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Discovery of a second species of the rare Neotropical genus *Paphanus* van Achterberg & Riedel, 2009 (Braconidae: Sigalphinae), and a new record for *Nervellius philippus* Braet, 2014 (Braconidae: Doryctinae)

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Abstract

The "Société Entomologique Antilles-Guyane" (S.E.A.G.) has collected a specimen belonging to a new species of *Paphanus* van Achterberg & Riedel, 2009. The new taxon is described and included in the first identification key of this genus. One additional record of *Nervellius philippus* Braet, 2014 is given.

Keywords: *Paphanus*, Montagne des chevaux, French Guiana, Identification key.

Résumé

La "Société Entomologique Antilles-Guyane" (S.E.A.G.) a récolté un spécimen appartenant à une espèce nouvelle du genre *Paphanus* van Achterberg & Riedel, 2009. Nous décrivons ici ce nouveau taxon en le plaçant dans la clé d'identification du genre. Une nouvelle donnée de localité est fournie pour *Nervellius philippus* Braet, 2014.

Introduction

The subfamily Sigalphinae Blanchard, 1845 is a small group uncommonly collected. It was originally recorded from Holarctic and Afrotropical regions, but recent discoveries had extended its distribution to the Australasian, Neotropical and Oriental regions (VAN ACHTERBERG, 1995; IQBAL & AUSTIN, 2002; SHARKEY, 2004; TAN *et al*., 2010; SHARKEY & BRAET, 2012). Seven genera with less than 50 species are actually included in the subfamily (YU *et al.,* 2012). The few members with known biologies are koinobiont endoparasitoids of lepidopteran larvae (VAN ACHTERBERG & AUSTIN, 1992; SHARKEY & JANZEN, 1995).

Among the Sigalphinae, even if the generic status of the monotypic genus *Pselaphanus* SZÉPLIGETI, 1902 has been little doubt, its affinities have been debated for a long time. This group was originally included within the Helconinae (SZÉPLIGETI, 1902). VAN ACHTERBERG (1985) placed it in its own tribe, the Pselaphanini, which he regarded as a ''comparatively archaic group within the Agathidinae''. Subsequently, SHARKEY (1997) included the Pselaphaninae as a synonym of the Sigalphinae and confirmed its position as a member of the Agathidinae+Sigalphinae clade. Morphological as well as molecular data recently obtained, strongly support the idea that the subfamily Agathidinae constitutes the sister group of the Sigalphinae+Pselaphanini (QUICKE & VAN ACHTERBERG 1990; SHAW & QUICKE, 2000; QUICKE *et al*., 2002; QUICKE *et al*., 2008). In 2009, the

genus *Paphanus* van Achterberg & Riedel from Paraguay was described as the second member of Pselaphanini.

Since 2008, the "Société Entomologique Antilles Guyane" (S.E.A.G) carries out entomological surveys of the "Montagnes des chevaux" in French Guiana. Among all these thousand insects, we found the first specimen of a second species of *Pselaphanus*. It is here describe and we provide the first key for this genus. We also provide one new additional record for one recently described species of *Nervellius*.

Methods

For the identification of the subfamily Sigalphinae and for the terminology used in this paper, see VAN ACHTERBERG (1993). The following acronyms are used: Institut royal des Sciences naturelles de Belgique, Département d'Entomologie, Bruxelles, Belgium (IRSNB, W. Deconinck); the private collection of the author (YB). The SEAG is testing several customized designs of light traps. The Polyvie trap model is based on a classical Polytrap model with the addition of 2 x 3.6W blue LEDs (20000K) functioning on a battery.

