICO: *Chiapas*: 2–6 km S. La Trinitaria, 19–20 Oct. 1988, E. Giesbert both deposited in FSCA. Ten paratypes, all from MEXICO: *Chiapas*: 2–6 km S. La Trinitaria, 19–20 Oct. 1988, E. Giesbert (4 males, 2 females, FSCA); 3–5 km S La Trinitaria, 19/20 Oct. 1988, J.E. Wappes (2 males, 1 female, FSCA), (1 male, DJHC).

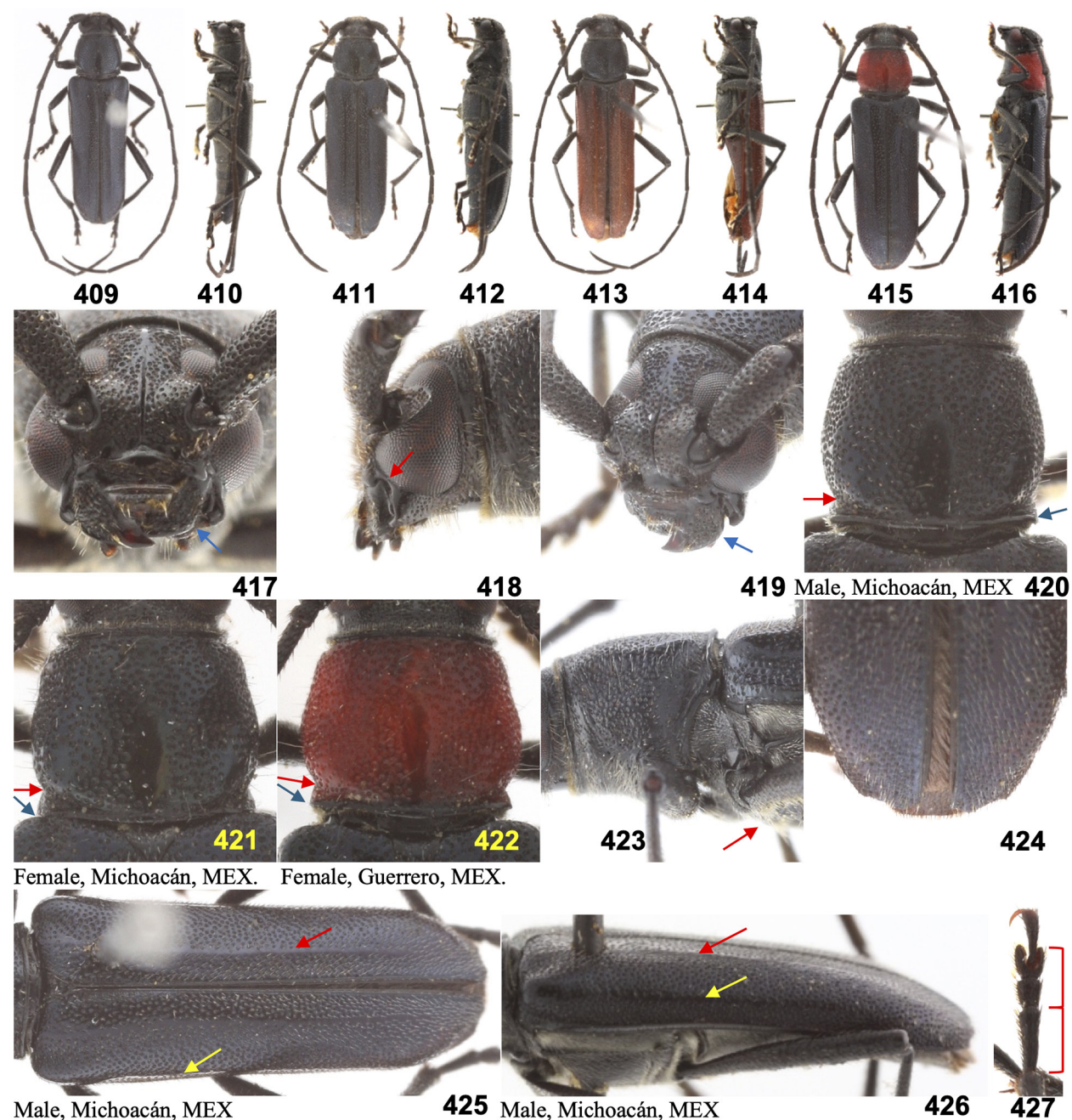
**Discussion.** This species is currently included in *Ischnocnemis* Thomson; however, it may represent a new genus closely related to *Ischnocnemis*. *Ischnocnemis edmundi* Eya **new species** can be differentiated from other *Ischnocnemis* species by the following characteristics: (1) the dark metallic greenish to bluish integument (Fig. 396–407); (2) single ivory subsutural raised vitta on each elytron (Fig. 406–407); (3) dorsum of antennomeres III to VI that are striate-punctate or canaliculate; and (4) long, obscure, erect setae on the sternum and proepisternal area. The dorsal half of genae of this species are broader and more prominent compared to other species (Fig. 401); and therefore, the anterior margins of lower eyes are separated from the base of mandibles. Other species of *Ischnocnemis* have retracted mandibles with dorsal half of genae very narrow where the anterior margins of lower eyes are almost contiguous with the base of mandibles, and antennomeres II–VI that are cylindrical and finely densely punctate. The outer edges of maxillary palpi are vaguely impressed as occasionally found in some specimens of *I. caerulescens* Bates. The metatarsomere I is subequal to tarsomeres II and III combined as in *I. caerulescens* and *I. sexualis* (Fig. 408). The mesosternum of this species is not excavated anterior or depressed in the middle; however, lack of this depression is occasionally found in some specimens of *I. glabra*.

*Ischnocnemis edmundi* may appear to fit the description of *Ischnocnemis minor* Bates (i.e., *Mannophorus minor* (Bates), **new combination** redescribed above). Bates (1880: 83) describes *I. minor* with “*elytris costis eburneis duabus elevatis apicem fere attingentibus*,” which translates from Latin to, “elytra with two ivory raised costae nearly reaching the apex,” This statement may infer that each elytron of *I. minor* has a single ivory costa as in *I. edmundi*; however, the photo of the *I. minor*, holotype, (Bezark 2024, id: 16963) has two ivory costae on each elytron. Therefore, *I. edmundi* with single ivory vitta on elytron is not conspecific with *I. minor*. Also, the precise locality for *I. minor* is recorded as Puebla, according to the Sallé collection (Bates 1885: 328), which is approximately 900 km northwest of La Trinitaria, Chiapas where *I. edmundi* types were all collected.

### ***Ischnocnemis brevis* Eya, new species**

(Fig. 409–427)

**Description. Male:** Length 9–10 mm. **Form** small, cylindrical, stout, parallel-sided; integument black, pronotum black with metallic bluish to aeneous cast, elytra black to dark metallic blue, abdomen black to dark



**Figures 409–427.** *Ischnocnemis brevis* Eya sp. nov., dorsal and lateral images: 409–410) Male, 10 mm, 14 mi NW Zitácuaro, Michoacán, MEX. 411–412) Female, 10 mm, 14 mi NW Zitácuaro, Michoacán, MEX. 413–414) Male, 10 mm, 12 km S Ixcateopan, Guerrero, MEX. 415–416) Female, 9 mm, 12 km S Ixcateopan, Guerrero, MEX. Head: 417–419) Front vertical, mandibles retracted, and sides angulated (blue arrow), dorsal half of genae narrow, base of mandibles almost contiguous with anterior margins of eye (red arrow). Pronotum: 420–422) Disc with apical margin without collar-like projections on sides, base with sides constricted (red arrow) and margins expanded over humeri (blue arrow). Thorax lateral image: 423) Pronotum shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: 424) Apices rounded, vaguely sinuate. 425–426) Each elytron with narrow raised, glabrous subsutural costae (red arrow) and vaguely visible submarginal costa starting behind humerus (yellow arrow). Metatarsi: 427) Metatarsomere 1 (T<sub>1</sub>) subequal (red brackets) to tarsomeres 2+3 (T<sub>2+3</sub>), T<sub>1</sub>/T<sub>2+3</sub>: 1.1.

reddish brown. **Head** small; vertex, finely, confluent punctate; front short, vertical, finely confluent punctate; postclypeus with upper margin glabrous, lower half finely, contiguously punctate; antennal tubercles prominent with apices angulate, integument deeply, contiguously punctate; genae narrow with lower half triangular, glabrous, finely punctate beneath; pubescence on vertex, margins of postclypeus, antennal tubercles, and genae obscure, short and erect; labrum densely, minutely punctate, pubescence moderately dense and suberect; antennae slender, exceeding elytral apices by three antennomeres; scape conical densely, deeply, contiguously punctate, pubescence obscure, short, erect; antennomeres III–VI cylindrical with apices enlarged, integument finely, densely punctate, obscurely pubescent with short, depressed setae, ventral surface and apices with few suberect setae; remaining antennomeres opaque, densely, minutely punctate and densely covered with minute, appressed setae, apices with short, depressed setae; antennomeres from IV vaguely carinate on inner and outer surface; antennomere III longer than I; IV slightly shorter than III, longer than I; V longer than IV, subequal to III; VI, VII, VIII, and IX subequal to V; X slightly shorter than IX, subequal to IV; XI longest, apices non-appendiculate. **Pronotum** as long as wide (L/W: 0.88), cylindrical, sides vaguely rounded; apex narrowly collared and very narrowly constricted behind, base with sides constricted or impressed and margin expanded over humeri; disc shallowly convex, dorsal callus absent, disc finely, deeply, subcontiguously punctate, basal half to three quarters with longitudinally elongate, glabrous area in middle, pubescence obscure, short, golden, erect; proepisternal area more densely, contiguously punctate than disc, pubescence obscure, short, appressed towards dorsum with few erect setae near base; prosternum slightly concave, apical half vaguely impressed, transversely plicate, basal half finely punctate, on each side above coxae with vaguely impressed, transverse, irregularly striate-punctate, subrectangular area, pubescence obscure, moderately dense, golden erect; mesosternum glabrous with round depression in middle, sides finely, densely punctate, pubescence obscure, short, depressed; mesosternal intercoxal process as wide as coxal cavity, declivous anteriorly; mesepisterna and mesepimera rugulose, finely, densely punctate, obscurely clothed with appressed, pale pubescence; metasternum coarsely, discretely punctate with glabrous area along midline, pubescence obscure, golden, depressed; metepisterna opaque, minutely, densely punctate clothed with appressed, pale pubescence. **Scutellum** triangular, sparsely punctate. **Elytra** 2.5 times as long as broad; each elytron with a narrow raised, glabrous subsutural costae extending from base to about apical fifth, and a vaguely visible submarginal costa starting behind humerus attaining about apical third; punctures adjacent to suture fine, discrete near base, towards apices finer, denser and subcontiguous, integument between costae more coarsely, densely, punctate, between epipleural margin and submarginal costa contiguously punctate; pubescence obscure, short, suberect; apices rounded, vaguely sinuate, exterior angle obtuse, unarmed. **Legs** slender; femora finely, densely punctate, clothed with short, depressed setae; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body and attaining apex of fourth abdominal sternite; tibiae finely, densely, subcontiguously punctate, clothed with short, depressed setae; protibiae with inner surface densely clothed with short, depressed, pale pubescence; metatarsomere I subequal or slightly longer than tarsomeres II and III combined. **Abdomen** very sparsely, finely, punctate in middle with short, depressed, pale setae, sides minutely, densely punctate clothed with pale, appressed pubescence; apex of last sternite narrowly truncate, and vaguely emarginate at middle.

