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RESEARCH ARTICLE

Darwin wasps of Mexico (Hymenoptera: Ichneumonidae): the subfamilies Acaenitinae, Poemeniinae and Xoridinae

Дарвиновские наездники Мексики (Hymenoptera: Ichneumonidae): подсемейства Acaenitinae, Poemeniinae and Xoridinae

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Abstract. Mexican species of the ichneumonid subfamilies Acaenitinae, Poemeniinae and Xoridinae are reviewed. The following genera are recorded here from Mexico: *Arotes* Gravenhorst, 1829 (one species) and *Coleocentrus* Gravenhorst, 1829 (one species) in Acaenitinae; *Ganodes* Townes, 1957 (one species), *Podoschistus* Townes, 1957 (one species), *Poemenia* Holmgren, 1859 (one species) and *Rodrigama* Gauld, 1991 (one species) in Poemeniinae; and *Aplomerus* Provancher, 1886 (one species), *Odontocolon* Cushman, 1942 (one species) and *Xorides* Latreille, 1809 (five species) in Xoridinae. One species, *Coleocentrus clebschi* Khalaim, **sp. nov.**, is described as a new to science. The tribes Coleocentrini and Rodrigamini, the genera *Coleocentrus*, *Podoschistus*, *Poemenia* and *Rodrigama*, and the species *Podoschistus vittifrons* (Cresson, 1968), *Rodrigama gamezi* Gauld, 1991 and *Aplomerus buprestivorus* Rohwer, 1920 are recorded from Mexico for the first time. The taxonomic status of *Ganodes mexicanus* Díaz, 2008 is discussed.

Резюме. Дан обзор мексиканских видов подсемейств Acaenitinae, Poemeniinae и Xoridinae. Следующие роды отмечены из Мексики: *Arotes* Gravenhorst, 1829 (один вид) и *Coleocentrus* Gravenhorst, 1829 (один вид) в подсемействе Acaenitinae; *Ganodes* Townes, 1957 (один вид), *Podoschistus* Townes, 1957 (один вид), *Poemenia* Holmgren, 1859 (один вид) и *Rodrigama* Gauld, 1991 (один вид) в подсемействе Poemeniinae; *Aplomerus* Provancher, 1886 (один вид), *Odontocolon* Cushman, 1942 (один вид) и *Xorides* Latreille, 1809 (пять видов) в подсемействе Xoridinae. Вид *Coleocentrus clebschi* Khalaim, **sp. nov.** описан как новый для науки. Трибы Coleocentrini и Rodrigamini, роды *Coleocentrus*, *Podoschistus*, *Poemenia* и *Rodrigama*, а также виды *Podoschistus vittifrons* (Cresson, 1968), *Rodrigama gamezi* Gauld, 1991 и *Aplomerus buprestivorus* Rohwer, 1920 впервые отмечаются для Мексики. Обсуждается таксономический статус вида *Ganodes mexicanus* Díaz, 2008.

Key words: parasitoids, taxonomy, key, fauna, Mexico, Acaenitinae, Poemeniinae, Xoridinae, new records, new species

Ключевые слова: паразитоиды, таксономия, ключ, фауна, Мексика, Acaenitinae, Poemeniinae, Xoridinae, новые находки, новый вид

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Introduction

Three subfamilies of Darwin wasps (the name suggested for the Ichneumonidae by Klopfstein et al., 2019a), Acaenitinae, Poemeniinae and Xoridinae, are rarely collected and not species-rich in Mexico. Only one species in the subfamily Acaenitinae [*Arotes pammae* Gauld, 1991], one genus with two species in Poemeniinae [*Ganodes matai* Gauld, 1991 and *G. mexicanus* Díaz, 2008], and two genera with five species in Xoridinae [*Odontocolon niger* Khalaim et Ruíz-Cancino, 2010, *Xorides cerbonei* Porter, 1978, *X. humeralis* (Say, 1829), *X. madronensis* Ruíz-Cancino et Kasparyan, 2000, and *X. rubrator* Khalaim et Ruíz-Cancino, 2007] have been known from Mexico until now (Yu et al., 2016). Townes (Townes & Townes, 1960) also mentioned from Mexico one undescribed species of the genus *Aplomerus* Provancher, 1886 (Xoridinae).

The aim of this study is to review Mexican species of the subfamilies Acaenitinae, Poemeniinae and Xoridinae, to describe one new species, to provide extensive faunal data, including new country records of tribes, genera and species, and to give identification keys to genera and species.

Material and methods

This work is based on a large quantity of ichneumonid materials from the Universidad Autónoma de Tamaulipas, Cd. Victoria, Mexico (UAT) and Instituto de Biología, Universidad Nacional Autónoma de México, D.F., Mexico (UNAM). Additional materials were examined from the Essig Museum of Entomology, University of California, Berkeley, California, USA (EMEC); Florida State Collection of Arthropods, Gainesville, Florida, USA (FSCA); Museo de Historia Natural de la Ciudad de México, D.F., Mexico (MNC), Townes & Dasch collections (former American Entomological Institute), recently moved to the Utah State University, Logan, Utah, USA (AEIC); and Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica (INBio). Other world collections mentioned in this study are the Academy of Natural Sciences of Philadelphia, Pennsylvania, USA (ANSP); National Museum of Natural History, Washington, D.C., USA (USNM); Museo de Historia Natural de la Ciudad de México, D.F., Mexico (MNC); and the Natural History Museum, London, United Kingdom (BMNH).

Morphological terminology generally follows that of Gauld (1991). A colour photograph of the new species (Fig. 1) was taken in UNAM. Photographs of *Rodrigama gamezi* Gauld, 1991 (Figs 2–7) were taken at the Zoological Institute, Russian Academy of Sciences, using a DFC290 digital camera attached to a Leica MZ16 stereomicroscope, and partially focused images were assembled with Helicon Focus Pro software. Identification keys to genera and species are based on those by Townes (Townes & Townes, 1960) and Gauld (1991). Countries in the sections "Distribution" are given from north to south. Data on binomics are given according to Taxonomy and general bionomics follow Yu et al. (2016) and Broad et al. (2018).

Results

Order **Hymenoptera**

Family **Ichneumonidae**

Subfamily **Acaenitinae**

Acaenitinae is a moderately small subfamily represented by the koinobiont endoparasitoids of the larvae of various xylophagous Coleoptera (the families Cerambycidae, Curculionidae, Melandryidae). Host records from non-coleopteran insects, e.g. Sesiidae (Lepidoptera) and Siricidae (Hymenoptera), require verification.

The subfamily is traditionally subdivided into two tribes, Acaenitini and Coleocentrini. The latter tribe is virtually restricted to the Holarctic region, while Acaenitini is distributed almost worldwide, most species-rich in tropical Asia, and contains the majority of the species of the subfamily (Townes, 1971; Gauld, 1991; Broad et al. 2018). In the New World, the subfamily is not species-rich and is represented by five genera with 18 species in America north of Mexico, and one genus, *Arotes* Gravenhorst, 1829, with three species in the Neotropical region (Yu et al., 2016).

Two genera with a single species in each of them are recorded from Mexico in this paper. Species of the subfamily are very rarely collected in Mexico.

