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Review of the systematics of *Trachagathis* Viereck (Hymenoptera: Braconidae: Agathidinae)

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Abstract

The phylogenetic position of *Trachagathis* Viereck is discussed. Two new combinations are proposed. *Agathis rubricincta* Ashmead (1894) and *Agathis depressifrons* Braet and van Achterberg (2003) are transferred to *Trachagathis*, *Trachagathis rubricincta* **n. comb**. and *T. depressifrons* **n. comb.** *Elasmopalpus lignosellus* (Zeller) Pyralidae, the lesser cornstalk borer, is recorded as a host of *T. rubricincta*.

Key words: *Elasmopalpus lignosellus*, taxonomy, parasitoid, wasp, biological control

Introduction

Viereck (1913) proposed the genus *Trachagathis* with *T. taenogaster* Viereck as the only included species, based on one specimen from Paraguay. Two other species currently placed in *Agathis* also belong to *Trachagathis*, i.e., *Agathis rubricincta* Ashmead (in Riley et al., 1894), based on a series of specimens from St. Vincent in the Lesser Antilles, and *Agathis depressifrons* Braet and van Achterberg (2003) based on one female from French Guiana. It is the purpose of this paper to make the appropriate new combinations for these nominal taxa, to present evidence for the monophyly of *Trachagathis*, to discuss its phylogenetic placement, and to publish the first host record for the genus.

Materials

Type Material

Holotype ♀, *Agathis rubricinctus* Ashmead, 1894, "Windward Side, St. Vincent, W.I. [West Indies], British Museum (Natural History), [Examined]

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Holotype ♀, *Trachagathis taenogaster* Viereck, 1913, "Paraguay (San Bernadino) K. Fiebrig, S.V., 19__iv [sic.], Type" Museum für Naturkunde der Humboldt-Universität, Berlin, Germany, [Examined].

Holotype ♀, *Agathis depressifons* Braet and Achterberg, 2003 "Guyane francaise: Sinnamary, Pointe Combi, 2-9-xi.2000, Malaise trap, 5°18'N – 52°57W, P. Cerdan [sic = Cerda] - lab Hydrobiologie", Nationaal Natuurhistorisch Museum, Leiden, Netherlands.**,** [Examined].

Non-type material

Caribbean: 1♀ "Leeward Is, Nevis, CIBC,vi.1971, ex. *Elasmopalpus lignosellus* [(Zeller) Pyralidae, lesser cornstalk borer] 71-418, C.I.EA 4600", Canadian National Collection of Insects, Ottawa. 1♂ "Trinidad, orange grove, v. 1973, F.D. Bennett, C.I.E.A 6598, ex. Field collected *Elasmopalpus lignosellus* on sugarcane", Canadian National Collection of Insects, Ottawa.

Systematics

The monophyly of *Trachagathis* is supported by the transverse grooves on the vertex between the lateral ocelli and the superior orbits of the eyes, the reduction of the second cubital cell, and the overall similarity of the member species. The grooves constitute a convincing autapomorphy since they are unknown in other Agathidinae. The phylogenetic placement of *Trachagathis*, however, is an enigma. All described members of the genus are similar to some *Agathis*, as well as all members of the Cremnoptini, some *Disophrys* spp., and some *Bassus* spp., in the elongate mouthparts and gena, though I have seen one undescribed species of *Trachagathis* lacking an elongate gena and mouthparts. Members of *Trachagathis* differ from those of *Agathis* in that there is a wide sclerotized bridge between the metasomal and hind coxal cavities in the former. The great extent of the granulate sculpture (Fig. 2) is also unknown in *Agathis*. Granulate sculpture is widespread in a group of species currently placed in *Bassus*, that includes *B. agathoides* Newton and Sharkey, *B. agilis* (Cresson), *B. brevicaudus* (Muesebeck), *Bassus cinctus* (Cresson), *B. coleophorae* Rohwer, and *B. nigricoxus* (Provancher). This species group of *Bassus* also shares with *Trachagathis* the reduction of the second cubital cell, to the extent that it is completely lost in *B. nigricoxus*. It is to this group of species that I suspect *Trachagathis* is most closely related. Based on the granulate sculpture, reduced venation, and overall resemblance I speculate that this is where *Plesiocoelus* van Achterberg also belongs.

Agathis rubricincta Ashmead (1894) is here transferred to *Trachagathis*, *Trachagathis rubricincta* **n. comb**. *Agathis depressifrons* Braet and van Achterberg is here transferred to *Trachagathis, T. depressifrons* **n. comb.** They are both almost identical to *T. taenogaster*, even in sculpture and color and they are likely synonyms, but this decision must await a future revisor. Though these three nominal species are very similar, there are new species

in the neotropics, one in my possession has different color patterns, and another has the genae and mouthparts of normal proportions, i.e., not elongate.

