

## A new, relictual *Antilloides* from Mexican caves: first mainland record of the genus and revised placement of the fossil *Misionella didicostae* (Araneae: Filistatidae)

Ivan L. F. Magalhaes: División Aracnología, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”—CONICET, Av. Ángel Gallardo 470, C1405DJR, Buenos Aires, Argentina. E-mail: magalhaes@macn.gov.ar

**Abstract.** Cave organisms are often relictual, ancient lineages that conserve characters no longer represented in their closest relatives. I here present a new species of Filistatidae from Mexican caves with a notable suite of characters that preclude its placement in any of the filistatid genera currently recorded from North America. A detailed study of its morphology using light and scanning electron microscopy indicates that this is the first mainland species of *Antilloides* Brescovit, Sánchez-Ruiz & Alayón, 2016 and I describe it as *Antilloides chupacabras* sp. nov. The genus was previously known only from the Antilles, and its presence in Mexico is evidence of a wider distribution. I here identify some characters which are novel putative synapomorphies of *Antilloides*, and the phylogenetic affinities of the genus are discussed. Finally, the presence of a modified metatarsus II in males of the new species, among other characters, suggests that the only known fossil filistatid, *Misionella didicostae* Penney, 2005 from Dominican amber, is misplaced in this genus and the new combination *Antilloides didicostae* comb. nov. is proposed.

**Keywords:** Araneomorphae, Caribbean, Prithinae, taxonomy

<http://zoobank.org/?lsid=urn:lsid:zoobank.org:pub:308D8616-BC63-4621-884E-9BCF0A0BC956>

The fauna associated with caves is often relictual, containing species representing old lineages that have been evolving separately from their closest relatives for long periods of time. Two recent examples from the North American fauna include the first New World harvestman of the family Pyramidopidae, a lineage previously known only from Africa, identified in caves in Belize (Cruz-López et al. 2016), and the new spider family Trogloraptoridae described from caves in Oregon and California (Griswold et al. 2012). These relictual organisms offer valuable insights into the evolution and biogeography of the clades to which they belong, especially as troglobitic species can retain characters that have been lost in their more widespread relatives.

The Mexican fauna associated with caves is a rich one, and includes several species of Filistatidae (Reddell 1981). This medium-sized spider family includes around 150 species in 19 genera (World Spider Catalog 2017), most of which inhabit arid and semi-arid regions of the subtropics; some species are known to be associated to caves (Brescovit et al. 2016a; Magalhaes 2016). The North American fauna includes three genera but is still poorly known, as extensive taxonomic revisions are lacking and only *Filistatinella* Gertsch & Ivie, 1936 has been recently revised (Magalhaes & Ramírez 2017).

Among filistatid material collected from limestone caves in south-western Coahuila State (Fig. 1), I found some particularly interesting specimens. At first glance, they seemed to belong to yet another undescribed species of *Filistatoides* F. O. Pickard-Cambridge, 1899. However, a closer look at their fine morphology suggested that they belonged to the recently described genus *Antilloides* Brescovit, Sánchez-Ruiz & Alayón, 2016, which was previously recorded only from the Antilles. The aims of this paper are thus to describe this new species, to discuss its generic placement, and to document its unique suite of characters and their implications for the taxonomy of New World Filistatidae.

## METHODS

Specimens of the new species and comparative material of *Antilloides* and *Filistatoides* (Appendix 1) were borrowed from the collections of the American Museum of Natural History, New York, USA (AMNH; curator L. Prendini), the Field Museum of Natural History, Chicago, USA (FMNH; P.



Figure 1.—Distribution of *Antilloides chupacabras* sp. nov. (stars; detailed in lower panel), other *Antilloides* species (white circles) and the fossil species *Misionella didicostae* Penney, 2005 (cross).

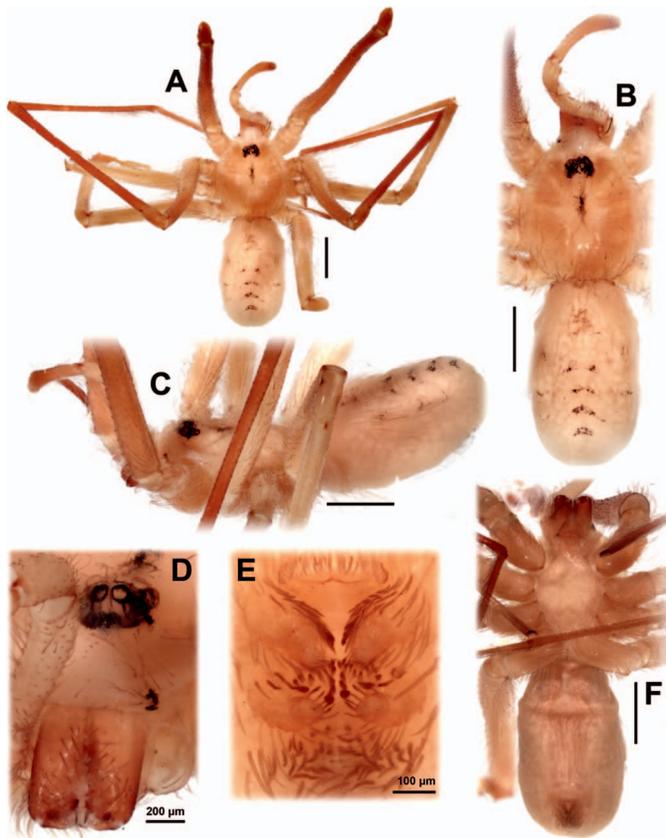


Figure 2.—*Antilloides chupacabras* sp. nov., male holotype from Cueva de Yeso, Coahuila (AMNH, IFM-1302). A–C, F, habitus: A, B, dorsal view; C, lateral view; F, ventral view. D, clypeus and eye region, sub-anterior view. E, spinnerets, ventral view. Scale bars = 1.0 mm except where noted.

Sierwald), the Instituto Nacional de Biodiversidad, San José, Costa Rica (INBIO; C. Viquez) and the Museum of Comparative Zoology, Cambridge, USA (MCZ; G. Giribet).

Measurements and habitus photos were taken using a Leica M165C stereoscopic microscope and Leica Application Suite 3.6. Female genitalia were digested in a pancreatin solution and examined in lactic acid, and the male palp was cleared in clove oil. Genitalia were photographed using an Olympus BH-2 compound microscope and drawn with the aid of a *camera lucida*. Multi-focus photo stacks were constructed in Helicon Focus 6. The format of descriptions follows Magalhaes & Ramírez (2017). Exact locations for some Mexican caves were taken from Reddell (1981). For scanning electronic microscopy images, specimens were dehydrated in solutions of increasing concentration of ethanol, critical point-dried, mounted on aluminium stubs using copper adhesive tape, gold-palladium sputter-coated, and examined using a Philips FEI XL 30 TMP scanning electron microscope.

