

DESCRIPTION OF A NEW SPECIES OF *ARCHILESTRIS* LOEW FROM MEXICO (DIPTERA: ASILIDAE)

Alejandro Estrada

Estación de Biología Chamela, Instituto de Biología, UNAM. Apartado Postal 21, 48980. San Patricio, Jalisco, México.
— estrada.alejandro90@gmail.com

Abstract: *Archilestris chamelensis* sp. nov. from Chamela, Jalisco, Mexico is described and illustrated. The number of species of *Archilestris* in Mexico is raised to two, and to six for the Americas. A tentative key to the species of North and Central America is given.

Key words: Diptera, Asilidae, *Archilestris*, new species, Mexico, Chamela.

Descripción de una especie nueva de *Archilestris* Loew de México (Diptera: Asilidae)

Resumen: Se describe e ilustra *Archilestris chamelensis* sp. nov. de la región de Chamela, Jalisco, México; con ella se eleva a dos el número de especies de *Archilestris* de México, y a seis las especies de América. Se proporciona una clave para las especies del género de Norte y Centroamérica.

Palabras clave: Diptera, Asilidae, *Archilestris*, especie nueva, México, Chamela.

Taxonomy / taxonomía: *Archilestris chamelensis* sp. n.

Introduction

The genus *Archilestris* Loew belongs to the subfamily Stenopogoninae and to the tribe Enigmomorphini. The genus is recognized by the following characters: face flat, abdomen cylindrical, as long as or longer than wings, slender, tapering towards apex (Artigas & Papavero, 1991). *Archilestris* is integrated by five species distributed from southern USA southward Uruguay (Geller-Grimm, 2004). A single species has been recorded from Mexico: *Archilestris magnificus* (Walker, 1854) (Papavero, 2009). Herein the sixth species of the genus is described and illustrated. In addition, a tentative key to the species from North and Central America is given.

Methods and Materials

Terminology and criteria follow Papavero & Bernardi (1974), McAlpine (1981), Stuckenberg (1999) and for genitalia Sinclair *et al.* (1994).

Male genitalia were treated with warm KOH, washed in 70% ETOH with a drop of acetic acid, transferred to glycerin, and subsequently photographed. Later, genitalia were placed in microvials with glycerin for permanent storage and attached to the specimen. The photos were taken with a Nikon D200 camera plus a macro Nikkor 60 mm lens. Measurements of structures were made using an ocular micrometer inserted in the eyepiece of an Olympus SZ30 dissecting microscope and are expressed in millimeters. Data were recorded in a standard format with each line denoted by a forward slash [/]. Dates were recorded as roman numerals and the country was listed in capital letters.

The type material is housed at Chamela Field Station Collection (EBCC) of the National Autonomous University of Mexico.

Taxonomy

Archilestris chamelensis sp. nov.

Fig. 1-8.

DESCRIPTION: **Holotype** male: body length: 22.5; wing length: 17.4.

HEAD: orange, face one-fourth width of head or 2.5 times the width of a compound eye; proboscis dark reddish brown; prementum and labellae light brown; palpi basally yellowish, with setae and bristles yellowish, distally orange; mystax yellowish. Face, frons and vertex uniformly yellowish tomentose. Ocellar tubercle dark shining brown; black setae and bristles. Antennae: scape and pedicel yellowish, ventrally with orange setae, dorsally black; pedicel twice the length of scape; postpedicel longer than scape and pedicel combined, orange, black setae dorsally, slight depression ventrally, concave apex, sensory element black; occiput dark brown, yellowish tomentose; occipital bristles orange to black, postocellar black

THORAX: Orange. Cervix dark brown; pronotal bristles black and yellowish. Bristles of the scutum black: 2 postpronotal, 4 dorsocentral, 2 postalar, 3 supraalar, 3 posthumeral, 3 notopleural and 2 marginal scutellar bristles. Humeral spot and lateroscutal stripe yellowish tomentose; central stripe of mesonotum and posthumeral, presutural, sutural, postsutural and prescutellar spots orange to light brown; anatergite orange, yellowish tomentose; katatergite grayish tomentose, with a row of black bristles and scarce orange setae; discal area bare. Pleura orange, yellow to grayish tomentose.

