

The *Sphecodes* of Cuba (Hymenoptera: Halictidae)

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Abstract. Two species of the cleptoparasitic bee genus *Sphecodes* (Halictinae: Halictini) are documented as occurring on the island of Cuba. Both species belong to the subgenus *Austrosphecodes* and are new to Science. The species are described as *Sphecodes (Austrosphecodes) genaroi*, sp. nov., and *S. (A.) tainoi*, sp. nov. A key to separate the species of *Sphecodes* from Cuba is provided.

Key words: Anthophila, bees, taxonomy, Apoidea, cleptoparasite, new species, Cuba, Halictinae, Neotropical region.

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I. INTRODUCTION

The genus *Sphecodes* is the only cosmopolitan lineage of parasitic halictine bees, with approximately 250 named species it is also the most diverse genus of short-tongued bee parasites. MICHE-
NER (1978) split the genus into two subgenera, *Austrosphecodes* and *Sphecodes* proper; however, once a cladistic analysis of species groups within the genus is completed several of the synonymous names placed under the latter might eventually be resurrected as valid subgenera. Information on hosts for species of *Sphecodes* is scant but even from the paucity of records it is apparent that they parasitize a diversity of unrelated bee genera in the Halictinae (e.g., *Agapostemon*, *Augochlorella*, *Halictus*, *Lasioglossum*) as well as in other families (e.g., *Colletes*, *Andrena*, *Calliopsis*). Nothing is known on the precise mode of cleptoparasitism but it would appear as though the female dispatches the host egg prior to oviposition and that there is no hospicial first instar. Certainly more detailed studies on the biology and immature morphology of *Sphecodes* are desired.

The West Indian species of *Sphecodes* known to me all belong to the subgenus *Austrosphecodes*. Until recently there was only one described species from the West Indies, this being *Sphecodes nigrinus* ASHMEAD (1900) from St. Vincent. Two additional species, also described by ASHMEAD (1900) from St. Vincent were transferred to *Microsphecodes* by EICKWORT & STAGE (1972). I have had the opportunity to examine ample material of the genus collected in Cuba and have identified two species, both new to Science. Assuredly further species will be discovered in Cuba with additional and more intensive collecting. A second genus of cleptoparasitic Halictinae is also known from Cuba and can be confused with *Sphecodes* or more easily *Microsphecodes*. This

genus and its three included species (one from Cuba, the others from Puerto Rico and the Dominican Republic) are described elsewhere and readers should refer to that work for diagnostic differences from the aforementioned genera (ENGEL 2006).

Herein I provide descriptions of the Cuban *Sphécodes* species so that their names may be employed by others working on the Cuban aculeate fauna. Morphological terminology follows that employed by ENGEL (2001).

A c k n o w l e d g e m e n t s. I am deeply grateful to J. A. GENARO for his assistance, patience, and collegiality over the years and for providing much of the material that formed the basis of this work; and to M. OHL for his thoughtful comments on an earlier version of the manuscript. This paper is contribution No. 3202 of the Division of Entomology, Natural History Museum and Biodiversity Research Center, University of Kansas.

II. SYSTEMATICS

Genus *Sphécodes* LATREILLE

Sphécodes (Austrosphécodes) genaroi sp. n.