Key to genera of Acaenitinae

1. Clypeus with very strong preapical transverse ridge, without median subapical tubercle. Tarsal claws with auxillary tooth (weak on hind claw). Face and frons with strong median longitudinal carina. Fore wing without areolet. Ovipositor without transverse ridges at apex. Hind leg with tarsomere 5 longer than tarsomere 2 ..... ***Arotes***
– Clypeus without preapical transverse ridge, with median subapical tubercle. Tarsal claws simple. Face and frons without strong median longitudinal carina. Fore wing with areolet (in Mexican species). Ovipositor with distinct transverse ridges at apex. Hind leg with tarsomere 5 shorter than tarsomere 2 ..... ***Coleocentrus***

Tribe **Acaenitini**

Genus ***Arotes*** Gravenhorst, 1829

Arotes Gravenhorst, 1829: 449; Cushman & Rohwer, 1920: 515 (description; review of eight North American species, one of which is described as new; key); Townes & Townes, 1951: 208 (catalogue; eight species in Nearctic region); Townes & Townes, 1960: 561 (description; review of four Nearctic species; key); Townes & Townes, 1966: 207 (catalogue; one species in Neotropical region); Gauld, 1991: 544 (description; one species in Costa Rica, described as new; key to two Central American species); Castillo et al., 2011: 194 (one new species from Peru; key to world species).

Type species: *Arotes albicinctus* Gravenhorst, 1829, by monotypy.

Distribution. Predominantly Holarctic genus with 15 species. In the New World, four species occur in USA and Canada; one species, *A. facialis* (Cameron, 1886), is known only from Guatemala; one species, *A. pammae* Gauld, 1991, occurs in Central America and Mexico; and one species was recently described from the Peruvian Andes (Castillo et al., 2011).

Bionomics. In North America, species of *Arotes* were reared from coleopteran hosts of the genera *Leptura* Linnaeus, 1758 (Cerambycidae), *Melandrya* Fabricius, 1801 (Melandryidae) and *Tomoxia* Costa, 1854 (Mordellidae) found in decaying wood (Townes & Townes, 1960; Gauld, 1991).

Key to species of *Arotes*, occurring in Mexico and Central America

1. Mesosoma and metasoma black but with extensive white markings. Antennal flagellum black with white median band. Propodeum with area superomedia quadrate, with anterior transverse carina laterally continuous with its anterior edge. ..... ***A. pammae***
– Mesosoma and metasoma more or less entirely black. Antennal flagellum black. Propodeum with area superomedia hexagonal to subcircular, with lateral part of anterior transverse carina joining it clearly behind front edge ..... ***A. facialis***

Arotes facialis (Cameron, 1886)

Retanisia facialis Cameron, 1886: 299.
Arotes facialis Townes & Townes, 1966: 207 (catalogue); Gauld, 1991: 544 (remarks), 546 (in key); Castillo et al., 2011: 80 (in key).

Type material (not examined): male(s) (BMNH), **Guatemala**, Purula, coll. Champion.

Distribution. Guatemala.

Remarks. This species is known only from males, but it clearly differs from another Mesoamerican species, *A. pammae* Gauld, 1991, by the characters given in the key.

Arotes pammae Gauld, 1991

Arotes pammae Gauld, 1991: 546; Ruíz-Cancino & Kasparyan, 2008 (Mexico, Veracruz); Castillo et al., 2011: 81 (in key); Khalaim et al., 2018: 3 (Mexico, Veracruz).

Holotype (not examined), female (BMNH), **Costa Rica**, *Guanacaste Prov.*, Guanacaste National Park, Estación Pitilla, 680 m a.s.l., IV.1989, coll. D. Janzen & I.D. Gauld.

Material examined. **Mexico**, *Veracruz*, El Vigía, 220–480 m a.s.l., Malaise trap, 12.IV and 5.V.1986, coll. A. Ibarra & P. Sinaca, 2 females (UAT).

Distribution. Mexico (Veracruz), Costa Rica.

Tribe **Coleocentrini**

Genus ***Coleocentrus*** Gravenhorst, 1829

Coleocentrus Gravenhorst, 1829: 437; Cushman & Rohwer, 1920: 504 (description; review of 12 North American species, five of them are described as new; key); Townes & Townes, 1951: 207 (catalogue; eight species in Nearctic region); Townes & Townes, 1960: 546 (description; review of eight Nearctic species; key).

Type species: *Ichneumon excitator* Poda, 1761, by subsequent designation (Westwood, 1840).

Distribution. Predominantly Holarctic genus with about 24 species. Eight species occur in USA

and Canada; one of them, *C. rufus* Provancher, 1876, was recently recorded from the Cayman Islands (Castillo et al., 2011: 78). A new species of *Coleocentrus* is described from tropical Mexico in this paper. It is the first record of the genus, as well as tribe Coleocentrini, from this country.

Coleocentrus clebschi Khalaim, **sp. nov.**
(Fig. 1)

Holotype. Female (UNAM), **Mexico**, *Oaxaca*, Santiago Comaltepec, 17.58429°N, 96.49398°W, 2332 m a.s.l., 6.VI.2009, coll. H. Clebsch & A. Zaldívar-Riverón.

Description. Female. Body length about 12.7 mm. Fore wing length 11.5 mm.

Antennal flagellum with 31 flagellomeres. Malar space 0.65 times as long as basal mandibular width. Upper tooth of mandible slightly shorter than lower tooth. Clypeus almost 2.3 times as wide as long, with conspicuous subventral tubercle and subapical transverse band of setae containing 10–20 setae. Epicnemial carina weak, developed only ventrally. Submetapleural carina almost complete, indistinct posteriorly. Propodeum only with a pair of lateral longitudinal carinae developed in its posterior half. Fore wing with areolet. First tergite of metasoma 3.0 times as long as posteriorly broad. Ovipositor sheath about 0.75 times as long as fore wing.

Head black, clypeus mostly yellowish brown. Mandible brownish basally, black apically. Antenna entirely black. Mesosoma approximately half reddish brown and half black (Fig. 1). Propleuron black. Pronotum reddish brown. Mesoscutum black, laterally slightly reddish brown. Tegula reddish brown. Mesopleuron black with reddish brown mark in upper part anteriorly, and posteriorly near base of mid coxa; mesepimeron reddish brown. Scutellum and postscutellum blackish. Metapleuron blackish anteroventrally to reddish brown posterodorsally. Propodeum reddish brown, slightly blackish in anterior part dorsally. First metasomal segment predominantly reddish brown, blackish dorsally in anterior half. Second tergite dorsally blackish, laterally reddish brown. Following tergites extensively blackish, laterally more or less reddish brown. Subgenital plate blackish, slightly reddish brown peripherally. Wings yellowish. Pterostigma yellow-brown, proximally yellow. All coxae, trochanters, trochantelli and femora reddish brown (fore femur yellowish brown ventrally). Tibiae yellowish, hind tibia blackish at apex. All tarsi with tarsomeres 1–3 yellowish with infuscate apex, and tarsomeres 4 and 5 more or less entirely fuscous.

Male. Unknown.

Comparison. The new species is similar to the Nearctic *C. rufus* Provancher, 1876 (Townes & Townes, 1960: 556) as both have a subapical transverse band of setae on the clypeus containing 10–20 setae, and the mesosoma is predominantly dark reddish brown, but differs from this species in the face with long and dense setae over the entire surface, the absence of any vestiges of median longitudinal carinae on the propodeum, and in the somewhat darker head, mesosoma and legs.

Etymology. Named after the collector of the holotype, American entomologist Hans Clebsch.

Distribution. Mexico (Oaxaca).