**Female:** Length 9–11 mm. Form slightly stouter than males; integument similar in coloration to males, occasionally with pronotum reddish with apical and basal margins and prosternum black. Prosternum transversely plicate punctate throughout, transverse subrectangular area above coxae absent. Antennae exceeding elytral apices by an antennomere, antennomeres from V vaguely carinate on inner and outer surface. Abdomen with apex of last sternite broadly truncate, and vaguely emarginate at middle.

**Etymology.** This species is named after its small size, Latin for “short or small” (i.e., *brevis*).

**Type materials.** Holotype, male (EMEC 1742826), and allotype, female (EMEC 1742828) both from MEXICO: *Michoacán*: 14 mi NW Zitácuaro, 24 Aug. 1959, L.A. Stange, A.S. Menke both deposited in EMEC. Thirty-four paratypes, all from MEXICO: *Michoacán*: HWY15, 5 mi S Tuxpan, 7 Aug. 1965, G.H. Nelson, and family (1 male, EMEC); Tuxpan km 186, 7600 ft., 5 Oct. 1941, DeLong, Good, Caldwell and Plummer (1 male, EMEC); Tuxpan, km 168, 7600 ft., 5 Oct. 1941, DeLong, Good, Caldwell and Plummer (1 female, EMEC). *Guerrero*: 12 km S Ixcateopan, 1530 m, 13 Sept. 1982, J.A. Powell, J.A. Chemsak (1 male, 2 females, EMEC); Teloloapan, 23 Aug. 1957, D. Douglas (1 female, EMEC); 10.5 km N Iguala, 4000', 19–21 Sept. 1989, E. Giesbert (1 female, FSCA); 11 km

W Xochipala, 17 Sept. 1989, E. Giesbert (3 males, 1 female, FSCA); 22 km E Chichihualco, 5200', 22 Sept. 1989, E. Giesbert (9 males, 7 females, FSCA); 22 km E Chichihualco, 22 Sept. 1989, J.E. Wappes (4 males, 2 females, FSCA).

**Discussion.** This is another *Ischnocnemis* species that closely resemble *I. caerulescens* Bates and *I. sexualis* Bates. It differs from other *Ischnocnemis* without ivory vittae by the smaller, stouter form, base of the pronotum with sides that are constricted, and margins expanded over the humeri (Fig. 420–422), and elytral apices that are rounded, vaguely sinuate with exterior angles obtuse and unarmed (Fig. 424). The elytra are shorter, 2.5 times as long as wide in this species, while for *I. caerulescens* and *I. sexualis* the elytra are more elongate, 2.8–2.9 times as long as wide, with apices truncate. This species closely resembles *I. sexualis* with opaque densely contiguously punctate pronotal disc, but the elytron lacks the faint costa usually visible between the raised subsutural and vague submarginal glabrous costae found in the later species. There are some color variations in this species as found in *I. caerulescens* and *I. sexualis*. The single male from Ixcateopan, Guerrero, approximately 272 km south of Zitácuaro, Michoacán, is black with abdomen, elytra, and parts of sternum testaceous to reddish brown (Fig. 413–414). The females from Ixcateopan and Teloloapan have dark metallic blue elytra, and reddish pronotum with apical and basal margins and sternum black (Fig. 415–416). This species ranges from Tuxpan, Michoacán south to Chichihualco, Guerrero based on the materials examined.

### *Microteroschema* Eya, new genus

**Type species.** *Microteroschema parvum* Eya, new species

A new genus *Microteroschema* is created to include *Microteroschema parvum* new species and *Microteroschema pseudolaetum* new species.

**Description.** **Form** small, stout, sides subparallel. **Head** with front short, declivous, mid-cranial sulcus (median line) narrow, canaliculate, extending from postclypeus to posterior margin of antennal tubercles, each side above postclypeus below antennal insertion with a small pit, frontoclypeal sulcus transversely, shallowly excavated between pits; postclypeus declivous, subparallel with front (Fig. 434, 446, 450); genae short (Fig. 433, 445, 449); palpi short, subequal, last segments not expanded, apices truncate or rounded, dorsoventrally flattened, outer margin vaguely impressed; mandibles prominent, extended forward, sides arcuate from base to apex, dorsum with outer edge vaguely impressed; apices simple, not emarginated; eyes moderately large, finely faceted, upper lobes small, well separated, lower lobes large; antennal tubercles divergent; integument between tubercles impressed; antennae elongate, 11-segmented, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** as broad as long to slightly broader, cylindrical, narrower than base of elytra at humeri, sides vaguely rounded, unarmed; apex narrower than base, apical margin without lateral collar-like projection (Fig. 435, 447, 451); prosternum with intercoxal process narrower than procoxal cavities, level with procoxae to slightly impressed below coxae, coxal cavities wide open behind; mesosternum with intercoxal process level with coxae, gradually declivous anteriorly (Fig. 436, 452, 453); posterior-lateral margins lobed, slightly overlapping mesocoxae. **Scutellum** triangular, as broad as long. **Elytra** with apices truncate or rounded; each elytron with one or two, longitudinal, glabrous, raised ivory-like vittae. **Legs** moderately short; metafemora falling far short of elytral apices in both sexes; metatarsomere I shorter than or subequal to tarsomeres II and III combined (Fig. 438–439, 457–458). **Abdomen** normally segmented. The following species are included in this genus: *Microteroschema parvum* Eya new species (Fig. 428–439) and *M. pseudolaetum* Eya new species (Fig. 440–458).

**Discussion.** *Microteroschema* new genus is introduced to include the “smaller form” of trachyderines with non-protuberant mesosternal intercoxal process, which do not fit the descriptions of either *Mannophorus* LeConte, *Ischnocnemis* Thomson or *Paramannophorus* Eya new genus. *Microteroschema* is characterized by the following combinations of characters: (1) smaller, stouter form (8–13 mm); (2) front that is declivous with antennal tubercles divergent with the integument between tubercles impressed forming a V-shaped valley sloping down to mid-cranial sulcus (Fig. 432–434, 444–446, 448–450); (3) mandibles and genae that are prominent, extended forward (Fig. 433, 445, 449); (4) mesosternal intercoxal process that is level with mesocoxae and declivous anteriorly (Fig. 436, 452–453); (5) short and stout metatarsi with tarsomere I shorter than tarsomeres II and III combined (Fig. 438–439, 457–458). The two species currently included in this genus have broad, ivory, subsutural vitta(e) on each elytron, carinate and rugosely punctate basal antennomeres, and carinate or coarsely, rugosely, striate-punctate meso- and metatibiae.

*Microteroschema* do not have the lateral collar-like projection on the apical margin of pronotum as found in *Mannophorus* despite of its morphological similarity of the head capsule with prognathous mouthparts, declivous front, and divergent antennal tubercles. Also, *Microteroschema* and *Mannophorus laetus* LeConte have in common the shorter, stouter body form, and short tarsomeres of metatarsi. The species included in *Ischnocnemis* have front that is subvertical to vertical, and mandibles that are retracted and usually angulated near base. *Ischnocnemis* species also have a more elongate body form with elytra that are usually about three times as long as wide, and elongate and narrower metatarsi. *Paramannophorus* differs from *Microteroschema* as follows: (1) pronotum that is angulated on sides and narrowed apically with disc coarsely punctate, and densely clothed with long, erect setae; (2) genae with dorsal half narrow between margins of lower eyes and base of mandibles, and ventral half triangular; (3) basal antennomeres and meso- and metatibiae that are coarsely punctate without carina; and (4) distal antennomeres of female that are cylindrical not flattened and angulate apically. *Microteroschema* has pronotum that is slightly rounded on sides with disc finely punctate, and sparsely pubescence; genae with dorsal half broader with anterior margins of lower eyes well separated from the base of mandibles; dorsum of basal antennomeres, and meso- and metatibiae that are carinate or coarsely, rugosely, striate-punctate.

**Etymology.** The name *Microteroschema* μικρότερος refers to (“mikróteros”, smaller) and σχήμα (“schema”, shape or form) or “smaller form” in Greek. *Microteroschema* with a “-schema” ending is a gender-neutral generic name.

### Key to species of the genus *Microteroschema*, new genus

1. Each elytron with one, broad, raised ivory subsutural vitta (Fig. 428–431) . . . *M. parvum* Eya, sp. nov.
- Each elytron with two ivory raised vittae, a broad subsutural vitta, and a narrower submarginal one (Fig. 440–443) . . . . . *M. pseudolaetum* Eya, sp. nov.

