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## BRIEF COMMUNICATION

### First record of the cleptoparasitic bee genus *Sphecodes* from Puerto Rico (Hymenoptera: Halictidae)

Michael S. Engel<sup>1</sup> & Sara G. Prado<sup>2</sup>

**Abstract.** The cleptoparasitic bee genus *Sphecodes* Latreille (Halictinae: Halictini) is recorded from Puerto Rico for the first time. *Sphecodes* (*Austrosphecodes*) *tainoi* Engel was previously known from western Cuba but is here recorded from a series of males and females captured in south-central, central, and western Puerto Rico. Images of the species are provided along with brief remarks on observed variations and possible future directions of study into their natural history.

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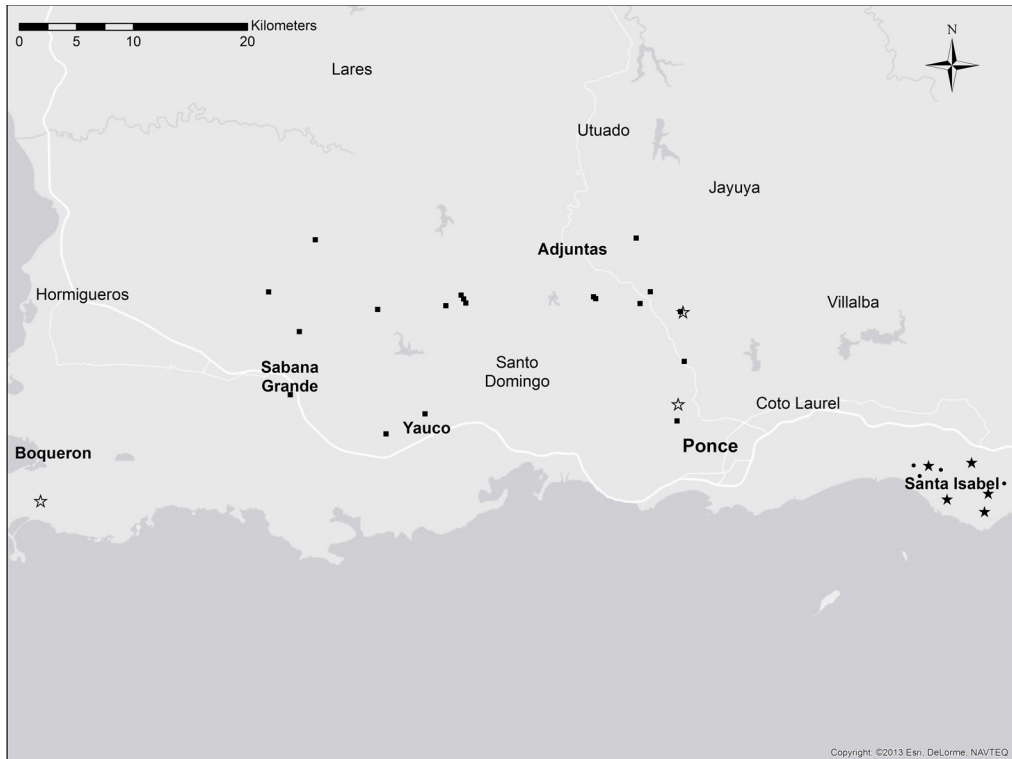
## INTRODUCTION

Among the cleptoparasitic lineages of Halictinae, the genus *Sphecodes* Latreille is the most common and widespread, with over 300 described species worldwide (Michener, 2007). This considerable diversity is not generally reflected in the known fauna from the Caribbean where *Sphecodes* is represented by only three species: *Sphecodes* (*Austrosphecodes*) *nigritus* Ashmead, *S. (A.) genaroi* Engel, and *S. (A.) tainoi* (Ashmead, 1900; Engel, 2006a). The Caribbean sphecodine fauna is more enriched by the related genera *Microsphecodes* Eickwort & Stage and *Nesosphecodes* Engel, bringing the total number of species up to 11 (Eickwort & Stage, 1972; Engel, 2006b, 2006c, 2011a). Of the three species of *Sphecodes*, *S. nigritus* is from St. Vincent, while *S. genaroi* and *S. tainoi* were described from Cuba. Interestingly, potential hosts for *Sphecodes* in the Carib-

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**Figure 1.** In 2013, nine sites (black dots) were surveyed near Santa Isabel in the southeastern part of Puerto Rico. Individuals of *Sphecodes* (*Austrosphecodes*) *tainoi* Engel were collected at four of the nine sites (black stars), three being agricultural fields and one being a riverine habitat. In 2014, 22 sites (black squares) were surveyed in the south-central part of Puerto Rico. Individuals of *S. tainoi* were collected at three of the 22 sites (clear stars), two being dry forests and one being a sun coffee plantation.

bean are more widespread (Eickwort, 1988). Given the rarity with which sphecodines have been collected from the Caribbean, new discoveries are assuredly forthcoming.

