The new genus Acrocephalomyia, and a new species of Ropalomera from Costa Rica, with additional records for other Mesoamerican species (Diptera: Ropalomeridae)

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Abstract

New taxa of the family Ropalomeridae from Costa Rica are described, and additional records of ropalomerid flies from Mexico and Central America are provided. The new genus and species Acrocephalomyia zumbadoi can be easily distinguished from all other ropalomerid genera by the following combination of characters: angular forward projection of head, absence of ocelli, flat face, bare arista, long scutum, and scutellum triangular-shaped and dorsally flattened with only one pair of apical bristles with bases approximated. The new species Ropalomera aterrima can be recognized from congeners by remarkable differences of the head, the shape of the scutellum, the absence of scutal vittae, fumose wings, and by the black coloration of the body, ocellar bristles large, one postpronotal bristle, scutum without pollinose vittae and flat scutellum. Lenkokroeberia chryserea Prado and Kroeberia fuliginosa Lindner are newly confirmed for Costa Rica.

Key words: Ropalomeridae, Sciomyzoidea, Central America, Mexico, Neotropics

Introduction

Ropalomeridae is a small family of Neotropical Diptera related to Coelopidae, Dryomyzidae, Sciomyzidae, Helosciomyzidae and Sepsidae, all of which constitute the superfamily Sciomyzoidea of Acalyptratae Muscomorpha (Woodley et al. 2009). Ropalomerid adult flies are easily distinguished from all other Sciomyzoidea by the excavated vertex, usually a median swelling on the face, the presence of a precoxal bridge, a greater ampulla, and vein M bent anteriorly, all of which are considered synapomorphies of the family (sensu McAlpine 1989). Only one species, Rhytidops floridensis has been found north of Mexico, and three others occur as far south as northern Argentina, but most species occur in the central portion of South America (Steyskal 1967, 1987). Their biology is poorly known, but adults have been found feeding on gummy resinous secretions of plants, while the immature stages were reared from decaying wood of Cocos nucifera L., Spondias lutea L., Sabal spp. and banana trees (Hendel 1923, Fischer 1932, Lopes 1932, Prado 1966, Steyskal 1987). The Ropalomeridae restricted to tropical and subtropical America consists of 31 valid species in nine genera (Ibáñez-Bernal & Hernández-Ortiz 2010, Kirst & Ale-Rocha 2012), including a remarkable new genus and two new species are here described.

Materials and Methods

We had the opportunity to review specimens loaned by the Instituto Nacional de Biodiversidad (INBIO) of Costa Rica, Utah State University, Logan (USU), and the United States National Museum, Washington, D.C. (USNM).
Many of the specimens examined were collected by means of Malaise traps, but others were obtained directly by sweep netting. All specimens are dry preserved on entomological pins and were examined using a Nikon SMZ800 stereoscopic microscope. Measurements were obtained using an ocular micrometer and are given in millimeters. Drawings were rendered with the aid of a Nikon drawing tube and digitally processed with Corel Photo Paint X3 (Version 13).

The morphological terminology for Diptera follows the general proposal of McAlpine (1981) and Steyskal (1987), while specific nomenclature to the family Ropalomeridae follows Ibáñez–Bernal & Hernández–Ortiz (2010).

Results

A total of 493 specimens (129 males and 364 females) from Costa Rica, El Salvador, Honduras, Guatemala, Mexico, and Panama were examined, belonging to three species of Ropalomera Wiedemann (R. aterrima sp. nov., R. femorata (Fabricius), and R. latiforceps Ramírez-García & Hernández-Ortiz); Willistoniella pleuropunctata (Wiedemann), Kroeberia fuliginosa Lindner, Lenkokroeberia chrysera Prado, and one new species for a remarkable different new genus, Acrocephalomyia zumbadoi gen. nov., sp. nov.

Acrocephalomyia Ibáñez-Bernal & Hernández-Ortiz, gen. nov.

Type–species. Acrocephalomyia zumbadoi Ibáñez-Bernal and Hernández-Ortiz sp. nov.

Etymology. From Greek ἄκρον, akron= top, peak, at the end; κεφαλή, cephalon= head; μύγα, myia= fly; referring to the anteriorly angled head that resembles a peak in lateral view. Gender feminine.

Description. Flies of medium size with body length about 14 mm; frons flat, extending forward and forming an acute angle with face in front of anterior margin of eyes; face flat, without tubercle or cavities; arista bare, orbital bristles very small, nearly obsolete; ocelli absent; frons devoid of setae excluding outer divergent verticals. Scutum and scutellum evenly covered with short setulae; postpronotum without bristle; scutum with two notopleural, one postsutural supra-alar, one postalar, one intra–alar and one intra-postalar bristles. Scutellum subtriangular with length exceeding basal width, without marginal or discal bristles excluding short divergent apical pair with bases closely approximated. Femora not strongly enlarged, tibiae not strongly flattened. Wing slender, with length approximately 3 times maximum width, evenly fumose. Male and female terminalia were not dissected so as not to affect the type specimens.

