Zootaxa 3334: 63–68 (2012)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

A new species of the schizomid genus *Stenochrus* (Schizomida: Hubbardiidae) from Mexico

RODRIGO MONJARAZ-RUEDAS
Colección Nacional de Arácnidos, Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México. 3er. Circuito exterior s/n. Apartado Postal 70-153, C.P. 04510, Ciudad Universitaria, Coyoacán, Ciudad de México, Distrito Federal, México. E-mail: roy_monrue@hotmail.com

Abstract

A new Mexican species of *Stenochrus* Chamberlin, 1922. *Stenochrus valdezi* new species, is described from Cueva de San Francisco in Chiapas based on adult male and female specimens. With the description of this species, there are 17 species from Mexico, being the country with the highest diversity of species of the genus *Stenochrus* worldwide.

Key words: *Stenochrus*, taxonomy, Chiapas, Mexico

Resumen

Una nueva especie mexicana de *Stenochrus* Chamberlin, 1922 es descrita: *Stenochrus valdezi* sp. nov., de Cueva de San Francisco en el estado de Chiapas, conocida de macho y hembras. Con la descripción de esta especie, hay 17 especies para México, siendo el país con la mayor diversidad de especies del género *Stenochrus* a nivel mundial.

Palabras clave: *Stenochrus*, taxonomía, Chiapas, México

Introduction

The order Schizomida Petrunkevitch, 1945 is a small group of arachnids, currently composed of two recent families: Hubbardiidae Cook, 1899 with 48 genera and 270 species; and Protoschizomidae Rowland, 1975 with two genera and 12 species worldwide (Harvey 2003; Armas 2010). The family Hubbardiidae is represented in Mexico by five genera: *Stenochrus* Chamberlin, 1922; *Sotanostenochrus* Reddell and Cokendolpher, 1991; *Schizomus* Cook 1899; *Mayazomus* Reddell and Cokendolpher, 1995; and *Pacal* Reddell and Cokendolpher, 1995. The genus with the highest diversity in Mexico is *Stenochrus*, which includes 20 species worldwide and 16 Mexican species (Reddell and Cokendolpher 1995; Harvey 2003).

The principal contributions to taxonomy of schizomids from Mexico have been done by Rowland and Reddell (1979a, 1979b, 1980, 1981) and Reddell and Cokendolpher (1986), in these works they described 32 Mexican species. Two decades later, Montaño-Moreno and Francke (2009) published a new species: *Agastoschizomus juxtlahuacensis* (Protoschizomidae) from the Grutas of Juxtlahuaca, Guerrero; and Armas and Cruz-López (2009) described *Stenochrus tepezcuintle* from San Miguel Soyaltepec, Oaxaca. These studies show that research on Mexican schizomids had been stopped for 23 years.

However, there are many undescribed species known from Central and North America, and although the order has been studied in this region, the recent collections made in Mexico by the Colección Nacional de Arácnidos(CNAN) Instituto de Biología, UNAM, have revealed that the diversity might be higher than has been expected for the country.

Accepted by L. Prendini: 18 Apr. 2012; published: 5 Jun. 2012

Materials and methods

The specimens are preserved in 80% ethanol, and were examined and measured with a Nikon SMZ645 stereoscopic microscope. The measurements are given in mm, following Cokendolpher and Reddell (1995). The female spermathecae were dissected in 80% ethanol and cleared in lactophenol for 10 minutes (Krantz and Walter, 2009), after which they were fixed in Hoyers fluid and mounted in a permanent slide preparation, and observed under an optical microscope Zeiss 4290996. The male chelicerae were dissected in ethanol and observed using a semi-permanent slide preparation. Male flagellum and palps were submerged in 96% gel alcohol and covered with a thin layer of liquid ethanol (80%) to minimize light diffraction during photography. The photographs were taken with a camera Nikon Coolpix S10 VR with a microscope adapter. The distribution map was prepared with gvSIG, version 1.11-RC1. The photographs and map were edited with Adobe Photoshop CS5. The specimens are deposited in the Colección Nacional de Arácnidos (CNAN), Instituto de Biología, Universidad Nacional Autónoma de México (UNAM).