### *Microteroschema parvum* Eya, new species

(Fig. 428–439)

**Description. Male:** Length 9–10 mm. **Form** small, stout, slightly tapering; integument black to dark brownish, each elytron with single, raised, broad, ivory subsutural vitta. **Head** small; vertex finely, subconfluently punctate with vaguely, raised, glabrous area along midline; front densely, confluent to irregularly punctate, frontoclypeal sulcus vague or absent; postclypeus triangular, subparallel with front, proximal third glabrate, sparsely punctate in middle with narrow transverse densely, finely punctate band below, distal margin glabrate and declivous to anteclypeus; antennal tubercles vaguely elevated, apices obtusely angulate; pubescence on vertex, front, postclypeus and antennal tubercles obscure, short, dark and erect; genae prominent with base of mandibles separated from anterior margins of lower eyes, integument sparsely, irregularly punctate, pubescence sparse, short, depressed; labrum dark reddish brown, finely, irregularly punctate, sparsely clothed with long, suberect, golden setae; antennae slender, exceeding elytra apices by an antennomere; scape conical, densely, rugosely, coarsely punctate, pubescence short, depressed, underside with few, long setae; antennomeres III–VI with dorsum carinate, rugosely punctate, pubescence, short, dark, depressed, remaining antennomeres opaque, minutely, densely punctate, densely clothed with minute, appressed, dark setae, apices with few, longer, depressed setae; antennomeres VI–X gradually flattened with apices angulate on sides, inside surface vaguely carinate; antennomere III longer than I; IV shorter than III, subequal to I; V longer than IV, shorter than III; VI and VII subequal to V; VIII shorter than VII, subequal to I; IX subequal VIII; X shorter than IX, XI subequal to III. **Pronotum** as long as wide (L/W: 1.0) sides slightly rounded; disc shallowly convex, punctures shallow and discrete, basal half with longitudinally glabrous area in middle; apical margin of dorsum unelevated and not constricted behind, apical margin of sides vaguely elevated and narrowly constricted behind; base slightly impressed on sides; pubescence obscure, short, suberect; proepisternal area shallowly punctate, pubescence short, erect; prosternum slightly concave, apical half transversely plicate, basal half densely, subcontiguously punctate in middle, each side above coxae with impressed, subrectangular, sparsely, coarsely punctate area, pubescence short, moderately dense, erect; mesosternum coarsely punctate, pubescence depressed, mesosternal intercoxal process as wide as coxal cavities; mesepisterna and mesepimera with punctures fine, dense, shallow, densely clothed with appressed short pubescence; metasternum coarsely, discretely punctate, punctures sparse in middle, finer and denser near base of mesocoxae, pubescence obscure, depressed; metepisterna densely clothed with appressed pubescence. **Scutellum**





**Figures 428–439.** *Microteroschema parvum* Eya, **sp. nov.**, dorsal and lateral images: **428–429**) Male, 9 mm, 13 km NW Ocozocoautla, Chiapas, MEX. **430–431**) Female, 10 mm, 36 km E Tapantepec, Oaxaca, MEX. Head: **432–434**) Front declivous, genae prominent, base of mandibles separated from anterior margin of lower eyes (red arrow), mandibles prominent extended forward. Pronotum: **435**) Disc with sides shallowly rounded, apical margin unelevated, without collar-like projection on sides, integument black to dark brownish, and punctures shallow. Thorax lateral image: **436**) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: **437**) Apices bi-emarginate truncate with sutural and exterior angle dentate. Metatarsi: **438**) Male metatarsomeres short, tarsomere 1 ( $T_1$ ) subequal to or shorter (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.88. **439**) Female metatarsomeres shorter and broader than male, tarsomere 1 ( $T_1$ ) subequal to or shorter (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.93.

black, glabrate, punctures near base sparse, shallow, pubescence if present, obscure, sparse, short, appressed. **Elytra** 2.5 times as long as broad; each elytron with a broad, raised, glabrous, ivory subsutural vitta; punctures coarse and discrete from base to apices, epipleural margin with punctures smaller, denser, and subcontiguous; pubescence obscure, sparse, short and suberect; apices bi-emarginate to sinuate truncate with sutural and external angle dentate. **Legs** slender; femora coarsely, irregularly punctate, profemora with punctures finer and shallower, pubescence obscure, short, depressed; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body, attaining fourth abdominal segment; protibiae with punctures minute, inner surface densely clothed with short, depressed pubescence; meso- and metatibiae carinate, coarsely, rugosely striate-punctate, pubescence short, depressed; metatarsomere I shorter or subequal to tarsomeres II and III combined (Fig. 438). **Abdomen** with punctures shallow, sparse in middle, finer and denser on sides and near base of metacoxae, pubescence sparse, golden, suberect in middle, denser, appressed on sides; apex of last sternite truncate.

**Female:** Length 11 mm. Form stouter than male, parallel sided. Antennae attaining elytral apices. Prosternum with basal half shallowly, striate-punctate above coxae, coarsely punctate in middle. Metatarsomeres shorter and broader than male (Fig. 439). Abdomen with pubescence longer and suberect in middle; apex of last sternite broadly truncate.

**Etymology.** The name *parvum* refers to “small” in Latin due to the small size of this species.

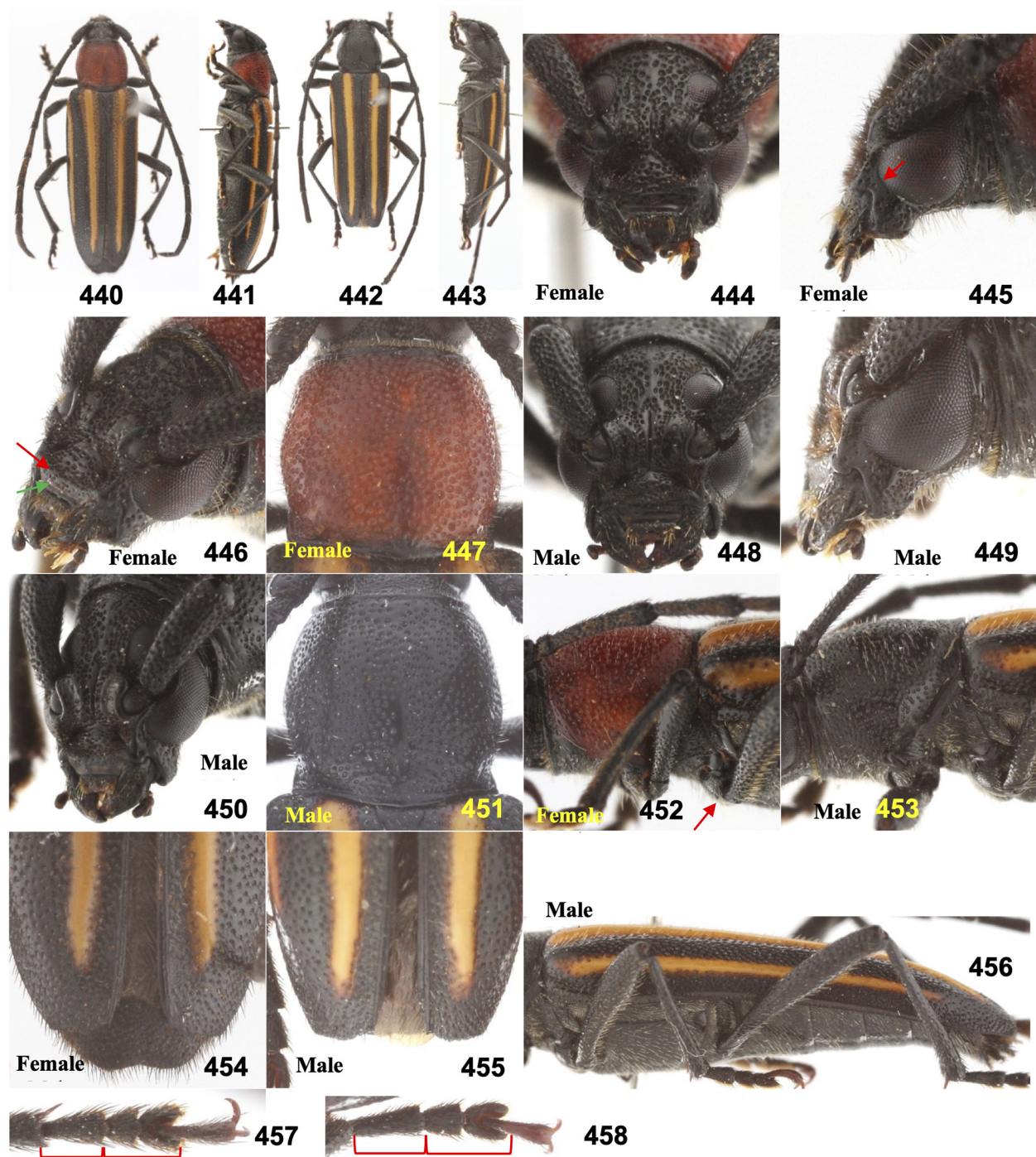
**Type material.** Holotype, male, MEXICO: *Chiapas*, 15 km NW Ocozocoautla, 14 Sept. 1990, 800 m, P.G. da Silva, T. Eager, ex. *Haematoxylon brasiletto* (EMEC 1327592) deposited in EMEC; allotype, female, MEXICO: *Oaxaca*, 36 km E Tapantepec, HWY 190, ca. Hospedaje Paty, 17 Oct. 2005, B.K. Eya (BKEC). Six paratypes, all from MEXICO: *Oaxaca*: MX 190, 1.5 km W of Chiapas border, 21 Oct. 2001, F. Skillman, J. Davidson, microwave tower (1 male, 1 female, EMEC). *Chiapas*: El Aguacero, 16 km W Ocozocoautla, 5 Oct. 1986, E. Giesbert (1 female, FSCA); El Sumidero, nr. Tuxtla Gutierrez, 20 Oct. 1986, D. Thomas, E. Fischer (1 female, FSCA); Parque Aguacera, 27 Sept.–3 Oct. 1986, J. Wappes (1 male, 1 female, FSCA).