WINGS: costal cell with dark brown macrotrichia; microtrichia on cells of the apical third; costal and subcostal cells yellowish; wing venation dark brown; halteres orange.

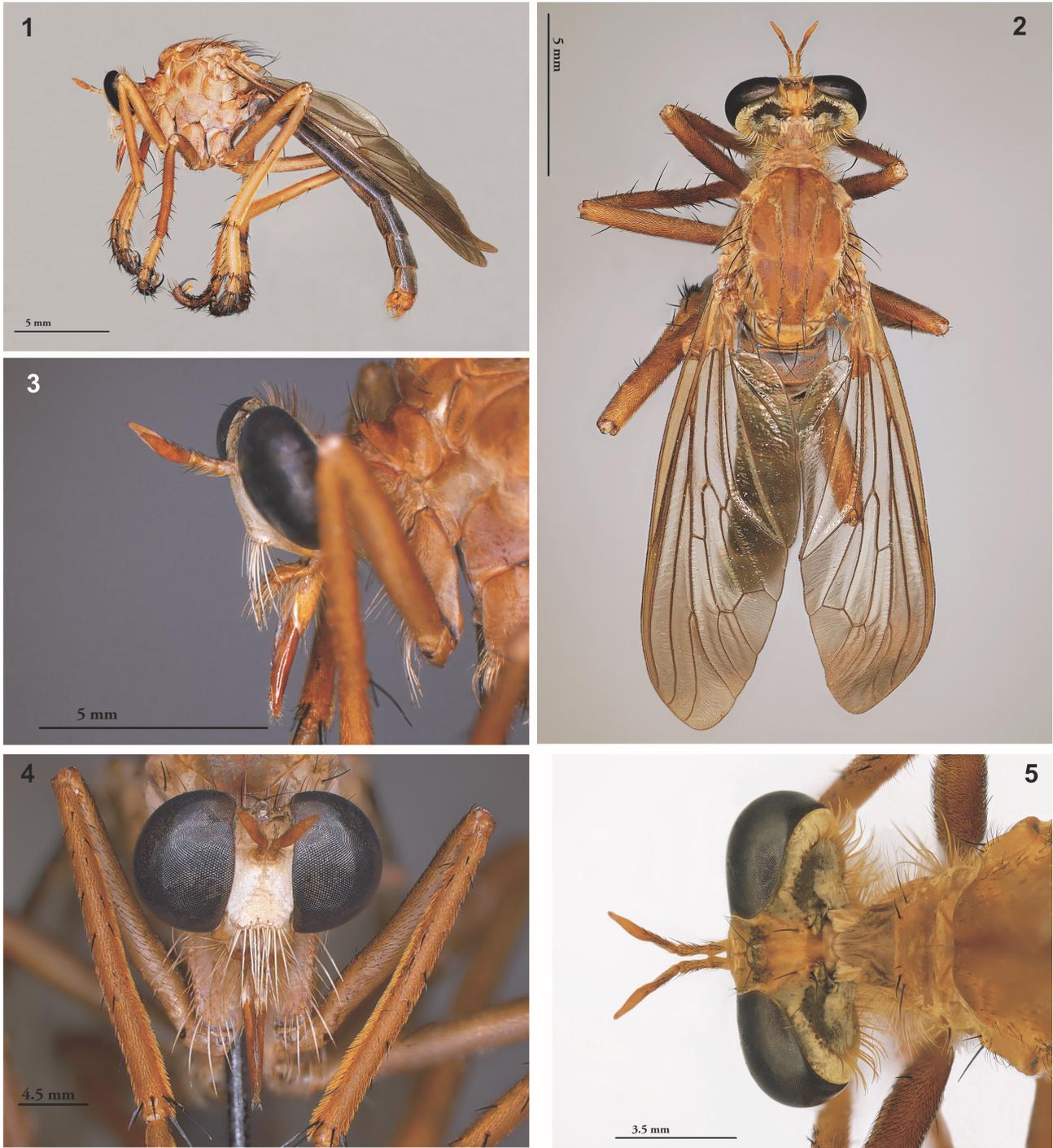


Fig. 1-5. *Archilestris chamelensis* sp. nov. Holotype male. 1) Habitus, lateral view. 2) Habitus, dorsal view. 3) Head, lateral view. 4) Head, frontal view. 5) Head, dorsal view.