Taxonomy

Family Hubbardiidae Cook, 1899

Genus *Stenochrus* Chamberlin, 1922

Type species: *Stenochrus portoricensis* Chamberlin, 1922 by original designation.

Stenochrus valdezi new species
Figures 1–9; Table 1

Type material: MÉXICO: Chiapas: male holotype (CNAN-T0698) [18 June 2011, O. Francke, A. Valdez, C. Santibañez, J. Cruz, R. Monjaraz, G. Contreras, K. Zárate] from Cueva de San Francisco (16.09971ºN, 92.0469ºW, 1546 m), Municipio La Trinitaria. Paratypes: 4 females (CNAN-T0699), same data as holotype.

Etymology: The species name is dedicated to M. S. Alejandro Valdez-Mondragón for his help collecting the type series and for his contribution to the knowledge of arachnids from Mexico.

Diagnosis: Males can be distinguished by the rounded flagellum, with a conical posterior prominence and with two dorsal prominences which are rounded subdistally (Figs 1–3); by the palp trochanter with a distal conical projection (arrow in Fig. 6). Females can be distinguished by the spermathecae having conical lateral lobes, and the long and curved central lobes appearing like an upside down "J" (Fig. 8); and by the chitinized arch ending in pointed projections (arrow in Fig. 8).

Description. Male (Holotype): Body, palps, legs and flagellum pale brownish, chelicerae red brownish.

Prosoma: Propeltidium 1.20 long, 0.85 wide; anterior process distally rounded, with 3 apical setae, one behind the other two (2+1), and with 3 pairs of dorsal setae, the first larger than the other two in descending order. Without eyespots. Mesopeltidial plates 0.24 long, 0.06 wide; space length between the plates 0.25. Metapeltidium undivided, 0.30 long, 0.88 wide; metapeltidium plate very close to mesopeltidium. Anterior sternum triangular, with 10 setae. Posterior sternum triangular, with 6 setae.

Chelicera: Movable finger: Serrula with 21 teeth, guard tooth present (arrow in Fig. 4), with three small accessory teeth, Seta 1=3, 2=4, 3=4, 4=3, 5=7, 6=1. Fixed finger: with 7 smaller teeth between 2 primary teeth (Fig. 5).

Palps: Total length 3.33. Trochanter with a small mesal spur (arrow Fig. 7). Femur with 2 setae on the retrolateral margin, and 4 spiniform setae on the prolateral margin. Patella slightly curved posteriorly, with 3 pairs of ventrolateral setae (Fig. 6). Tibia with 8 plumose setae on the prolateral margin. Tarsus with 2 asymmetrical claws 0.2 long.

Legs: Leg 1, including coxa, total length 6.97, basitarsal-tarsal proportions 30: 5: 6: 6: 7: 6: 15. Femur IV 2.8 x longer than deep.

Opisthosoma: tergite I with 1 anterior pair of large setae and 3 pairs of small posterior setae; tergite II–VIII each with 1 pair of large dorsal setae; tergite IX with 1 pair of dorsolateral setae and 1 pair of lateral setae; tergite X–XI with 1 pair of lateral setae each side; tergite XII slightly telescoped, without evidence of posterodorsal process. Flagellum 0.54 long, 0.34 wide, 0.22 deep; with 4 large dorsal setae, 2 long setae in each bulb (Vl1 large and Dl1 small) and with 5 long ventral setae (Figs 1–3).

