



## A new platygastrid wasp from Florida (Hymenoptera: Platygastridae)

MATTHEW W. MACGOWN<sup>1</sup> & GREGORY A. EVANS<sup>2</sup>

<sup>1</sup> Research Associate, Mississippi Entomology Museum, Mississippi State University, Mississippi State, MS, 39762, USA.

<sup>2</sup> Florida State Collection of Arthropods, Gainesville, Florida, 32614, USA (evansg@doacs.state.fl.us)

### Abstract

*Synopeas russelli* MacGown, n. sp. is described and illustrated from specimens collected in Orlando, Florida. Numerous specimens of both sexes were collected in a malaise trap and others swept from coastal plain goldenaster, *Chrysopsis scabrella*, an indicator species for Florida scrub.

**Key words:** Hymenoptera, Platygastridae, Synoepadini, *Synopeas russelli*, new species, Florida

### Introduction

The genus *Synopeas* Foerster 1856 [Platygastridae: Platygastrinae: Synoepadini] consists of 123 species worldwide; of these, 28 species are known from the Nearctic, and 9 species from Florida (Vlug 1995; Johnson 2003). Very little taxonomic research has been published on the New World fauna of the subfamily Platygastrinae since Ashmead (1893) and Fouts (1924). Species of *Synopeas* are only known to parasitize gall midges [Cecidomyiidae: Diptera] and can be distinguished from other platygastrid genera by the following combination of characters: no wing veins present; metasomal tergites I and II fused in both sexes, thus appearing as one very long segment; the scutellum usually terminating in a short to long spine; and the pronotal collar with a ventral pit or depression. The genus is divided into three subgenera based on the shape and length of the metasoma. In the subgenus *Dolichotrypes*, the metasoma is long, narrow and greatly extended; in *Sactogaster*, it is pendulous, or “comma-shaped” with tergite II swollen and tergites III-VI tapering; and in the subgenus *Synopeas*, to which the new species is assigned, the metasoma is normal shaped, neither greatly extended nor pendulous, but gradually tapering to a point as shown in figure 5. Morphological terminology follows that used by Masner and Huggert 1989.

*Synopeas russelli* MacGown, n. sp.

Female (Figs. 1–6, 10, 11). Length: 1.86 mm.

*Diagnosis*

This species represents an extreme form in *Synopeas* because of its very tall and laterally compressed metasoma; the large, pendulous mandibles; smoothly rounded scutellum; and apically curved spurs of the second and third tibiae.

