

NOTES

Caribbean Journal of Science, Vol. 33, No. 1-2, 112-114, 1997
Copyright 1997 College of Arts and Sciences
University of Puerto Rico, Mayagüez

An Annotated Preliminary Checklist of the Dryinidae of Cuba (Insecta: Hymenoptera)

JULIO A. GENARO¹ AND EDUARDO PORTUONDO,² ¹Museo Nacional de Historia Natural, Obispo #61, esquina a Oficios, Plaza de Armas, Habana Vieja 10100, Cuba; ²Centro Oriental de Ecosistemas y Biodiversidad, BIOECO, José A. Saco #601, Santiago de Cuba 90100, Cuba.

Dryinids are small wasps that parasitize homopterans (Auchenorrhyncha). Most female dryinids are apterous and have chelate forelegs. The systematics of this group has been the source of great confusion, due mostly to the scarcity of material in collections, the lack of identification keys, the difficult association of the sexes, and the incorrect application of nomenclature (Olmí, 1984a). Thanks to the papers produced by Olmí (see references) our knowledge of world dryinids has improved considerably.

Knowledge of the systematics of Cuban dryinids is meager. Alayo (1974) listed all known taxa, summarizing for each the available information. In his list, the identity of all but one taxon [a species described by Richards (1969)] is given to generic level, and with uncertainty. In this paper we update the list of Cuban species, provide 14 new records and information on their geographic range.

We revised the entomological collections of Centro Oriental de Biodiversidad, Santiago de Cuba (BIOECO), Museo Nacional de Historia Natural de Cuba (MNHNCU), Instituto de Ecología y Sistemática de Cuba (IES), Museum of Comparative Zoology at Harvard (MCZ) and P. Alayo's collection, in Havana city (PA).

LIST OF CUBAN DRYINIDAE

Aphelopinae

Aphelopus diffusus Olmí, 1984. Mem. Amer. Entomol. Inst. 37:79. ♀, ♂. Type: Natural History Museum, London.

Distribution.—Bahamas, Grenada, Antigua, Trinidad, Central and South America (Olmí, 1984a; 1993a), Cuba (new record).

Material Examined.—Jardín Botánico de Santiago of Cuba (2. ii. 94), coll. J.L. Reyes, ♀ (BIOECO).

Aphelopus jamaicanus Olmí, 1984. Mem. Amer. Entomol. Inst. 37: 81. ♂. Type: Biosystematics Research Institute, Ottawa, Canada.

Distribution.—Jamaica, Panama, Colombia (Olmí, 1984a; 1993a), Cuba (new record).

Material examined.—Jardín Botánico de Santiago of Cuba (iv. 93), coll. E. Portuondo, ♂ (BIOECO).

Aphelopus trinitatis Olmí, 1984. Mem. Amer. Entomol.

Inst. 37: 80. ♀, ♂. Type: Natural History Museum, London.

Distribution.—Cuba, Grand Cayman, Jamaica, Trinidad, México, Central and South America (Olmí, 1984a; 1993a).

Material Examined.—Soledad, Cienfuegos (i-ii. 27) coll. CT & BB Brues, ♂ (MCZ); Arroyo Blanco, Baracoa (vii. 94) coll. E. Portuondo, ♀ (BIOECO).

Anteoninae

Anteon micros Olmí, 1984. Mem. Amer. Entomol. Inst. 37: 519. ♀. Type: American Museum of Natural History, New York.

Anteon sp. A Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—Venezuela (Olmí, 1984a), Cuba (new record).

Material Examined.—Santiago de Las Vegas, Havana (iv. 67), coll. P. Alayo, ♀ (PA).

Anteon molle Olmí, 1984. Mem. Amer. Entomol. Inst. 37: 492. ♀, ♂. Type: Biosystematics Research Institute, Ottawa, Canada.

Distribution.—Mexico, Colombia, Guatemala, Ecuador, Panama (Olmí, 1984a; 1993a), Cuba (new record).

Material Examined.—Mariel, Havana province (vi. 68), ♀ coll. P. Alayo (PA); Sierra del Rosario, Pinar del Rio (ix. 68) 2♀ coll. P. Alayo (PA).

Dryininae

Thaumatomydryinus bruchi De Santis & Vidal Sarmiento, 1974. Neotropica 20: 22. ♀ Type: Museo La Plata, Argentina.

Distribution.—Brazil, Argentina (De Santis and Vidal Sarmiento, 1974; Olmí, 1984a), Cuba (new record).

Material Examined.—Rio La Mula, Sierra Maestra (18. vi. 95), coll. E. Portuondo, ♂ (BIOECO).