## RESULTS AND DISCUSSION

The reduced cymbium, feathery setae, lack of tarsal macrosetae and wide cribellum, among other characters, suggest that the specimens from Coahuila belong to Prithinae, one of the two subfamilies of Filistatidae (see Gray 1995;

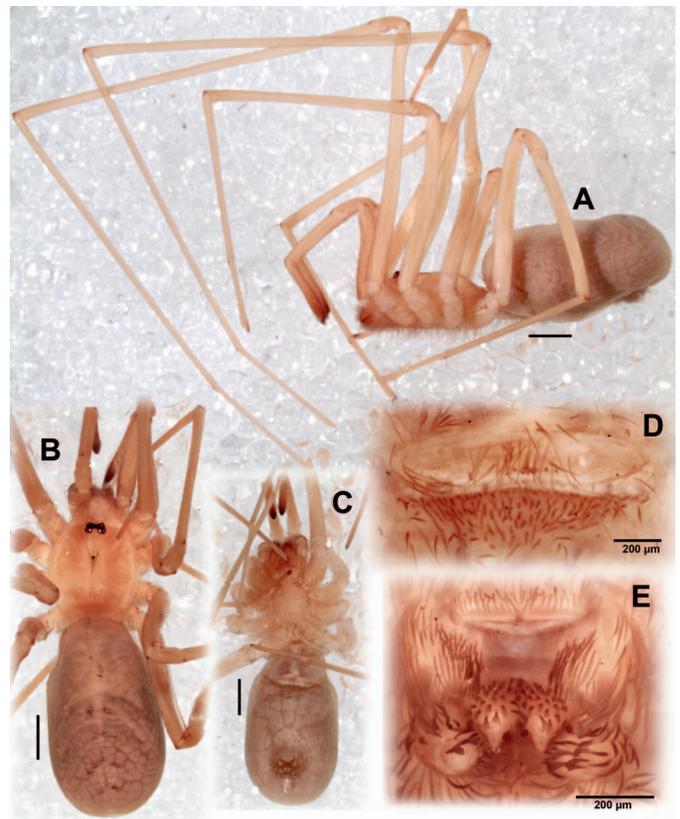


Figure 3.—*Antilloides chupacabras* sp. nov., female paratype from Cueva de Empalme, Coahuila (AMNH, IFM-1303). A–C, habitus: A, lateral view; B, dorsal view; C, ventral view. D, genital area, ventral view. E, spinnerets, ventral view. Scale bars = 1.0 mm except where noted.

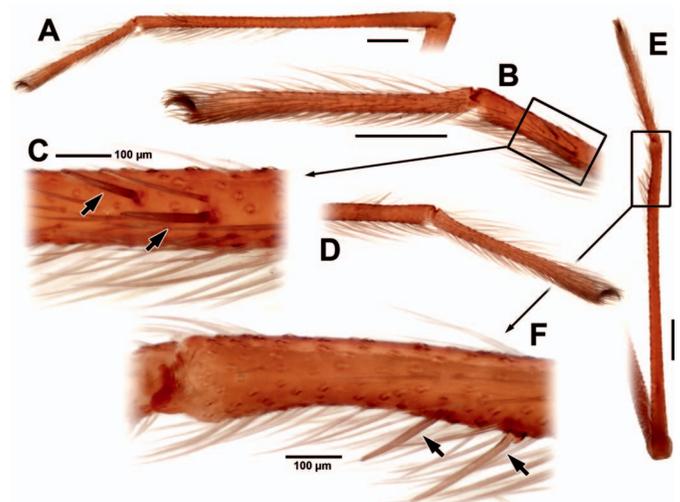


Figure 4.—*Antilloides chupacabras* sp. nov., male holotype from Cueva de Yeso, Coahuila (AMNH, IFM-1302), leg II, metatarsus and tarsus: A–C, retrolateral view; D, prolateral view; E–F, dorsal view. Arrows to macrosetae. Scale bars = 0.5 mm except where noted.

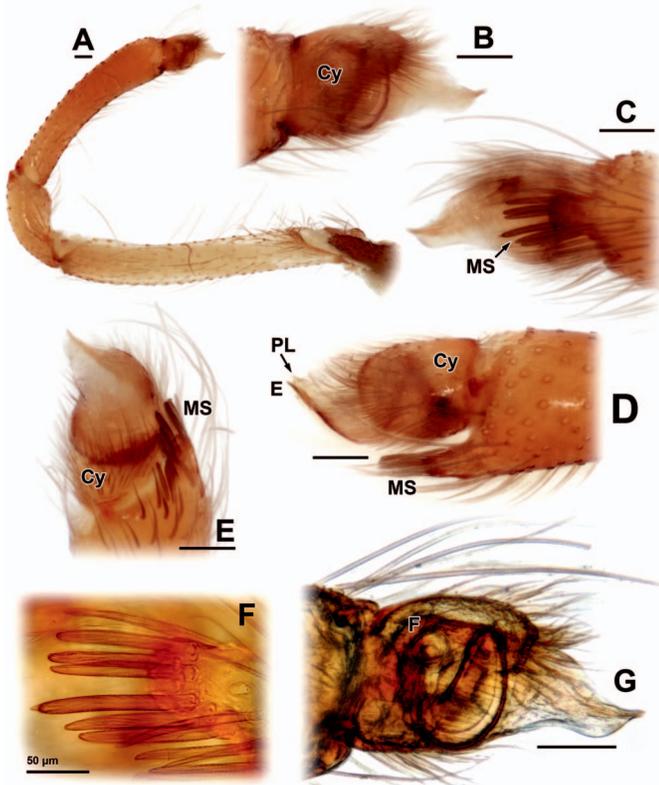


Figure 5.—*Antilloides chupacabras* sp. nov., male holotype from Cueva de Yeso, Coahuila (AMNH, IFM-1302), pedipalp: A, entire palp, prolateral view; B, bulb, prolateral view; C, same, retrolateral view; D, same, dorsal view; E, same, ventral view; F, detail of retrolateral modified setae, clove oil cleared; G, bulb, prolateral view, clove oil cleared. Abbreviations: Cy = cymbium, E = embolus, F = fundus, MS = modified setae, PL = paraembolic lamina. Scale bars = 0.1 mm except where noted.

Magalhaes & Ramírez 2017). The spiders are pale in color and have elongate palps and legs (Figs. 2, 3), characters observed in some *Filistatoides* but also frequently associated with cave-dwelling species. However, a closer inspection of the male revealed it had modifications to metatarsus II, with a retrolateral excavation and a pair of macrosetae (Fig. 4). In Filistatidae, these modifications are so far unknown outside of the South American genera *Pikelinia* Mello-Leitão, 1946 and *Misionella* Ramírez & Grismado, 1997 (see Ramírez & Grismado 1997). The male palpal morphology is also modified and quite unlike most known Filistatidae species (Figs. 5, 6). The tibia bears a small projection with strong setae (Figs. 5C–E: MS), as in *Pikelinia* (see Ramírez & Grismado 1997, figs. 25, 27, 33) and *Antilloides* (see Brescovit et al. 2016b, figs. 11A, 16G). The bulb is small and globose and covered dorsally by an extension of the cymbium (Figs. 5B, D, 6A: Cy); the latter has a dorsal area devoid of setae and is not fused to the bulb. A small unsclerotized outgrowth near the apex of the embolus is probably a reduced paraembolic lamina (Figs. 5A, 6A: PL). The sperm duct has a single coil and the fundus points ventrally and attaches to a very reduced basal bulb sclerite (Figs. 5G, 6A: F, BBS), as in many prithines. The female has a pair of simple receptacles each with a narrowed ‘neck’, as in *Filistatoides* and *Antilloides* (see Brescovit et al. 2016b, figs.