**Discussion.** *Microteroschema parvum* Eya **new species** can be distinguished by the combination of characters: (1) small and stout body form; (2) declivous front with divergent antennal tubercles (Fig. 432–434); (3) single wide ivory subsutural vitta on each elytron; (4) genae with the margins of lower eyes well separated from base of mandible; (5) prominent and forward extending mandibles (Fig. 433); (6) short antennae that does not exceed more than an antennomere beyond the elytral apices in male and just attaining apices in female; (7) carinate dorsum of antennomeres III–VI; (8) non-protuberant mesosternal process (Fig. 436); (9) coarsely striate-punctate meso- and metatibiae; and (10) short metatarsomeres (Fig. 438–439). *Microteroschema parvum* has all the characteristics of *Lophalia* Casey, which include subparallel form, glabrate and polished integument, and elytral apices with outer angles dentate; however, the mesosternal process is not protuberant, and the front is declivous with divergent antennal tubercles (Fig. 432–434). *Lophalia* has a protuberant mesosternal process and a front that is subvertical. *Ischnocnemis* consists of species that are elongate in form with longer antennae, front that is vertical to subvertical with retracted mandibles, genae that are narrow with margins of lower eyes are almost contiguous with base of mandibles; and metatarsi that are narrow and elongate with first tarsomere longer or subequal to the following two tarsomeres combined.

### *Microteroschema pseudolaetum* Eya, new species

(Fig. 440–458)

**Description. Female:** Length 13 mm. **Form** small, stout, parallel sided; integument nitid, black, each elytron with two yellowish, glabrous, raised vittae, a broad subsutural vitta, and a narrower submarginal one (Fig. 440–441), pronotum reddish with anterior and posterior margins narrowly black (Fig. 447). **Head** small; vertex coarsely, subconfluently punctate; front rugose, irregularly punctate with an oblique depression on each side above postclypeus and below antennal insertions (Fig. 444); postclypeus triangular, rugose, coarsely, irregularly punctate, distal margin rugose, more finely, irregularly punctate and abruptly declivous to anteclypeus (Fig. 446); pubescence on vertex sparse, long, erect and golden, setae on front and postclypeus obscure, short, dark and erect; antennal tubercles vaguely elevated, apices obtusely angulate; genae with base of mandibles separated from anterior margins of lower eyes (Fig. 445), integument sparsely, irregularly punctate, punctures beneath coarser, subcontiguous with pubescence, obscure, short and depressed; labrum transverse, black to dark reddish brown, emarginate apically, punctures minute, moderately clothed with golden, suberect setae; antennae slender, exceeding apices of elytra by an antennomere; scape conical, rugose, coarsely, subconfluently punctate, pubescence, short, depressed; antennomeres III–VI with dorsum carinate, rugosely, rather coarsely, striate-punctate, pubescence on dorsum short, appressed, underneath longer, depressed; antennomeres from VII opaque, minutely punctate, densely pubescent with minute appressed, dark setae, apices with few longer setae; antennomeres III–X vaguely carinate on outside, VI–X vaguely carinate on inside, gradually explanate externally with apices angulate; antennomere III longer than I; IV shorter than III, subequal to I; V longer than IV, shorter than III; VI–VIII subequal to V; IX shorter VIII, subequal to I; X shorter than IX; XI subequal to III, apical fifth appendiculate. **Pronotum** as long as broad (L/W: 0.99) sides rounded; disc shallowly convex, punctures dense, shallow, subconfluent; apical margin vaguely collared, narrowly constricted behind, base with margin slightly impressed on sides (Fig. 447); pubescence obscure, pale, short, and erect with few longer erect setae on sides near base; proepisternal area shallowly, discretely, irregularly punctate, pubescence obscure, short, erect; prosternum slightly concave, apical half transversely plicate, basal half rugulose, coarsely, subconfluently punctate, pubescence moderately dense, pale, erect; mesosternum rugose, anterior half finely punctate, posterior half coarsely, irregularly punctate, pubescence pale, suberect and depressed; mesosternal intercoxal process as wide as coxal cavities; mesepisterna finely, irregularly punctate, sparsely clothed with short, appressed pubescence; mesepimera with anterior half rugose, sparsely



**Figures 440–458.** *Microteroschema pseudolaetum* Eya sp. nov., dorsal and lateral images: **440–441**) Female, 13 mm, 1.5 km W Chiapas border, Oaxaca, MEX. **442–443**) Male, 13 mm, Hwy 195, 36 km S Jct 190, Chiapas, MEX. Head: **444–446**) Female, front declivous, genae prominent, base of mandibles separated from margin of lower eyes (red arrow), mandibles extended forward, postclypeus with apical  $\frac{1}{4}$  abruptly declivous (red arrow) or folded above anteclypeus (green arrow). **448–450**) Male, frontal, lateral, and frontolateral profiles. Pronotum: **447, 451**) Disc with sides shallowly rounded, apical margin unelevated without lateral collar-like projection on sides. Thorax lateral image: **452, 453**) Pronotal disc shallowly convex, mesosternal process non-protuberant (red arrow). Elytra: **454**) Female, elytral apices broadly rounded. **455–456**) Male, elytra. Metatarsi: **457**) Female, Metatarsomeres stout, explanate, tarsomere 1 ( $T_1$ ) shorter (red brackets) than 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 0.83. **458**) Male,  $T_1/T_{2+3}$ : 0.83.

clothed with short, appressed pubescence, posterior half glabrous; metasternum coarsely, discretely punctate, punctures sparse on either side of midline, pubescence obscure, pale, long, depressed; metepisterna finely, irregularly punctate with minute punctures densely interspersed, pubescence dense, appressed. **Scutellum** triangular, black, sparsely, irregularly punctate, pubescence obscure, pale, short, appressed. **Elytra** 2.4 times as long as broad; each elytron with two elevated, glabrous, yellowish vittae, a broad subsutural raised vitta extending from base almost to apex with sides broader yellow on basal half and attenuating apically, and a narrower, shorter submarginal vitta starting under humerus extending to about apical one-fifth; punctures discrete from base to apices, epipleural margins with punctures denser and subconfluent; pubescence moderately, dense, obscure, short and suberect; apices broadly rounded and unarmed (Fig. 454). **Legs** slender; femora coarsely, irregularly punctate, pubescence obscure, short, depressed; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, shorter than body and attaining fourth abdominal sternite; protibiae with punctures minute, inner surface densely clothed with short, depressed pubescence; meso- and metatibiae coarsely, rugosely, striate-punctate, inner surface near base carinate, pubescence short, depressed; metatarsi short, broad, tarsomere I shorter than tarsomeres II and III combined (Fig. 457). **Abdomen** nitid with punctures sparse in middle, finer and denser on sides and near base of metacoxae; pubescence sparse, pale, suberect in middle, denser, appressed on sides; apex of last sternite broadly truncate.

**Male:** Length 13 mm. Form slightly more tapered than female (Fig. 442–443), pronotum black as long as broad (L/W: 1.0). Head with pubescence on vertex sparser than female (Fig. 448–450). Antennae longer than body, antennomeres narrower and more elongate than female, apices of antennomere VIII attaining or surpassing apices of elytra; antennomeres from apical half of V to X carinate on outside; antennomere III longer than I; IV subequal or slightly shorter than III; V–VII subequal, slightly longer than IV; VIII–IX subequal, slightly shorter than VII; X shorter than IX. Pronotum as long as broad (L/W: 1.0), disc more sparsely punctate and less densely pubescent than female (Fig. 451). Elytra 2.5 times as long as broad, apices broadly rounded with sutural angle minutely dentate (Fig. 455). Abdomen with apex of last sternite truncate, and vaguely emarginate at middle.

**Etymology.** The name *pseudolaetum* refers to “pseudo” or “false or spurious” in Latin, and “laetus” refers to *Mannophorus laetus* due to the superficial resemblance of this species to *M. laetus* with a red pronotal disc.

**Type materials.** Holotype, female, MEXICO: Oaxaca, MX 190, 1.5 km W of Chiapas border, 21 Oct. 2001, F. Skillman, J. Davidson, microwave tower (EMEC 1327342) deposited in EMEC; allotype, male, MEXICO: Chiapas, Hwy 195, 36 km S Jct. 190, 15 Oct. 1988, J.E. Wappes (FSCA 00082453) deposited in FSCA.

**Discussion.** *Microteroschema pseudolaetum* Eya **new species** is very similar in structure and form to *M. parvum* Eya **new species**. Both species have in common the overall small size, stout body form, narrow and elongate pronotum, carinate and rugosely punctate basal antennomeres, and carinate or coarsely, rugosely, striate-punctate meso- and metatibiae. This species superficially resembles a female *Mannophorus laetus* with a red pronotum and in overall size and form. It differs from *Mannophorus* by the lack of lateral collar-like projection on the apical margin of pronotum, more nitid integument, and by the raised, subsutural vittae that are much broader especially on basal half of elytra. This species differs from *M. parvum* by the pair of ivory costae on each elytron, and broadly rounded and unarmed apices of elytra. The pronotum of female holotype is reddish and the raised vittae on the elytra darker yellowish instead of ivory color as in *M. parvum*.