Comments. Genus Acrocephalomyia is easily distinguishable from all other genera of Ropalomeridae by the angular anterior projection of the head, absence of ocelli, flat face, antennal arista bare, elongated scutum and elongate, dorsally flattened, subtriangular scutellum, with only one pair of closely spaced apical bristles. The absence of postpronotal bristles in Acrocephalomyia is shared with Mexicoa Steyskal, Apophorhynchus Williston, and Dactylissa Fischer. Dactylissa differs by having a micropubescent arista, first flagellomere with length twice width, the ocellar, postocellar, inner and outer verticals bristles present. Mexicoa and Apophorynchus also differ by the plumose arista and inner and outer vertical bristles present. The discovery of Acrocephalomyia zumbadoi should modify slightly the diagnosis of the family Ropalomeridae as stated by Steyskal (1987), as the ocelli and the ocellar, postocellar and inner vertical bristles are secondary lost in Acrocephalomyia.

Acrocephalomyia zumbadoi Ibáñez–Bernal & Hernández–Ortiz, sp. nov.

Figs. 1–9

Type-locality. COSTA RICA: GUANACASTE, West side of Volcán Orosi, Estación Maritza, 600 m.

Etymology. This species is dedicated to our colleague and friend Manuel Zumbado, in recognition to his contribution to the knowledge of the Costa Rican Diptera.
FIGURES 1–4. Acrocephalomyia zumbadoi sp. nov. Holotype ♂: 1) Head, lateral view; 2) Head, frontal view (right antenna not drawn); 3) Antenna, lateral view; 4) Head and thorax, dorsal view, showing chaetotaxy and dorsal pattern. Scale in millimeters.
**Description** (male and female). Head: trapezoidal in frontal view (Fig. 2), triangular in lateral view (Fig. 1). Frons broad and flat, about 1.25 times as wide as eye width, lateral margins parallel and frontonal margin rounded, strongly exceeding the level of the anterior margin of the eyes (Fig. 4); Vertex sunken, without ocelli or ocellar tubercle (Fig. 2). Ocellar, postocellar and inner vertical bristles absent (Figs. 2, 4). Outer vertical bristles strongly divergent, with group of small setulae surrounding bristle base and row of 5–7 small frontal setulae reaching level of anterior margin of eye (Fig. 4). Antennae brown, originated below a shelf formed by the produced frons; scape and pedicel covered with some black setulae, especially on dorsal surface and along distoventral surface of pedicel; flagellum subquadrate, as long as combined length of scape and pedicel; arista dorsobasal to medial, bare (Fig. 3). Gena postero–ventrally extended, with two vertical strips of silver pollinosity and a few delicate setae in a loose patch near the frontal and ventral margins (Fig. 1). Face flat, without central tubercle, covered with dark silvery pollinosity (Figs. 2, 4).

Thorax: Scutum very elongated, length two times maximal width, with two pairs of silvery pollinose strips, a sublateral pair extended from the postpronotal lobe to the scuto-scutellar suture, and a dorsocentral pair connected anteriorly and reaching the posterior margin; surface covered with short setulae. Scutum with two notopleurals, one postsutural supra-alar, one postalar, one intra-alar, and one intra-postalar. Scutellum subtriangular and flattened dorsally, length about 1.25 times basal width, with short setulae, and dorsal surface with silver pollinosity; marginal or discal scutellar bristles absent, except for one pair of short, strong apical bristles, which are inserted very close to each other (Fig. 4). Subscutellum dark with silver pollinosity; pleuron without bristles, excluding patches of weak setae on anepistemum, anepimeron and katepistemum, with silvery pollinose strip extending from proepistemum toward katatergite; posterior spiracle with only one small seta (Fig. 5). Wings evenly fumose, length about 3 times maximum width; tegula with three outstanding long setae (Fig. 6). Legs (Figs. 7–9) with femora not especially enlarged, fore femur with anteroventral row of 7 spines and 3 posteroventral bristles; mid femur with anterior row of 8 spines and posteroventral row of 5 spines; hind femur with anteroventral row of 6 spines and posteroventral row of 4 spines. Fore tibia with dorsal keel and preapical dorsal bristle, with some strong setae dorsally; with dorsoapical patch of silvery-yellow pollinosity from the insertion of preapical dorsal bristle to apex; mid tibia cylindrical, with dorsal keel, one preapical anterodorsal bristle and 4 ventroapical spines; hind tibia with dorsal keel, one preapical dorsal, one preapical anterior and one preapical posterior setae; ventral surface setulose. Tarsomere 1 with white pollinosity, other tarsomeres black.

Abdomen: Terga 1–5 black in ground color, evenly covered with black short setae and sparse yellowish pollinosity. Male epandrium shining black, truncate in lateral view, cerci short. Male and female terminalia not dissected for description to preserve the type-specimens.

**Measurements.** Holotype ♂: Wing length 10.0 mm, wing width 2.6 mm; gena height 0.8 mm; eye height 1.5 mm; frons length 1.4 mm, width 1.5 mm; scutum length 4.0 mm, width at supra-alar setae insertion level 2.8 mm. Allotype ♀: Wing length 9.3 mm, wing width 2.5 mm; gena height 0.7 mm; eye height 1.6 mm; frons length 1.6 mm, width 1.4 mm; scutum length 3.8 mm, width at supra-alar setae insertion level 2.5 mm.