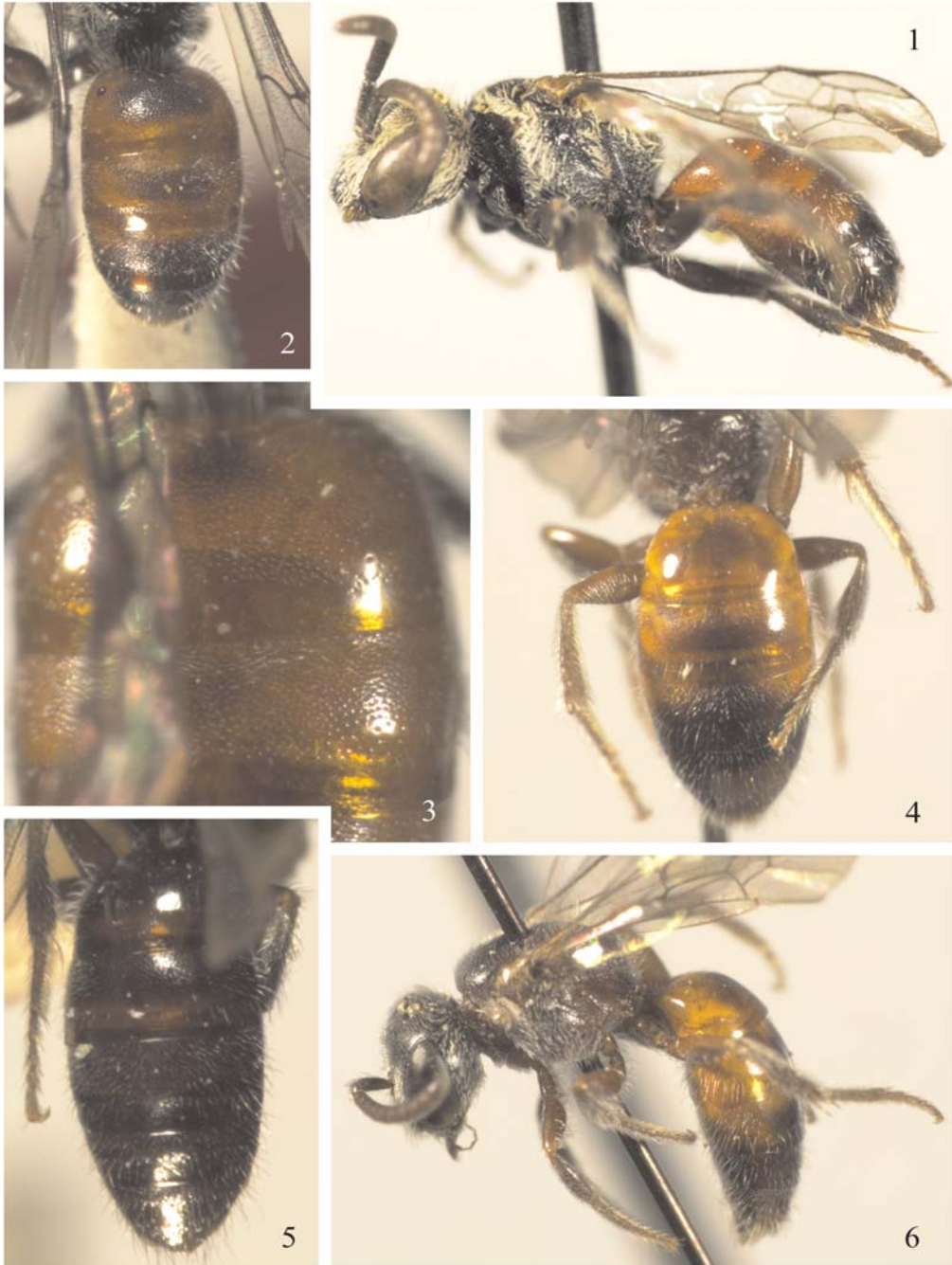
Figs 1-3, 7

D i a g n o s i s. This species can be separated from *S. tainoi* by the close punctation of the metasomal terga (imbricate and impunctate in *S. tainoi*); the presence of dull, metallic blue or green highlights on the mesoscutum (such highlights distinctly absent in *S. tainoi*); the anterior metasomal terga of males with some orange, red, or amber coloration (uniformly brown in males of *S. tainoi*); as well as in the structure of the male genitalia (cf. figures 7 and 8).