### **Cyphosterna Chevrolat, 1862**

Type species: *Cyphosterna quadrilineatum* Chevrolat, 1862 (monobasic)

*Cyphosterna (Dioxiotes)* 4-lineata Chevrolat 1862: 756, 757

*Cyphosterna* Thomson 1864: 205, 432; Lacordaire 1869: 188; Bates 1880:86; Zajciw 1960: 144; Zajciw 1969: 225; Monné 1994: 67

*Neotaranomis* Chemsak and Linsley 1982: 71; Monné 1994: 33 (**new synonymy**)

**Redescription.** **Form** moderate sized to large, tapering posteriorly. **Head** small, front convex, subvertical, subquadrate, mid-cranial sulcus narrow, canaliculate, extending arcuately from postclypeus to vertex between upper lobe of eyes, integument of front seamlessly fused with postclypeus, integument above postclypeus on either sides below antennal insertion with broad, shallow, oblique depression; genae subquadrate, anterior margins of lower

eyes separated from base of mandibles; palpi short, slightly unequal, apical segments not expanded, apex truncate, outer edge of maxillary palpi convex; mandibles simple, sides arcuate, dorsum impressed on outer edges, apices simple, not emarginated; eyes moderately large, finely faceted, upper lobes small well separated, lower lobe large, deeply emarginate, not embracing antennal insertions; antennal tubercles prominent; antennae slender, elongate, longer than body in male, not or scarcely so in female, 11-segmented, antennomeres externally carinate, 11<sup>th</sup> antennomere slender, vaguely to non-appendiculate. **Pronotum** broader than long, narrower than base of elytra at humeri; apex narrower than base; disc moderately inflated, excavated and tuberculate at sides, dorsally callused; prosternum with intercoxal process level with coxae, narrower than coxal cavities, obtusely keeled or ridged in middle, apex vertical, abruptly declivous behind, coxal cavities wide open behind; mesosternum with intercoxal process tuberculate, protuberant above coxae, abruptly declivous anteriorly; posterior margin strongly emarginate in middle, lobed on sides and slightly overlapping mesocoxae; metepisterna slightly broader in front. **Scutellum** elongate, small. **Elytra** tapered apically, each with prominent costae, apices variable. **Legs** slender; metafemora extending to about elytral apices or longer in male, attaining elytral apices in female; pro- and mesotarsi broad; metatarsi narrow, elongate, tarsomere III cleft to base. **Abdomen** normally segmented.

The following species are included in this genus: *Cyphosterna quadrilineatum* Chevrolat, 1862 (Fig. 459–477); *C. sinaloanum* Chemsak and Linsley, 1982 **new combination** (Fig. 478–488); *C. atropurpureum*, Chemsak and Noguera, 2001 **new combination** (Fig. 489–499).

**Discussion.** According to Chevrolat (1862: 756), *Cyphosterna* is a genus placed near *Entomosterna* Chevrolat, which also included the genera *Triacetelus* Bates, *Gambria* Chevrolat, and *Chevrolatella* Zajciw. Its form is elongate with rounded head, and front that is slightly convex, truncated in the middle, furrowed longitudinally (mid-cranial sulcus) with two small, raised antennal tubercles between the antennal insertion. The palpi are composed of segments of almost equivalent length with last segments slightly more elongate, subcylindrical and truncated at apices. The mandibles are medium sized and arched. Labrum is transverse and emarginated apically, and clypeus is wide, linear, and rimmed. The eyes are large, rounded above and emarginated below. The antennae are filiform, eleven segmented, and elongate, longer than body in males, and reaching two-third length of elytra in females. Each antennomeres are almost equivalent in length, except for the second antennomeres that are short. The scape is clubbed, and apices of antennomeres III to X slightly angulate. The pronotum is as long as wide, rounded laterally on anterior half, arcuately impressed on posterior half with an angular spine on each side in the middle. The apex of pronotum is transverse, and base is arcuate (or margin lobed at middle), narrowly rimmed with sides extending over humeri, and disc convex and uneven. Scutellum is triangular and impressed medially. Elytra are slightly wider than prothorax, obtusely rounded over humeri, and parallel sided. The elytral discs are moderately, evenly convex and apices are emarginate. Legs are punctate and elongate, and femora are tapered. The metafemora exceed apices of elytra by a quarter of its length and terminating with two small spines. The tibiae are linear, slightly widening at apices, and terminating with two apical spines. The first and last articles of metatarsi are elongate with tarsal claws simple. Prosternum is narrow, flat, and arched. Mesosternum is widened anteriorly, and the intercoxal process is truncate and emarginated in the middle of the posterior margin with a shiny tubercle with obtuse spine in middle. Anterior coxae are globose, coxal cavities are rounded, strongly depressed above coxae, and slightly angulate exteriorly. Metasternum is rectangular. Abdomen is elongate, rounded at apex and composed of five segments with the last three segments almost equivalent in length.

At the time when *Cyphosterna* was described, Chevrolat included the following five additional species in this genus: *Cyphosterna emarginata* (i.e., *Triacetelus emarginatus* (Chevrolat, 1862: 758)); *C. bicolor* (i.e., *Gambria bicolor* (Chevrolat, 1862: 758)); *C. tripunctata* (i.e., *Chevrolatella tripunctata* (Chevrolat, 1862: 759)); *C. ornaticollis* (i.e., *Chevrolatella tripunctata* (Chevrolat, 1862: 759)); and *C. nigripennis* (i.e., *Gambria nigripennis* Chevrolat, 1862: 760). Thereafter, Lacordaire (1869: 188) redescribed *Cyphosterna* based on a single specimen of *C. quadrilineata*, and commented that the abdominal segment two being much longer than four and five, almost covering three, and notes, “This last peculiarity is perhaps accidental in the single copy that I have in front of me, but there would always remain the unusual length of the segment two,” and further commented that he did not notice this peculiar structure of the abdomen in other genera preceding *Cyphosterna* (i.e., *Muscidora* Thomson, and *Entomosterna* Chevrolat) and the three following genera (i.e., *Gambria* Chevrolat, *Eriphus* Audinet-Serville, and *Perarthrus* LeConte), which makes this genus very distinct (Lacordaire, 1869: 186–191). Bates (1880: 86)

thereafter noted that “*Lacordaire, on the other hand, proposed to limit Cyphosterna to those species in which the second ventral segment in male was abnormally lengthened. As he knew only one of Chevrolat’s species which possessed this character, he referred the rest doubtfully to Gambria, a view which we provisionally follow.*” Therefore, Bates limited *Cyphosterna* to species with second ventral segment of abdomen with abnormal length based on Lacordaire’s observation. This proposed limit on *Cyphosterna* is incorrect and is likely to be a peculiarity of the single specimen examined by Lacordaire. This conclusion is supported by the original description of this genus by Chevrolat (1862: 756), which states the abdomen as “composed of five segments with last three segments almost equivalent in length” (i.e., “*Abdomen allongé arrondi au sommet, composé de cinq segments; les trois terminaux presque d’égale grandeur.*”). It is likely that the single specimen examined by Lacordaire had abdominal segment three to five that were pushed back proximally into segment two giving the appearance of longer segment two followed by a very short segment three.

The etymology of *Cyphosterna* is provided by Chevrolat (1862: 756) as Ancient Greek: κῦφος (“*Cypho-*” meaning “bump” or “knobbed” or “bosse” in French) and στήρνον (“*-sterna*” meaning “sternum”) referring to protuberant mesosternum. Since the name “*Cyphosterna*” has a gender-neutral ending “*-sterna*” the subsequent species names which follows must also be gender neutral as follows: “*quadrilineatum, sinaloanum, and atropurpureum.*”

### Key to species of the genus *Cyphosterna* Chevrolat, 1862

1. Integument black, each elytron with prominent submarginal and subsutural eburneous costae . . . . . 2
- Integument black with dull greenish purple overtone, elytra black, without eburneous costae, each elytron with four prominent costae, submarginal costa joined to a shorter lateral one near apex (Fig. 489–490, 498–499) . . . . . *C. atropurpureum* (Chemsak and Noguera), **comb. nov.**
- 2(1). Pronotum coarsely punctate with lateral margins of disc and ventral surface of body including prosternum clothed with dense, appressed golden pubescence; elytral apices tapered, narrowly rounded with minute sutural spine; pronotum of females black (Fig. 478–488) . . . . . *C. sinaloanum* (Chemsak and Linsley), **comb. nov.**
- Pronotum less coarsely punctate, disc lacking dense, appressed golden pubescent margin, prosternum thinly pubescent without dense appressed golden pubescence; elytral apices obliquely emarginate; pronotum of females reddish with apical and basal margins narrowly black (Fig. 459–475) . . . . . *C. quadrilineatum* Chevrolat

### *Cyphosterna quadrilineatum* Chevrolat, 1862

(Fig. 459–477)

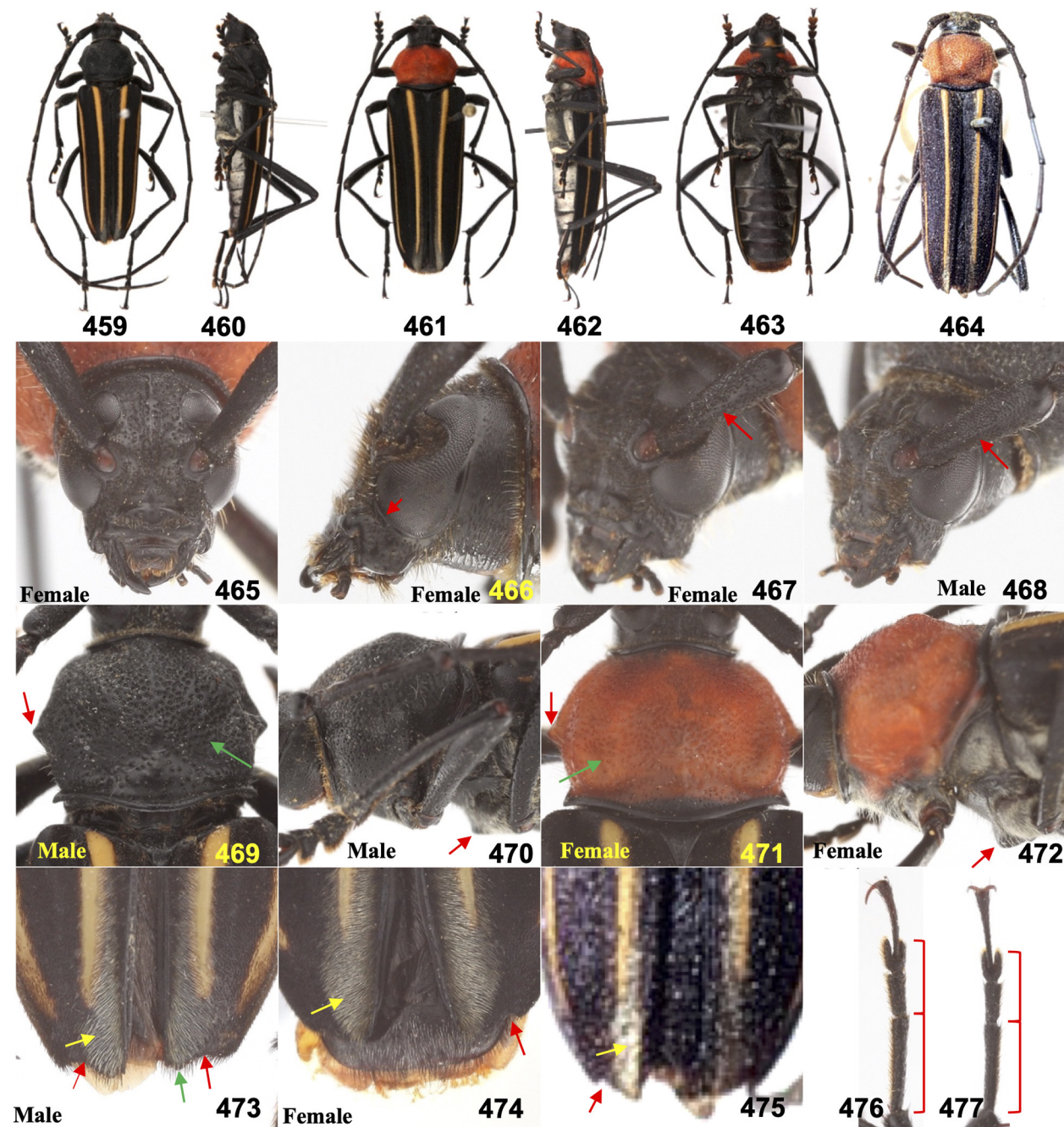
*Cyphosterna* (*Dioxiotes*) *4-lineata* Chevrolat 1862: 757