LEGS: orange; coxae and trochanters yellow and grayish tomentose, coxal bristles yellowish; femora with short black pile dorsally and anteroventrally, reddish posteroventrally; tibiae with scarce orange pile; tarsomeres 2-5 with black setae, more abundant on the dorsal area. First anterior tarsomere 7 times, first posterior tarsomere 3.8 times and posterior femora 9.7 times, as long as broad. Claws black; pulvilli orange; empodia shining orange.

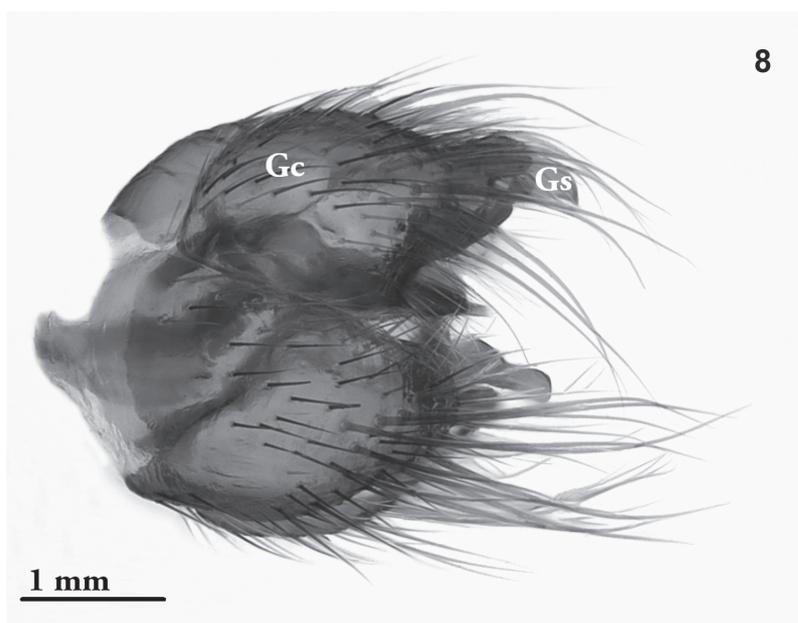
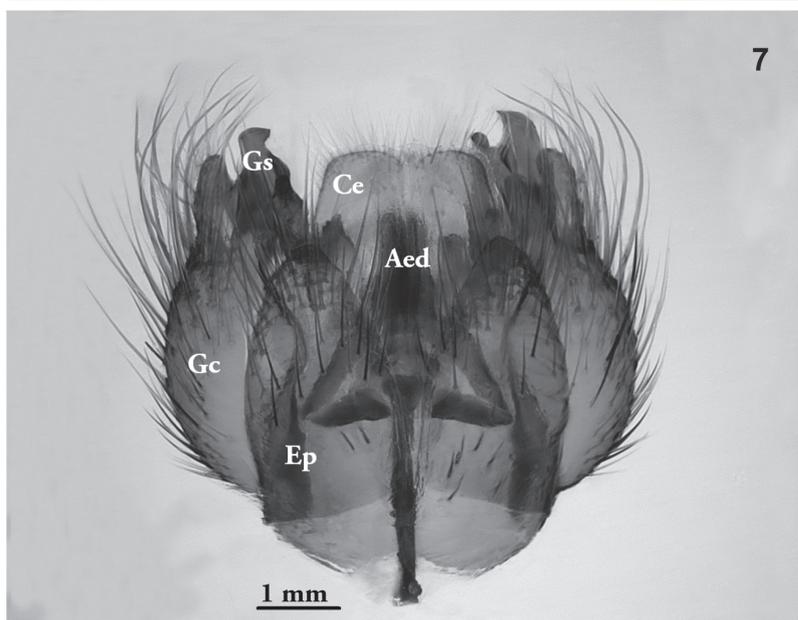
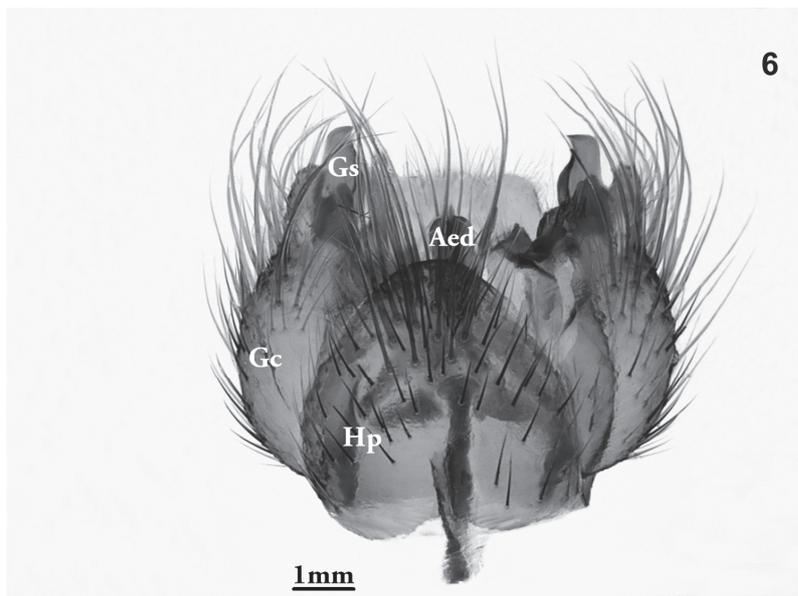
ABDOMEN: brownish black, grayish tomentose, posterolateral margins orange. Tergites and sternites with mixed short scarce black and orange pile. Abdominal tergite 1 with basal third brownish black, apical two thirds dark orange, lateral margin