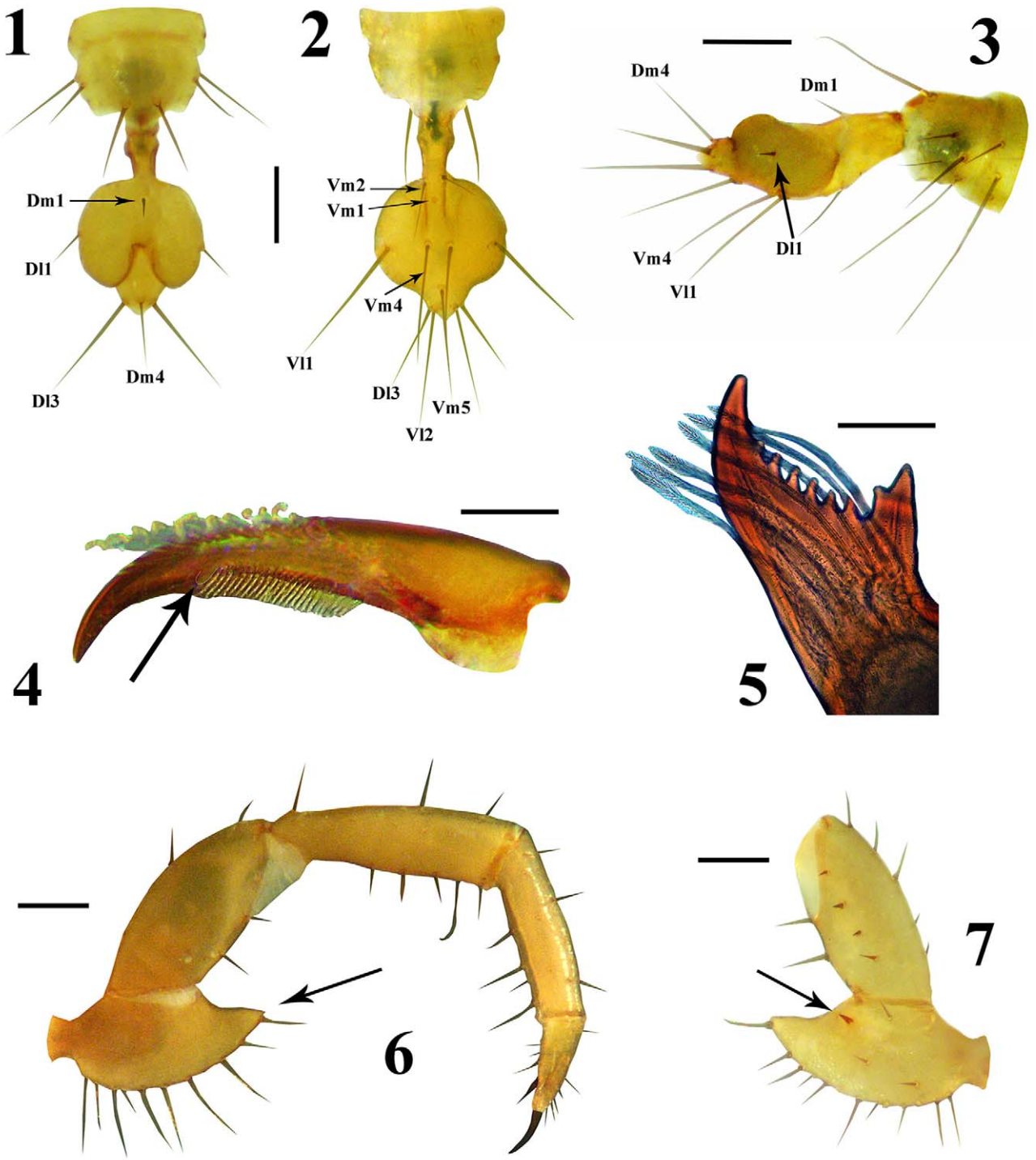
Female (Paratype): *Similar to the male, differences:* Body longer and more robust than male; palps longer but slightly thinner than male, and without spiniform setae. Leg I larger than male (measurements given in Table 1). Flagellum composed of 3 articles. Spermatheca with 4 lobes, median pair curved and larger than lateral pair. Lateral pair shorter and triangular in shape. Without bulbs or granules. Gonopod long and widened apically. Base of spermatheca with 2 sclerotized arcs (Fig. 8).