*Cyphosterna* *Quadrilineata* Thomson 1864: 205

*Cyphosterna quadrilineata* Lacordaire 1869: 189; Gemminger and Harold 1872: 2974 (cat.); Bates 1880: 86; Aurivillius 1912: 474 (cat.); Blackwelder 1946: 590 (cat.); Zajciw 1969: 226; Monné 1994: 67 (cat.); Monné and Giesbert 1994: 143 (cat.)

*Neotaranomis australis* Chemsak and Linsley 1982: 74 (**new synonymy**); Chemsak et al. 1992: 84 (cat.); Monné 1994: 33 (cat.); Monné and Giesbert 1994: 147 (cat.); Noguera and Chemsak 1996: 402 (dist.)

**Redescription. Female:** Length 16–21 mm. **Form** moderate sized to large, slightly tapered posteriorly; integument black, pronotum reddish with apical and posterior margins narrowly black. **Head** small; vertex rugulose, coarsely, irregularly punctate with a prominent median polished longitudinal carina between the eyes; front finely punctate below and above antennal insertions; antennal tubercles divergent with apices obtusely angulate; postclypeus opaque with a narrow, transverse, densely punctate area in middle, upper and lower margins glabrate, sparsely, coarsely punctate; anteclypeus polished, dark reddish brown; labrum opaque, sparsely punctate apically; genae irregularly punctate near base; pubescence arising from punctures short, erect, obscure; antennae opaque, finely densely punctate, exceeding elytral apices by a half of antennomere; scape subconical, obtusely carinate externally from base to apex, pubescence obscure, very short, depressed; antennomeres II–XI cylindrical,



**Figures 459–477.** *Cyphosterna quadrilineatum* Chevrolat, dorsal and lateral image: 459–460) Male, 19 mm, 23 mi S Matias Romero, Oaxaca, MEX. 461–462) Female, 22 mm, 17 km N Ariaga, Chiapas, MEX. 463) Female, ventral image. 464) *C. quadrilineatum* syntype, Yucatan, MEX. (Bezark 2024, id: 6392). Head: 465–467) Front subvertical, subquadrate, seamlessly fused with postclypeus, genae subquadrate, prominent (red arrow). 467–468) Scape carinate (red arrow). Pronotum: 469, 471) Disc laterally excavated (green arrow) and sides tuberculate (red arrow). Thorax lateral images: 470, 472) Pronotal disc inflated with prominent dorsal callus, mesosternal process protuberant (red arrow). Elytra: 473–474) Each elytron with prominent paired eburneous ridges, apices emarginate (red arrows) with subsutural dentation (green arrow) and appressed silver pubescence (yellow arrow). 475) Elytral apices of syntype (Bezark 2024, id: 6392). Metatarsi: 476–477) Metatarsomeres narrow, elongate, tarsomere 1 ( $T_1$ ) longer (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ). 476) Male,  $T_1/T_{2+3}$ : 1.4. 477) Female,  $T_1/T_{2+3}$ : 1.3.

externally carinate from III–XI and from VI on inside surface; antennomeres III–V finely punctate, pubescence minute, appressed with few short, suberect, black setae beneath, apices narrowly glabrous with tufts of black setae; antennomeres from VI opaque with apices slightly angulate externally and vaguely explanate, pubescence dense, minute, appressed; antennomere III longer than I; IV slightly shorter than I; subsequent antennomeres V–VIII subequal to I; IX–X subequal to IV; XI subequal to I, vaguely appendiculate on apical fourth. **Pronotum** broader than long (L/W: 0.72), lateral tubercles prominent; disc coarsely, densely punctate with five broad calli, one on each side of anterior half, and posterior half with a protuberant callus in middle and one each on either side near base; apical margin collared, narrowly constricted behind; base transversely impressed with margin sinuate and broadly lobed in middle; pubescence sparse, short, dark, depressed; prosternum vaguely convex, apical half finely, transversely plicate, basal half coarsely, sparsely punctate, pubescence pale, golden, and erect; prosternal process keeled medially; mesosternum finely, striate-punctate, punctures coarser and sparse in middle, pubescence fine, pale, appressed and suberect, mesosternal intercoxal process narrower than coxal cavity; mesepisterna and mesepimera densely clothed with pale, appressed golden pubescence; metasternum very, finely, densely punctate and densely clothed with appressed, golden pubescence, integument along midline and sides sparsely, coarsely punctate and sparsely clothed with depressed pubescence; metepisterna densely clothed with appressed, golden pubescence. **Scutellum** black, sparsely punctate with very short, appressed setae. **Elytra** 2.3 times as long as broad; each elytron with prominent submarginal and subsutural eburneous costae, subsutural costa extending from the base and submarginal one starting behind humerus with both costae reaching slightly beyond apical tenth; integument between and around ivory costae sericeous, very finely, densely punctate, minutely clothed with fine, appressed, black pubescence, apical half with obliquely appressed, silver pubescence along inside of subsutural costae extending to elytral apices (Fig. 473–474); apices obliquely emarginate with a small sutural spine (Fig. 474). **Legs** shining; femora shallowly punctate, sparsely pubescent, underside more densely punctate and clothed with suberect, golden setae; pro- and mesofemora slightly clavate; metafemora linear, slightly arcuate near base, attaining to slightly exceeding apex of abdomen; protibiae with inner surface clothed with short, depressed, golden pubescence; meso- and metatibiae finely punctate, underside densely clothed with short, black, suberect setae; metatarsomere I narrow, elongate, longer than tarsomeres II and III combined. **Abdomen** very finely, densely punctate, densely clothed with appressed pubescence, punctures and vestiture sparse in middle, sternite I longer than II, III shorter than II, IV subequal to or slightly shorter than III, V subequal to III, apical margins of sternite I–IV darker and glabrous; apex of last sternite truncate, and vaguely emarginate at middle.

**Male:** Length 17–19 mm. Form moderate size, slightly narrower than female, integument including pronotum black (Fig. 459–460) with dorsolateral calli and lateral tubercles occasionally reddish. Head with vertex between eyes finely punctate with a prominent median polished longitudinal carina. Antennae exceed apices of elytra by three and a half antennomeres; apices of antennomeres III–VII are slightly enlarged; scape and antennomeres III–XI externally carinate as in female, inside surface carinate from IV; antennomere III distinctly longer than I, IV is shorter than III and longer than I, and antennomeres V–X are subequal in length to III, and XI longest with apical third vaguely appendiculate. Prosternum more thinly clothed than female. Elytra with apices more narrowly attenuated, “separately emarginate with subsutural dentation” (Chemsak and Linsley 1982: 74) (Fig. 473). Middle and hind legs more elongate than female, metafemora exceeding apices of elytra. Abdomen with apex of last sternite narrower than female, and deeply emarginate at middle.

**Materials examined.** Holotype male and four paratypes males of *Neotaranomis australis* Chemsak and Linsley, MEXICO: *Oaxaca*, 23 mi (36.8 km) south of Matias Romero, 14 Aug. 1963, F.D. Parker and L.A. Stange. Other materials examined: *Chiapas*: 9 km N Arriaga, 26 June 1987, E. Giesbert (1 male, FSCA); 9 km N Arriaga, 23 June 1987, E. Giesbert (1 male, 2 females, FSCA); MX190, 17 km N of Arriaga, 13 June 2009, beating slash, Skillman, Hildebrant (1 female, FWSC); La Sepultura, 26 June 1988, D.B. & A.M. Thomas (1 female, FSCA).

**Discussion.** Chevrolat (1862: 757) described *Cyphosterna* (*Dioxiotes*) *4-lineata* (i.e., *Cyphosterna quadrilineatum*) as a male with integument matte black, head black, punctate, and front furrowed terminating as a carina on vertex. Palpi are black and apically testaceous. Antennae are slender, slightly longer than the body with apices of antennomeres III to X enlarged and angulate. Prothorax is reddish and narrowly black on anterior and posterior margins, sides angulate in middle, and basal margins expanded on sides over the humeri. The pronotal disc is unevenly convex with three obtuse tubercles on the basal half, one in the middle, and two on either side near



the base. The scutellum is triangular, black, and depressed medially. The elytra are black, wider than prothorax, parallel-sided, and emarginate apically near suture. There are two narrow elevated ivory yellow costae on each elytron. The underside is covered with silky silver white pubescence. Abdominal segments frequently appear reddish with middle broadly denudate. Length 19 mm, width 5 ½ mm, and the habitat is Yucatan.