Subfamily **Poemeniinae**

Historically, poemeniines were treated as a tribe within the subfamily Pimplinae s.l. (Townes, 1957, 1969; Fitton & Gauld, 1976), but subsequently were upgraded to the rank of subfamily (Gauld, 1991). Wahl & Gauld (1998) divided Poemeniinae into three tribes: Pseudorhyssini (with a single Holarctic genus *Pseudorhyssa* Merrill, 1915), Rodrigamini (with a single genus *Rodrigama* Gauld, 1991), and Poemeniini which included the remaining genera and the majority of species. In the most recent phylogenetic studies (Bennett et al., 2019; Klopfstein et al., 2019b), the genus *Pseudorhyssa* was transferred to the subfamily Pimplinae, and currently Poemeniinae is considered as a group comprising ten genera and about 93 species placed in two tribes.

The subfamily is best represented in the Holarctic and Oriental regions, with three genera (*Neoxorides* Clément, 1938, *Podoschistus* Townes, 1957 and *Poemenia* Holmgren, 1859) occurring in the Nearctic region, and two genera (*Ganodes* Townes, 1957 and *Rodrigama* Gauld, 1991), in the Neotropical region. Four genera, *Ganodes*, *Podoschistus*, *Poemenia* and *Rodrigama*, are recorded from Mexico in this paper. All of them except *Ganodes* are recorded from this country for the first time.

Fig. 1. *Coleocentrus clebschi* Khalaim, **sp. nov.**, holotype female, habitus (without apex of ovipositor), lateral view. Scale bar: 5.0 mm.

Poemeniinae are known as idiobiont parasitoids of the xylophagous Coleoptera (predominantly the families Cerambycidae and Buprestidae) and Hymenoptera (Symphyta). Species of *Poemenia* parasitise small xylophilous Apoidea (Hymenoptera) that either make their own tunnels or use old borings in timber (Gauld, 1991; Wahl, 2020).

Key to Mexican genera of Poemeniinae

1. Mandible bidentate, upper tooth shorter than lower. Clypeus evenly convex. Tarsal claws of mid leg simple 2
– Mandible unidentate, apically truncate and chisel-shaped. Clypeus basally convex and apically impressed. Female (and sometimes male) with tarsal claws of mid leg with median acute tooth 3
2. Epicnemial carina present. Tergites 2–4 with oblique grooves delimiting more or less rhombic central area on each tergite. Propodeum with posterior transverse carina well developed. First tergite very long and slender, 4.0–6.0 times as long as posteriorly broad . . . . . ***Rodrigama***
– Epicnemial carina absent. Tergites 2–4 without oblique grooves. Propodeum without carinae. First tergite less slender, about 3.0 times as long as posteriorly broad . . . . . ***Poemenia***
3. Fore wing with areolet. Vein *cu-a* (nervulus) distinctly antefurcal (basaly of *Rs+M*). Tarsal claws of hind leg simple. Body black and white patterned. . . . . ***Ganodes***
– Fore wing without areolet. Vein *cu-a* (nervulus) interstitial (opposite *Rs+M*). Tarsal claws of hind leg with appressed, acute subapical tooth. Body pre-

dominantly black, yellow-marked on face, frons, pronotum, tegula, mesepimeron and hind margins of metasomal tergites. . . . . ***Podoschistus***

Tribe **Poemeniini**

Genus ***Ganodes*** Townes, 1957

Ganodes Townes, 1957: 18; Townes & Townes, 1966: 37 (catalogue; one species in Neotropical region); Gauld, 1991: 539 (description; one species in Costa Rica, described as new); Ruíz-Cancino et al., 2002: 645 (*Ganodes* sp.: Mexico); Díaz, 2008: 668 (key to seven Neotropical species, five of which are described as new); Castillo et al., 2014: 194 (key to eight Neotropical species, one of which is described as new).

Type species: *Ganodes balteatus* Townes, 1957, by original designation.

Distribution. *Ganodes* is a small genus with eight species restricted to the Neotropical region. One species, *G. matai* Gauld, 1991, occurs in Mexico. The taxonomic status of the recently described *G. mexicanus* Díaz, 2008 requires verification (see the section "Remarks" under this species).

Bionomics. Unknown, however, Gauld (1991) suggested that species of *Ganodes* may be cleptoparasitoids due to their slender, flexible ovipositors which are similar to those of *Pseudorhyssa* Merrill, 1915 (cleptoparasitoids of wood-boring Rhyssinae), and an observation of *G. matai* antennating a dead tree in the company of *Epirhyssa mexicana* Cresson, 1874 (Hymenoptera: Ichneumonidae) in Costa Rica.

Ganodes matai Gauld, 1991

Ganodes matai Gauld, 1991: 540; Quicke et al., 2009: 1415 (Costa Rica); Castillo et al., 2014: 196 (Mexico, Guerrero).

Holotype (not examined), female (INBio), **Costa Rica**, *Guanacaste Prov.*, Guanacaste National Park, Estación Mengo on SW side of volcano Cacao, 1100 m a.s.l., V.1988, coll. I.D. Gauld & P. Mitchell.

Material examined. **Mexico**: *Nuevo León*, La Cieneguilla, Santiago, 8.XI.1987, coll. S. Arrambide, 1 female (UAT); *Tamaulipas*: Hidalgo, El Chorrito (waterfall), 11.IV.2008, coll. A.I. Khalaim, 1 female (UAT); km 68 of highway Cd. Victoria – Soto la Marina, 9–31.III.1985, coll. E. Ruíz Cancino, 1 female and 2 males (UAT); same data, but 14.IV.1987, 1 female (UAT); 15 km SSW of Cd. Victoria, El Madroño, 20.V.1984, coll. E. Ruíz Cancino, 1 male (UAT); same data, but 12.VIII.1984, 1 female (UAT); same data, but 10.VII.1985, 1 female (UAT); NW of Cd. Victoria, Los Troncones Park, 27.II.2009, coll. A.I. Khalaim, 1 male (UAT); same locality, 15.X.1985, coll. A. del Valle, 2 males (UAT); same locality, 25.IX and 3.XI.1988, coll. R. Thompson F., 2 males (UAT); same locality, 450 m a.s.l., 12.III.1988, coll. R. Meza V. , 1 male (UAT); Cd. Victoria, Cañon Novillo, 17.XI.1984, coll. F. López Felez, 1 female (UAT); same locality, 27.IV–11.V.1985, coll. A. del Valle, 4 males (UAT); same locality, 850–900 m a.s.l., 27.III.1988, coll. J. de León, 1 male (UAT); same locality, 900 m a.s.l., 6.III.1988, coll. R. Meza V., 1 female (UAT); near Gómez Farías, Alta Cimas, Malaise trap, 17–24.IV.1999, coll. S. Hernández Aguilar, 1 male (UAT); same locality and trap, 900 m a.s.l., 7–14.X.2000, coll. D.R. Kasparyan, 1 female and 1 male (UAT); near Gómez Farías, Los Cedros, Malaise trap, 340 m a.s.l., III.2002, coll. D.R. Kasparyan, 1 female and 2 males (UAT); same data, but 300 m a.s.l., 13.III.2003, 2 females (UAT); *Oaxaca*, Santiago Comaltepec, La Esperanza, 17.62661°N, 96.36950°W, 1600 m a.s.l., Malaise trap, 1–10.VII.2008, coll. A. Lopez García, 1 female (UNAM); *Chiapas*: Lagunas de Montebello National Park, Sumidero de Río Comitán, 1372 m a.s.l., 31.VIII.1974, coll. D.E. & J.A. Breedlove, 1 female (EMEC); 11.6 mi [18.7 km] N of Ocozocuautla, 3200 ft [975 m], 10–13.VI.1966, coll. G.E. Ball & D.R. Whitehead, 1 female (FSCA). **Costa Rica**, *Guanacaste Prov.*, Guanacaste National Park, Casa Maritza, Orosi Volcano, 560 m a.s.l., IV.1990, coll. I.D. Gauld & P. Mitchell, 1 female (det. I.D. Gauld, paratype?; UAT).