Dryinus cruciatus Olmí, 1993. Bol. Zool. Agrar. Bachic. 25: 72. ♀. Type: M. Olmí collection, Viterbo, Italy.

Dryinus sp. C Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—St. Croix, Virgin Islands (Olmí, 1993b), Cuba (new record).

Material Examined.—Ciego Montero, Cienfuegos, (xii. 67) coll. P. Alayo, ♀ (PA).

Dryinus ruber (Olmí), 1984. Mem. Amer. Entomol. Inst. 37: 1031. ♀. Type: American Museum of Natural History.

Dryinus sp. A Alayo, 1974. Ser. Biol. 52: 17.

Distribution.—Bahamas (Olmí, 1984b), Cuba (new record).

Material Examined.—Laguna de Los Negros, Guanahacabibes, Pinar del Rio (xi. 67) coll. P. Alayo ♀ (PA); Guanimar, S of the Havana (12. vi. 73) coll. L.F. Armas, ♀ (PA); Pinar del Rio (xi. 67) coll. P. Alayo ♀ (M. Olmí collection).

Gonatopodinae

Echthrodelpfax krombeini Olmi, 1984. Mem. Amer. Entomol. Inst. 37: 1160. ♀. Type: National Museum of Natural History, Washington, DC.

Dryinus sp. D Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—Florida, USA (Olmi 1984b), Cuba (new record).

Material Examined.—Lombillo, Havana city (ix. 57) coll. J. Acuña ♀ (PA); Nueva Paz, Havana province (vii. 67), coll. P. Alayo ♂ (PA).

Host: *Sogata* sp. (Delphacidae) (Alayo, 1974).

Gonatopus acer Olmi, 1989. Frustula Entomol., NS 12: 346. ♀. Type: M. Olmi collection, Viterbo, Italy.

Gonatopus sp. A Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—Mexico and Ecuador (Olmi, 1989), Cuba (new record).

Material Examined.—Versalles, Santiago de Cuba (ix. 69) coll. P. Alayo, ♀ (PA); Maibio, Palma Soriano (2.vii.92), coll. E. Portuondo, ♀ (BIOECO); Uvero, Sierra Maestra (25.v.72), coll. L. F. de Armas, ♀ (PA).

Gonatopus antilleanus Olmi, 1987. Boll. Soc. Entomol. Ital., Genova. 119: 114. ♀. Type: Faculty of Agriculture, Wageningen, Netherland.

Distribution.—Curaçao, Dutch Antilles (Olmi, 1987), Cuba (new record).

Material Examined.—Guanimar, S of Havana province (12.vi.73), coll. L. F. de Armas ♀ (PA).

Gonatopus arizonicus (Perkins)

Pseudogonatopus arizonicus Perkins, 1907. Hawaii Sugar Plant. Assoc. Exp. Stn., Entomol., 2:36. ♀, ♂. Type: Bishop Museum, Honolulu.

Distribution.—United States of America (Olmi, 1984b), Cuba (new record).

Material Examined.—Maibio, Palma Soriano (22.xii.92), coll. E. Portuondo, ♀ (BIOECO).

Gonatopus bartletti Olmi, 1984. Mem. Amer. Entomol. Inst. 37: 1751. ♀, ♂. Type: National Museum of Natural History, Washington, DC.

Gonatopus n. sp. Bartlett 1939: 497.

Gonatopus sp. B Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—Puerto Rico (Bartlett, 1939; Olmi, 1984b), Mexico (Vega and Barbosa, 1900), Cuba and Bahamas (1 specimen at MCZ) (new record).

Material Examined.—Ciénaga de Lanier, Isla de La Juventud (viii. 69), coll. P. Alayo, ♀ (PA).

Gonatopus campbelli Olmi, 1984. Mem. Amer. Entomol. Inst. 37: 1755. ♀. Type: Byosystematics Research Institute, Ottawa, Canada.

Distribution.—Mexico, Costa Rica, Brazil, Peru (Olmi 1984b; 1993a), Cuba (new record).

Material Examined.—La Melba, Baracoa (27.iv.87), coll. G. Garcés, ♀ (BIOECO).

Gonatopus citrinus (Olmi)

Apterodryinus citrinus Olmi. 1984. Mem. Amer. En-

tomol. Inst. 37: 1359. ♀. Type: M. Olmi collection, Viterbo, Italy.

Gonatopus sp. C Alayo, 1974. Ser. Biol. 52: 18.

Distribution.—Cuba, Costa Rica (Olmi, 1993a, as *Apterodryinus citrinus*).

Material Examined.—Aspiro, Rangel, Pinar del Rio (vi. 59) coll. P. Alayo and F. de Zayas, ♀ (PA); pico Turquino, Sierra Maestra (iii.72), coll. R. Alayo, ♀ (PA).