Chevrolat (1862) and Thomson (1864: 432) described the above species with red pronotum as male; however, the described specimen is a female. The specimens current in hand from Chiapas, Mexico, which are females, fits the above description. There are two photographs of syntypes (Bezark 2024, id: 6392, 15968) both with red pronotum. The obliquely appressed silver pubescence on the apices of elytra and along the inside margin of subsutural costae is another key feature of this species, which also can be found on the photos of syntypes (Fig. 464, 475).

*Neotaranomis australis* Chemsak and Linsley is synonymous with *Cyphosterna quadrilineatum* Chevrolat (**new synonymy**), and the detailed description for the male is provided by Chemsak and Linsley (1982: 74). The male *Cyphosterna quadrilineatum* is moderate sized (17–19 mm) with black integument including the pronotum. “This species is closely related to” *C. sinaloanum* (Chemsak and Linsley) **new combination** “but is slightly smaller with a more prominent median carina between” upper lobes of eyes. “The pronotal disc is less coarsely punctate, and lacks the dense, appressed golden pubescent margins” on each side above the lateral tubercles. The prosternum is also more thinly pubescent, especially in males, and the whitish pubescence is “largely confined to meso- and metasterna and on the lateral margins of abdominal sternites.” The pronotum of males described by Chemsak and Linsley were all black; however, “some but not all examples have bright red pronotal tubercles and dorsolateral calli.” Also, the apices of elytra are emarginate in *C. quadrilineatum*, while the apices of *C. sinaloanum* are tapered and narrowly rounded. The antennae of male *C. quadrilineatum* are narrower, more elongate, and greater than one and half times length of body compared to *C. sinaloanum* male with more robust, shorter antennae about third longer than the body. *Cyphosterna quadrilineatum* and *C. sinaloanum* both have obliquely, appressed, silver pubescence on apical half of elytra along the inside margin of subsutural costae extending to apices (Fig. 473–475). These two species “bear a superficial resemblance to *Sphaenothecus*” Dupont “but differ from members of that genus and their relatives by the broad” and inflated pronotum that is “laterally excavated, and tuberculate” on sides (Fig. 469–472).

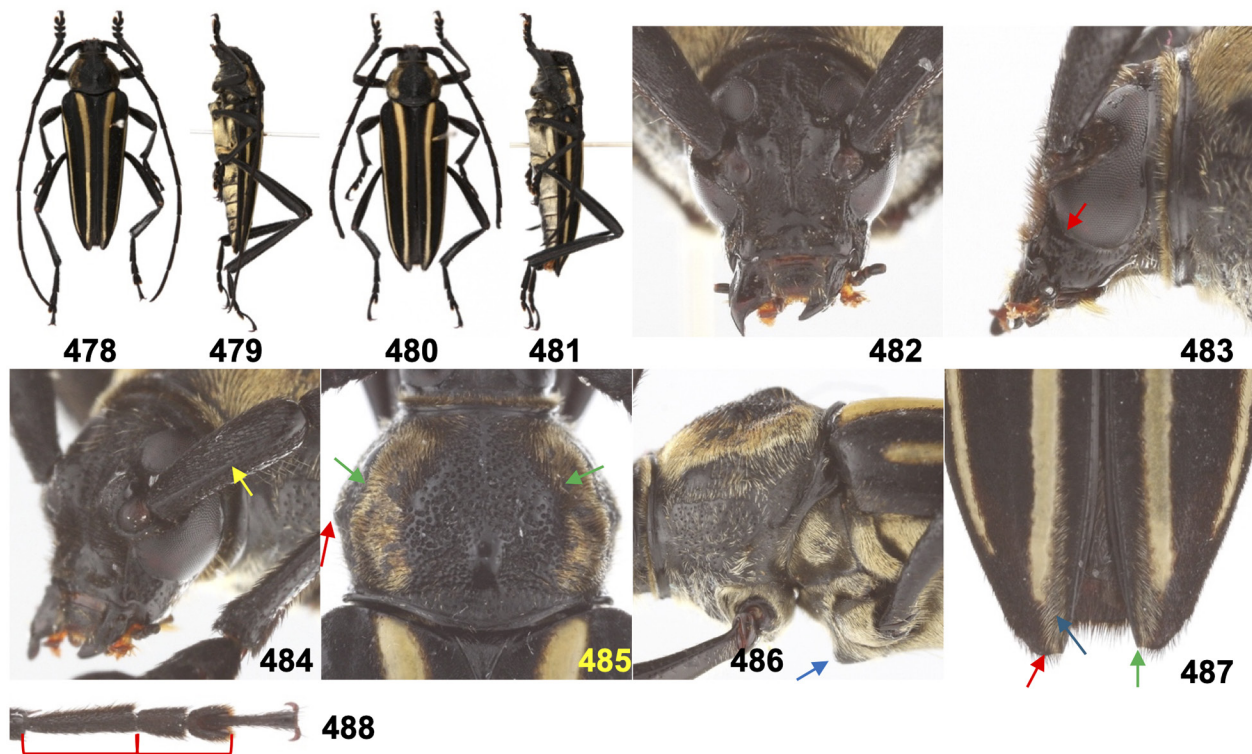
### ***Cyphosterna sinaloanum* (Chemsak and Linsley, 1982), new combination**

(Fig. 478–488)

*Neotaranomis sinaloae* Chemsak and Linsley 1982: 72; Chemsak et al. 1992: 84 (cat.); Chemsak and Noguera 1993: 63 (dist.); Monné 1994: 33; Monné and Giesbert 1994: 147 (cat.); Noguera and Chemsak 1996: 402 (dist.); Zaragoza-Caballero and Pérez-Hernández 2017: 36 (paratype)

**Materials examined.** MEXICO: *Jalisco*: Estación Biología Chamela, 14 July 1993, B.K. Eya (4 males, 2 females, BKEC); 15 July 1993, B.K. Eya (3 males, BKEC); 16 July 1993, B.K. Eya (3 males, 1 female, BKEC), 17 July 1993, B.K. Eya (3 males, 1 female, BKEC); 18 July 1993, B.K. Eya (12 males, 4 females, BKEC); 19 July 1993, B.K. Eya (6 males, 3 females, BKEC); 14/23 Oct. 1986 J.A. Chemsak (1 male, BKEC); 20/22 Oct. 1987, J. Powell (1 female, BKEC).

**Discussion.** The males of *Cyphosterna sinaloanum* (Chemsak and Linsley) **new combination** are moderate sized to large (17–22 mm), black, and densely clothed with “appressed golden pubescence” on lateral margins of pronotal disc (Fig. 485–486) and on the ventral surface (Chemsak and Linsley 1982: 72). Each elytron is provided with prominent paired eburneous costate, a subsutural costa which extends from the base reaching slightly beyond apical tenth, and a submarginal costa starting behind humerus which is slightly shorter than the subsutural one (Fig. 478–481, 487). Front is “finely punctate below and above antennal insertions,” and vertex is vaguely carinate longitudinally between the upper lobes of eyes. The mandibles, anteclypeus, and postclypeus are polished black. The antennae are slender, exceeding apices of elytra by two antennomeres, “scape is finely densely punctate, sparsely clothed with short, appressed pale pubescence,” and antennomeres III to VI are densely clothed with short, depressed, dark setae. Antennomeres from VII are opaque, minutely, densely punctate, and densely clothed with minute setae. Antennae are externally carinate from base to apex of scape (Fig. 484), and on antennomeres III–XI, and on the inside surface from antennomere IV. Apices of antennomeres IV to X are slightly explanate and dentate. The proportional lengths of the antennomeres are as follows: III longer than I; IV shorter



**Figures 478–488.** *Cyphosterna sinaloanum* (Chemsak and Linsley) **comb. nov.**, dorsal and lateral images: 478–479) Male, 22 mm, Chamela, Jalisco, MEX. 480–481) Female, 18 mm, Chamela, Jalisco, MEX. Head: 482–484) Front subvertical, subquadrate, seamlessly fused with postclypeus, genae subquadrate, prominent (red arrow), scape carinate (yellow arrow). Pronotum: 485) Disc moderately inflated, excavated laterally (green arrow) and sides tuberculate (red arrow). Thorax lateral image: 486) Pronotal disc with prominent dorsal callus, mesosternal process protuberant (blue arrow). Elytra: 487) Each elytron with prominent paired eburneous ridges, apices tapered, narrowly rounded (red arrows) with minute sutural spine (green arrow) and appressed silver pubescence (blue arrow). Metatarsi: 488) Metatarsomeres narrow, elongate, tarsomere 1 ( $T_1$ ) longer (red brackets) than tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.2.

than III, subequal to I; V to X subequal to or slight shorter than III; and XI is longest with apical fourth vaguely appendiculate. Pronotum is inflated, very coarsely, densely, subconfluently punctate with two “feebly elevated, polished, very coarsely punctate tubercles” on apical half and a prominent median polished callus on basal half (Fig. 485). The apical margin of the disc is rimmed, and narrowly impressed on sides, and the basal margin is sinuate, broadly lobed in middle, and transversely impressed. The prosternum is densely, finely punctate, and moderately densely clothed with depressed, golden pubescence on the apical third, and around the base of coxal cavities. The elytral discs are “very finely, densely punctate, and minutely clothed with sericeous, suberect, black pubescence between and around the ivory costae.” The elytral apices are tapered and narrowly rounded with “a minute sutural spine” (Fig. 487). Legs are nitid, “coarsely, shallowly punctate,” and clothed with coarse, dark setae. The metafemora are linear, vaguely arcuate near base and are slightly longer than apices of elytra. The abdomen is black to dark reddish brown, broadly glabrate and very sparsely punctate in the middle, and very finely punctate and densely clothed with appressed golden pubescence on the sides. There are five visible abdominal sternites with the first longest, second about half the length of first, and the following three each about equivalent in length and shorter than the second. The apex of last abdominal sternite is deeply emarginate at middle.

The females are similar in size (18–23 mm), slightly more robust, and similar in “sculpturing and pubescent pattern to the males” (Chemsak and Linsley 1982: 72). The antennae are shorter than males just attaining elytral apices, more explanate and dentate on apices from antennomere III. The apex of last sternite of the abdomen is broader than male and transverse.