Distribution. Mexico (Nuevo León, Tamaulipas, Guerrero, Oaxaca, Chiapas), Costa Rica.

Bionomics. This species was observed antennating a dead tree in the company of *Epirhyssa mexicana* in Costa Rica (Gauld, 1991).

? ***Ganodes mexicanus*** Díaz, 2008

Ganodes mexicanus Díaz, 2008: 671; Sánchez-García et al., 2015: 828 (checklist; Mexico, Oaxaca).

Holotype (not examined), female (AEIC), **Mexico**, *Oaxaca*, 6 miles S of Valle Nacional, 20.V.1971, coll. H. Howden.

Distribution. Mexico (Oaxaca).

Remarks. Díaz (2008) described *G. mexicanus* from southern Mexico from a single female, and separated this species from the Costa Rican *G. matai* by the presence of a vertical black stripe on the face and by the finely and sparsely punctate metapleuron. Females examined from Mex-

ico have the face ranging from entirely white to white with a fuscous median spot or distinct vertical black stripe, and punctures on the metapleuron, from shallow and sparse to dense and coarse; males have the face entirely white and the metapleuron usually with shallow and sparse punctures. The female of *G. matai* examined from Costa Rica (identified by I.D. Gauld) has a distinct median vertical black stripe on the face. Thus, the diagnostic characters used by Díaz for separating *G. mexicanus* do not work well, the taxonomic status of *G. mexicanus* requires verification, and this name is probably a synonym of *G. matai*. We did not study the holotype of *G. mexicanus* and therefore do not formally establish this synonymy here. We consider that all the examined Mexican specimens of *Ganodes* are *G. matai*.

Genus ***Podoschistus*** Townes, 1957

Podoschistus Townes, 1957: 18; Townes & Townes, 1960: 387 (description; one species with two subspecies in USA and Canada); Carlson, 1979: 389 (catalogue; one species in America north of Mexico).

Type species: *Xorides vittifrons* Cresson, 1868, by original designation.

Distribution. *Podoschistus* is a small, predominantly Holarctic genus with five species in Europe and Asia, and one, *P. vittifrons* (Cresson, 1868), in the Nearctic region. The latter species is recorded here from Mexico. This is the first record of the genus from this country.

Podoschistus vittifrons (Cresson, 1868)

Xorides vittifrons Cresson, 1868: 37; Cresson, 1916: 62 (lectotype female [ANSP] designated; Canada, Ontario, London).

Deuteroxorides vittifrons Rohwer, 1920: 446 (Canada, USA; remarks; host); Townes, 1944: 85 (catalogue; host).

Neoxorides vittifrons Townes & Townes, 1951: 199 (catalogue; host).

Podoschistus vittifrons Townes, 1957: 18 (type species of *Podoschistus*); Townes & Townes, 1960: 388 (description; two subspecies in Nearctic region, one of which is described as new; Canada, USA; host); Carlson, 1979: 351 (catalogue; host).

Podoschistus vittifrons schlingeri Townes in Townes & Townes, 1960: 388.

Type material (not examined), female(s) and male(s)? (ANSP), **Canada**, *Ontario Prov.*, London.

Material examined. **Mexico**, *Tamaulipas*, NW of Cd. Victoria, Los Troncones Park, 13.X.2012, coll. A.I. Khalaim, 1 male (UAT).

Distribution. Canada, USA, Mexico (Tamaulipas).

Bionomics. Reported as a parasitoid of *Diceraca divaricata* (Say, 1823) (Buprestidae), *Graphisurus fasciatus* (Degeer, 1775), *Tetropium velutinum* LeConte, 1869 (Cerambycidae) and the siricid sawfly *Tremex columba* (Linnaeus, 1763) (Symphyta: Siricidae) (Townes, 1944; Townes & Townes, 1951; Carlson, 1979). Reared from an unknown buprestid host (Buprestidae) in decayed *Quercus* sp. in Texas, USA (Townes & Townes, 1960). Females of *P. vittifrons* were observed ovipositing into, or reared from various deciduous trees, e.g. *Acer* sp., *Castanea dentata* (Marh.) and *Ulmus americana* L. in USA and Canada (Townes & Townes, 1960).

Genus ***Poemenia*** Holmgren, 1859

Poemenia Holmgren, 1859: 130; Rohwer, 1920: 448 (review of four Nearctic species; key); Townes, 1957: 16 (description); Townes & Townes, 1960: 376 (description; review of four Nearctic species; key); Carlson, 1979: 350 (catalogue; five species and subspecies in America north of Mexico); Wahl, 2020 : 126 (description of larva; review of bionomics and hosts).

Calliclisis Förster, 1869; Rohwer, 1920: 448 (synonymisation).

Euxorides Cresson, 1870: 167 (one species described as new from Northern America); Rohwer, 1920: 448 (synonymisation).

Type species: *Poemenia notata* Holmgren, 1859, by monotypy.

Distribution. *Poemenia* is a predominantly Holarctic genus with 14 species. Four species occur in the Nearctic region, seven species are Palaearctic, and three are Oriental (Yu et al., 2016). One species is recorded here from Mexico. This is the first record of the genus from this country.

Bionomics. Species of *Poemenia* are idiobiont ectoparasitoids of small xylophilous Apoidea (Hymenoptera) that either make their tunnels or utilise old borings in timber (Gauld, 1991; Wahl, 2020).

Poemenia albipes (Cresson, 1870)

Ephialtes albipes Cresson, 1870: 143; Cresson, 1916: 14 (lectotype female [ANSP] designated; USA, New Jersey).

Poemenia albipes Rohwer, 1920: 450 (description; Canada, USA); Townes, 1944: 81 (catalogue); Townes & Townes, 1951: 199 (catalogue); Townes & Townes, 1960: 380 (description; Canada, USA); Carlson, 1979: 351 (catalogue); Wahl, 2020: 126 (description of larva; bionomics, host).

Type material (not examined), females (ANSP), **USA**, *New Jersey*.

Material examined. **Mexico**, *Tamaulipas*: 17 km N of Palmillas, Ejido Magdaleno Aguilar, 23°26.995′N, 99°33.440′W, 1450 m a.s.l., pine forest and juniper, Malaise trap, 26.IV–9.V.2012, coll. S. Mireles & E. Ruíz Cancino, 2 females (UAT); same data, but 9–22.X.2011, coll. E. Ruíz Cancino & A.J. Rodríguez Mota, 1 female (UAT).

Diagnosis. Fore wing with areolet. Metasomal segments 2 to 5 each with a pair of long ventral sclerotised blackish areas on each segment. First sternite about 0.65 times as long as corresponding tergite. Scape and pedicel of antenna ventrally white. Head, mesosoma and metasomal tergites almost entirely black; lower margin of clypeus brownish; propleuron, anterolateral margin of pronotum and tegula white. Ovipositor sheath in Mexican specimens 0.75–0.8 times as long as fore wing.