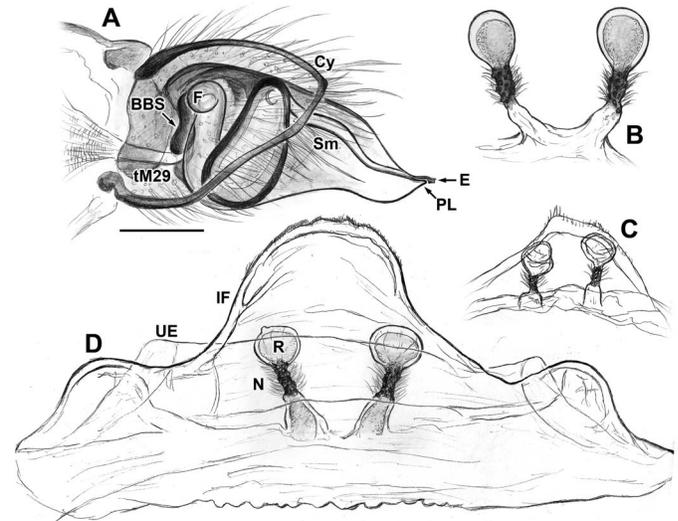


Figure 6.—*Antilloides chupacabras* sp. nov., genitalia. A, Male holotype from Cueva de Yeso, Coahuila (AMNH, IFM-1302), palpal bulb, prolateral view, clove oil cleared. B–D, paratypes, spermathecae, dorsal view, digested and lactic acid cleared: B, female from Cueva del Guano, Coahuila (AMNH, IFM-1286); C, subadult female from Cueva de los Grillos, Coahuila (AMNH, IFM-1283). D, female from Cueva de Empalme, Coahuila (AMNH, IFM-1304). Abbreviations: BBS = basal bulb sclerite, Cy = cymbium, E = embolus, F = fundus, IF = interpulmonary fold, N = spermathecal ‘neck’, PL = paraembolic lamina, R = receptacle, Sm = spermophore, tM29 = tendon of the claw flexor muscle, UE = uterus externus. Scale bar = 1.0 mm, and all figures to scale.

1B, 9F), but also an enlarged interpulmonary fold, a diagnostic character of the latter genus (Figs. 6–8: IF). Interestingly, the receptacles lack glandular pores, which are restricted to the ‘neck’ region (Figs. 7–8: N). The body is further covered in feathery setae (Fig. 9A), as in *Filistatoides*, *Antilloides*, *Pikelinia* and relatives (see Ramírez & Grismado, 1997, fig. 80; Brescovit et al. 2016a, fig. 10G).

The phylogenetic relationships among New World filistatid genera, and the limits of some of the genera themselves, are still largely untested or unknown. Existing studies have a limited sampling of taxa and/or characters (Gray 1995; Ramírez & Grismado 1997; Magalhaes & Ramírez 2017) and do not include some of the characteristics mentioned in the previous paragraph. However, the polarity of some of these characters can be inferred by comparison with other filistatid genera, some of which are becoming better-known due to recent redescrptions and revisions of several taxa worldwide (e.g., Zonstein & Marusik 2015, 2016; Brescovit et al. 2016a, b; Magalhaes 2016; Legittimo et al. 2017; Magalhaes & Ramírez 2017). From these revisions, it can be inferred that some characters are of particular interest for placing the new species. For example, the presence of modified setae on a small projection of the male palpal tibia combined with a modified metatarsus II in the male have hitherto been observed only in *Pikelinia* (Ramírez & Grismado 1997) – a genus that belongs to a clade (along with *Misionella* and *Lihuelistata* Ramírez & Grismado, 1997) where the cymbium is fused to the bulb (Ramírez & Grismado 1997). Thus, if the new species belongs to *Pikelinia*, the presence of an unfused

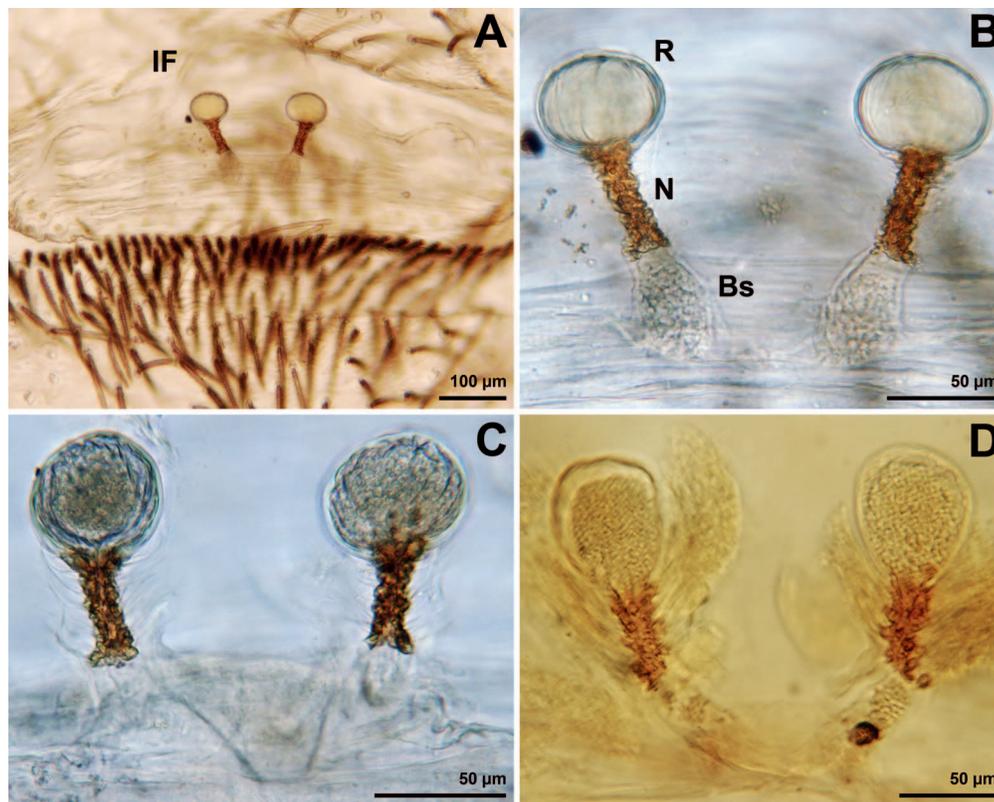
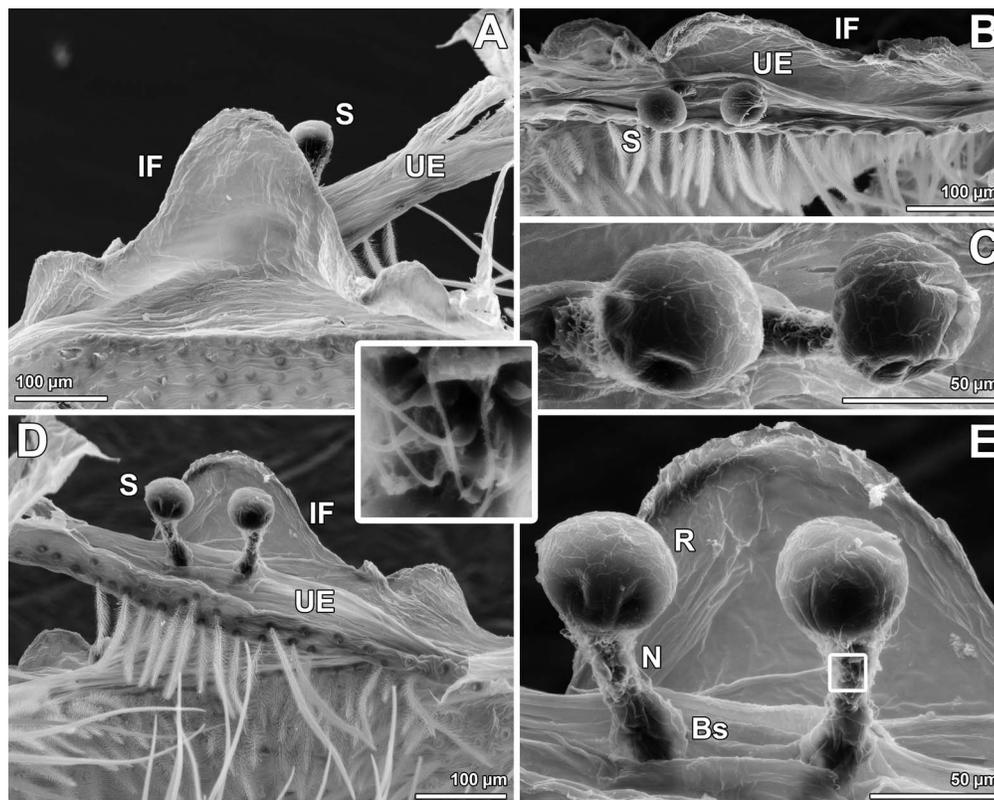