**Ropalomera Wiedemann**

*Ropalomera Wiedemann 1820, ix [1st Ed.]; 1821, ix [2nd Ed.]. Type-species: Dictya clavipes Fabricius, 1805 (by subsequent designation of Lepeletier & Serville 1825: 311); Wiedemann 1824, 17; 1828, 570 (redescription).**

**Diagnosis.** Head: face with rounded protuberance distant from antennal bases, arista bipectinate with long rays. Thorax: postpronotal bristle present; posterior thoracic spiracle with 1–3 bristles; dorsal surface of scutellum weakly concave. Hind tibia slightly compressed and without dense setal brush on ventral margin (complete generic description in Ramírez-García & Hernández-Ortiz (1994) and Kirst & Ale-Rocha (2012)).
Comments. *Ropalomera* includes sixteen valid species (Ibáñez-Bernal & Hernández-Ortiz 2010, Kirst & Ale-Rocha, 2012), of which only two had been previously recorded in Central America and Mexico, *R. femorata* (Fabricius) and *R. latiforceps* Ramírez-García & Hernández-Ortiz. The following three species are newly recorded for these regions.

*Ropalomera aterrima* Hernández-Ortiz & Ibáñez-Bernal, sp. nov.

Figs. 10–18

Type-locality. COSTA RICA: ALAJUELA, 20 km south of Upala.

Etymology. From Latin *aterrima* (fem.), black or dark colored, referring to the general black coloration of the body and wings.

Diagnosis. *Ropalomera aterrima* sp. nov. can be separated from other species of the genus by the following combination of characters: body predominantly black, ocellar bristle large; thorax with only one postpronotal bristle; scutum without pollinose vittae, scutellum shiny brown, flat dorsally, and angled dorsally in lateral view; hind tibia with some setae on the dorsal surface not arising from tubercles; abdomen shiny black dorsally and without pollinosity, dull black ventrally.

Description (male and female). Head: Frons length 0.42 times length (from posterior ocelli to frontal anterior margin) as maximum width, dark brown, nearly black, slightly paler over antennal insertions and sides of the ocellar tubercle, all covered with small, thin black setae; bronze pollinosity evident when light insides anteriorly excluding region above antennal insertion and around ocellar tubercle; fronto-orbital plate with brighter pollinosity; ocellar tubercle shiny black, 1 pair of long ocellar bristles; postocellars divergent; occiput with setae; 1 pair of frontal seta; inner verticals convergent and outer verticals divergent (holotype with large supernumerary bristle outside outer vertical bristle on one side). Parafacialia yellow above, brownish below with 4 stout bristles. Face shiny yellow above, brownish below, with a pale rounded tubercle at middle. Gena dark brown with silver pollinose vertical vitta that continues dorsally onto occiput behind eye; setululae black, except whitish over vitta. Clypeus shiny dark brown. Antenna brown, scape 0.5 and flagellum 3.5 times length of pedicel, flagellum length 2.0 times width at level of arista insertion; arista black with basal third yellow, with long rays. Proboscis dark brown, palpus dark brown setulose, covered with grey pollinosity.

Thorax: Postpronotal lobe shinning dark brown, nearly black. Scutum dark brown in ground color, pollinos and with uniformly spaced black setulae; scutum with pollinos patches near postpronotal lobes, on lateral margins near the transverse suture, and on prescutellar region; scutum also with a pair of small presutural dorsocentral black shiny dots. Scutellum triangular, shiny reddish brown, angled dorsally in lateral view, with apex elevated. Pleuron dark brown, with scarce pollinosity not forming vittae. Thorax chaetotaxy: 1 postpronotal, 2 notopleural, 1 presutural supra-alar, 1 poststural supra-alar, 1 postalar, 1 intra-alar, 1 intra-postalar, 1 dorsocentral, 1 acrostical, 1 anepisternal and some setae below posterior margin, 1 katepisternal, and 1 posterior spiracle bristle; scutellum with 1 marginal and 1 apical bristle (apical bristles not seen but sockets present). Legs: front coxa with silvery pollinosity denser than that on mid and hind coxae; femora shiny brown, paler at base; tibiae concolourous with femora; tarsi comparatively yellowish, with black setae dorsally and red setae ventrally, pulvilli yellow. Front femur densely covered with black setae, with a row of 8 outstanding bristles on ventral margin and a row of 4 outstanding preapical dorsal bristles; front tibia swollen without keel and 2 outstanding bristles on preapical dorsal margin. Mid femur with no differentiated bristles, but densely covered with black setae; mid tibia swollen with row of 3 outstanding bristles on apical third of dorsal margin. Hind femur with 2 dorsal and 2 ventral preapical outstanding bristles; hind tibia swollen, nearly twice diameter of hind femur, without keels and with row of about 8 outstanding bristles along dorsal margin. No outstanding bristles originating from tubercles. Wing: fumose, darker basally and anteriorly, venation typical of family. Halter white with brown base.

Abdomen: shining black dorsally without pollinosity, dull black ventrally.

Measurements. Holotype ♀: Wing length: 11.0 mm, width: 4.2 mm; gena height: 1.0 mm; eye height: 2.2 mm; frons length: 1.2 mm, width: 2.0 mm; thorax length (from anterior margin of scutum to apex of scutellum): 3.7 mm, width at level of supra-alar setae : 2.6 mm. Paratype ♀: Wing length: 9.7 mm, width: 3.8 mm; gena height: 1.1 mm; eye height: 1.75 mm; frons length: 1.1 mm, width: 1.7 mm; thorax length (from anterior margin of scutum to apex of scutellum): 3.0 mm, width at supra-alar setae insertion level: 2.2 mm. Paratype ♂: Wing length: 9.4 mm,
width: 3.6 mm; gena height: 0.85 mm; eye height: 1.75 mm; frons length: 0.9 mm, width: 1.4 mm; thorax length (from anterior margin of scutum to apex of scutellum): 2.7 mm, width at level of supra-alar setae: 2.1 mm.