Gonatopus cubensis (Richards)

Cyrtogonatopus cubensis Richards 1969. Proc. Royal Entomol. Soc. London 38: 81. ♀ ♂ Type: Instituto de Ecología y Sistemática, Cuba.

Distribution.—Cuba, Guadeloupe, Mexico (Olmi, 1984b, as *Acrodontochelys cubensis*), Antigua, WI (1 ♂ at MCZ).

Material Examined.—Laguito, Playa, Havana city (iii. 67) coll. P. Alayo 2 ♂ (PA, IES) and 8 ♀ (3 paratypes) (PA, IES, BIOECO); Laguito, Havana city (iv.67), coll. P. Alayo ♀ holotype; Cojimar's hills, Havana city (v.75), coll. I. Herbello ♀ (PA); Santiago de Las Vegas, Havana (iv.67), coll. P. Alayo ♀ (PA); Los Hondones, Ciénaga de Zapata, Matanzas (xii.95), coll. O. Navarro, ♀ (MHNHNCU); Atabey, Havana city (21.iii.73), coll. L. R. Hernández ♀ (PA).

Gonatopus zolnerowichi (Olmi)

Tetrodontochelys zolnerowichi Olmi, 1989. Frustula Entomol., NS 12: 333. ♀ Type currently at National Museum of Natural History, Washington, DC.

Distribution.—United States of America (Olmi, 1989), Cuba (new record).

Material Examined.—Laguito, Playa, Havana city (27. xi. 70) coll. L.F. de Armas, ♀, on Jiribilla (*Andropogon caricosus* L.); same locality (xii. 70) coll. L.F. de Armas, 7 ♀ (PA and M. Olmi collections).

We did not find the specimens of *Agonatopoides* sp. and *Dryinus* sp. B. (Alayo, 1974) in Cuban collections. Bruner et al. (1975) mention an undetermined dryinid parasitizing an adult of *Empoasca fabae* (Harris) (Cicadellidae). Alayo (1974) does not cite this record. We were also unable to find this wasp. According to the habits of these parasitoids, the lost dryinid should belong to *Aphelopus*.

Acknowledgments.—We are indebted to Massimo Olmi (Università degli Studi della Tuscia, Viterbo, Italy) for species identifications and for kindly cooperating in several ways. This paper would not have been possible without his generous assistance. Rare Center for Tropical Conservation, Philadelphia, provided funds to JAG to study collections at several US Museums. JAG acknowledges Elizabeth Hathway (Association of Systematics Collections, Washington, DC) for providing useful literature. Pastor Alayo provided literature and specimens from his collection.

LITERATURE CITED

- Alayo, P. 1974. Introducción al estudio de los himenópteros de Cuba. Superfamilia. Bethyloidea. Ser. Biol. 52:1-24.
- Bartlett, K. A. 1939. A dryinid parasite attacking *Dal-*