Here we report the capture of several males and females of *S. tainoi* from Puerto Rico, representing the first formal record of the genus for the island [*Nota bene*: the record of *Sphecodes* from Puerto Rico tabulated by Eickwort (1988) refers to a species of *Nesosphecodes*]. Previously the only sphecodine from Puerto Rico was *Nesosphecodes anthracinus* Engel (Engel, 2006b; Genaro & Franz, 2008). Hosts for these species remain to be discovered.

## MATERIAL AND METHODS

In 2013, individuals of *S. tainoi* were collected from four of the nine surveyed sites in the southeastern part of the island of Puerto Rico. More specifically, they were collected from three conventionally grown pumpkin and pepper fields and from one riverine habitat (Fig. 1). In 2014, *S. tainoi* were collected from three of 22 surveyed sites in the central and western part of the island (Fig. 1). Those individuals were collected from two dry forest sites and one sun coffee plantation. The bees were caught using white, yellow, and blue pan traps, sweep nets during the months of January,

March, and April 2013, and using malaise traps, sweep nets, and the same range of color pan traps during June and July 2014. The vouchered material is deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA (NMNH); the Division of Entomology, University of Kansas Natural History Museum, Lawrence, Kansas, USA (SEMC); and the Museo de Entomología y Biodiversidad Tropical de la Estación Experimental Agrícola del Recinto Universitario de Mayagüez, Río Piedras, Puerto Rico (MEBT). The new material was compared directly with portions of the type series housed in the Division of Entomology, University of Kansas Natural History Museum, Lawrence, KS. Morphological terminology is that of Engel (2001) and Michener (2007). Photomicrographs were prepared with a Canon EOS 7D digital camera attached to an Infinity K-2 lens.

### SYSTEMATICS

#### *Sphecodes (Austrosphecodes) tainoi* Engel (Figs. 2–7)

NEW RECORDS (8♀♀, 4♂♂): 3♀♀ USA: PR [Puerto Rico]: St. Isabel, N18°00.017' W066°26.115', N.W. River, 13 Mar. [March], 2013, S.G. Prado, [each individually numbered as #174, #298, and #161] (MEBT). 1♀ USA: PR [Puerto Rico]: St. Isabel, N17°58.632' W066°23.096', Portalatin, 29 Jan. [January], 2013, S.G. Prado, #13 (SEMC). 1♀ USA: PR [Puerto Rico]: St. Isabel, N17°59.705' W066°25.063', Gomez, 23 Jan. [January], 2013, S.G. Prado, #77 (SEMC). 1♀ USA: PR [Puerto Rico]: St. Isabel, N17°57.780' W066°23.298', Escalera Sr., 22 Apr. [April], 2013, S.G. Prado, #193 (NMNH). 1♂ USA: PR [Puerto Rico]: St. Isabel, N17°58.547' W066°25.063', S.E. River, 2 May 2013, S.G. Prado, #388 (SEMC). 1♀, USA: PR [Puerto Rico]: Ponce, N18°02.275' W066°38.585', A20 (Malaise trap), 17 June–15 July 2014, S.G. Prado, #2 (MEBT). 2♂♂, USA: PR [Puerto Rico]: Ponce, N18°02.275' W066°38.585', A20 Malaise trap), 17 June–15 July 2014, S.G. Prado, [each individually numbered as #4 and #5] (MEBT). 1♀, USA: PR [Puerto Rico]: Ponce, N17°58.816' W067°10.231', USFWS (net), 17 June–15 July 2014, S.G. Prado, #4 (SEMC). 1♂, USA: PR [Puerto Rico]: Ponce, N18°07.461' W066°38.263', Vasquez sun (elevated pan trap), 17 June–15 July 2014, S.G. Prado (NMNH).

COMMENTS: The new material differs very slightly from the original description (*vide infra*) but in all other respects is identical with the type series from Cuba. More importantly, comparison between the terminalia of males from Puerto Rico and Cuba show that the genitalia are identical in all respects. The drawing of the genital capsule in Engel (2006a) is a bit stylized such that the long, setose basal lobe of the gonostylus does not stand out quite as prominently as it should, the gonocoxite covered by the lobe being broader than that implied, and the ventral prong on the penis valve was accidentally omitted.