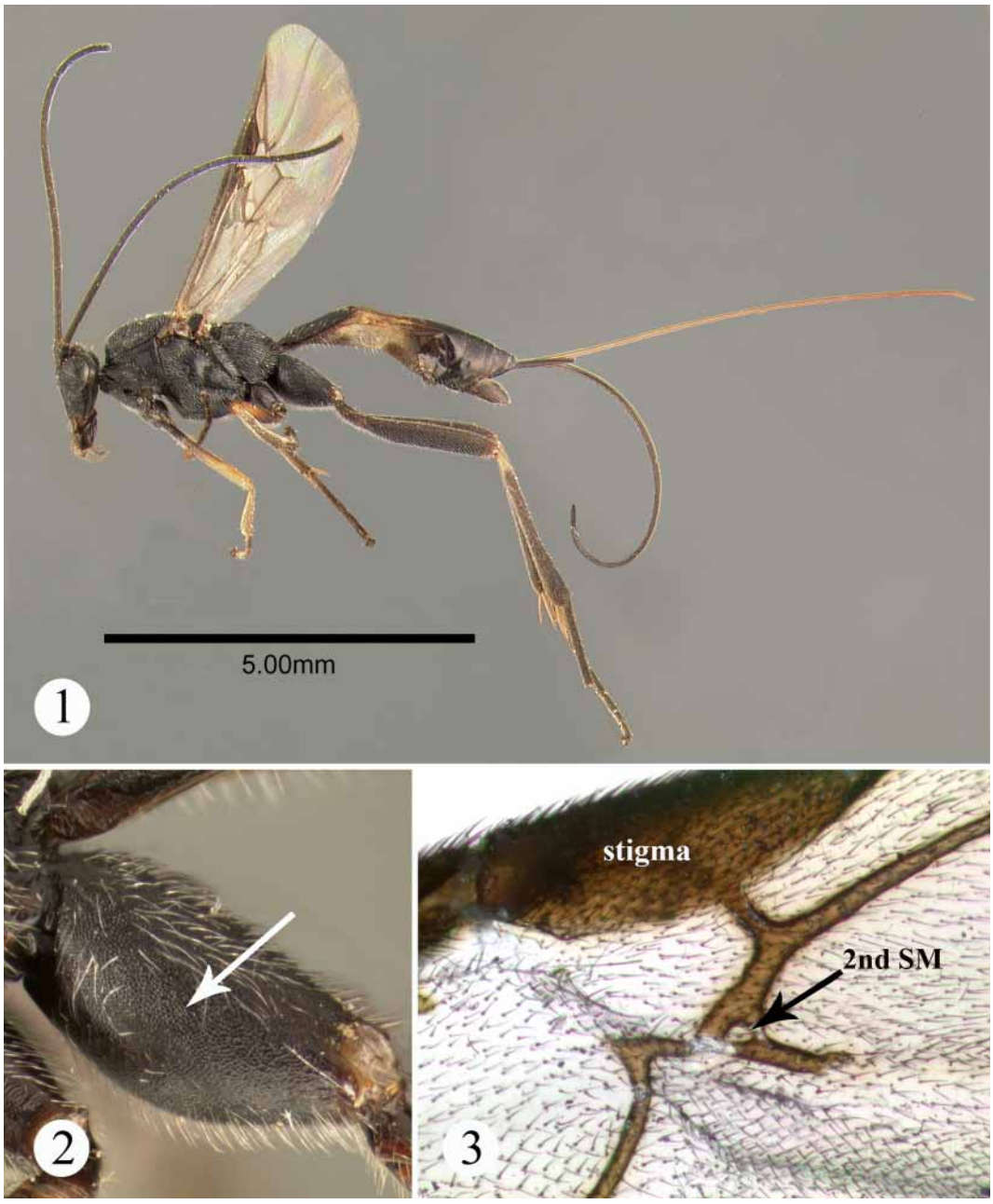

FIGURE 1–3. *Trachagathis* sp. 1, lateral habitus; 2, lateral surface of hind coxa of *Trachagathis* sp. showing granulate sculpture; 3, detail of forewing of *Trachagathis* sp. showing minute second submarginal cell (2nd SM).

Specimens of *Trachagathis* are rarely encountered but the genus is widespread in the neotropics, with records ranging from northern Argentina, through the Amazon basin, the Guianas and into the Lesser Antilles in the Caribbean. Figure 1 illustrates a lateral habitus of a specimen from the Federal District of Brazil. I would have liked to assign it to one of the three species but since they are all nearly identical this must await further research. Contra Braet and van Achterberg (2003), all specimens of *Trachagathis* appear to have a small indication of the second cubital cell of the forewing (Fig. 3); this is also illustrated in their figure of the forewing of *T. depressifrons* (Braet and van Achterberg 2003, Figure 45). *Trachagathis* is well illustrated with line drawings and one scanning electron micrograph in Braet and van Achterberg (2003).

The now defunct office of the Commonwealth Institute of Biological Control Station in Trinidad, conducted many surveys of parasitoids of pest insects, largely through the efforts of Dr. Fredrick Bennett. Two of his rearings resulted in host records from the lesser cornstalk borer, *Elasmopalpus lignosellus* (Zeller), for specimens that I identify as *T. rubricincta*. One of the hosts was reared from sugarcane and it is likely that they both were, though one specimen lacks this detailed label data. Since there are only two records and thousands of the hosts were reared, it is not likely that *T. rubricincta* has the potential to be an effective control agent. As mentioned previously, the nominal species of *Trachagathis* are almost identical but since *T. rubricincta* was described from St. Vincent, and one of the two reared specimens is from the same tiny island, the three specimens are almost certainly conspecific.

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