Figure 7.—*Antilloides chupacabras* sp. nov., paratypes, spermathecae, dorsal view, digested and lactic acid cleared. A–B, female from Cueva de Empalme, Coahuila (AMNH, IFM-1304; this is the same genitalia prepared for SEM, see Fig. 8); C, female from Cueva del Guano, Coahuila (AMNH, IFM-1286); D, female from Cueva de Empalme, Coahuila (AMNH, IFM-1287). Abbreviations: Bs = spermathecae base, IF = interpulmonary fold, N = spermathecal ‘neck’, R = receptacle.



cymbium would represent at least one instance of homoplasy. On the other hand, the new species shows a particular shape of the cymbium: large, anteriorly convex, covering the bulb dorsally, and with an area devoid of setae. We have recently argued (Magalhaes & Ramírez 2017) that an anteriorly concave cymbium (the “horseshoe-shaped cymbium” that Lehtinen (1967) suggested to be diagnostic of *Pritha* Lehtinen, 1967) is widespread among prithine genera, including *Pikelinia* and *Filistatinella*, and is probably a synapomorphy of the subfamily. Thus, an anteriorly projected, convex cymbium covering the bulb is a rare character among the Prithinae, to my knowledge present only in *Antilloides* (see Brescovit et al. 2016b, figs. 11A–C). The anteriorly elongate interpulmonary fold (termed “uterus externus” by Brescovit et al. 2016b) is also a diagnostic feature of some (though not all) *Antilloides* species. Finally, the new species lacks pores in the receptacles of the spermathecae; these are restricted to the ‘necks’. My own observations of *Antilloides* females (including *A. abeli* Brescovit, Sánchez-Ruiz & Alayón, 2016, *A. mesoliticus* Brescovit, Sánchez-Ruiz & Alayón, 2016, and a morphospecies similar to *A. cubitas* Brescovit, Sánchez-Ruiz & Alayón, 2016) show that at least these species have the glandular pores restricted to the ‘necks’ of the spermathecae; this character is unknown to me in other filistatid genera.

Taken together, these observations suggest that this species belongs to *Antilloides*, the first to be described from mainland North America, as all previously known species are restricted to the Antilles. It is likely that the genus had a wider distribution in the past, and now survives on the Caribbean islands and as a relict in Mexican caves in dry areas. In addition, I report a novel putative synapomorphy for *Antilloides* (or at least a group of species within the genus): the glandular pores restricted to the ‘neck’ of the spermathecae. The presence of a modified metatarsus II in the new species – the first to be described outside of *Pikelinia* and *Misionella* – suggests that *Antilloides* is closely related to these genera, or that metatarsal modifications evolved independently several times within Prithinae. Both hypotheses should be tested within a phylogenetic framework that includes a wide sample of taxa and characters.

Finally, the finding of this new *Antilloides* species with a modified metatarsus II in males calls for a reappraisal of the only fossil Filistatidae known to date, *Misionella didicostae* Penney, 2005. This fossil comes from amber deposits from the Dominican Republic (where at least two extant species of *Antilloides* can still be found) and date from the Miocene. Penney (2005a) placed the fossil species in *Misionella* based on the modified metatarsus II combined with the absence of a tibial apophysis. However, the new extant species here described also combines these characters. Furthermore, in the specimen PRC A-10-255 of *M. didicostae*, the cymbium is convex and covers almost half of the bulb; setae can be observed along its margin (Fig. 12D, arrow). This indicates *M. didicostae* also belongs in *Antilloides*, and a new combination is here proposed.

## TAXONOMY

### Family Filistatidae Ausserer, 1867

**Genus** *Antilloides* Brescovit, Sánchez-Ruiz & Alayón, 2016  
*Antilloides* Brescovit, Sánchez-Ruiz & Alayón, 2016: 413.

**Type species.**—*Antilloides abeli* Brescovit, Sánchez-Ruiz & Alayón, 2016, by original designation.

**Diagnosis.**—*Antilloides* males can be recognized by the combination of a retrolateral projection bearing thick setae on the palpal tibia (Figs. 5C, D, F) and a convex, anteriorly drawn cymbium partly covering the bulb dorsally and bearing a glabrous dorsal area (Fig. 5B, D); the metatarsus II may or may not present modifications such as a retrolateral excavation and macrosetae (Fig. 4). *Antilloides* females are similar to *Filistatoides* in having a single pair of spermathecae, usually with a narrow ‘neck’ between the base and the receptacle (Fig. 7); they differ from *Filistatoides* by having at least one of the two following characters: a large, anteriorly drawn interpulmonary fold covering the spermathecae (Figs. 6D, 8A) (short, not covering the spermathecae in *A. cubitas*, *A. zozo* Brescovit, Sánchez-Ruiz & Alayón, 2016 and *A. mesoliticus*) or glandular pores restricted to the ‘neck’ and absent from the receptacles (Figs. 7, 8E) (pores present on the receptacles of *A. haitises* Brescovit, Sánchez-Ruiz & Alayón, 2016).