bristles orange. Abdominal tergites 7-8 orange on the middle portion. Terminalia orange, setae and bristles mixed shining orange and black. Male genitalia as in figures 6-8.

Female allotype: body length: 25; wing length: 19. Similar to male. Apical two tergites orange. Acanthophorites with black and shining orange spines.

SPECIMENS EXAMINED: Holotype ♂, MEXICO, Jalisco/ Chamela Field Station/ 24.xi.1988/ E. Ramírez. Allotype ♀, MEXICO, Jalisco/ Chamela Field Station/ 17.ix.1990/ E. Ramírez. Paratypes 6 ♀♀, MEXICO, Jalisco/ Chamela Field Station/ 9.xi.1985/ M. Sánchez; 31.x.1985/ R. Usela; 26.ix.

Fig. 6-8: Male genitalia: **6)** ventral view. **7)** dorsal view. **8)** lateral view. (Aed= aedeagus, Ce= cercus, Hp= hypandrium, Ep= epandrium, Gc= gonocoxite, Gs= gonostylus).



1988/ E. Ramírez; 1.x.1993/ P. Manrique; 4.x.1993/ P. Manrique; Malaise trap 2-6.viii.1994/ I. Mercado. Paratypes 3 ♂♂, MEXICO, Jalisco/ Chamela Field Station/ 1.x.1993/ E. Ramírez.

TYPE LOCALITY: Chamela, Jalisco, Mexico.

ETYMOLOGY: in reference to the type locality of the species.

PHENOLOGY: Captured on leaves and branches of trees during the rainy season in the tropical deciduous forest in Chamela, Jalisco, Mexico.

REMARKS: body length: 23-25; wing length: 17-19.5. In addition to the characters in the key, *A. chamelensis* **sp. nov.** differs from its congeners by the combined characters of the terminalia (fig. 6-8). Some specimens have darker coloration, specially on the scutum, proboscis and postpedicel, and shining orange bristles on the lateral margins of the tergite I.

Discussion

Four species of *Archilestris* have been described from North and Central America: *A. magnificus* (Walker, 1854) extends from southern Mexico into the Nearctic of the southwestern USA; *A. wenzeli* Papavero & Bernardi, 1974 described from Guatemala and later recorded from Costa Rica and *A. excellens* Enderlein, 1914 described from Ecuador and later found as far north as Costa Rica (Papavero, 2009; Fisher, 2009).