FIGURES 10–13. *Ropalomera aterrima* sp. nov. Holotype ♀. 10) Head, lateral view; 11) Head, frontal view (left antenna not drawn); 12) Antenna, lateral view; 13) Head and thorax, dorsal view, showing chaetotaxy and dorsal pattern. Scale in millimeters.
Comments. This species is included in the genus *Ropalomera* by the presence of postpronotal bristles, antennal arista with long rays, face with rounded tubercle distant from antennal bases, and posterior spiracle with bristles, but it differs in having the dorsal surface of scutellum flat, and the scutal vittae absent. *Ropalomera aterrima* sp. nov. is readily characterized by the general black coloration of the body, particularly of the abdomen and wings, and by the absence of pollinose vittae on scutum and pleura.


### Ropalomera femorata (Fabricius)

*Dictya femorata* Fabricius 1805, 326. Type-locality: Suriname [as "America meridionali"].

*Rhopalomera femorata* (Fabricius): Agassiz 1846, 327 (recombination in a misspelled genus).

*Ropalomera femorata* (Fabricius): Wiedemann 1828, 571.

*Rhopalomera xanthops* Williston 1895b, 213; Ramírez -García & Hernández -Ortiz 1994, 65 (lectotype designation and synonymy of *R. femorata*).

**Diagnosis.** *Ropalomera femorata* can be recognized from other species of the genus by the following combination of characters: ocellar setae large; thorax with only one pair of postpronotal setae; scutellum slightly concave dorsally, continuous with the contour of the scutum, not angled dorsally in lateral view and without evident lateral constriction at level of marginal scutellar setae in dorsal view; hind tibiae with setae on outer surface not arising from tubercles.

**Comments.** This species has a wide distribution in the Neotropics. It has been recorded in Argentina, Paraguay, Bolivia, Brazil, Ecuador, Venezuela, Nicaragua, Guatemala and Mexico. In this work we confirm its presence in Costa Rica (Alajuela, Cartago, Puntarenas, Guanacaste, Heredia and San José provinces), El Salvador, Guatemala, Honduras and Panama.

**Material examined.** (verbatim). 121 ♂, 187 ♀. COSTA RICA: ALAJUELA: 20 km S of Upala, 20/10/1990, FD Parker, ♂; same data, 08/11/1990, 1 ♂; 29/11/1990, 1 ♂; 11/12/1990, 1 ♂; 06/12/1990, 1 ♂ (USU); Orotina, 23/07/1985, McPhail trap on *Mangifera indica*, Jiron/Soto, 1 ♂ (USNM); same data, 29/10/1986, 1 ♂ (USNM); San Mateo: Higuito, P. Schild, 3 ♂, 9 ♀ (USNM). CARTAGO: 4 km E Tres Ríos, EAO, 14/06/1988, Parker, Welch & Ramírez, 2 ♂; 15/06/1988, FD Parker, 1 ♂ (USU). GUANACASTE: Santa Cruz, Diria, Camino a La Esperanza, 400 m, 07/07/2001, Y. Cárdenas, Red Aguamiel, LN238450–363050, 1 ♂; 1 ♀; Santa Cruz, Camino a La Esperanza, 400–500m, 03/05/2001, Y. Cárdenas, manual, LN363050–238450, 62144, 1 ♂; Bagaces, PN Palo Verde, Sector Palo Verde, 50 m, 5 ♂; Sector Palo Verde, 0–50m, 3–15/04/2000, W. Porras, LN260952–385020, 56405, 1 ♂; PN Palo Verde, 0.200 km NE de la Estación, 0–50m, 08/11–5/12/1999, I. Jiménez, Malaise, LN260952–385020, 54243, 1 ♂; Bagaces, S. Cabro Muco, 980m, 16/10/2000, J. Gutiérrez, LN410000–299151, 60987, 1 ♂; Cerro Guayacán, 212 m, 10/03–06/04/2000, I. Jiménez, Malaise, LN259350–389600, 1 ♂; 8/12/1999–10/01/2000, I. Jiménez, Malaise, LN259350–389600, 2 ♂; 9/02–10/03/2000, I. Jiménez, Malaise, LN259350–389600, 1 ♂; PN Guanacaste, A.C. Los Almendros, 300 m, 2–24/01/1994, E.E. López, LN334800–369800, 2555, 1 ♂; 28/03–24/04/1992, G. Gallardo, LN334800–369800, 1 ♂; 3–23/12/1994, E. López, LN334850–369500, 4782, 1 ♂; PN Guanacaste, Agua Buena, 220m, 00/02/1992, III Curso Paratax., LN334800–369800, 1 ♂; PN Santa Rosa, Senda Indio Desnudo, 300 m, 24/10/2000, D. Briceno, manual, LN313000–359800, 62954, 1 ♂; Liberia, PN Santa Rosa, Estación Santa Rosa, 300m, 21/03/1999, D. Briceno, manual, LN359800–313000, 59180, 1 ♂; same data, 23/03/1999, LN359800–313000, 59180, 1 ♂; Liberia, PN Santa Rosa, Senda Los Patos, 300m, 30/06/2000, D. Briceno, manual, LN359800–313000, 58899, 1 ♂; Est. Santa Rosa, Senda Los Borrrachos, 300m, 13–15/08/2001, D. Briceno, manual, LN331000–359800, 1 ♂; Sector Santa Elena, 300m, 13/09/2001, D. Briceno, manual, LN322836–358642, 1 ♂; Liberia, PN Santa Rosa, Sector Santa Rosa Area Adm, 300 m, 00/02/1999, J. Sullivan, A.A. Pérez, Malaise trap, LN331000–359800, 1 ♂; same data, 00/01/1999, 1 ♂; same data, 00/01/1999, Janzen, Malaise, 1 ♂, 1 ♂; Liberia, 6 km NE de Qeb, R. Gongora, 700m, 00/02/1992, III Curso Paratax., LN319700–376250, 1 ♂; 31 km N de Liberia, Fca. Jenny, 800 m, 00/09/1988, GNP Biodiversity Survey, W853427–N105155, 1 ♂; 8 km SW Cujainiquil, Vicinity Esta. Murciélagos, 100 m, 00/02/1989, GNP Biodiversity Survey, W854359–N105408, 1 ♂, 1 ♂; 8 km al O de Cujainiquil, Est. Murciélagos, 100m, 11–29/08/1993, F. Quesada, LN320300–347200, 1 ♂; 80m, 15–17/07/1994, F. Quesada,