#### *Antilloides chupacabras* sp. nov.

<http://zoobank.org/?lsid=urn:lsid:zoobank.org:act:22339F8C-FDB5-4922-9D50-A78D178CE200>  
(Figs. 2–11)

*Filistatoides* sp. Reddell, 1981: 25.

**Type material.**—*Holotype male*. MEXICO: Coahuila: Sierra de Mayrán, Cueva de Yeso, [102.8°W, 25.5°N], 24 July 1965, J. Fish & J. Reddell (AMNH, IFM-1302).

**Paratypes.** MEXICO: Coahuila: 6 ♀, 1 juvenile, La Cuchilla, Sierra de Mayrán, Cueva de Empalme, 24 February 1966, W. Bell & J. Reddell (AMNH IFM-1303, 1304); subadult ♀, 50 km E. of Torreón, September 1964, B. Russell (AMNH); 2 ♀, Sierra de Mayrán, 0.25 miles W. of Cueva de Yeso, Cueva de Los Grillos, 24 July 1965, J. Reddell & J. Fish (AMNH); subadult ♂, Sierra San Lorenzo, 4 km E. of Coyote, Cueva del Vapor, [103.15°W, 25.65°N], 9 June 1980, J. Reddell (AMNH); 1 ♀, Cueva del Guano (AMNH); 1 ♀, 4.5 km E. of Coyote, Cueva Granjero (AMNH).

**Note.**—The labels associated with the specimens have no geographical coordinates, or exact locations other than the cave names. For instance, the label of the holotype reads only “Cueva de Yeso, Coah., MEX. / 7-24-65. J Fish, J. Reddell”. I have traced their approximate placement using the list of Mexican caves provided by Reddell (1981; see caves listed under Sierra de Mayrán Region, p. 294; see also map on page 18, pinpointing the location of Sierra de Mayrán). Reddell collected most of the specimens himself, and was the first to

Figure 8.—*Antilloides chupacabras* sp. nov., female paratype from Cueva de Empalme, Coahuila (AMNH, IFM-1304), spermathecae, digested: A, dorsal view; B, anterior view; C, antero-lateral view; D–E, ventral view. Inset shows detail of glandular pores. Abbreviations: Bs = spermathecae base, IF = interpulmonary fold, N = spermathecal ‘neck’, R = receptacle, UE = uterus externus.

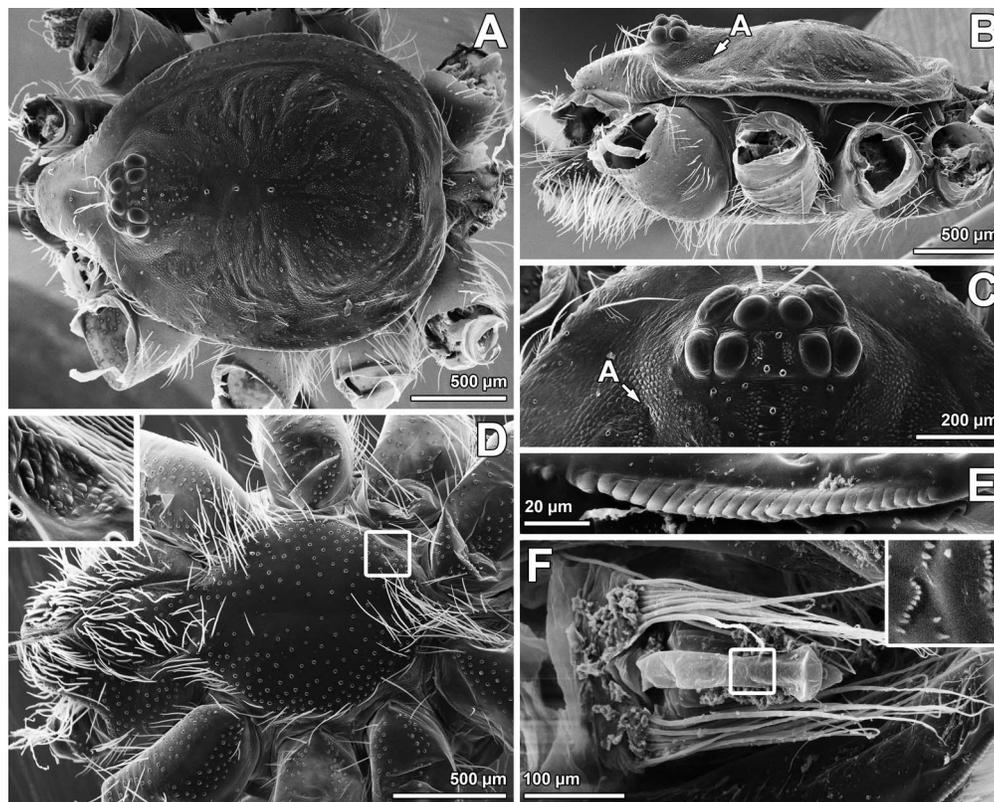
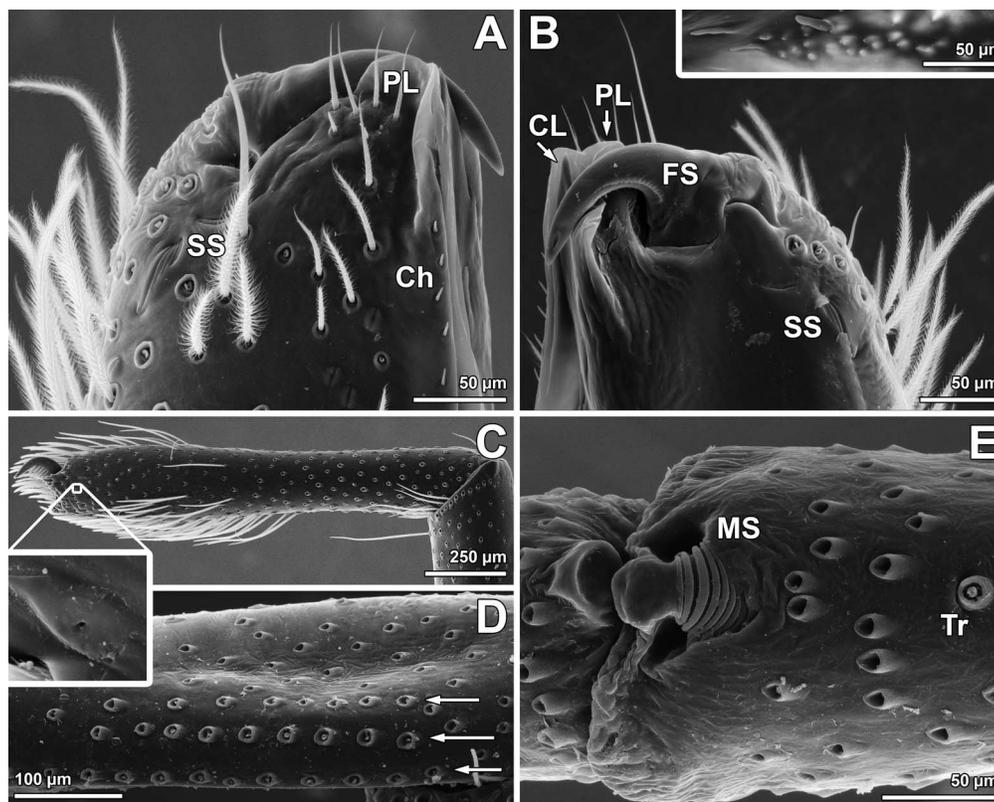