The four species that occur in North and Central America can be identified with the following key (modified from Papavero & Bernardi, 1974):

- 1 Face relatively broad: one-fourth of head width 2
- Face narrower: one-fifth width of head or one-half width of one eye 3
2. Mystax and all bristles and setae of the head black, legs entirely black; hind femora 6.5-7 times, first anterior tarsomere 4 times, first posterior tarsomere 3 times, as long as broad. Abdomen entirely red, pilosity black. (USA: Arizona; Mexico: Chihuahua, Coahuila, Durango, San Luis Potosi, Nayarit, Jalisco, Colima, Guanajuato, Queretaro, Veracruz, Morelos, Guerrero, Oaxaca).....
.....*A. magnificus* (Walker)
- Mystax yellowish, legs and thorax orange. Coxal bristles yellowish. First anterior tarsomere 7 times, first posterior tarsomere 3.8 times and posterior femora 9.7 times, as long as broad. Abdomen brownish black, male genitalia as in fig. 6-8 (Mexico: Jalisco: Chamela).....
.....*A. chamelensis* **sp. nov.**
- 3 Legs black, with black vestiture; face black, brownish tomentum below antennae, silvery above oral margin; abdomen usually black, if some tergites red, then at least tergites 1-2 black; posterior femora 10 times, first anterior tarsomere 8 times, first posterior tarsomere 5 times, as long as broad. (Ecuador, Bolivia, Panama and Costa Rica)
.....*A. excellens* Enderlein

- Mystax black; face black, dark brownish tomentose; apex of postpedicel with a short, spoon-shaped concavity bearing a spine; apical half of hind tibiae yellowish, with several regular, horizontal rows of golden-yellowish setae; posterior femora 9.5 times, first anterior tarsomere 6 times, first posterior tarsomere 3 times, as long as broad. (Guatemala and Costa Rica).....
.....*A. wenzeli* Papavero & Bernardi

Acknowledgements

I would like to thank Enrique Ramírez García (Chamela Field Station, UNAM) for the loan of the specimens and permitted access to the collection under his care and provided work space during the visit. I would also like to thank Andrés García Aguayo (Chamela Field Station, UNAM) for financial support. To anonymous reviewers for valuable comments that greatly improved the manuscript.

Literature cited

- ARTIGAS, J. N. & N. PAPAVERO 1991. The American genera of Asilidae (Diptera): Keys for identification with an atlas of female spermathecae and other morphological details. VII.4. Subfamily Stenopogoninae Hull – Tribe Enigmomorphini, with descriptions of three new genera and species and a catalogue of the Neotropical species. *Boletín de la Sociedad de Biología de Concepción*, **62**: 27-53.
- FISHER, E. M. 2009. Asilidae. pp. 585-632. In: Brown, B.V., A. Borkent, J.M. Cumming, D.M. Wood, N.E. Woodley & M.A. Zumbado. *Manual of Central American Diptera*. Vol. 1. NRC Research Press, Ottawa.
- GELLER-GRIMM, F. 2004. A world catalogue of the genera of the family Asilidae (Diptera). *Studia dipterologica*, **10**(2): 473-526.
- MCALPINE, J.F. 1981. Morphology and terminology - Adults. pp. 9-63. In: McAlpine, J.P., B.V. Peterson, G.E. Shewell, H.J. Teskey, J.R. Vockeroth & D.M. Wood. *Manual of Nearctic Diptera*. Vol. 1. Agriculture Canada, Monograph 27. Ottawa.
- PAPAVERO, N. 2009. Catalogue of the Neotropical Diptera: Asilidae. *Neotropical Diptera*, **17**: 1-178.
- PAPAVERO, N. & N. BERNARDI 1974. *Archilestris* Loew in the Americas, with the description of two new neotropical species (Diptera, Asilidae, Stenopogoninae). *Papeis Avulsos de Zoologia*, **27**(20): 263-278.
- SINCLAIR, B.J., CUMMING, J.M. & D.M. WOOD 1994. Homology and phylogenetic implications of male genitalia in Diptera - Lower Brachycera. *Entomologica Scandinavica*, **24**: 407-432.
- STUCKENBERG, B.R. 1999. Antennal evolution in the Brachycera (Diptera), with a reassessment of terminology relating to the flagellum. *Studia dipterologica*, **6**(1): 33-48.