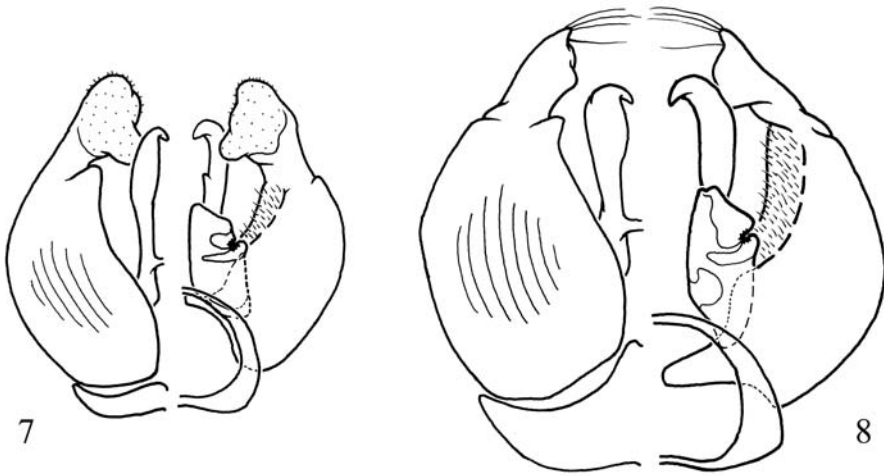
D e s c r i p t i o n. Female. Total body length 5.0 mm; forewing length 3.5 mm; intertegular distance 0.9 mm. Head wider than long. Mandible simple. Metatibial spurs (inner and outer) serrate; metabasitibial plate weakly bordered posteriorly, otherwise obsolescent. Forewing 2m-cu entering third submarginal cell in distal third of cell; second submarginal cell narrowed anteriorly; anterior border of second submarginal cell much shorter than length of anterior border of third submarginal cell, approximately two-third length of third submarginal cell anterior length; 2rs-m weakly curved; hind wing with distal hamuli arranged 2-1-2.

Clypeus with widely-scattered, coarse punctures separated by 1-2 times a puncture width, nearly impunctate centrally; supraclypeal area more evenly punctured, punctures smaller, more well-defined, separated by approximately a puncture width, integument between punctures smooth. Remainder of face punctured, punctures nearly contiguous, where evident integument between smooth, punctures smaller toward vertex. Vertex and gena with smaller and fainter punctures, punctures separated by 1-2 times a puncture width, integument between smooth. Mesoscutum strongly punctured, punctures separated by a puncture width or less, integument between smooth, punctures becoming smaller along anterior border. Sculpturing of mesoscutellum as described for mesoscutum. Metanotum rugulose. Pleura with strong punctures, punctures nearly contiguous, integument between punctures smooth, punctures faint, coarse, sparse on hypoepimeral area. Lateral and posterior surfaces of propodeum sculptured as on pleura; basal area of propodeum strongly striate, striae slightly wavy medially, integument between striae smooth. Metasomal terga with small punctures, punctures separated by a puncture width or less except apical margins smooth. Sterna imbricate.

Mandible dark amber color except red at apex. Labrum reddish brown. Clypeus and supraclypeal area reddish brown; remainder of head black; antenna dark brown. Mesosoma black except tegula amber, mesoscutum with dull blue-green opalescence; legs reddish brown. Wings hyaline, veins brown. First and second metasomal terga reddish amber (in some females there is a brownish spot on the central disc of varying dimensions); third metasomal tergum reddish amber except



Figs 1-6. Cuban species of *Sphecodes* subgenus *Austrosphecodes*. 1. *Sphecodes (Austrosphecodes) genaroi* sp. nov., female lateral habitus. 2. Female metasomal terga of *S. genaroi*. 3. Enlarged detail of first and second metasomal terga of female *S. genaroi*. 4. Female metasomal terga of *S. tainoi* sp. nov. 5. Male metasomal terga of *S. tainoi*. 6. *S. tainoi*, female lateral habitus.