- bulus maidis* in Puerto Rico. J. Agric. Univ. Puerto Rico 22:497–498.
- Bruner, S. C., L. C. Scaramuzza, and A. R. Otero. 1975. Catálogo de los insectos que atacan a las plantas económicas de Cuba. Academia de Ciencias de Cuba. La Habana. 399 pp.
- De Santis, L., and J. A. Vidal Sarmiento. 1974. Las especies argentinas del género *Thaumatomyia* (Hymenoptera, Dryinidae). Neotropica 20:21–26.
- Olmi, M. 1984a. A revision of the Dryinidae (Hymenoptera). Mem. Amer. Entomol. Inst. Part 1. 37:1–946.
- . 1984b. A revision of the Dryinidae (Hymenoptera). Mem. Amer. Entomol. Inst. Part 2 37:947–1913.
- . 1987. Nuove specie americane di Dryinidae (Hymenoptera, Chrysidoidea). Boll. Soc. Entomol. Ital., Genova 119:99–116.
- . 1989. Supplement to the revision of the world Dryinidae (Hymenoptera, Chrysidoidea). Frustula Entomol., NS 12:109–395.
- . 1993a. Dryinidae di Costa Rica: catalogo e considerazioni biogeografiche ed evolutive (Hymenoptera: Chrysidoidea). Boll. Soc. Entomol. Ital., Genova 124:186–200.
- . 1993b. A new generic classification for Thaumatomyiinae, Dryinidae and Gonatopodinae, with descriptions of new species (Hymenoptera: Dryinidae). Boll. Zool. Agr. Bachic. 25:57–89.
- Richards, O. W. 1969. *Cyrtogonotopus* Kieffer (Hymenoptera: Dryinidae), with the description of a new species from Cuba. Proc. Royal Entomol. Soc. London 38:80–82.
- Vega, F. E., and P. Barbosa. 1990. *Gonatopus bartlettii* Olmi (Hymenoptera: Dryinidae) in Mexico: a previously unreported parasitoid of the corn leafhopper *Dalbulus maidis* (DeLong & Wolcott) and the Mexican corn leafhopper *Dalbulus elimatus* (Ball) (Homoptera: Cicadellidae). Proc. Entomol. Soc. Washington 92:461–464.
- Museum, Rio Piedras campus, I found specimens from previously unrecorded localities. These records are given below.
- I also made three one-day collecting trips to coastal areas several municipalities for which there were no museum records: Cabo Rojo, Ceiba, Guayama, Guayanilla, Hormigueros, Juana Díaz, Lajas, Maunabo, Naguabo, Ponce, Salinas, Santa Isabel, and Yabucoa.
- Nephila clavipes* was found on one or more locations in the following municipalities (new records in the Museum's collection are indicated by an asterisk): Aguadilla, Aguas Buenas, Arecibo, Florida, Barceloneta, Barranquitas, Bayamón, Cabo Rojo*, Caguas, Camuy, Carolina, Cayey, Ciales, Coamo*, Comerío, Dorado, Guánica, Guayama*, Hatillo, Humacao, Isabela*, Lares, Loíza, Luquillo, Manatí, Maricao, Maunabo*, Mayagüez, Mona Island, Naranjito, Peñuelas, Quebradillas, Rio Grande, Sabana Grande, San Juan, Toa Baja, Trujillo Alto, Utuado, Vega Baja*, Vieques, and Yauco.
- Plotted distribution records (Fig. 1), show that *N. clavipes* is widely distributed in Puerto Rico, with a possible gap along the south of the Island. This distribution is consistent with that found by Pérez (unpublished). Visited areas along the south coast were generally very dry looking and the vegetation was mostly shrubs and grasslands. The spiders commonly found in those areas were *Argiope argentata* (Fabricius) (Araneidae) and *Leucauge argyra* (Walckenaer) (Tetragnathidae), either on open or closed areas between shrubs and grasses.
- Nephila clavipes* was not found in grasslands, or at considerable distances from trees. This spider was found only in open, relatively humid areas. The webs of adult females cover a considerable area and the hub can be seen at over 2 meters from the ground. These observations are consistent with those reported by Moore (1977) and Vasconcellos-Neto and Lewinsohn (1984).

Acknowledgements.—I wish to thank Robert L. Edwards for suggesting this study and for his useful suggestions, Catherine N. Duckett for her valuable comments on early manuscripts, Manuel J. Vélez for making me aware of some of the literature, and Eduardo Nazario for his field assistance.

Caribbean Journal of Science, Vol. 33, No. 1–2, 114–115, 1997
Copyright 1997 College of Arts and Sciences
University of Puerto Rico, Mayagüez

Geographic Distribution of *Nephila clavipes* (Araneae: Tetragnathidae) in Puerto Rico

ANGEL J. VARGAS, Department of Biology, University of Puerto Rico Box 23360, Río Piedras, Puerto Rico 00931.

The golden web spider, *Nephila clavipes* Koch, is a common Neotropical species distributed from the southeast United States to Argentina and Peru (Levi, 1980). The most recent record of this species for Puerto Rico appears in Petrunkevitch (1930), who records it at the former "Colegio de Agricultura y Artes Mecánicas" in Mayagüez. Other records include the town of Aguadilla, as recorded by Banks, and Mona Island, as recorded by Lutz (Petrunkevitch, 1930).

While reviewing the spider collection at the Biology

LITERATURE CITED

- Levi, H. W. 1980. The orb-weaver genus *Mecynogea*, the subfamily Metinae and the genera *Pachignatha*, *Glenognatha*, and *Azilia* of the subfamily Tetragnathinae North of Mexico (Araneae: Araneidae). Bull. Mus. Comp. Zool. Harv. 149:1–27.
- Moore, C. W. 1977. The life cycle, habitat and variation in selected web parameters in the spider, *Nephila clavipes* Koch (Araneidae). Am. Midl. Nat. 98:95–108.
- Pérez, R. A. 1971. Estudio de la biología en general de *Nephila clavipes fasciculata* en Puerto Rico. Unpublished manuscript.
- Petrunkevitch, A. I. 1930. The spiders of Porto Rico, part II, pp. 247–248. Transactions of the Connecticut Academy of Arts and Sciences, New Haven, Connecticut.
- Vasconcellos-Neto, J., and T. M. Lewinsohn. 1984. Discrimination and release of unpalatable butterflies by *Nephila clavipes*, a neotropical orb-weaving spider. Ecol. Entomol. 9:337–344.