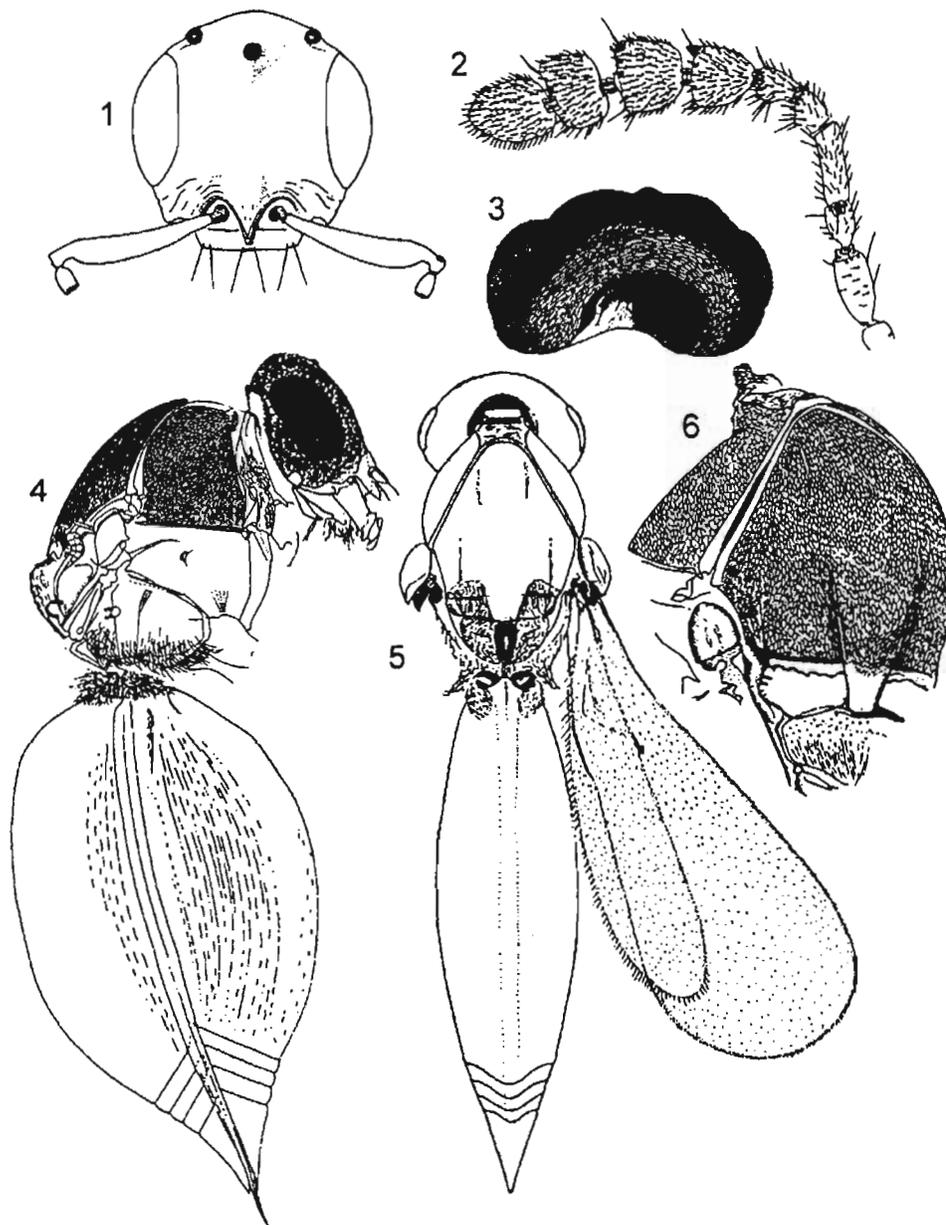
*Description*

**Color:** Head, mesosoma and metasoma black; legs reddish brown with very dark, blackish coxae and trochanters; tarsi somewhat lighter reddish brown; antennae black except dark reddish brown pedicel, (antennomere II, or A-II), A-III and A-IV.

**Head** (Figs. 1, 3, 10). Slightly narrower than mesosoma at the widest point across the mesoscutum (30:32 ocular divisions), thoroughly reticulate, the vertex with a finely crested ridge and very light transverse aciculation at the center; ocelli arranged in a flattened triangle, the lateral ocelli separated from the ocular margins by only slightly more than their own diameter; back of the head with numerous small white setae; face somewhat elongate, bulging in front, thoroughly reticulate with fine aciculation over the antennal bases and interantennal process; eyes narrow in front view, with tiny whitish setae; malar space long; interantennal process almost sharply pointed, reflexed around the edges.

**Antennae** (Fig. 2). Scape long and slim, incrassate, notched apically; A-III to A-IV slender, A-IV elongate, A-V and A-VI minute, subtriangular, A-VII to A-X quadrate to transverse, enlarged into a club (see Table 1 for measurements); A-VII to A-X with large, projecting finger-like sensilla, and usually with pairs of tiny linear sensilla at a corner of the apex. The latter sensilla have not previously been reported in the Platygastriinae; however Viggiani and Mazzone (1982) reported their occurrence in *Amitus*, a sceliotrachine platygastriid.

**Mesosoma** (Figs. 4, 5, 6). Robust, pronotal sides, dorsal plate, and mesoscutum thoroughly reticulate and shining; dorsal plate of the pronotum delineated by sharp lateral carinae, which may be referred to as the “epomia”; mesopleura and metapleura smooth and shining; the latter with short, transverse wrinkles below the wing bases; metapleura with thick long white setae, especially clustered in a patch at the hind margins. Scutellum short in dorsal view, steeply sloping downward in back, without a spine, instead with a thin, transparent apical keel; notaulices shallow, fading at the anterior third, the apex of the mid lobe truncated in front of the scutellum; admedian lines also faintly indicated on the anterior third; mesoscutum rather evenly covered with short white setae that are separated from each other by about one to three times their own length. Propodeum visible in top view mainly as a pair of closely approximated or partially fused keels that continue from the scutellar keel, otherwise covered with dense white pubescence and not visible except for a thin transverse dorsal strip behind the metanotum.



FIGURES 1–6. *Synopeas russelli* female. 1) head (frontal view), 2) antenna, 3) head (dorsal view), 4) habitus (lateral view), 5) habitus (dorsal view), 6) mesosoma (detail, oblique view).

**Wings** (Figs. 5,11). Not reaching the tip of the metasoma, clear but with a milky cast, the marginal fringe of the forewing very short and uniform, the hind wing with a fringe of long setae on the hind margin.

