SYSTEMATICS

Paraganaspis egeria, a New Genus and Species of Eucoilidae (Hymenoptera: Cynipoidea)

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ABSTRACT *Paraganaspis egeria*, a new genus and species obtained from pupae of *Sarcophagula occidua* (F.) (Diptera: Sarcophagidae) is described. Diagnostic figures and a brief description of the biology of this parasitoid are included.

KEY WORDS *Paraganaspis egeria*, Eucoilidae, hymenopteran parasitoids, filth flies

THE EUCOILIDAE ARE the best represented family of Cynipoidea in the Neotropical Region (Nordlander 1982b). Twenty-five species, belonging to 18 genera, have been reported thus far in Argentina. They are all parasitoids of immature stages of cyclorrhaphous Diptera (Ronquist 1994).

The objective of this work was to describe the species and genus of some specimens of this family that were undescribed. We collected these parasitoids during a study of natural enemies of filth flies carried out by the South American Biological Control Laboratory, USDA–ARS, in Argentina. They are deposited in the collection of the Departamento Científico de Entomología of the Museo de La Plata.

Materials and Methods

We studied 93 specimens (90 females and 3 males). Descriptions follow the terminology used by Weld (1952) and Nordlander (1982a, b). Measurements reported are relative, except for the total length (head to abdominal tip, without the antennae), which is expressed in millimeters. We did the artwork under an optical microscope, with a camera lucida, at 125× magnification.

We collected the host flies as larvae and pupae in cow manure of different age categories (12–36 h, 3–6 d, and 9–14 d) that contained eggs and young larvae, larvae and prepupae, and pupae of the dung flies respectively. The pupae were collected together with all other floating arthropods in the manure (i.e., adult beetles and Hymenoptera, and adult and immature mites), by suspending the dung samples in water, and incubated in plastic cups with cardboard lids at 25°C. Up to 20 puparia from the same site of each known species were incubated together. Unidentified or doubtful species were incubated individually. The larvae, which are not easily recovered by flotation, were collected together with a great part of the manure, by pouring the suspension through a No. 16 sieve. The whole mass was then pressed to eliminate the excess water, and incubated in 3-liter plastic containers covered with muslin. Once the larvae pupated, they were recovered by flotation, and incubated as described above. Once the parasitoids emerged, they were preserved in 70% EtOH, together with the host puparia. The host species were identified by comparing the morphology of the caudal spiracles of the puparia, previously treated with KOH, with the puparia of identified specimens.

Results

Genus *Paraganaspis* Díaz & Gallardo nov.

Type Species. *Paraganaspis egeria* Díaz & Gallardo, sp. nov.; current designation and monotypy.

Diagnosis. Female antenna with 6-segmented club, article 3 longer than 4; male antenna with article 3 longer than 4 and slightly arched. Mesoscutum smooth, notaulices absent; scutellar cup scarcely elevated above the disc, scutellar disc areolate, rounded behind. Radial cell of forewing closed, more than twice as long as broad. Petiole remarkably widened posteriorly; metasoma sessile, hairy ring at base present.

Description. Head as wide as mesosoma, longer than wide in frontal view. Malar ridges present. Female antennae with 13 articles, slightly clavate

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as from 8th article; article 3 longer than 4, articles 8–13, subequal in length, with rhinaria. Male antennae with 15 articles, filiform, article 3 longer than 4 and slightly arched, articles 3–15 with rhinaria. Genae rounded.

Mesosoma was thin. Lateral cavities of pronotal plate open, posterior margin concave. Mesoscutum slightly arched, without longitudinal ridges; anterior admedian lines and notaulices absent, the latter replaced by a row of setiferous punctures; lateral lines present. Scutellum with 2 pits at base; lateral bars long and smooth, divergent posteriorly; disc areolate, posterior edge rounded; cup scarcely elevated on surface of disc, smooth and shiny; lateral depressions well defined. Subalar pits present. Anteroventral cavity of metapleuron pubescent. Forewings of normal size, rounded at the apex, with marginal and discal setae; radial cell closed, more than twice as long as wide, 1st radial abscissa shorter than 2nd. Mid- and hind coxae with patch of dorsolateral and posterodorsal setae, respectively. Propodeum with normal development, lateral areas densely pilose.