**Material examined.**
NEW ROTALOMERIDAE

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Ropalomerididae

Ropalomera latiforceps Ramírez-García & Hernández-Ortiz 1994, 69, figs. 1C–D, 3E–F, 4B, 6A–F. Type-locality: Mexico, Veracruz, Estación de Biología “Los Tuxtlas”.

Diagnosis. Ropalomerididae can be recognized by the following combination of characters: ocellar bristles very small; thorax with two pairs of postpronotal bristles, one of them somewhat reduced; scutellum slightly concave dorsally, not continuous with the contour of the scutum, angled dorsally and elevated apically in lateral view, and with an evident lateral constriction at the level of the marginal scutellar bristles in dorsal view; hind tibiae with 7–9 setae on the external surface, of which at least four are implanted on tubercles (See Ramírez-García & Hernández-Ortiz 1994, 69, figs. 1C–D, 3D–E, 4B, 6A–F. Type-locality: Mexico, Veracruz, Estación de Biología “Los Tuxtlas”).

Comments. This species was previously known from Mexico and Panama. We confirm its presence in Costa Rica, Panama and Colombia.
anteriorly; head with 2 orbitals; ocellars, postocellars, and inner and outer verticals present; face with median femora slender compared to other ropalomerid genera (for a complete redescription see Marques & Ale-Rocha (2005)).

**LIMÓN:** Amubri, 70m, 3–28/02/1995, G. Gallardo, LS385000–578100, 1 ♂; same data; 08–27/10/1993, LS385500–578000, 2461, 1 ♂; 4–21/12/1993, LS385000–578000, 1 ♀; 02–30/03/1996, LS385000–578100, 70510, 1 ♀; 30 Km N Cariari, Sector Cocori, 100m, 00/02/1994, E. Rojas, A. Solis, LN286000–567500, 2639, 1 ♂ (INBIO).

**PUNTARENAS:** Península de Osa, Rancho Quemado, 200m, 21–03–7–04–1999, F. Quesada, LS292500–511000, 1 ♀; same data, 00/04/1991, LS292500–511000, 1 ♀; 00/07/1992, LS292500–511000, 1 ♀; 21–03–07/04/1992, 1 ♀; A.C. Osa, Pen. De Osa, Est. Esquinas, 200m m, 00/12/1993, M. Segura, LS301400–542200, 1 ♀; Pen. De Osa, Est. Esquinas, 200m, 00/08/1993, J. Quesada, LS301400–542200, 1 ♀; same data, 00/04/1993, LS301400–542200, 2076, 1 ♂, 1 ♀; Est. Esquinas, 0m, 00/05/1993, F. Quesada, LS301400–542200, 1 ♀, 1 ♀; NRA Cabo Blanco, Estación San Miguel, S. Central Las Balsitas, 100 m, 28/10/1997, F. Alvarado, manual, LN412800–173950, 1 ♂, 1 ♀; Senda Central, Est. San Miguel, 28m, 22–24/04/1997, F. Alvarado, LN174300–414500, 2 ♀; PN Manuel Antonio, Quepos, 80m, 00/06/1991, G. Varela, LS370900–448800, 1 ♂, 1 ♀, same data, 00/09/1992, 1 ♀ (CRI000917923); Santa Cruz, Camino a La Esperanza, 400–500m, 00/05/2001, Y. Cárdenas, manual, LN363050–238450, 1 ♀, 1 ♀; Est. Río Bonito, 100m, 7–15/07/1997, E. Fietas, L293900–548100, 1 ♀; Res. Biol. Carara, Est. Queb Bonita, 50m, 00/06/1990, E. Bello, LN194500–469850, 1 ♀ (INBIO). **SAN JÓSE:** Escazu, 9–10/01/1988, FD Parker, 1 ♀; same data, 25–30/04/1988, 1 ♀ (USU).