Variation. (Females, N= 4). Anterior carapaceal process of male with 3 setae, but females have 3 (2+1) or 2 (1+1) setae. Cheliceral movable finger of some females with 17 small teeth on serrula, accessory tooth with irregular shape, Seta 1=3, 2=3, 3=4, 4=11, 5=6, 6=1. Fixed finger of chelicerae with 4 smaller teeth between 2 primary teeth.

TABLE 1. Measurements (mm) of *Stenochrus valdezi* new species.

Characters	Male	Females			
	Holotype	Paratype 1	Paratype 2	Paratype 3	Paratype 4
Total Length	4.35	5.40	4.85	4.90	4.50
Propeltidium	1.20	1.50	1.47	1.50	1.40
Flagellum					
Length	0.54	0.46	0.48	0.44	0.50
Width	0.34	0.12	0.12	0.12	0.12
Pedipalp					
Trochanter	0.80	0.90	0.80	0.70	0.87
Femur	0.75	0.83	0.90	0.83	0.83
Patella	0.80	0.93	0.93	0.90	0.87
Tibia	0.68	0.63	0.73	0.73	0.77
Tarsus	0.30	0.38	0.37	0.33	0.37
Total	3.33	3.67	3.73	3.50	3.70
Leg I					
Coxa	0.56	0.68	0.65	0.58	0.60
Trochanter	0.26	0.38	0.40	0.40	0.40
Femur	1.56	1.88	1.80	1.78	1.90
Patella	2.03	2.23	2.13	2.05	2.25
Tibia	1.47	1.40	1.48	1.33	1.53
Basitarsus	0.47	0.50	0.48	0.52	0.42
Telotarsus	0.62	0.66	0.64	0.68	0.68
Total	6.97	7.71	7.57	7.33	7.78
LegIV					
Trochanter	0.38	0.43	0.48	0.43	0.48
Femur	1.60	1.85	1.78	1.73	1.85
Patella	0.73	0.73	0.73	0.70	0.78
Tibia	1.15	1.30	1.25	1.25	1.35
Basitarsus	1.13	1.13	1.20	1.15	1.15
Telotarsus	0.65	0.54	0.63	0.68	0.70
Total	5.63	5.97	6.05	5.93	6.30

Remarks. *Stenochrus valdezi* resembles *S. palaciosi* (Reddell and Cokendolpher, 1986) (holotype examined), but they differ in size, *S. valdezi* is larger (4.35) than *S. palaciosi* (3.64). The shape of the flagellum is more globose and bigger in *S. valdezi* than in *S. palaciosi* (figs. 1–5, 11; Reddell and Cokendolpher, 1986). The spermatheca in *S. valdezi* has large median lobes and short lateral lobes, the median ones an inverted "J" (Fig. 8). In *S. palaciosi* the median and lateral lobes have the same length (fig. 11; Reddell and Cokendolpher, 1986). The palps of *S. palaciosi* are more slender and smaller (2.18) than *S. valdezi* (3.33) (Fig. 6), the anterior margin of the trochanter ends in a conical projection as *S. valdezi*, however the trochanter of *S. palaciosi* is smaller (0.20) than *S. valdezi* (0.80) and armed with more spiniform setae. The patella is slightly larger in *S. valdezi* than *S. palaciosi*.



FIGURES 1–7. *Stenochrus valdezi* **new species.** Male: Flagellum (1–3): 1, Dorsal view. 2, Ventral view. 3, Lateral view. 4, Right chelicera, movable finger, prolateral view. 5, Fixed finger, prolateral view. 6, Right palp, retrolateral view. 7, Prolateral view; Scales: 0.2mm (Figs. 1–3, 6, 7), 0.05mm (Figs. 4, 5).

Distribution. Known only from the type locality (Fig. 9).