Petiole widened posteriorly. Metasoma sessile, hairy ring at base present.

Etymology. Greek. *Paraganaspis;* para: beside, near, in allusion to its similarity with *Ganaspis* Foerster.

Remarks. *Paraganaspis* is probably a member of the *Ganaspis* group (as defined by Nordlander 1982b). This genus differs from *Ganaspis* Foerster and *Aganaspis* Lin mainly in the characteristics of the female antenna, scutellum, and radial cell of the forewing.

Paraganaspis. Female antenna with 6-segmented club with ellipsoidal articles, subequal in length, twice as long as broad, the last slightly longer than preceding. Scutellar cup ≈0.5 width of disc; disc areolated, rounded behind. Radial cell closed.

Ganaspis. Female antenna filiform with all flagellar segments long, cylindrical. Scutellar cup ≈0.5 width of disc; disc punctate, rounded or elongated behind. Radial cell closed (Weld 1952).

Aganaspis. Female antenna moniliform with 8–9 segmented club with subspherical articles, as long as broad; the last slightly longer than preceding. Scutellar cup ≈0.7 width of disc, unusually large and overhanging behind the scutellum; disc foveolate, rounded posteriorly. Radial cell open (Lin 1987). This new genus differs from *Trybliographa* Foerster, *Leptopilina* Foerster, *Cothonaspis* Hartig, and *Rhoptromeris* Foerster, mainly in the male antenna.

Paraganaspis. male antenna with segment 3 curved, longer than following segments; segment 4 similar to the ensuing flagellar segments. Male antenna of *Trybliographa, Leptopilina, Cothonaspis*, and *Rhoptromeris* with segment 3 shorter than 4, and either straight or slightly bent; segment 4 usually swollen distally, or elongate and distinctly bent. *Leptopilina, Cothonaspis*, and *Rhoptromeris* differ from *Paraganaspis* in 7 synapomorphies (characters 2–8) given by Nordlander (1982a, pp. 288–289). They share with *Paraganaspis* and *Trybliographa* scutellum rounded behind, not elongated; with *Leptopilina, Cothonaspis*, and *Trybliographa,* anterior and posterior parts of pronotal plate connected by broad median bridge, with a lateral open cavity on each side; with *Leptopilina* and *Cothonaspis,* petiole widened posteriorly.

Geographic Distribution. The geographical range of the genus is probably extensive in the Neotropical Region, but at present it is known only from Argentina.

Paraganaspis egeria

(Figs. 1–5)

Holotype Female. Total length 2 mm. Head, mesosoma and metasoma smooth and shiny. Head and mesosoma black; metasoma dark brown. Mandibles, antennae, tegulae, veins and legs yellowish. Teeth of mandibles, articles of antennal club, coxae, femora and pretarsi darkened. General pilosity sparse, short and white.