Taxonomic part

Paphanus van Achterberg & Riedel, 2009

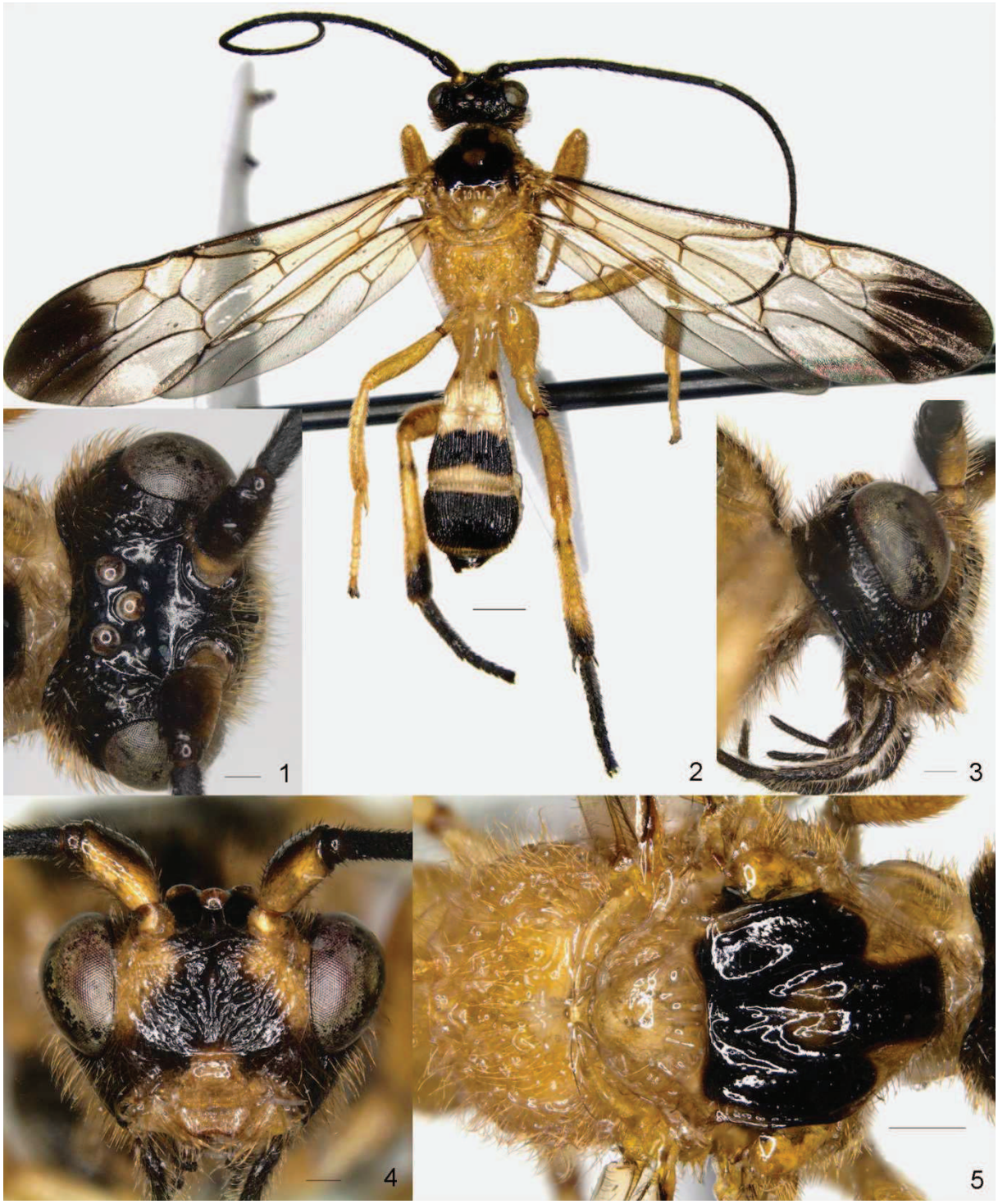
See VAN ACHTERBERG & RIEDEL, 2009 for the diagnostic description of the genus.

Paphanus priscillae sp. nov.
(Figs 1-10)

TYPE MATERIAL: Holotype: Male, "Guyane française, Montagne des chevaux, 4°44'56"N - 52°26'28"W, alt. 90 m, 18.I.2014, Polyvie trap, Rec.: S.E.A.G." (IRSNB).

DIAGNOSIS. The fore wing strongly infuscate apically, the hind coxa yellowish separate this species from *P. drechseli* van ACHTERBERG & RIEDEL, 2009.