**PANAMA:** CANAL ZONE: k–15 Road, 09/05/1952, WJ Hanson, 1 ♂, 1 ♀ (USU); Barro Colorado, 00/12/1936–00/01/1937, J. Zetek, No. 3797, Fruit Fly Trap Sugar, 6 ♀, 18 #; Barro Colorado Isl., 19/07/1923, R.C. Shannon, 1 ♀; Barro Colorado, 08/09/1936, J. Zetek, No. 3749, Fruit Fly Trap, 4 ♀, 10 ♀; same data; 00/04/1937–00/05/1937, No. 3860, 3 ♀; 0/06/1937, No. 3891, 1 ♂, 6 ♀; 00/06/1937, No. 3892, 1 ♀; No. 4590, 1 ♀; Barro Colorado, 20/08/1978, N.E. Woodley, at light, 1 ♀; Barro Colorado, 29/06/1979, Silberglied/Aiello, on herbarium, 1 ♀; same data, 00/05/1980, 1 ♀ (USNM); Cano Saddle (Close’s), 00/06/1923, M.F. Close, 1 ♀; Ft. Kobbe, 11/01/1951, E. Saryin, Trap No. 13, 1 ♀; Red Tank, 14/04/1923, R.C. Shannon, 1 ♀; La Campana, 00/10/1937–00/11/1937, J. Zetek, No. 4075, Fruit Fly Trap, 1 ♀, 2 #; same data, 00/01/1938–00/03/1938, No. 4104, 2 ♀; Porto Bello, 23/02/1911, A. Busck, 2 ♀; same data, 25/02/1911, 1 ♂; Puerto Bello, 17/08/1979, S. Gross, 1 ♀ (USNM).

Additional specimens examined outside Mesoamerica: **COLOMBIA:** ANTIODQUIA: Antioquia, 30/06/1930, G. Ramos N., col. 51, 2 ♀ (USNM).

**Willistoniella** Mik

_Rhopalomyia_ Williston 1895a, 184 (preocc. name by Rübsaamen 1892). Type-species: _Ropalomera pleuropunctata_ Wiedemann (1824), by monotypy.

**Willistoniella** Mik 1895, 136 (nom. nov. for _Rhopalomyia_ Williston). Type-species: _Ropalomera pleuropunctata_ Wiedemann (1824), by automatic designation.

**Diagnosis.** Species of _Willistoniella_ are recognized by the wide and shallow concave front which is projected anteriorly; head with 2 orbitals; ocellars, postocellars, and inner and outer verticals present; face with median carina; antenna with plumose arista; anepisternum with small spots of golden pollinosity; with 6 or more setae on dorsal margin of posterior spiracle; posterior margin of scutellum rounded with 1 marginal and 1 apical bristles; femora slender compared to other ropalomerid genera (for a complete redescription see Marques & Ale-Rocha (2005)).

**Comments.** Four species of _Willistoniella_ have been described to date from southern Mexico to Bolivia and northern Argentina. From these, W. _pleuropunctata_ (Wiedemann), _W. spatulata_ Marques & Ale-Rocha, and _W. ulyssesi_ Marques & Ale-Rocha, had been recorded from Mesoamerica (Marques & Ale-Rocha 2005). Species only can be distinguished by characteristics of the male and female terminalia (see key).
**Willistoniella pleuropunctata** (Wiedemann)

*Ropalomera pleuropunctata* Wiedemann 1824, 18. Type-locality: “Amer. Mer.”

Willistoniella pleuropunctata (Wiedemann): Mik 1895, 136 (as type-species of the new name).

**Diagnosis.** Male abdominal sternum 5 with three long setae at each postero lateral angle; surstylius short, thin and pointed. Female abdominal tergum 7 with a V-notch at posterior margin; sternum 7 reduced and composed of two prebasal longitudinal plates (for complete redescription see Marques & Ale-Rocha 2005).

**Comments.** *Willistoniella pleuropunctata* and *W. ulyssesi* Coelho Marques & Ale-Rocha, both distributed from Mexico to Brazil, and are very similar species that can only recognized by small differences of male and female terminalia (see key) (Marques & Ale-Rocha 2005).


**Kroeberia Lindner**

*Kroeberia* Lindner 1930, 125. Type-species: *Kroeberia fuliginosa* Lindner, by monotypy.

**Diagnosis.** Frons shallowly concave, face with rounded central tubercle, antennal arista bare or at most with microscope pubescence, fronto-orbital setae absent; ocellars, postocellars, inner and outer vertical setae present; scutellum setulose with spiniform bristles on disc; posterior spiracle with 5–7 setae on dorsal border; femora very enlarged (Marques & Ale-Rocha 2004).

**Comments.** Two species of *Kroeberia* are known, *K. fuliginosa* recorded from Mexico, Panama, Venezuela, and Brazil, and *K. minor* Marques & Ale-Rocha from Brazil (Marques & Ale-Rocha 2004).

**Kroeberia fuliginosa** Lindner

Diagnosis. Antennal arista bare; scutellum with 1 apical and 2 discal bristles. Male terminalia with strong sclerotized surstyli, with internal margin and apex toothed; epiphallus long and thin, distally pointed; paramere with the internal apical lobe not capitae (Marques & Ale-Rocha 2004).

Comments. Kroeberia fuliginosa is known from Mexico, Panama, Venezuela, and Brazil. This is the first records of K. fuliginosa from Costa Rica.