Distribution. Canada, USA, Mexico (Tamaulipas).

Remarks. Specimens from Mexico generally correspond well with the description of this species by Townes & Townes (1960), but the distance between the lateral ocelli is subequal to the maximum diameter of a lateral ocellus (0.80 times in the description), the distance between the lateral ocellus and eye margin is 1.50–1.60 times the maximum diameter of a lateral ocellus (1.10–1.30 times in the description), and the ovipositor sheath is 0.75–0.80 times as long as the fore wing (1.05 times in the description). The antennae of Mexican specimens have 28–29 flagellomeres.

Tribe **Rodrigamini**

Genus ***Rodrigama*** Gauld, 1991

Rodrigama Gauld, 1991: 536; Matsumoto & Broad, 2011: 66 (description; two new species from Japan and Taiwan; key); Broad & Kuslitzky, 2019: 194 (one new species from Israel, five species in Asia).

Type species: *Rodrigama gamezi* Gauld, 1991, by original designation.

Distribution. *Rodrigama* is a small genus with one species occurring in Central America and Mexico, one species in Israel and five species in Asia (Sheng & Sun, 2010; Broad & Kuslitzky, 2019). The Neotropical species *R. gamezi* Gauld, 1991 is extremely rarely collected. This is the first record of *Rodrigama*, as well as the tribe Rodrigamini, from Mexico.

Bionomics. In China, species of *Rodrigama* were recorded as parasitoids of the xylophagous beetles of the families Buprestidae and Cerambycidae (Sheng & Sun, 2010).

Rodrigama gamezi Gauld, 1991
(Figs 2–10)

Rodrigama gamezi Gauld, 1991: 537; Quicke et al., 2009: 1415 (Costa Rica); Matsumoto & Broad, 2011: 68 (notes; illustration).

Holotype (not examined), female (INBio), **Costa Rica**, *Guanacaste Prov.*, Guanacaste National Park, Estación Cacao, 1100 m a.s.l., III.1988, coll. Chaves.

Material examined. **Mexico**, *Tamaulipas*: Cd. Victoria, Cañón del Novillo, 20.III.1988, coll. J. de León, 1 male (UAT); same locality, 850–900 m a.s.l., pine-oak forest, 27.III.1988, coll. R. Meza V., 1 male (UAT).

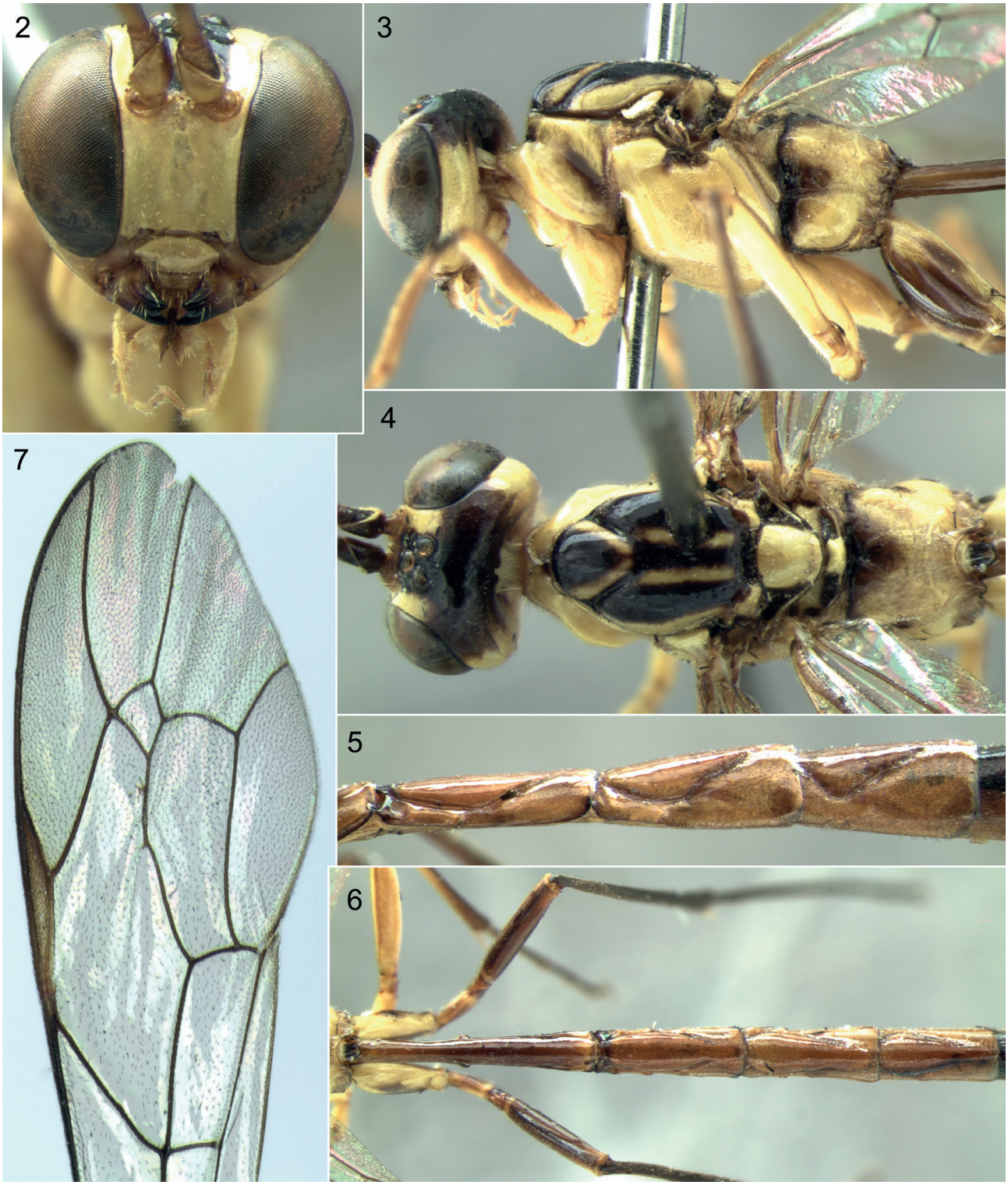
Distribution. Mexico (Tamaulipas), Costa Rica.

Bionomics. In Costa Rica, females of *R. gamezi* were observed flying around old, dead trees, and one was collected whilst probing in an old beetle boring with its ovipositor (Gauld, 1991).

Remarks. Males from Mexico match well the original description of this species. The body length of Mexican specimens is almost 20.0 mm, and fore wing length is about 12.0 mm.