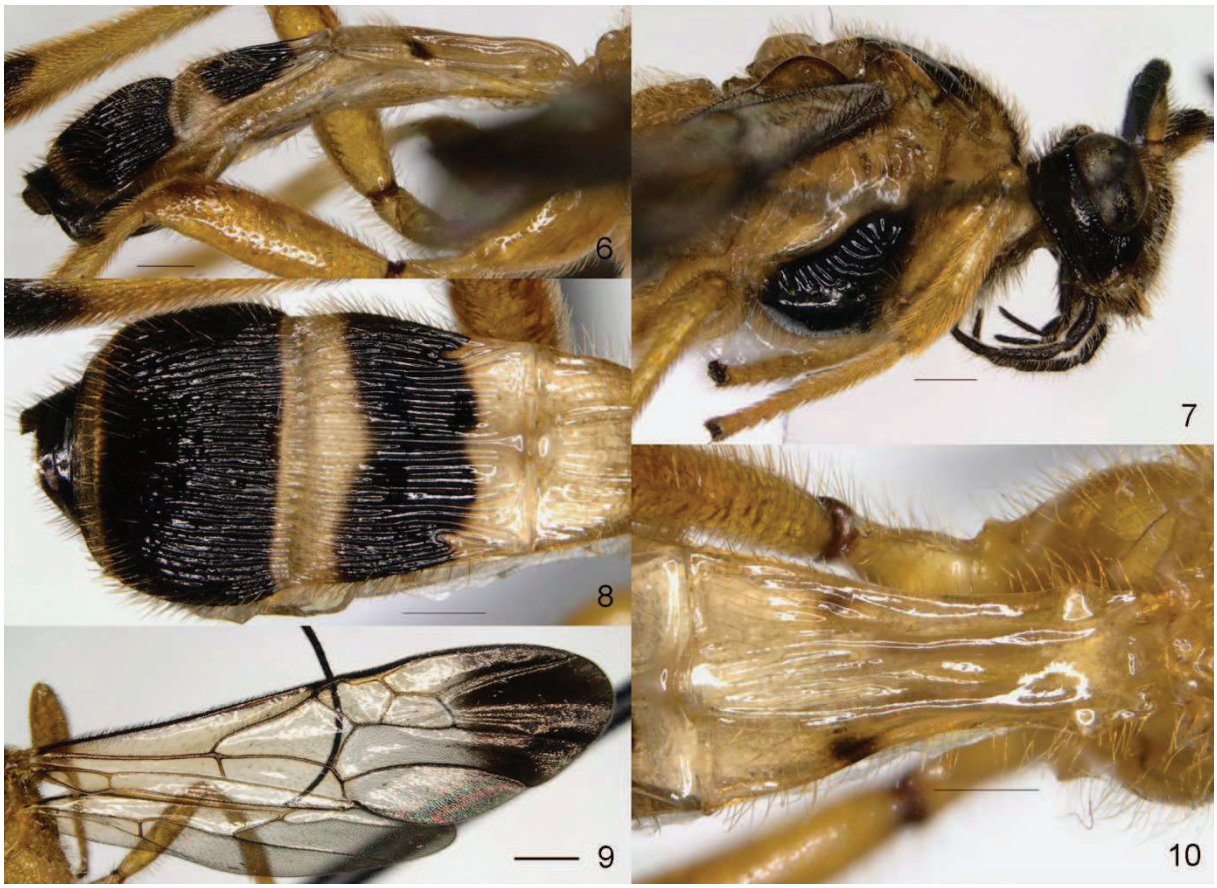
DESCRIPTION.
Male. Lengths: body 10.0 mm, fore wing 9.3 mm.
Head. Antennal flagellomeres 50, scapus 1.67 times as long as broad and flattened laterally, length of first flagellomere 1.53 times second flagellomere, length of first, second and penultimate flagellomere 4.33, 2.83 and 1.5 times their widths, respectively; maxillary palp 1.2 times height of head; length of eye in dorsal view 2.23 times temple; OOL:diameter of ocellus:POL = 10:7:9; occipital carina coarse laterally, missing medio-dorsally, meeting hypostomal carina; frons flat, smooth, bordered antero-laterally by strong carinae, coarsely crenulate postero-laterally, these crenulation continuing around ocelli; vertex medially strongly punctate; face straight in lateral view, 1.65 times as large than long in front view, with oblique parallel wrinkles laterally, with a small nodus medially close antennal sockets; clypeus protruding and flat in lateral view, smooth; gena largely smooth and punctate excepted close to eye where it is crenulate; length of malar space 1.50 times basal width of mandible, malar suture absent; head fully covered with numerous fine long and yellow setae.
Mesosoma. Length of mesosoma 1.5 times its height; propleuron smooth; pronope medium-sized, deep and triangular; subpronope deep and large; side of pronotum shiny, smooth; mesopleuron smooth; precoxal sulcus complete, large, strongly and largely crenulate; metapleuron coarsely irregularly rugose; lobes of mesoscutum smooth; notauli strongly impressed, smooth, ending in a large medioposterior area which is depressed; scutellar sulcus 5.60 times wider than long, with 3 strong transversal carinae; scutellum smooth, flat, protruding in lateral view; side of scutellum strongly crenulate and costate; propodeum fully irregularly rugose; propodeal bridge wide; mesosoma fully covered by numerous long yellow setae.