Material examined (verbatim). 6 ♂, 14 ♀. COSTA RICA: GUANACASTE: Cañas, PN V. Tenorio, Río Naranjo, 1400m, 16/02/2001, J. Gutiérrez, LN423650–295100, 61846, 1 ♂; ZP Tenorio, Tierras Morenas, Río San Lorenzo, 1050m, 00/10/1992, G. Rodríguez, LN287800–427600, 1 ♀; PN Santa Rosa, Est. Santa Rosa, 30m, 13/05/1999, D. Briceno, manual, LN313000–359800, 62946, 1 ♀; Lado O Vol. Orosi, Est. Maritza, 600m, 28/02–10/03/1992, K. Taylor, LN326900–373000, 1 ♀; 9 Km S Santa Cecilia, Est. Pitilla, 700m, 6–17/09/1993, C. Moraga, LN330200–380200, 2344, 2 ♀; same data: 22/08/1993, LN330200–380200, 2322, 1 ♀; Est. Pitilla, 700m, 00/06/1996, P. Ríos, LN329950–380450, 827, 1 ♀; 14 km S Cañas, 26–30/09/1989, F.D. Parker, 1 ♀; 3 km SE R. Naranjo, 00/01/1993, F.D. Parker, 1 ♀; same data, 16–30/06/1992, 1 ♀ (USU). LIMÓN: Amubri, AC Amistad, 70m, 2–31/05/1994, G. Gallardo, LN385000–578100, 2928, 1 ♂; Sector Cerro Cocori, Finca E. Rojas, 150m, 00/06/1993, E. Rojas, LN286000–567500, 2252, 1 ♀ (INBIO). PUNTARENAS: Osa, PN Corcovado, Est. Sirena, 0–100m, 00/06/1993, G. Fonseca, LS270500–508300, 2119, 2 ♀; Península de Osa, Rancho Quemado, 200m, 00/12/1991, F. Quesada, LS292500–511000, 1 ♀; same data, 00/06/1992, LS292500–511000, 1 ♂; Est. Esquinas, Om, 00/01/1993, M. Segura, LS301400–542200, 1 ♂; PN Manuel Antonio, Quepos 80m, 00/06/1991, G. Varela, LS370900–448800, 1 ♀ (INBIO).


Lenkokroeberia Prado


Diagnosis. Frons broad, sunken; ocellar and fronto-orbital bristles absent; postvertical, inner and outer vertical bristles present; face with rounded tubercle; arista bare; 1 postpronotal bristle; posterior thoracic spiracle with 1–3 bristles; scutellum weakly concave dorsally, setulose on disc with 3–4 pairs of discal bristles, in addition to apical bristles; hind tibiae strongly flattened.

Comments. This genus contains two described species, L. chryserea Prado known from Mexico, Costa Rica, Venezuela and Brazil (Ibáñez-Bernal & Hernández-Ortiz, 2010), and L. ciliata (Williston) recorded from Brazil and Bolivia (Prado 1965).

Lenkokroeberia chryserea Prado

Lenkokroeberia chryserea Prado 1965, 264. Type-locality: Brazil, Mato Grosso, Salobra (male).

Diagnosis. This species is easily distinguishable from L. ciliata by having a brown abdomen with golden pollinosity on terga 1–5.

Comments. Lenkokroeberia chryserea has been recorded from Oaxaca in Mexico (Ramírez-García & Hernández-Ortiz 1994), from the states of Aragua, Bolívar, Monagas and Zulia in Venezuela (Baez 1985), and in the states of São Paulo and Mato Grosso in Brazil (Prado 1965). Ibáñez-Bernal & Hernández-Ortiz (2010) cited this species from Costa Rica. In the present work we record this species from Guanacaste and Puntarenas in Costa Rica, as well as Quintana Roo and Chiapas in Mexico.