Figs 7-8. Male genitalia of Cuban *Sphecodes* species (left half is dorsal aspect, right half is ventral aspect). 7. *Sphecodes* (*Austrosphecodes*) *genaroi* sp. nov. 8. *S. (A.) tainoi* sp. nov. Stippled area indicates region of weak sclerotization. Lines on the gonocoxae indicate areas of weak striation.

brown along apical margin; remaining terga dark brown; first through third metasomal sterna reddish amber; remaining sterna brown.

Setae generally white (slightly yellowed in older specimens) or very lightly infuscated, those on face slightly obscuring integument; setae minutely branched. Setae of metasoma sparse and short, becoming progressively more numerous, more elongate, and more infuscated on more distal terga.

Male. As described for the female with typical sexual differences and except for the following minor differences in body proportions: Total body length 4.0 mm; forewing length 2.8 mm; intertegular distance 0.6 mm. Genitalia as in figure 7.

H o l o t y p e. ♀, Cuba, El Veral, Guanahacabibes, Pinar del Río, xi-1981 [November 1981], col. J. A. GENARO. Deposited in the Snow Entomological Collection, Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas, United States.

P a r a t y p e s. 1♀, 1♂, Cuba, Guane, Pinar del Río, i-1968 [January 1968], col. P. ALAYO. 1♀, Cuba, La Gran Piedra, vi-1963 [June 1963], Oriente, Zayas, ALAYO & GARCIA. 1♀, Cuba, Guines, Habana, xii-1988 [December 1988], col. J. A. GENARO & C. SANCHEZ. 2♂♂ [on a single mount], Cuba, Jardin Botanico, Santiago de Cuba, x.94 [October 1994], col. J. A. GENARO. Deposited in the Snow Entomological Collection, Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas, United States.

1♀, [Cuba], Guane, Ene 68. 1♂, Cuba, Baracoa, Feb. 68, Oriente. 1♂, Cuba, Jardin Botanico, Santiago de Cuba, x.94 [October 1994], col. J. A. GENARO. 2♂♂ [on a single mount], Cuba, Botanico, Santiago de Cuba, x.94 [October 1994], col. J. A. GENARO. Deposited with Dr. Julio A. GENARO (Toronto, Canada).

E t y m o l o g y. The specific epithet honors Dr. Julio A. GENARO who has done much to clarify the Cuban fauna of Hymenoptera, particularly the bees, and who provided much of the material, inspiration, and impetus for the present study.

C o m m e n t s. This species corresponds to the "*Sphecodes* sp. C" that the late Pastor Alayo labeled in collections.

Sphecodes (Austrosphecodes) tainoi sp. n.

Figs 4-6, 8

D i a g n o s i s. This species can be recognized by its imbricate and impunctate integument on the metasomal terga, the complete absence of metallic highlights on the mesoscutum, the uniformly brown coloration of the metasomal terga of males, and the structure of the male genitalia (Fig. 8). Refer also to the diagnosis of *S. genaroi* (*supra*).

D e s c r i p t i o n. Female. Total body length 4.7 mm; forewing length 3.3 mm; intertegular distance 0.7 mm. Head wider than long. Mandible simple. Metatibial spurs (inner and outer) serrate; metabasitibial plate weakly bordered posteriorly, otherwise obsolescent. Forewing 2m-cu nearly bisecting third submarginal cell; second submarginal cell slightly narrowed anteriorly; anterior border of second submarginal cell approximately equal in length to that of anterior border of third submarginal cell; 2rs-m curved; hind wing with distal hamuli arranged 2-1-2.