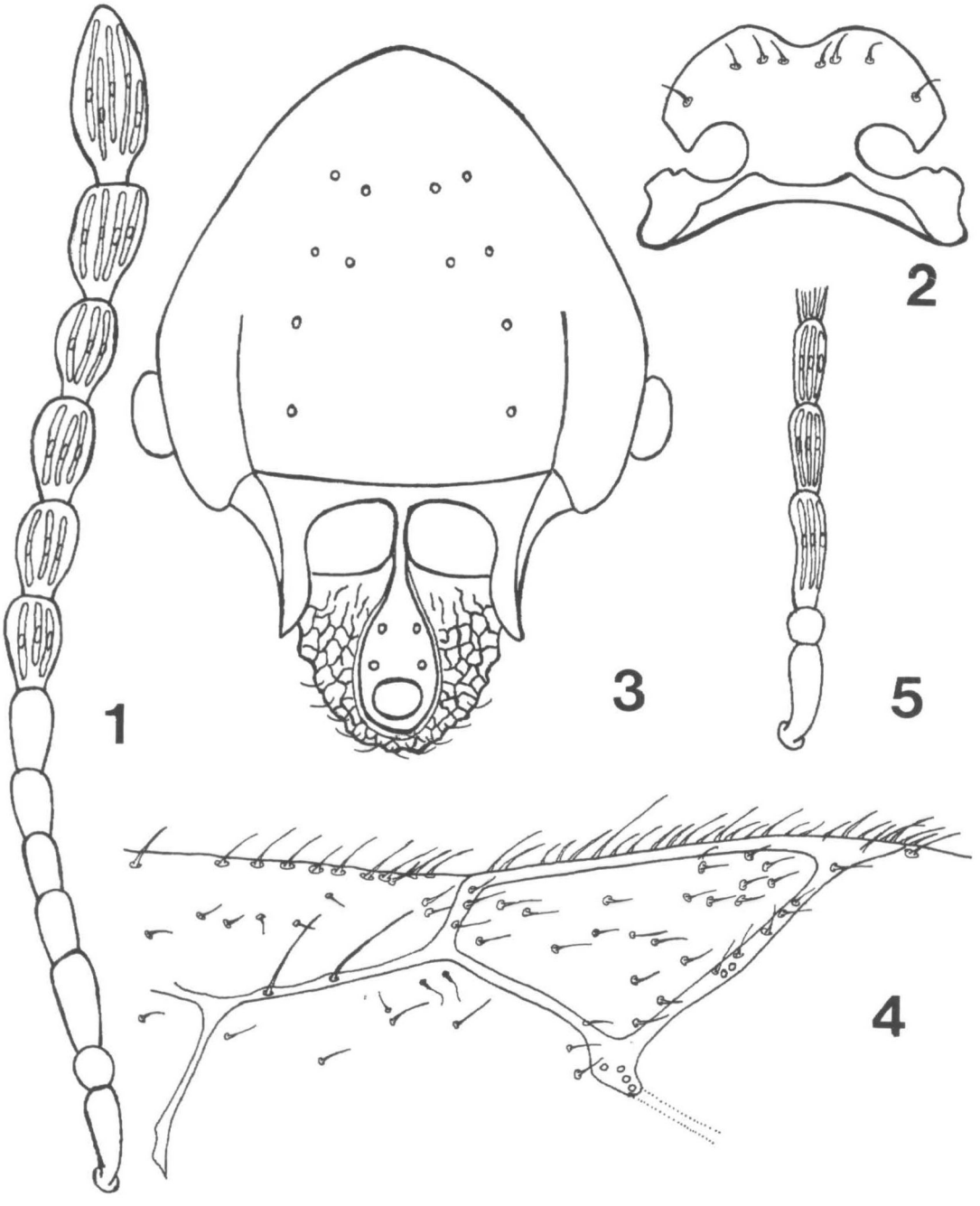
Head with setiferous punctures, more abundant on facial and postgenal areas. Antennae (Fig. 1) inserted above midline of eyes; club with 6 articles; relative length of antennal articles 7: 4: 6: 4: 4: 4: 4: 5: 5: 5: 5: 6: 9. Occiput with 2 or 3 narrow grooves interrupted dorsally.

Mesosoma with setiferous punctures, more abundant on anterior margin of lateral areas of pronotum, posterior edge of metapleura, metanotum and propodeum. Posterior region of pronotal plate (Fig. 2) with setae. Anterior margin of sides of pronotum with a row of abundant, fine and short setae, an area with small scaly setae, and a posterior row of sparse, long and thick setae. Mesoscutum (Fig. 3) width 0.94 times the breadth (29: 31). Lateral bars of scutellum reach half its length; pits smooth, wider than long; cup with a pair of setiferous punctures on each side, and a distal pit; disc areolated, posterior margin pilose. Mesopleura with a narrow groove on the lower 3rd. Metapleura with 2 rugae on upper half. Wings (Fig. 4) hyaline, radial cell length 2.1 times the width (23: 11); median, discoidal, subdiscoidal and submarginal veins spurious, areolar stub present. Keels of propodeum subparallel.