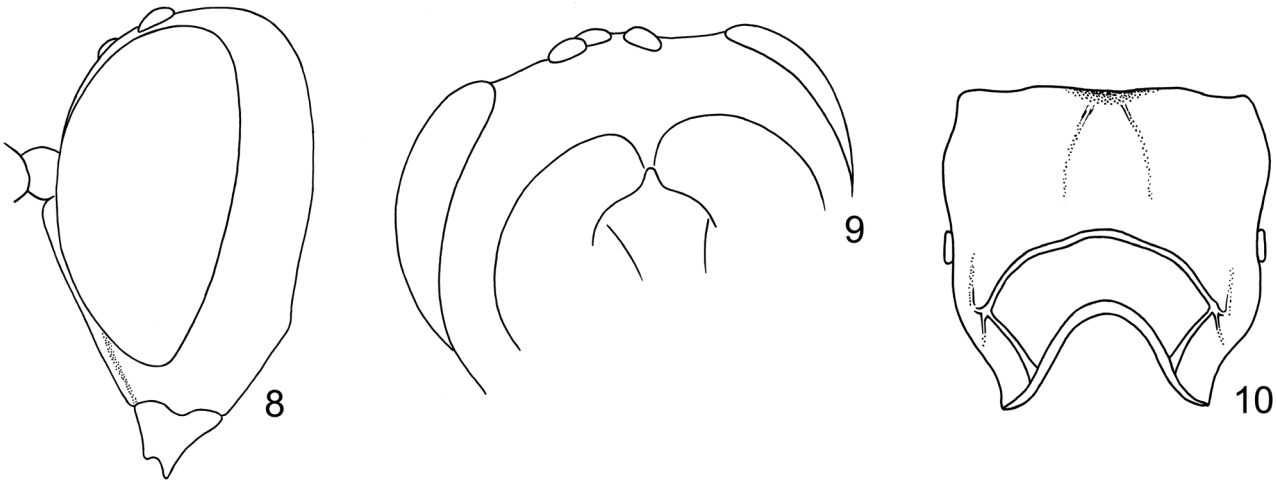
Subfamily **Xoridinae**

Xoridinae is a worldwide subfamily comprising four genera and over 220 species (Yu et al., 2016). Four genera occur in the USA and Canada (Townes & Townes, 1960), and three of them, *Aplomerus* Provancher, 1886, *Odontocolon* Cushman, 1942 and *Xorides* Latreille, 1809, are recorded here from Mexico.



Figs 2–7. *Rodrigama gamezi* Gauld, 1991, male (Mexico). **2**, head, front view; **3**, head and mesosoma, lateral view; **4**, head and mesosoma, dorsal view; **5**, metasomal segments 2–4, lateral view; **6** metasomal segments 1–4, dorsal view; **7**, apex of fore wing.

Species of the subfamily are idiobiont ectoparasitoids of the larvae of xylophagous Coleoptera (mainly the family Cerambycidae) and Hymenoptera (the family Xiphydriidae).



Figs 8–10. *Rodrigama gamezi* Gauld, 1991, male (Mexico). **8**, head, lateral view; **9**, head, dorsopostero-lateral view; **10**, propodeum, dorsal view.

Key to Mexican genera of Xoridinae

1. Hind femur with strong median tooth ..... ***Odontocolon***
– Hind femur unspecialised, without median tooth. . 2
2. Mandible bidentate. Epomia absent. Frons without median horn or tubercle ..... ***Aplomerus***
– Mandible with a single tooth, chisel-shaped. Epomia long and strong, projecting dorsally as a tooth. Frons sometimes with median horn or tubercle ... ***Xorides***

Genus ***Aplomerus*** Provancher, 1886

Aplomerus Provancher, 1886: 119 (new name for *Platysoma* Provancher, 1885); Rohwer, 1920: 452 (review of three Nearctic species, two of them are described as new; key); Townes & Townes, 1951: 207 (catalogue; three species in Nearctic region); Townes, 1957: 22 (description); Townes & Townes, 1960: 439 (review of five Nearctic species, two of them are described as new; key); Townes, 1969: 209 (description; five species in USA and Canada); Carlson, 1979: 388 (catalogue; five species in America north of Mexico); Watanabe & Matsumoto, 2010: 376 (one new species from Japan); Varga et al., 2014: 592 (two new species from Oriental region).

Anodontomerus Ashmead, 1900: 61; Rohwer, 1920: 452 (synonymisation).

Platysoma Provancher, 1885: 115 (name preoccupied by Leach, 1817); Provancher, 1886: 119 (synonymisation).

Type species: *Platysoma tibialis* Provancher, 1885, by original designation.

Distribution. *Aplomerus* is a small genus with five Nearctic species and three species in East and Southeast Asia. One Nearctic species of *Aplomerus* is recorded here from Central Mexico.

Remarks. H.K. Townes (Townes & Townes, 1960; Townes 1969) mentioned one undescribed species of *Aplomerus* from Mexico. Two females from central Mexico, deposited in the EMEC collection and labeled "n. sp." by Townes, have been examined and compared with the material of *A. buprestivorus* deposited in the AEIC. No significant morphological differences were found between the material from Mexico and the USA, and we consider Mexican specimens to be typical *A. buprestivorus*.

Aplomerus buprestivorus Rohwer, 1920

Aplomerus buprestivorus Rohwer, 1920: 453; Townes & Townes, 1951: 207 (catalogue); Townes, 1944: 115 (catalogue); Townes & Townes, 1960: 446 (description; USA, from Washington to Arizona; host); Carlson, 1979: 388 (catalogue; host).

Holotype (not examined), female (USNM), **USA**, *Oregon*, Ashland, reared from cocoons in larval galleries of Buprestidae in *Cercocarpus parvifolius* Nutt. ex Hook. et Arn., 30.I.1914, coll. G. Hofer.

Material examined. **Mexico**, *Mexico*, Tlalmanalco, "*Pinus leiophylla*. srump. huesped.", 18.IX.1949, coll. J.P. Perry Jr, "*Aplomerus* n. sp. Tow. 1958", 2 females (EMEC).

Diagnosis. Punctures on genae of moderate size (separated by about 1.5 times their diameter) in female and smaller (separated by about 2.5 times their diameter) in male. First tergite dorsally evenly convex, with neither median longitudinal depression nor median longitudinal carinae. Tergites 3 and 4 smooth, sometimes slightly coriaceous in basal half. All femora brownish black to black.

Distribution. USA (Washington, Oregon, California, Arizona), Mexico (Mexico).

Bionomics. The holotype and paratype were reared from cocoons in buprestid larval galleries in *Cercocarpus montanus* Raf. (= *C. parvifolius* Nutt. ex Hook. et Arn.) (Rosaceae) in Oregon (Rohwer, 1920; Townes & Townes, 1960; Carlson, 1979). Collected (or reared) from *Abies magnifica* A. Murray in California (Townes & Townes, 1960). In Mexico, two females were probably reared from an unknown host (or hosts) inhabiting *Pinus leiophylla* Schiede ex Schltdl. et Cham.

Genus ***Odontocolon*** Cushman, 1942

Odontocolon Cushman, 1942: 180 (new name for *Odontomerus* Gravenhorst, 1829); Townes & Townes, 1951: 206 (catalogue; 14 species in Nearctic region); Townes, 1957: 21 (description); Townes & Townes, 1960: 448 (review of 23 Nearctic species, nine of which are described as new; key); Carlson, 1979: 389 (catalogue; 24 species and subspecies in America north of Mexico); Chamé-Vázquez, 2019: 262 (checklist; one species in Mexico).

Odontomerus Gravenhorst, 1829: 851 (name preoccupied by Leach, 1819); Cresson, 1865: 289 (two species described as new from Colorado, USA); Cresson, 1870: 168 (five species, two of them are described as new, in America north of Mexico; key); Rohwer, 1920: 454 (review of ten Nearctic species; key); Cushman, 1942: 180 (synonymisation).

Type species: *Ichneumon dentipes* Gmelin, 1790, by subsequent designation (Westwood, 1840: 61; see also Viereck, 1914: 103).