Figure 9.—*Antilloides chupacabras* sp. nov., female paratype from Cueva de Empalme, Coahuila (AMNH, IFM-1304): A, cephalothorax, dorsal view; B, same, lateral view; C, eye region, dorsal view; D, cephalothorax, ventral view (inset shows sternal sigillum); E, serrula, anterior view; F, labrum, subdorsal view (inset shows texture of labral tongue). Abbreviation: A = eye apodeme.



notice that this was an undescribed species, although he listed it under *Filistatoides* (Reddell 1981).

**Etymology.**—The ‘chupacabras’ is the name of a mythological creature from an urban legend that is widespread in Latin America; it holds that this strange, reptilian creature roams around rural areas and feeds by sucking the blood of livestock. The new species is given this name because it has a strange morphological appearance, feeds by sucking the fluids of its prey, and is the only known species to have been separated from its closest relatives in the Antilles. The specific epithet is to be treated as a noun in apposition.

**Diagnosis.**—Individuals of this species are pale-colored, with reduced pigmentation, and both sexes have more elongate legs than any other *Antilloides* (femur–carapace length ratios of 3.02 and 2.24 in *A. chupacabras* sp. nov. males and females, respectively; at most 2.3 and 1.4 in other *Antilloides* males and females, respectively; Figs. 2–3). Males are easily distinguished from other extant species of *Antilloides* by the metatarsus II bearing two macrosetae on the retrolateral face (Fig. 4) and by the long palp with a short bulb (Fig. 5). Females can be distinguished by the deep furrow bearing setae in the genital region (Fig. 3D), and by the internal genitalia, which have slender, straight ‘necks’ leading to globose receptacles (Figs. 6B–D, 7, 8).

**Description.**—*Male holotype* (Figs. 2–4, 6A). Coloration pale yellowish cream except where noted (Fig. 2). Carapace with dark coloration around eyes and a median elongate spot dorsally. Chelicerae orange. Legs pale yellowish cream, except for light orange legs I and II. Abdomen dorsum light cream, with faint brown chevron markings posteriorly. Anterior margin of the carapace unmodified (Fig. 2D). Sternum oval, narrowest posteriorly, sigilla not visible. Total length 5.03. Carapace length 2.30; width 1.85. Clypeus length 0.57. Eye diameters and interdistances: anterior median eye (AME) 0.11; posterior median eye (PME) 0.12; anterior lateral eye (ALE) 0.15; posterior lateral eye (PLE) 0.13; AME–AME 0.03; PME–PME 0.15. Sternum length 1.26; width 1.00. Palp: femur (fe) length 1.67, height 0.25; tibia (ti) length 1.15, height 0.20. Leg I: fe 6.95; patella (pa) 0.85; missing from tibia–tarsus. II: fe 4.50; pa 0.83; ti 5.48; metatarsus (mt) 3.94; tarsus (ta) 1.48. III: fe 3.51, pa 0.81, ti 3.58, mt 3.85, ta 1.49. IV: fe 4.19, pa 0.85, ti 4.03, mt 4.85, ta 2.57. Abdomen: length 2.88; width 1.65. Leg II modified: metatarsus II with a shallow retrolateral apical excavation, a strong retrolateral condyle, and two macrosetae, one more proximal, ventral and parallel to the metatarsus, and the other more distal, dorsal, and pointing dorso-apically (Fig. 4). Leg macrosetae otherwise absent. Palp (Figs. 5, 6A): femur and tibia unusually slender; cymbium convex, covering at least half of the bulb, unfused to bulb (Figs. 5C, D); bulb short and globose, bent slightly upwards distally (Figs. 5G, 6A); sperm duct N-shaped, proximally with a ventral bend (Fig. 6A); paraembolic lamina a small triangular projection situated prolateral to the embolus (Fig. 6A); embolus short. The specimen is in relatively poor

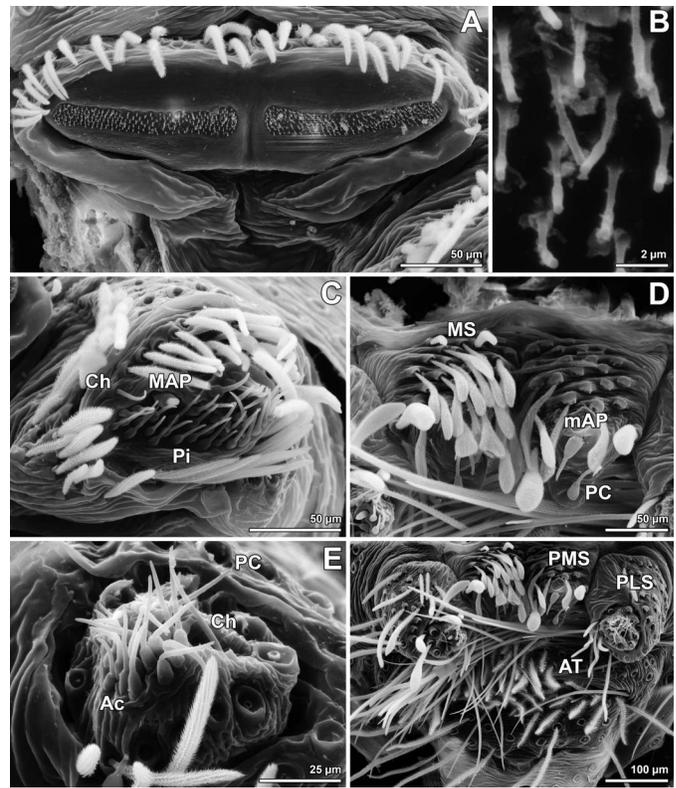


Figure 11.—*Antilloides chupacabras* new species, female paratype from Cueva de Empalme, Coahuila (AMNH, IFM-1304), spinnerets: A, cribellum, ventral view; B, cribellum spigots, ventral view; C, left anterior lateral spinneret, ventral view; D, posterior median spinnerets, ventral view; E, left posterior lateral spinnerets, sub-ventral view; F, anal tubercle and posterior spinnerets. Abbreviations: AT = anal tubercle, Ch = chemosensory seta, MAP = major ampullate gland spigot, mAP = minor ampullate gland spigot, MS = modified setae, PC = paracribellar gland spigot, Pi = piriform gland spigot, PLS = posterior lateral spinnerets, PMS = posterior median spinnerets.

condition, with most setae lost, both legs I missing from the tibiae, femora I broken in the midline, left leg III and right leg IV disarticulated from the tibiae, and the left palp dissected.