Natural history. The specimens were collected around 100 m inside a karstic cave, collected manually on the floor and walls. The habitat outside the cave is oak forest. The cave showed high degree of human disturbance, because there are religious ceremonies by the people that live in the town near the cave. Even inside the cave the subterranean river has been contaminated. The male holotype was found inside an old candle holder, and the females in a narrow passage with low concentration of oxygen.

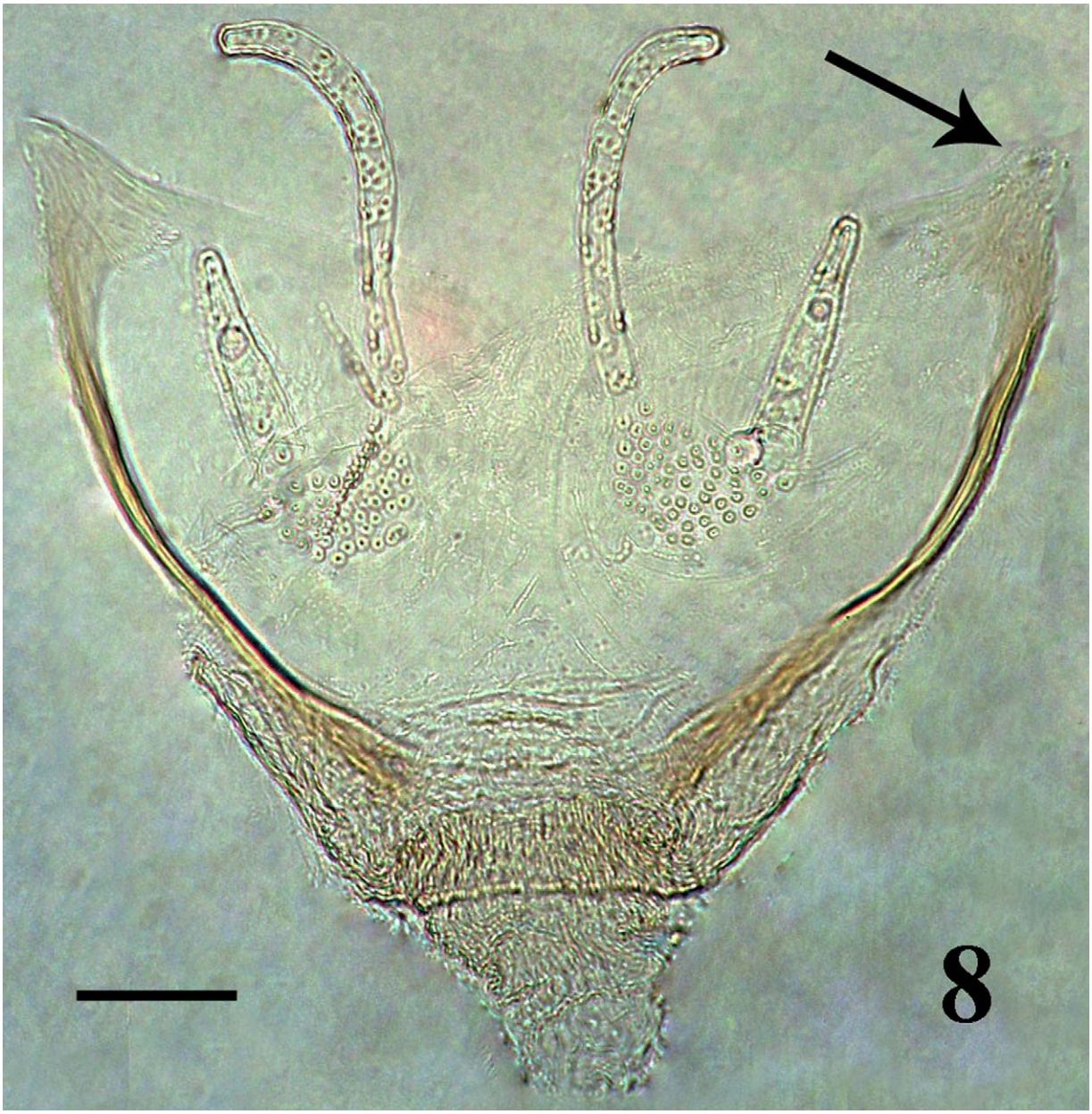


FIGURE 8. *Stenochrus valdezi* **new species**. Female: Spermathecae. Scale: 0.05mm.