Distribution. *Odontocolon* is a predominantly Holarctic genus with several species in the Oriental region. Twenty-four species occur in the Nearctic region, including one recently described species from northeastern Mexico.

Bionomics. Species of *Odontocolon* are idiobiont ectoparasitoids of the larvae of xylophagous beetles (most host records are from Cerambycidae) and sawflies (Hymenoptera: Xiphydriidae). Adult parasitoids are common in forests with fallen wood and can frequently be found at honeydew (Townes & Townes, 1960).

Odontocolon niger Khalaim et Ruíz-Cancino, 2010

Odontocolon niger Khalaim et Ruíz-Cancino, 2010: 354; Chamé-Vázquez, 2019: 262 (checklist; Mexico).

Holotype (not examined), male (UAT), **Mexico**, Tamaulipas, 15 km W of Miquihuana, pine forest, 3.X.1998, coll. D.R. Kasparyan.

Comparison (from Khalaim & Ruíz-Cancino, 2010, with changes). *Odontocolon niger* belongs to the *O. cilipes* species–group (Townes & Townes, 1960) as it has the hind femur with the longitudinal convex ridge distal to the ventral tooth, the hind tibia with long setae in addition to the short clothing setae, the very short fore wing vein 2*rs-m*, and the long and depressed mesosoma. It resembles the Nearctic *O. bicolor* (Cresson, 1870) in having the hind femur with the ventral tooth separated by a rounded notch from the longitudinal ridge just distal to the tooth, and the vein 2*rs-m* less than 0.3 times as long as the abscissa of *M* between 2*rs-m* and 2*m-cu*. *Odontocolon niger* differs from this species by having the fore wing with the antefurcal vein *cu-a* (nervulus), impunctate, coarsely rugose propodeum and metapleuron, smooth, not aciculate tergites 2 and 3, and almost entirely black body.

Distribution. Mexico (Tamaulipas).

Genus ***Xorides*** Latreille, 1809

Xorides Latreille, 1809: 4; Cresson, 1870: 167 (one species described as new from America north of Mexico); Rohwer, 1920: 429 (description; review of 20 Nearctic species, one of which is described as new; key); Townes & Townes, 1951: 204 (catalogue; 16 species and subspecies in Nearctic region); Townes, 1957: 22 (description); Townes & Townes, 1960: 489 (description; key to world subgenera; review of 21 Nearctic species; key); Townes & Townes, 1966: 53 (catalogue; two species in Neotropical region); Porter, 1978: 69 (one new species from Mexico; key to six Neotropical species); Carlson, 1979: 391 (catalogue; 23 species and subspecies in America north of Mexico); Gauld, 1997: 432 (description; review of nine species from Costa Rica [all described as new]; key); Ruíz-Cancino & Kasparyan, 2000: 233 (one new species from Mexico; key to three Mexican

species); Ruíz-Cancino et al., 2002: 646 (checklist; three species in Mexico); Khalaim & Ruíz-Cancino, 2007: 269 (one new species from Mexico); Chamé-Vázquez, 2019: 262 (checklist; four species in Mexico).

Exomus Townes in Townes & Townes, 1960: 496; Aubert, 1967: 903 (synonymisation).

Gonophonus Förster, 1869: 169; Rohwer, 1920: 429 (synonymisation).

Moerophora Förster, 1869: 169; Rohwer, 1920: 429 (synonymisation).

Neoxylonomus Clément, 1938: 104 (preoccupied by Szépligeti, 1914); Townes, 1944: 104 (synonymisation).

Neoxylonomus Szépligeti, 1914: 421; Townes, 1957: 22 (synonymisation).

Periceros Schulz, 1906: 99 (new name for *Perissocerus* Smith, 1877); Townes & Townes, 1951: 205 (synonymisation); Gauld, 1997: 432 (synonymisation).

Perissocerus Smith, 1877: 412 (preoccupied by Gerstäcker, 1868); Townes & Townes, 1951: 204 (synonymisation).

Pyramirhyssa Mocsáry, 1905: 15; Aubert, 1967: 903 (synonymisation); Gauld, 1997: 432 (synonymisation).

Xylonomus Gravenhorst, 1829: 819; Cresson, 1865: 288 (one species described as new from Colorado, USA); Cresson, 1870: 167 (six species, three of which are described as new, in America north of Mexico; key); Rohwer, 1920: 429 (synonymisation).

Type species: *Ichneumon indicatorius* Latreille, 1806, by monotypy.

Distribution. *Xorides* is a large cosmopolitan genus with about 160 species. Twenty-one species occur in the Nearctic region (Townes & Townes, 1960) and nine species, in Costa Rica (Gauld, 1997). Five species are recorded from Mexico, including one unidentified (probably undescribed) species represented by a single male in our material.

Key to species of *Xorides*, occurring in Mexico

1. Fore leg with trochantellus with conspicuous apical tooth on its front surface. Hind leg with trochantellus unspecialised. Gena longitudinally striate. Median lobe of mesoscutum with broad medial longitudinal groove. Female with flagellum basally and medially evenly covered with short and oblique setae 2
– Fore leg with trochantellus without apical tooth. Hind leg with trochantellus exceptionally long, more than twice as long (in front view) as trochanter. Gena without or with oblique striae. Median lobe of mesoscutum without medial longitudinal groove. Female with flagellum with exceptionally dense and coarse setae on flagellomeres 1–8, much denser and coarser than setae on distal flagellomeres 3
2. Metapleuron and propodeum orange or red, strongly contrasting with dark reddish brown or black anterior part of mesosoma. Metasomal tergites orange. Metapleuron nearly smooth, very finely and sparsely punctate. Wings strongly infumate . . . . . ***X. madronensis***
– Mesosoma and metasoma more or less entirely black or brownish black. Metapleuron coarsely punctate to punctato-rugose, distance between punctures generally shorter than one diameter of puncture. Wings weakly infumate . . . . . ***X. humeralis***
3. Fore wing hyaline with two transverse brown bands and apical brown spot. Body and legs uniformly reddish brown . . . . . ***X. rubrator***
– Fore wing hyaline or slightly yellowish, without brown markings. Face yellow; remainder with a variable amount of yellow, brown and black. 4
4. Hind leg with tibia and tarsus yellow, coxa and femur yellow to blackish. Flagellum with broad white band. Metasoma black and yellow. Fore wing with vein 2*rs-m* distinctly longer than thick. Flagellum of female with flagellomeres 1–8 with exceptionally dense and coarse setae, much longer than setae on distal flagellomeres. . . . . ***X. cerbonei***
– Hind leg entirely blackish brown. Flagellum black, without white band. Metasoma metallic brown to black. Fore wing with vein 2*rs-m* virtually absent, thus veins *Rs* and *M* almost contiguous. Flagellum of male with even, sparse and fine pubescence . . . . . ***Xorides*** sp.

Xorides cerbonei Porter, 1978

Xorides (*Periceros*) *cerbonei* Porter, 1978: 72; Gauld, 1997: 433 (Mexico); Ruíz-Cancino et al., 2002: 646 (checklist; Mexico); Ruíz-Cancino et al., 2010: 67 (checklist; Mexico, Tamaulipas).

Holotype (not examined), male (MNC), **Mexico**, *Nuevo León*, Cola de Caballo near El Cercado, 18.VI.1976, coll. C. Porter.