*Female paratype* (AMNH, IFM-1303). Coloration as in male except for more yellowish legs and chelicerae (Fig. 3). Anterior margin of the carapace unmodified, eye apodemes present (Fig. 9A). Sternum oval, narrowest posteriorly, sigilla not visible, but detected in another specimen examined under SEM (Fig. 9D). Total length 7.16. Carapace length 2.83; width 2.03. Clypeus length 0.72. Eye diameters and interdistances: AME 0.06; PME 0.10; ALE 0.13; PLE 0.13; AME–AME 0.06; PME–PME 0.17. Sternum length 1.40; width 1.09. Palp: fe length 2.31, height 0.47; ti length 1.65, height 0.34. Leg I: fe 6.35; pa 0.95; ti 8.88; mt 8.07; ta 2.93. II: fe 4.19; pa 0.83; ti 4.83; mt 4.09; ta 1.54. III: fe 3.33, pa 0.91, ti 3.20, mt 3.48, ta 1.49. IV: fe 3.91, pa 0.93, ti 3.70, mt 4.07, ta 1.76. Abdomen: length 4.47; width 2.65.

Figure 10.—*Antilloides chupacabras* sp. nov., female paratype from Cueva de Empalme, Coahuila (AMNH, IFM-1304), appendages: A, left chelicera, anterior view; B, same, posterior view (inset shows cheliceral gland); C, left palp, retrolateral view (inset shows tarsal organ); D, left calamistrum, setae have fallen off (arrows to setal rows); E, metatarsus IV apex, dorsal view. Abbreviations: CL = apex of cheliceral lamina, Ch = chemosensory seta, MS = metatarsus stopper, PL = promarginal lobe, SS = slit sensilla, Tr = trichobothria socket.

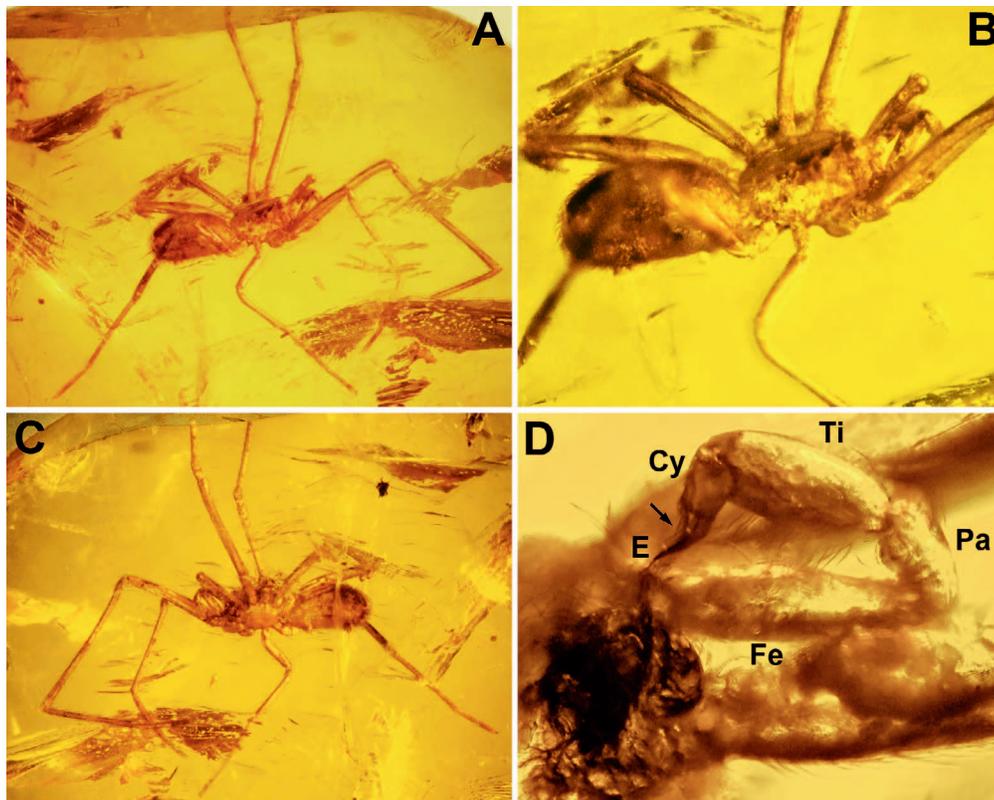


Figure 12.—*Antilloides didicostae* (Penney, 2005), male from Dominican Amber (Oregon State University, PRC A-10-255). Photos courtesy of George Poinar. A–B, habitus, dorso-lateral view; C, habitus, sub-ventral view; D, right palp, sub-prolateral view (arrow indicates setae at the apex of cymbium). Abbreviations: Cy = cymbium, E = embolus, Fe = palpal femur, Pa = palpal patella, Ti = palpal tibia.

Chelicerae with a posterior row of chemosensory setae, and gland with projected openings (Fig. 10B). Palp and leg macrosetae absent. Tarsal organ capsulate (Fig. 10C), metatarsus stopper narrowed (Fig. 10E). Calamistrum three-rowed (Fig. 10D), missing most setae. Cribellum very wide, with narrow spinning fields (Fig. 11 A), posterior median spinnerets with spatulate setae (Fig. 11D), posterior lateral spinnerets with several aciniform gland spigots (Fig. 11E). Epigastric furrow unsclerotized, with a fold delimiting a depression bearing many setae (Fig. 3D). The specimen is in relatively good condition, but most setae are missing.

*Female paratype* (AMNH, IFM-1304). Interpulmonary fold enlarged anteriorly, covering the spermathecae, with ragged anterior margin, and laterally subsquarish (Figs. 6D, 7A, 8); with a single pair of receptacles, each connected to the uterus externus through a long and thin spermathecal ‘neck’ covered by glandular pores; receptacles globose, without glandular pores, set close to each other (Figs. 7B, 8E).

**Variation.**—Females ( $n = 5$ ): total length 6.55–7.16 (mean 6.84), carapace length 2.43–3.01 (2.72), femur I length 5.54–6.70 (6.14), tibia I length 7.62–9.22 (8.62), femur/carapace length ratio 2.15–2.41 (2.26). The receptacles in the female genitalia can be rounded (Fig. 7B) to oval (Fig. 7D); subadult females have simpler, smaller genitalia (Fig. 6C).

**Natural history.**—All of the specimens of *A. chupacabras* I examined come from caves. They are much more lightly coloured than other species of *Antilloides*, and also have much longer legs (see Diagnosis). It is tempting to suspect that these

aspects represent troglomorphisms, but the lack of epigeal records might be a consequence of undercollecting outside the caves. More studies on the region should reveal whether this species also occurs outside caves or is a cave obligate, but for now this species should be considered a potential troglophile.

Reddell (1981: 25) stated that the caves in the Sierra de Mayrán are formed by a solution of gypsum beds in Cretaceous limestone, stand at an elevation of ca. 1150 m above sea level, and are very dry, with a fauna typical of Mexican arid areas.

*Antilloides didicostae* (Penney, 2005), comb. nov.  
(Fig. 12)

*Misionella didicostae* Penney, 2005a: 95, figs. 1–5. Male holotype deposited in the Museo del Ámbar Dominicano, not examined; Penney 2005b, fig. 1.