MEXICO: QUINTANA ROO: 3–10 km N Calderitas, STA–SL4, 8/09/1984, W. Rubink, 1 ♂ (USU). CHIAPAS:
### Key to the genera of Ropalomeridae and their known species from Central America and Mexico (modified from Ibáñez-Bernal & Hernández-Ortiz, 2010)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>Postpronotal bristles present.</td>
</tr>
<tr>
<td></td>
<td>Postpronotal bristles absent.</td>
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<tr>
<td>2.</td>
<td>Arista bare or microscopically setulose.</td>
</tr>
<tr>
<td></td>
<td>Arista with long rays or bipectinate.</td>
</tr>
<tr>
<td>3.</td>
<td>Face with median vertical carina; genal surface striated; scutellum bare on disc with only one marginal and one apical scutellar bristles; hind tibia weakly flattened. USA (Florida), Argentina.</td>
</tr>
<tr>
<td></td>
<td>Face with small median rounded tubercle; scutellum setulose on disc and with 2–5 scutellar bristles (including apicals); hind tibia strongly flattened.</td>
</tr>
<tr>
<td>4.</td>
<td>Two postpronotal bristles; ocellar bristles well developed; posterior thoracic spiracle with more than 3 bristles; scutellum convex dorsally with 2–3 scutellar bristles.</td>
</tr>
<tr>
<td></td>
<td>One postpronotal bristle; ocellar bristles absent; posterior thoracic spiracle with 1–3 bristles; scutellum weakly concave or grooved dorsally with 4–5 scutellar bristles.</td>
</tr>
<tr>
<td>5.</td>
<td>Face with median vertical carina that ends as hump between antennal bases; posterior thoracic spiracle with 4–7 bristles; scutellum flattened on dorsal surface.</td>
</tr>
<tr>
<td></td>
<td>Face with rounded protuberance distant from antennal bases; posterior thoracic spiracle with 1–3 bristles; dorsal surface of scutellum weakly concave.</td>
</tr>
<tr>
<td>6.</td>
<td>Male with sternum 5 as long as 0.5 times width, with a long bristle on postero-lateral angle; surstylus long, so cercus not exceeding its basal half. Female tergum 7 with the posterior margin strongly concave and U-shaped; posterior sclerite of sternum 7 large, covering the anterior dorsal surface and reaching the level of posterior margin of tergum 7.</td>
</tr>
<tr>
<td></td>
<td>Male with sternum 5 shorter than 0.4 times width, with 1–3 long bristles on postero-lateral angle; surstylus short, so cercus exceeding its basal half. Female tergum 7 with the posterior margin strongly concave and V-shaped; posterior sclerite of sternum 7 reduced leaving extensive membranous areas and at much reaching the level of lateral sclerotized projections of tergum 7.</td>
</tr>
<tr>
<td>7.</td>
<td>Male with surstylus constricted at middle in posterior view, about 3 times its apical width, apex capitate. Female posterior sclerite of sternum 7 absent.</td>
</tr>
<tr>
<td></td>
<td>Male with surstylus linear in posterior view, over 4 times its width, apex rounded. Female posterior sclerite of sternum 7 strongly reduced to two join lines.</td>
</tr>
<tr>
<td>8.</td>
<td>Body coloration shining black, scutal and pleural vittae absent; abdomen and wings mostly black; scutellum bright brownish strongly projected dorsally and pointed apically in dorsal view.</td>
</tr>
<tr>
<td></td>
<td>Body coloration dull dark, scutal and pleural vittae present, abdomen with pale pollinose patches and wings hyaline or partially fumose; scutellum dull, flat or slightly concave dorsally, apically blunt in dorsal view.</td>
</tr>
<tr>
<td>9.</td>
<td>Two postpronotal bristles; scutellum slightly projected dorsally in lateral view, so an angle is formed to level of scutellum suture; lateral margins of scutellum constricted near the bases of marginal bristles in dorsal view.</td>
</tr>
<tr>
<td></td>
<td>One postpronotal bristle; scutellum not projected dorsally in lateral view, so the scutal and scutellum surfaces do not form an angle; lateral margins of scutellum straight, not constricted near the bases of the marginal bristles in dorsal view.</td>
</tr>
<tr>
<td>10.</td>
<td>Arista furnished on all sides with flattened hairs; scutellum convex on dorsal surface with 2 scutellar bristles (including apicals); posterior thoracic spiracle with 5–6 bristles.</td>
</tr>
<tr>
<td></td>
<td>Arista bare, microscopically pubescent or bipectinate; scutellum variable dorsally with only one apical scutellar bristle; posterior thoracic spiracle with 1–4 bristles.</td>
</tr>
<tr>
<td>11.</td>
<td>Arista bare; face flat without tubercle, carina or cavities; inner vertical, ocellar and postocellar bristles absent.</td>
</tr>
<tr>
<td></td>
<td>Arista bare; face flat without tubercle, carina or cavities; inner vertical, ocellar and postocellar bristles absent.</td>
</tr>
<tr>
<td></td>
<td>Arista micropubescent, bipectinate or long plumose; face with tubercle, carina or cavities; inner and outer verticals always present, ocellar and postocellar bristles variable.</td>
</tr>
</tbody>
</table>
12. Arista bipectinate or long plumose; ocellar and postocellar bristles absent; first flagellomere short and rounded, less than two times as long as broad; genal surface with tomentum; Bolivia, Brazil. ................................................. Apophorhynchus Williston

– Arista microscopically pubescent; ocellar and postocellar bristles present; first flagellomere digitiform and elongated, more than two times longer than broad; genal surface smooth; Brazil, Paraguay. ................................................. Dactylissa Fischer

List of Mexican and Central American Ropalomeridae

Acrocephalomyia Ibáñez-Bernal & Hernández-Ortiz 2012
A. zumbadoi Ibáñez-Bernal & Hernández-Ortiz 2012 (Costa Rica).

Kroebelia Lindner 1930
K. fuliginosa Lindner 1930 (Mexico, Costa Rica, Panama, Venezuela, and Brazil).

Lenkrokroebelia Prado 1965
L. chryserca Prado 1965 (Mexico, Costa Rica, Venezuela, Brazil).

Mexicoa Steyskal 1947
M. mexicana Steyskal 1947 (Mexico).

Ropalomera Wiedemann 1824

R. femorata (Fabricius 1805) (Mexico, Guatemala, Nicaragua, El Salvador, Honduras, Costa Rica, Panama, Venezuela, Ecuador, Brazil, Paraguay, Bolivia, Argentina).

Syn. Rhopalomera xanthops Williston 1895b

R. latiforeps Ramírez-García & Hernández-Ortiz 1994 (Mexico, Costa Rica, Panama, Colombia).

Willistoniella Mik 1895
W. pleuropunctata (Wiedemann 1824) (Mexico, Belize, Guatemala, Honduras, Curación, Costa Rica, Panama, Trinidad, Colombia, Ecuador, Peru, Venezuela, Surinam, Guyana, Brazil, Bolivia, Paraguay, Argentina).

Syn. Rhopalomera vitalifrons Rondani 1848
Syn. Ropalomera substituta Walker 1857

W. spatulata Marques & Ale-Rocha 2005 (Honduras, Panama, Venezuela, Ecuador, Brazil).

W. ulysseis Marques & Ale-Rocha 2005 (Mexico, Belize, Guatemala, Honduras, Costa Rica, Panama, Trinidad, Venezuela, Ecuador, Peru, Bolivia, Paraguay, Brazil).

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