**Legs** (Figs 12, 13). Tibiae somewhat swollen apically, especially in the hind leg; strigilis of the front tibia pectinate on the outside, with a peculiar triangular tooth-like structure internally; long spur of the second and hind tibiae curved at the tip, both middle and hind tibiae with several small apical spurs or spines (not clearly differentiated) intermixed with the large ones.

**Metasoma** (Figs 4,5). Very compressed laterally and flea-like, thus the common name which is introduced, the dorsal arc very smooth and shining, the rest also shining but more or less covered with longitudinal aciculation; tergites I and II fused, tergite II deeper below the lateral line than above, covered with white pubescence at the base; last four tergites narrowing to a triangular tip, with sparsely scattered setae and some faint microreticulation.

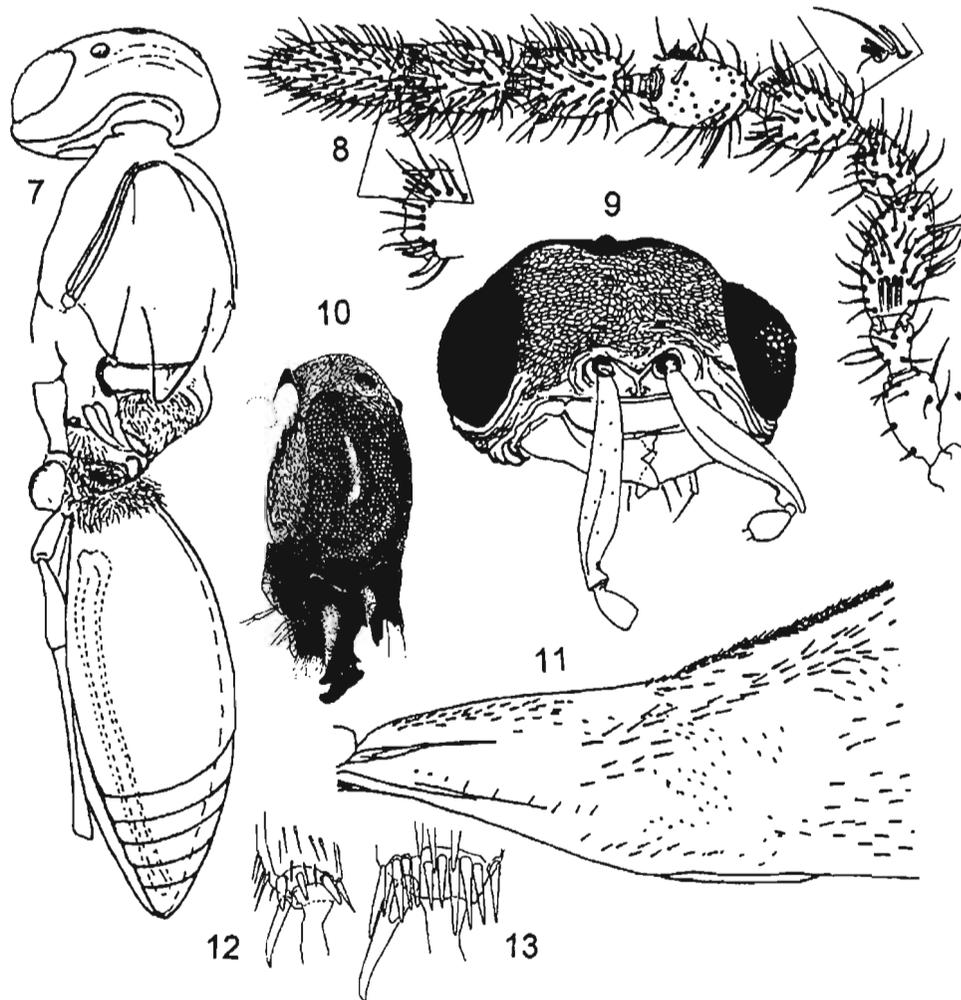
**Male** (Figs. 7-9). Similar to the female but with a cylindrical, ovoid metasoma, not compressed laterally; wings extending a little beyond the apex of the metasoma; legs variably medium to dark brown, darkest toward the tips, the hind legs very dark; antennae (Fig. 8) filiform, some of the antennomeres with the same tiny linear sensilla as found on the female club, antennomeres thickly clothed with long, erect whitish setae; A-III small, campanulate, A-IV larger and cylindrical, A-V to A-X filiform.