**Note.**—I could not examine the holotype of this species directly, but have examined photos by G. Poinar of a second specimen (Oregon State University, PRC A-10-255), examined and identified by Penney (2005b) shortly after his original description. The palpal morphology (Fig. 12D) fits with the original description. The new combination is here proposed because the examined specimen has a convex cymbium covering the bulb, as do other *Antilloides*. The two characters originally used for placing the species in *Misionella* (the modified second metatarsus and lack of tibial apophysis) are also shared with *Antilloides chupacabras* sp. nov.

## ACKNOWLEDGMENTS

I am indebted to L. Prendini, N. Platnick and L. Sorkin (AMNH), P. Sierwald and J. Boone (FMNH), C. Viquez (INBIO) and G. Giribet and L. Leibensperger (MCZ) for making specimens available for this study. Peter Sprouse helped with finding the exact location of some Mexican caves. George Poinar kindly photographed the *Misionella didicostae* specimen and authorized use of his pictures. I thank D. Penney for suggesting some references and pointing out the existence of the second specimen of *M. didicostae*. Fabián Tricárico helped with the acquisition of SEM images. Earlier versions of the manuscript have been improved by commentaries from M.J. Ramírez and A. Pérez-González, and by a careful revision by A. Sánchez-Ruiz, an anonymous reviewer and the editor, M. Rix. I have been supported by a CONICET doctoral fellowship and by grants from CONICET (2012–0943) and FONCyT (2011–1007) to Martín J. Ramírez.

## LITERATURE CITED

- Brescovit, A.D., I.L.F. Magalhaes & I. Cizauskas. 2016a. Three new species of *Misionella* from northern Brazil (Araneae, Haplogynae, Filistatidae). *ZooKeys* 589:71–96.
- Brescovit, A.D., A. Sánchez-Ruiz & G. Alayón. 2016b. The Filistatidae in the Caribbean region, with a description of the new genus *Antilloides*, revision of the genus *Filistatoides* F. O. P.-Cambridge and notes on *Kukulcania* Lehtinen (Arachnida, Araneae). *Zootaxa* 4136:401–432.
- Cruz-López, J.A., D.N. Proud & A. Pérez-González. 2016. When troglomorphy dupes taxonomists: morphology and molecules reveal the first pyramidopid harvestman (Arachnida, Opiliones, Pyramidopidae) from the New World. *Zoological Journal of the Linnean Society* 177:602–620.
- Gray, M.R. 1995. Morphology and relationships within the spider family Filistatidae (Araneae: Araneomorphae). *Records of the Western Australian Museum* 52:79–89.
- Griswold, C.E., T. Audisio & J.M. Ledford. 2012. An extraordinary new family of spiders from caves in the Pacific Northwest (Araneae, Trogloraptoridae, new family). *ZooKeys* 215:77–102.
- Legittimo, C.M., E. Simeon, P.D.I. Pompeo & A. Kulczycki. 2017. The Italian species of *Pritha* (Araneae, Filistatidae): a critical revision and description of two new species. *Zootaxa* 4243:201–248.
- Lehtinen, P.T. 1967. Classification of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. *Annales Zoologici Fennici* 4:199–468.
- Magalhaes, I.L.F. 2016. On new or poorly known Australian Filistatidae spiders (Araneae: Araneomorphae), including a study on the fine morphology of *Wandella*. *Journal of Natural History* 50:1815–1858.
- Magalhaes, I.L.F. & M.J. Ramírez. 2017. Relationships and phylogenetic revision of *Filistatinella* spiders (Araneae: Filistatidae). *Invertebrate Systematics* 31:665–712. doi/full/10.1071/IS16083
- Penney, D. 2005a. First fossil Filistatidae: a new species of *Misionella* in Miocene Amber from the Dominican Republic. *Journal of Arachnology* 33:93–100.
- Penney, D. 2005b. Fossil blood droplets in Miocene Dominican amber yield clues to speed and direction of resin secretion. *Palaeontology* 48:925–927.
- Ramírez, M.J. & C.J. Grismado. 1997. A review of spider family Filistatidae in Argentina (Arachnida, Araneae), with a cladistic reanalysis of filistatid genera. *Entomologica Scandinavica* 28:319–349.
- Reddell, J.R. 1981. A review of the cavernicole fauna of Mexico, Guatemala, and Belize. *Bulletin of the Texas Memorial Museum, the University of Texas at Austin* 27:1–327.
- World Spider Catalog. 2017. World Spider Catalog. Version 18. Natural History Museum, Bern. Online at <http://wsc.nmbe.ch>.
- Zonstein, S. & Y.M. Marusik. 2015. The first record of *Andoharano* Lehtinen, 1967 (Araneae: Filistatidae) from mainland Africa. *African Invertebrates* 56:483–489.
- Zonstein, S. & Y.M. Marusik. 2016. A revision of the spider genus *Zaitunia* (Araneae, Filistatidae). *European Journal of Taxonomy* 214:1–97.

*Manuscript received 29 May 2017, revised 18 August 2017.*

## APPENDIX 1

**Material examined.**—The following comparative material of *Antilloides* and *Filistatoides* was examined for this study:

*Antilloides abeli* Brescovit, Sánchez-Ruiz & Alayón, 2016. CUBA: *Piñar del Río*: 5 ♀, Viñales, San Vicente, cave entrance, [83.7166°W, 22.6166°N], 9 January 1954, L. Ross (FMNH 2857656).

*Antilloides mesoliticus* Brescovit, Sánchez-Ruiz & Alayón, 2016. CUBA: *Piñar del Río*: 5 ♀, San Diego de Los Baños, Cueva de los Indios, [83.36558°W, 22.64661°N] (AMNH IFM-1310).

*Antilloides* morphotype 'IFMsp114' (cf. *A. cubitas* Brescovit, Sánchez-Ruiz & Alayón, 2016). BRITISH VIRGIN ISLANDS: *Virgin Gorda*: 3 ♀, Baths & Devil's Bay, [64.44336°W, 18.42663°N], 25 June 1966, Island Project Staff (AMNH IFM-1285).

*Antilloides* morphotype 'IFMsp151'. FRENCH WEST INDIES: *Saint Barthélemy*: 3 ♀, [62.83333°W, 17.9°N], 2008, K. Questel (MCZ 79820).

*Antilloides* morphotype 'IFMsp153'. BRITISH VIRGIN ISLANDS: *West Dog Seal*. 1 ♀, [64.43467°W, 18.50665°N], Island Project Staff (AMNH IFM-1309).

*Filistatoides insignis* (O. Pickard-Cambridge, 1896). GUATEMALA: *Tijax*: 3 ♀, [89.26903°W, 15.37521°N], C. Viquez (INBIO IFM-1189).

*Filistatoides* morphotype 'IFMsp23'. MEXICO: *Nuevo León*: 1 ♂, 9 ♀, 5 juveniles, near Mt. El Candela, Gruta del Carrizal, in darkness, [100.57037°W, 26.77644°N], B. Russell (AMNH IFM-1282).