Material examined. **Mexico**: *Tamaulipas*: 15 km SSW of Cd. Victoria, El Madroño, 3.VI.1984, coll. J. Ruíz Cancino, 1 male (UAT); same locality, 10.VII.1985, coll. E. Ruíz Cancino, 1 female (UAT); Ocampo, Ejido El Bejuco, 900 m a.s.l., Malaise trap, 12–25.VI and 9–29.VII.2016, coll. E. Ruíz-Cancino et al., 2 males (UAT); near Gómez Farías, Los Cedros, 28.XI.1998, coll. M. Lara, 1 male (UAT); same locality, Malaise trap, 13–27.II.1999, coll. S. Hernández Aguilar, 2 females (UAT); near Gómez Farías, Alta Cimas,

Malaise trap, 31.VII–7.VIII.1999, coll. S. Hernández Aguilar, 1 male (UAT); same locality and trap, 900 m a.s.l., 19–26.VIII.2000, coll. D.R. Kasparyan, 2 males (UAT); *Yucatán*, Sudzal Chico (SMSP), VII.1999, coll. Hugo Delfin, 2 females (UAT).

Distribution. Mexico (Nuevo León, Tamaulipas, Yucatán).

Xorides humeralis (Say, 1829)

Anomalon humerale Say, 1829: 74.

Xylonomus australis Cresson, 1870: 167 (USA, Louisiana, Texas); Cresson, 1872: 166 (USA, Texas); Cresson, 1916: 19 (lectotype female [ANSP] designated; USA, Louisiana); Rohwer, 1920: 434 (USA, Louisiana, Texas); Townes & Townes, 1951: 206 (synonymisation).

Xylonomus lavallensis Provanscher, 1874: 59; Cresson, 1887: 220 (synonymisation).

Xylonomus (*Moerophora*) *piceatus* Rohwer, 1913: 357; Rohwer, 1920: 434 (USA, Florida); Carlson, 1979: 391 (synonymisation).

Xorides (*Exomus*) *humeralis chiricensis* Townes in Townes & Townes, 1960: 501; Carlson, 1979: 391 (synonymisation).

Xorides (*Exomus*) *humeralis excomptus* Townes in Townes & Townes, 1960: 500; Carlson, 1979: 391 (synonymisation).

Xorides (*Exomus*) *humeralis mexicanus* Townes in Townes & Townes, 1960: 497; Carlson, 1979: 391 (synonymisation).

Xorides (*Exomus*) *humeralis sierrae* Townes in Townes & Townes, 1960: 500; Carlson, 1979: 391 (synonymisation).

Xorides humeralis Rohwer, 1920: 434 (type lost; neotype in ANSP; Canada, USA; host); Townes, 1944: 107 (catalogue); Townes & Townes, 1951: 206 (catalogue); Bushing, 1965: 481 (host); Porter, 1978: 70 (in key); Carlson, 1979: 391 (catalogue; synonymy; Canada, USA, Mexico; host); Ruíz-Cancino & Tejada, 1986: 40 (Mexico, Tamaulipas); Gauld, 1997: 433 ("Northern Mexico"); Ruíz-Cancino & Kasparyan, 2000: 238 (Mexico, Nuevo León, Tamaulipas); Ruíz-Cancino et al., 2002: 646 (checklist; Mexico); Chamé-Vázquez, 2019: 261 (Mexico, San Luis Potosí).

Xorides (*Exomus*) *humeralis* Townes & Townes, 1960: 496 (description; review of six subspecies, four of them are described as new; key to subspecies; Canada, USA, Mexico, "Antiguo").

Holotype (not examined), female (destroyed), **USA**, *Indiana*.

Material examined. **Mexico**, *Tamaulipas*: Cd. Victoria, coll. E. Ruíz Cancino (all in UAT): 11–26.IV.1981 (2 females), 7–27.VI.1981 (2 females), 9.VII.1981 (1 female), 31.VIII.1981 (1 female), 19.VII.1982 (1 female); Cd. Victoria, Cañón del Novillo, coll. A. del Valle (all in UAT): 3.III.1985 (1 male), 13.VII.1985 (1 female), 2.VIII.1985 (1 female); Cd. Victoria, Cañón Libertad, 25.IX.1986, coll. A. del Valle, 1 female (UAT).

Distribution. Canada, USA, Mexico (Nuevo León, Tamaulipas, San Luis Potosí).

Bionomics. Recorded as a parasitoid of various xylophagous beetles, e.g. *Dicerca obscura* (Fabricius, 1781) (Buprestidae), *Phloeotribus frontalis* (Olivier, 1795) (Curculionidae), *Phymatodes testaceous* (Linnaeus, 1758), *Ph. varius* (Fabricius, 1776), *Neoclytus acuminatus* (Fabricius, 1775) and probably *Xylotrechus undulatus* (Say, 1824) (Cerambycidae) in USA and Canada (Rohwer, 1920; Townes & Townes, 1960; Bushing, 1965; Carlson, 1979).

Xorides madronensis Ruíz-Cancino et Kasparyan, 2000

Xorides madronensis Ruíz-Cancino & Kasparyan, 2000: 235; Ruíz-Cancino et al. 2002: 646 (checklist; Mexico).

Holotype (not examined), female (UAT), **Mexico**, *Tamaulipas*, 15 km SSW of Cd. Victoria, El Madroño, 1450 m a.s.l., oak forest, 8.VII.1984, coll. E. Ruíz-Cancino.

Distribution. Mexico (Tamaulipas).

Xorides rubrator Khalaim et Ruíz-Cancino, 2007

Xorides rubrator Khalaim & Ruíz-Cancino, 2007: 269; Ruíz-Cancino et al., 2010: 67 (checklist; Mexico, Tamaulipas).

Holotype (not examined), female (UAT), **Mexico**, *Tamaulipas*, Gómez Farías, Alta Cimas, 900 m a.s.l., Malaise trap, 1–7.X.2000, coll. D.R. Kasparyan.

Material examined. **Mexico**, *Tamaulipas*, Estación Biologica Canindo, near San José, 23°03′N, 99°14′W, 1400 m a.s.l., 28–29.VII.1993, coll. E. Riley & M. Quinn, 1 female (TAMU).

Comparison (from Khalaim & Ruíz-Cancino, 2007). *Xorides rubrator* belongs to *X. rileyi* species–group (Gauld, 1997) as it has the second tergite almost smooth and indistinctly punctate, submetapleural carina complete, fore tibia with numerous denticles on its anterior surface, and scutellum weakly convex and evenly rounded posteriorly. Within this species–group, *X. rubrator* is similar to the Costa Rican *X. armidae* Gauld, 1997

as both have the frons with a short, sharply margined interantennal lamella, but differs from this species by the longer gena, shorter area superomedia of the propodeum and longer ovipositor.

Variation. The female examined is more than twice as large as the holotype, with the fore wing 10.0 mm long (4.8 mm in the holotype). It has the second tergite of the metasoma with very fine and dense punctures, metapleuron densely punctate and without wrinkles, fore wing with vein 2*rs-m* short but distinct, and antennal flagellum black with a white band on flagellomeres 7–12. In other characters, this female does not differ from the holotype.

Distribution. Mexico (Tamaulipas).

Xorides sp.

Material examined. **Mexico**, *Chiapas*, San Christóbal [de las Casas], Reserva Cerro El Huitepec, 2–14.VIII.1997, coll. A. Gonzáles Hernández, 1 male (UANL).

Distribution. Mexico (Chiapas).

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