**TABLE 1.** Antennal measurements (lengths: widths in mm) of holotype and allotype.

Antennal segment	Holotype Female	Allotype Male
A-I (scape)	.32: .06	.28: .06
A-II (pedicel)	.09: .04	.06: .04
A-III	.04: .03	.04: .03
A-IV	.08: .02	.09: .04
A-V	.04: .03	.06: .04
A-VI	.04: .03	.08: .04
A-VII	.06: .06	.07: .04
A-VIII	.06: .07	.07: .04
A-IX	.06: .07	.07: .04
A-X	.07: .06	.10: .04

Average body length of ten females = 2.04 mm, s = .130 mm

Average body length of ten males = 1.65 mm, s = .147 mm



**FIGURES 7–13.** *Synopeas russelli* (7–9) male - 7) habitus, 8) antenna, 9) head. (10–13) female - 10) head (lateral view), 11) detail of basal portion of fore wing, 12) apex of tibia II, 13) apex of tibia III.

*Specimens examined and deposition*

Holotype female. USA, Florida, Orange County, Orlando, University of Central Florida campus, 7.xi.1997, S. M. Fullerton collector, from Malaise trap in sand pine and turkey oak forest, UCFC no. 0 024 995, deposited in the Florida State Collection of Arthropods (FSCA), Gainesville, Florida; allotype male (UCFC no 0 025 018), same collection as

holotype female, in FSCA; paratypes - 11 females and 3 males, same collection as holotype; 31 females and 45 males, USA, Florida, Orange County, Orlando, 23.ix.1998, P. Russell and S. Fullerton, swept from *Chrysopsis scabrella*, deposited in the U.S. National Museum of Natural History (USNM), Washington, DC; University of Central Florida, Orlando; and the Canadian National Collection, Ottawa, Canada.

#### *Etymology*

This species is named in honor of Phillip Russell who collected it.

#### **Discussion**

*Synopeas russelli* is similar to the European species, *Synopeas hyllus* (Walker, 1836), a senior synonym of *S. figitifformis* Thomson, 1860 according to Buhl (1998), and *S. rhanis* (Walker, 1836). However, these species have the metasoma wider (in top view), and not as tall (in lateral view). In addition, *Synopeas rhanis* has a spine at the apex of the scutellum; whereas the scutellum of the new species lacks the apical spine but slopes downward posteriorly. In *Synopeas hyllus*, the scutellar spine is absent and the top portion of the scutellum is microcrenulate or serrate posteriorly, and sternite II is smooth. Of the 28 *Synopeas* species described from the Nearctic, *Synopeas russelli* is the most morphologically similar to *Synopeas longiventre* (Ashmead, 1893) but the latter species has a small spine at the posterior apex of the scutellum, and the metasoma is far less compressed and not as tall as in the new species.

#### **Acknowledgment**

We thank Stuart Fullerton and Phillip Russell of the University of Central Florida in Orlando, Florida who collected numerous specimens of both sexes in a malaise trap and swept other specimens from coastal plain goldenaster, *Chrysopsis scabrella*, an indicator species for Florida scrub.

#### **References cited**

- Ashmead, W.H. (1893) A monograph of the North American Proctotrypidac. *Bulletin of the United States National Museum*, 45, 1–472.
- Buhl, P.N. (1998) On some new or little known NW European species of Platygasteridae (Hymenoptera, Proctotrupoidea). *Fragmenta Entomologica, Roma*, 30, 295–334.
- Fouts, R.M. (1924) Revision of the North American wasps of the subfamily Platygasterinae. *Proceedings of the United States National Museum*, 63, 1–145.

- Johnson, N.F. (2003) Hymenoptera On-line. Available from <http://iris.biosci.ohio-state.edu> (accessed 8 July 2003)
- Masner, L. & Huggert, L. (1989) World review and keys to genera of the subfamily Inostemmatinae with reassignment of the taxa to the Platygastriinae and Sceliotrachelinae (Hymenoptera: Platygasteridae). *Memoirs of the Entomological Society of Canada*, 147, 1–214.
- Thomson, C.G. (1860) Sveriges Proctotruper. Tribus VIII. Platygastriini. *Oefversigt af Kongliga Vetenskaps-Akademiens Foerhandlingar*, 16, 69–87.
- Viggiani, G. & Mazzone, P. (1982) *Amitus* Hald. (Hym. Platygasteridae) of Italy, with descriptions of three new species. *Bollettino del Laboratorio di Entomologia Agraria 'Filippo Silvestri' di Portici*, 39, 55–69.
- Vlug, H.J. (1995) Catalogue of the Platygasteridae (Platygastridae) of the world (Insecta: Hymenoptera). *Hymenopterorum Catalogus*, No. 19, 1–168.
- Walker, F. (1836) On the species of *Platygaster*. *Entomological Magazine*, 3, 217–274.