Acknowledgments

I thank my advisor M. S. Alejandro Valdez-Mondragón for the comments and revision of this paper. To Dr. Oscar F. Francke for the revision and corrections of the English language, and for providing laboratory facilities. To Jesús Cruz-López, Gerardo Contreras, Carlos Santibáñez, Kaleb Zárate and Alejandro Valdez for their help collecting the type material. To Ulalume Hernández Arciga for reviewing the English language. To the Colección Nacional de Arácnidos (CNAN), Instituto de Biología, UNAM for the support in the field work. Specimens were collected under the Scientific Collector Permit FAUT-175 granted by SEMARNAT, Mexico, to Oscar F. Francke.

FIGURE 9. Known distribution of *Stenochrus valdezi* **new species**. Black circle: Cueva de San Francisco (type locality).

Literature cited

Armas, L.F.de. (2002) Arácnidos de República Dominicana. Palpigradi, Schizomida, Solifugae y Thelyphonida (Chelicerata: Arachnida)**.** *Revista Ibérica de Aracnología,* 2,3–63

Armas, L.F.de. y Cruz-López, J.A. (2009) Especie nueva de *Stenochrus* (Schizomida: Hubbardiidae) de Oaxaca, México. *Solenodon,* 8, 20–24.

Armas, L.F.de. (2010) Schizomida de Sudamérica (Chelicerata: Arachnida).*Boletín de la Sociedad Entomológica Aragonesa,* 46, 203–234.

Harvey, M.S. (2003) Catalogue of the smaller arachnid orders of the World: Amblypygi, Uropygi, Schizomida, Palpigradi, Ricinulei and Solifugae. *CSIRO Publishing*. Collingwood, Victoria, Australia, 385 pp.

Krantz, G.W. & Walter, D.E. (2009) Collecting, rearing, and preparing specimens. *In* Krantz, G. W. and D. E. Walter (Eds), *A manual of acarology.* Third edition. *Texas Tech University Press*, pp. 83–96.

Montaño-Moreno, H. & Francke, O. (2009) A new species of *Agastoschizomus* (Schizomida: Protoschizomidae) from Guerrero, Mexico. *Texas Memorial Museum Speleological Monographs,* (7). "*Studies on the cave and endogean fauna of North America"*, 5, 33–36.

Reddell, J.R. & Cokendolpher, J.C. (1995) Catalogue, bibliography, and generic revision of the order Schizomida (Arachnida). *Texas Memorial Museum, Speleological Monographs*, 4, 1–170.

Rowland, J.M. & Reddell, J.R. (1979a) The order Schizomida (Arachnida) in the New World. I. Protoschizomidae and dumitrescoae group (Schizomidae: *Schizomus*). *Journal of Arachnology,* 6, 161–196.

Rowland, J.M. & Reddell, J.R. (1979b) The order Schizomida (Arachnida) in the New World. II. Simonis and brasiliensis groups (Schizomidae: *Schizomus*). *Journal of Arachnology,* 7, 89–119.

Rowland, J.M. & Reddell, J.R. (1980) The order Schizomida (Arachnida) in the New World. III. Mexicanus and pecki groups (Schizomidae: *Schizomus*). *Journal of Arachnology,* 8, 1–34.

Rowland, J.M. & Reddell, J.R. (1981) The order Schizomida (Arachnida) in the New World. IV. Goonightorum and briggsi groups (Schizomidae: *Schizomus*). *Journal of Arachnology,* 9, 19–46.