Clypeus with scattered coarse punctures separated by 0.5-2 times a puncture width, those centrally more spaced than those on margins; supraclypeal area more evenly punctured, punctures separated by approximately a puncture width, integument between punctures smooth. Remainder of face punctured, punctures separated by less than a puncture width, integument between smooth, punctures weaker toward vertex. Vertex and gena with smaller and fainter punctures, punctures separated by 1-2 times a puncture width, integument between smooth. Mesoscutum punctured, punctures separated by a puncture width or less, integument between faintly imbricate, punctures becoming faint along anterior border. Sculpturing of mesoscutellum as described for mesoscutum. Metanotum rugulose. Pleura with weak, coarse punctures separated by a puncture width or less, integument between punctures imbricate, punctures more spaced on hypoepimeral area; mesepisternum rugulose along anterior border. Lateral and posterior surfaces of propodeum strongly imbricate, slightly more weakly so on posterior surface; basal area of propodeum strongly striate, integument between striae smooth. First metasomal tergum smooth, impunctate except for exceedingly sparse and minute punctures for sparse setal bases; remaining metasomal terga faintly imbricate; metasomal sterna faintly imbricate.

Mandible dark amber color except red at apex. Labrum reddish brown. Clypeus and supraclypeal area reddish brown; remainder of head dark brown, nearly black; antenna dark brown. Mesosoma reddish brown without highlights except tegula and pronotal lobe dark amber; legs reddish brown except amber on tarsi exclusive of basitarsi. Wings hyaline, veins brown. First and second metasomal terga reddish amber; third metasomal tergum reddish amber except brown centrally and along apical third (variable across the known specimens whereby some have the entire tergum reddish amber); remaining terga brown; first and second metasomal sterna reddish amber; third metasomal sternum reddish amber except apical third brown (again, this sternum is variable in the proportion of brown with some females exhibiting scarcely any brown coloration); remaining sterna brown.

Setae generally white (slightly yellowed in older specimens) or very lightly infuscated, those on face slightly obscuring integument; setae minutely branched. Setae of metasoma sparse and short, becoming progressively more numerous, more elongate, and more infuscated on more distal terga.

Male. As described for the female except as indicated: Total body length 4.1 mm; forewing length 2.7 mm; intertegular distance 0.5 mm. Genitalia as in figure 8. Entire head dark brown, nearly black; antenna dark brown. Mesosoma dark brown without highlights, tegula and pronotal lobe brown; legs reddish brown. Metasoma uniformly dark brown.

H o l o t y p e. ♀, [Cuba], Laguito, Marianao, Hab. [Habana], IV/67 [April 1967], P. Alayo. Deposited in the Snow Entomological Collection, Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas, United States.

P a r a t y p e s. 1♀, 1♂, [Cuba], Laguito, Marianao, Hab. [Habana], III/67 [March 1967], P. Alayo. Deposited in the Snow Entomological Collection, Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas, United States.

1♂, [Cuba], Laguito, Marianao, Hab. [Habana], III/67 [March 1967], P. Alayo. 1♀, [Cuba], Laguito, Marianao, Hab. [Habana], IV/67 [April 1967], P. Alayo. Deposited with Dr. Julio A. GENARO (Toronto, Canada).

E t y m o l o g y. The specific epithet honors the now extinct Taino Indians, members of the West Indian Arawakan Tribe and one of the indigenous peoples of Cuba prior to the 16th century conquest by Spain.

C o m m e n t s. This species corresponds to the “*Sphecodes* sp. B” that the late Pastor Alayo labeled in collections. It is interesting to note that *S. tainoi* has been captured only near Laguito and during the months of March and April, while *S. genaroi* appears to be more common, broadly distributed, and abundant during the months of June through January. It will be interesting to discover if these differences persist with more intensified collecting on Cuba.

Key to species of *Sphecodes* in Cuba

1. Metasomal terga closely punctured (Figs. 2, 3); mesoscutum frequently with dull, metallic blue or green highlights; male anterior metasomal terga with some orange, red, or amber coloration *S. (A.) genaroi* sp. n.
- . Metasomal terga impunctate, finely imbricate to smooth (Fig. 4); mesoscutum without dull metallic blue highlights; male metasomal terga dark brown to black (Fig. 5) *S. (A.) tainoi* sp. n.

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