Figs 1-5. *Paphanus priscillae* sp. nov., male, holotype. 1: head, dorsal; 2: habitus, dorsal; 3: head, lateral; 4: head, face; 5: mesosoma, dorsal. Scale bars: 1, 3-4 = 200µm; 2 = 1mm; 5 = 500µm.

Wings. Macropterous. Fore wing: pterostigma 4.5 times its width; r:3-SR:SR1 = 7:15:47; SR1 weakly curved and meeting wing margin before wing tip; r weakly oblique; 1-SR+M straight; 1-SR+M:2SR+M:2-SR:r-m = 18:9:10:12; r-m largely desclerotised; 1cu-a weakly post furcal; CU1b present; vein 2A connected to vein 3A; subdiscal cell closed posteriorly. Hind wing: M+CU:1-M: 1r-m = 35:32:18; 1-M sinuous; 2-SC+R vertical.

Legs. Hind coxa smooth; length of femur, tibia and basitarsus of hind leg 3.80, 5.50 and 4.60 times their width, respectively; length of hind basitarsus 1.21 times tarsi 2-5 combined; length of hind tibial spurs 0.43 and 0.60 times hind basitarsus; claws robust, with wide, rather acute lamella ventrally; all legs very densely setose.



Figs 6-10. *Paphanus priscillae* sp. nov., male, holotype. 6: metasoma lateral; 7: mesosoma lateral; 8: tergites 2-3, dorsal; 9: wings; 10: tergite 1, dorsal. Scale bars: 6-8, 10 = 500µm; 9 = 1mm.

Metasoma. Length of first tergite 1.73 times its apical width, with two parallel longitudinal carinae reaching apex, posterior 0.4 costate; apex of first tergite 2.1 times its basal width; second tergite coarsely longitudinally costate, medio-laterally depressed anteriorly, with one medio longitudinal carina; third tergite largely longitudinally costate; following tergites smooth, mainly hidden below the third; second suture deep, crenulate; long yellow setae present on apical 1/5 of first tergite, on apical 2/3 of second tergite, on full third tergite.
Colour (Fig. 2). Yellow-black; palpi, face excepted below antennal sockets, temples, frons, vertex, scape excepted ventrally, flagellomeres, ventral half of mesonotum from the precoxal sulcus, sternum, second tergite medially, third tergite mainly excepted a fine band anteriorly and apically, remaining tergite, apex of hind tibia, hind tibial spurs, hind tarsi black; propleuron, small patches basally on hind tibia brownish; fore wing hyaline and apically infuscate, hind wing very weakly infuscate.
Female. Unknown.

DISTRIBUTION. Neotropical (French Guiana).

HOSTS. Unknown.

ETYMOLOGY. Named in honour of our friend Priscilla Simonis for her work in Biophotonic which highlighted several amazing mechanisms of the insect's world.

Key to species of the genus *Paphanus* van Achterberg

1. First flagellomere 1.3 times as long as second flagellomere; 1cu-a of fore wing postfurcal; hind wing vein 1-M nearly straight; fore wing infuscate near veins; hind coxa sparsely punctulate, with darkened patches; first tergite 2.1 times its apical width; scutellum not clearly protruding, in lateral view; sides of scutellum with few crenulae; face largely smooth laterally near eyes (Paraguay)..... ..... ***P. drechseli*** van Achterberg & Riedel, 2009

- First flagellomere 1.5 times as long as second flagellomere; 1cu-a of fore wing weakly postfurcal; hind wing vein 1-M sinuous at least basally; fore wing largely dark apically and weakly infuscate near veins; hind coxa smooth, fully yellow; first tergite less than 1.8 times apical width; scutellum clearly protruding, in lateral view; sides of scutellum crenulate and costate; face largely covered by parallel wrinkles laterally, smooth only below eyes (French Guiana) .....***P. priscillae*** sp. nov.

New data for Doryctinae

Nervellius Roman, 1924

Nervellius philippus Braet, 2014

A new specimen extends the distribution of this species in French Guiana: 1 female, « Guyane, savane-roche de la Haute-Koursibo ("proche" des Monts Barruol, Latitude: 4.133333/Longitude: -53.35), 27.X.2013, Light trap, SEAG rec.» (YB).

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