This species can be distinguished from *Cyphosterna quadrilineatum* by the two “feebly elevated, polished, very coarsely punctate tubercles” on the apical half of the pronotum with “appressed golden pubescence” on either side above lateral tubercles, more densely pubescent prosternum, and apices of elytra that are not separately emarginated but tapered and narrowly rounded (Chemsak and Linsley 1982: 72, 74). The lack of eburneous costae on the elytra will separate *C. atropurpureum* (Chemsak and Noguera) **new combination** from the other species of *Cyphosterna*.

***Cyphosterna atropurpureum* (Chemsak and Noguera, 2001), new combination**

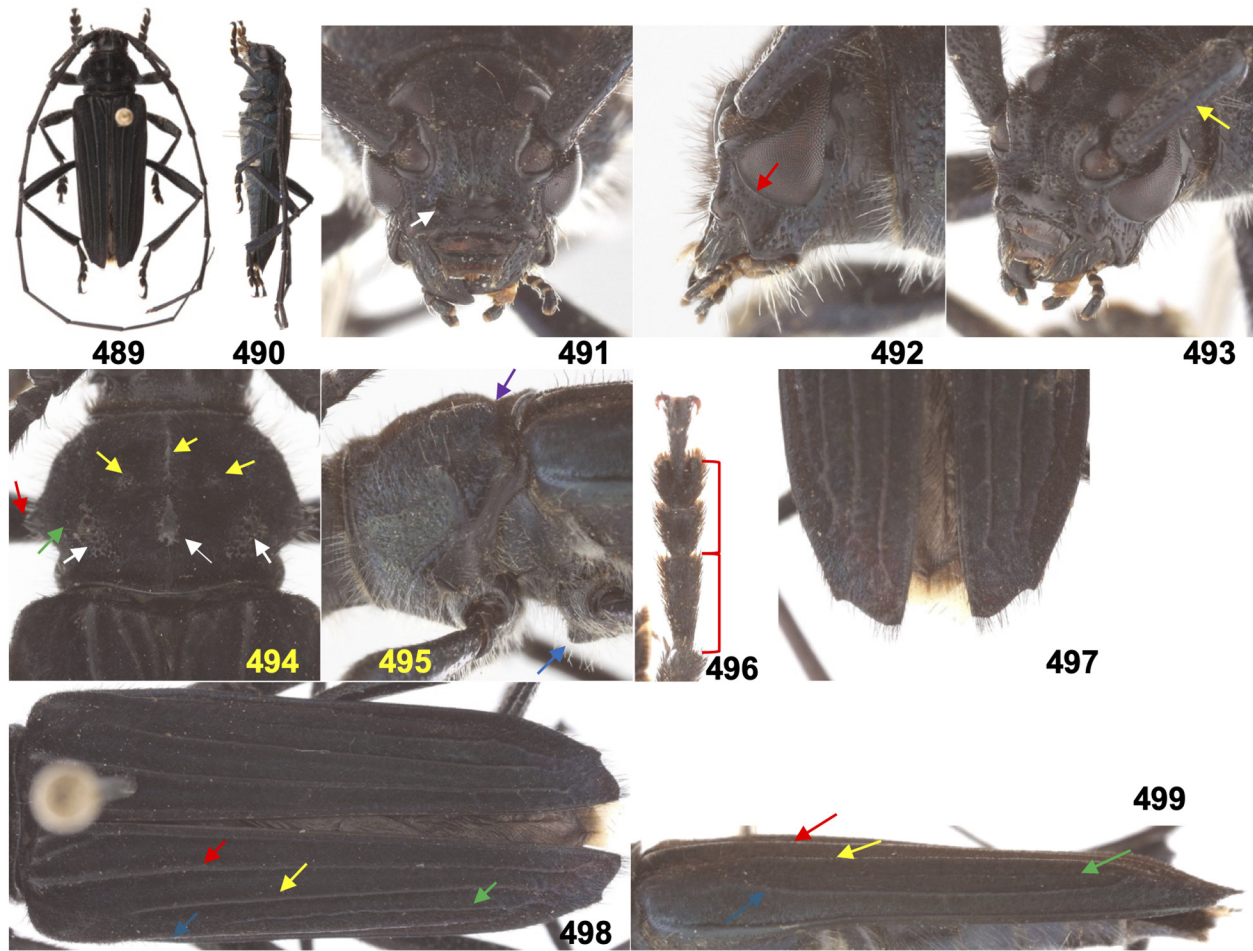
(Fig. 489–499)

*Neotaranomis atropurpurea* Chemsak and Noguera 2001: 51; Turnbow et al. 2003: 18 (dist.); Monné and Hovore 2006: 146 (cat.)

**Materials examined.** Holotype male from Honduras: La Paz, 21 July 1978, J. V. Mankins.

**Discussion.** According to Chemsak and Noguera (2001: 51), this species is “moderate sized (20.5 mm), robust and tapered posteriorly.” Integument is all “black with dull greenish purple overtones.” Pubescence is “dense, short, dark, and appressed with long, erect” setae on vertex, pronotal disc and sternum. Front is short, finely punctate “with a deep pit on each side above a narrow impunctate area” of postclypeus below the antennal insertion (Fig. 491). The mid-cranial sulcus is margined and extends from postclypeus to anterior margins of upper eye lobes. The “vertex is convex and densely, finely punctate” with a prominent median polished longitudinal carina. The “antennal tubercles are prominent” and obtuse at apices with “area behind each with a deep pit.” The “antennae are slender, elongate, extending about four antennomeres beyond elytra.” The antennomeres are carinate from base to apex of scape and on antennomeres III–XI. The proportional lengths of the antennomeres are as follows: III longer than I; IV slightly longer than III; V–X subequal to IV; XI longest, apical two-fifth appendiculate, strongly tapered and recurved on apex. The “pronotum is broader than long” with acute lateral tubercles, and the disc is carinate in middle “with five elevated calli,” anterior half with callus on each side of the carina, and posterior half with an opaque, impunctate callus in middle and obliquely elongate, coarsely punctate callus on each side near base (Fig. 494). The base of disc behind the lateral and median calli is narrow impressed (Fig. 495). The integument of the disc is finely, densely punctate between the calli and carina and densely pubescent with short, appressed setae. The prosternum is convex, coarsely, irregularly punctate, and plicate. Mesosternal process is prominently tuberculate in middle and “abruptly declivous anteriorly” (Fig. 495). Metasternum is glabrous in middle, sides finely, sparsely punctate, and moderately, densely pubescent with long, silver, suberect setae. The elytra are “about two and half times longer than wide, tapered posteriorly,” and the “apices obliquely sinuate truncate with outer angles” obtusely dentate (Fig. 497). There are “four prominent costae” on each elytron (Fig. 498–499). The submarginal costa on each elytron branches off near apex medially into a shorter lateral costa. Legs are slender, femora are “coarsely, shallowly, subconfluently punctate, and moderately densely pubescent” with appressed setae on the dorsum and long suberect setae underneath. The metafemora extend to apex of fifth abdominal sternite. The tibiae are carinate, and the “posterior pair have rows of dark, short, subdepressed setae along dorsal and ventral margins.” The pro- and mesotarsi are broad and explanate. The metatarsi are elongate with first tarsomere subequal to the following two tarsomeres combined (Fig. 496). Abdomen is nitid and very finely, sparsely punctate with long pale erect setae. The proportional length of the abdominal sternites down the middle are as follows: sternite I longer than II; III slightly shorter than II; IV shorter than III; V longer than II, shorter than I. The apex of fifth sternite is vaguely emarginate. Female is unknown in this species.

This species can be differentiated from other *Cyphosterna* by the black integument with metallic greenish to purplish overtone, and the elytra “with four prominent costae on each” elytron where the submarginal one branches off into a shorter lateral fourth costa near the apex. The metatarsi are shorter and more explanate than the other two species with the first tarsomere subequal in length to the following two together. Also, the last abdominal sternite of this male is not as deeply emarginate as the males of other two species. According to Chemsak and Noguera, the species name *atropurpurea* “refers to the color of the integument” derived from Latin “atro” (dark) and *purpurea* (purple).



**Figures 489–499.** *Cyphosterna atropurpureum* (Chemsak and Noguera) **comb. nov.**, dorsal and lateral images: 489–490) Male, 20.5 mm, La Paz, HND. Head: 491–493) Front vertical, subquadrate with a deep pit on each side above postclypeus (white arrow), genae subquadrate, prominent (red arrow), scape carinate (yellow arrow). Pronotum: 494) Disc moderately inflated, anterior half carinate in middle with callus on each side (yellow arrows), posterior half with an opaque, impunctate callus in middle and obliquely, elongate, coarsely punctate callus on each side (white arrows), sides tuberculate (red arrow) and laterally excavated above (green arrow). Thorax lateral image: 495) Pronotal disc with base behind lateral and median calli narrowly impressed (purple arrow), mesosternal process protuberant (blue arrow). Metatarsi: 496) Metatarsomere 1 ( $T_1$ ) subequal (red brackets) to tarsomeres 2+3 ( $T_{2+3}$ ),  $T_1/T_{2+3}$ : 1.0. Elytra dorsal and lateral images: 497) Apices obliquely sinuate truncate with outer angles obtusely dentate. 498–499) Each elytron with four prominent costae, a subsutural costa extending from base almost to apex (red arrow), submarginal costa starting behind humerus attaining apical  $\frac{1}{5}$  (blue arrow) with lateral branching costa starting on inside at apical  $\frac{1}{5}$  reaching basal  $\frac{1}{4}$  (green arrow), and another costa between subsutural one and submarginal branch starting from basal  $\frac{1}{5}$  attaining apical  $\frac{1}{5}$  (yellow arrow).

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**Erratum:** Throughout this manuscript, a species name was misspelled as *Mannophorus virgulata* (Chemsak), and there was not enough time to correct the spelling errors prior to publication. The correct spelling for this species is *Mannophorus virgulatus* (Chemsak), **new combination**, and its subspecies is *Mannophorus virgulatus virescens* (Eya), **new combination and new synonymy**, and should be referred to as such in future publications.