Hairy ring at base of metasoma narrowing dorsally. Metasoma length 2.5 times the height (60: 40).

Male. Total length 1.5 mm. Similar to female. Antennae (Fig. 5) dark brown. Relative length of antennal articles 6: 4: 10: 8: 8: 8: 8: 9: 9: 9: 9: 10: 10: 10: 12. Hairy ring at base of metasoma interrupted dorsally. Metasoma length 1.67 times the height (50: 30).

Variation. The morphology of the specimens of *P. egeria* we studied is uniform. All males are smaller than the females; male length 1.3–1.6 mm, female length 1.8–2.2 mm.



Figs. 1–5. *P. egeria* gen. nov. and sp. nov. Female. (1) antenna; (2) pronotal plate; (3) mesonotum and scutellum; (4) detail of the radial cell (anterior wing). Male. (5) Detail of the antenna. 125× magnification.

Geographic Distribution. ARGENTINA: Formosa, Tucumán, Chaco, Misiones, Corrientes and Entre Ríos Provinces.

Type Material. ARGENTINA. HOLOTYPE: 1♀, Clorinda, Formosa Prov., 18-III-90. ALLOTYPE: 1 ♂, same data. PARATYPES: 5 ♀♀, same data.

Other Material Examined. ARGENTINA. Formosa Prov. 2 ♀♀, Pirané, 17-III-90; 1 ♀, Formosa, 18-III-90; 7 ♀♀ Laguna Blanca, 19-III-90. Tucumán Prov.: 1 ♀, Simoca, 22-I-86. Chaco Prov.: 6 ♀♀, Saenz Peña, 16-III-90; 7 ♀♀, San Martín, 17-III-90; 1 ♀, La Leonesa, 20-III-90. Misiones Prov.: 7 ♀♀, Santa Ana, 14-III-90. Corrientes

Prov.: 30 ♀♀, Santo Tomé, 11-III-90; 2 ♀♀, Paso de la Patria, 15-III-90; 3 ♀♀, Empedrado, 21-III-90; 12 ♀♀ and 2 ♂♂, Esquina, 22-III-90. Entre Ríos Prov.: 5 ♀♀, La Paz, 22-III-90. Collector, G. Cabrera Walsh.

Etymology. Latin. *egeria*: dung, in allusion to the habits of the host.

Biology. The specimens studied emerged from puparia of the coprophagous sarcophagid *Sarcophagula occidua* (F.). We collected many of the host flies during larval instar 2 (<36 h), indicating *P. egeria* must parasitize the larva, probably stinging the small 2nd instars on the surface of the dung, just after the female fly lays it and before it penetrates the manure. This same parasitization behavior has been observed in *Aphaereta laeviuscula* (Spinola) (Ichneumonoidea: Braconidae), that attacks mostly sarcophagid larvae (G.C.W., unpublished data). Other parasitoids occurring in the same host were *Neralsia splendens* Borgmeier (Cynipoidea: Figitidae), *Spalangia bethyloides* Boucek, *S. cameroni* Perkins, *S. nigroaenea* Curtis (Chalcidoidea: Pteromalidae), and *Trichopria paraensis* (Kieffer) (Proctotrupoidea: Diapriidae) as pupal parasitoids (probably prepupal in the case of *N. splendens*), and *A. laeviuscula,* a larval parasitoid that emerges from the puparium. However, although we found *P. egeria, N. splendens*, and *T. paraensis* parasitizing solely *S. occidua,* we found *Spalangia* spp. in *Gymnodia* spp., (Diptera: Muscidae) and *Palaeosepsis* spp. (Diptera: Sepsidae) also, and *A. laeviuscula* in *Oxysarcodexia* spp. and *Ravinia sueta* (Wulp) (Diptera: Sarcophagidae).

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