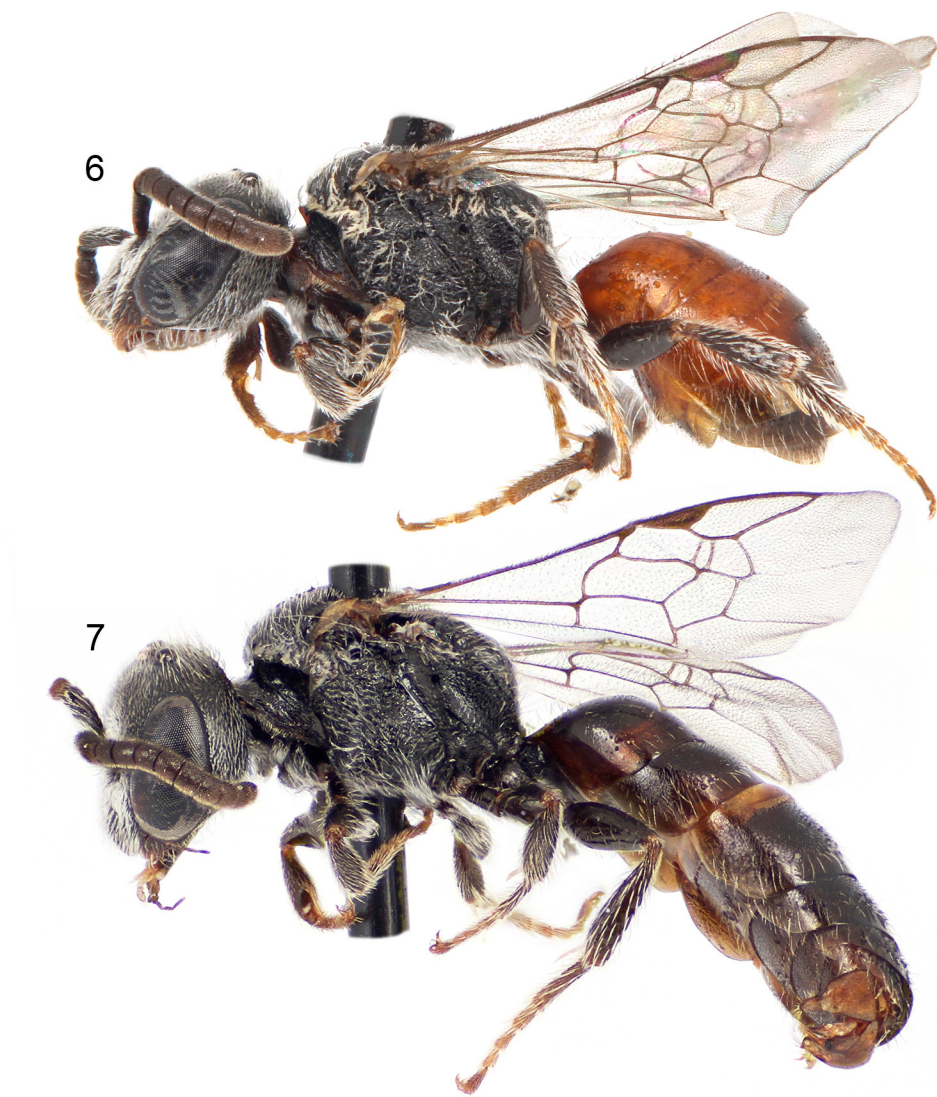
Notable aspects apparently representing variations are as follow: mandible typically dark brown to dark reddish brown except some with more broad amber coloration on outer surface; mesoscutum with punctures separated by slightly less to slightly more than a puncture width and thereby sometimes a bit more widely spaced in places than the Cuban series, those punctures along borders smaller and denser, integument between punctures smooth and shining; mesoscutellum with punctures becoming a bit more faint medially on disc; areas more reddish amber or reddish brown in Cuban series are more distinctly red to orange in the Puerto Rican material (the slightly lighter appearance in Cuban material perhaps represents fading as that se-



**Figures 2–5.** *Sphecodes (Austrosphcodes) tainoi* Engel from Puerto Rico. 2. Dorsal habitus of female. 3. Facial view of female. 4. Dorsal habitus of male. 5. Facial view of male.

ries had been stored under variable conditions since 1967), terga I–III sometimes more completely orange, some individuals with reddish orange coloration extending across more apical terga, sternum IV typically lighter apically; setae more densely branched lower on face.

Given that *S. tainoi* was regularly encountered in the areas depicted in figure 1, it is likely that they were victimizing nearby nests of another bee. It would be worthwhile during future surveys to seek nesting sites and attempt to determine what the host of *S. tainoi* might be, and perhaps to elaborate further on its biology. At least three species of *Lasioglossum* Curtis were found in the same fields (Prado *et al.*, in prep.), and two of



**Figure 6-7.** Lateral views of *Sphecodes (Austrosphecodes) tainoi* Engel from Puerto Rico. 6. Female. 7. Male.

those are known also from Cuba. It is possible that at least one of these may be the host of *S. tainoi*, and perhaps its host on other islands as well.

The occurrence of *S. tainoi* in western Cuba and now Puerto Rico suggests that the species has a broader range in the Greater Antilles than was originally surmised. This is perhaps not surprising as the previous apparent “endemism” of the species was more a reflection of a lack of adequate collecting than any real evidence of a more regionalized occurrence. It is possible that with sufficient collecting the species may be found throughout Cuba and across the intervening Hispaniola as well. These discoveries highlight the need for more extensive sampling and biological investigations into the bees of the Caribbean islands, and particularly the fauna of Halictinae. As more material of *Sphecodes* becomes available from throughout the Caribbean a comprehen-

sive revision of the fauna would be most beneficial, providing revised hypotheses for species circumscription within the region (Engel, 2011b; Gonzalez *et al.*, 2013) and a foundation from which to ascertain relationships of these taxa to the mainland fauna and their historical biogeography.

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