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Revision of the Afrotropical genus *Pulchrisolia* Szabó (Hymenoptera, Platygastridae, Sceliotrachelinae)

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Abstract

The genus *Pulchrisolia* Szabó is revised. *Pulchrisolia maculata* Szabó is redescribed and nine species are described as new: *P. ankremos* Lahey, **sp. nov.** (Ghana, Ivory Coast), *P. asantesana* van Noort & Lahey, **sp. nov.** (South Africa), *P. diehoekensis* van Noort & Lahey, **sp. nov.** (South Africa), *P. ellieae* Lahey, **sp. nov.** (Madagascar), *P. nephelae* Lahey, **sp. nov.** (Benin, Burkina Faso, Gambia, Ivory Coast, Mali, Nigeria), *P. robynae* van Noort & Lahey, **sp. nov.** (South Africa), *P. sanbornei* Lahey & Masner, **sp. nov.** (South Africa), *P. teras* Lahey, **sp. nov.** (Madagascar), and *P. valerieae* Polaszek & Lahey, **sp. nov.** (Zambia). The genus is diagnosed from *Afrisolia* Masner & Huggert, *Isolia* Förster, and *Sceliotrachelus* Brues, and a key is provided to the platygastrid genera of the *Isolia*-cluster.

Keywords

Afrisolia, *Isolia*, Parasitoid, Platygastroidea, *Sceliotrachelus*, taxonomy

Introduction

The genus *Pulchrisolia* Szabó was erected for the species *Pulchrisolia maculata* Szabó based on a single female collected in Shirati (Tanzania) by Kálmán Kittenberger in 1909 (Szabó 1959). Masner (1964) examined the type and treated *Pulchrisolia* as a junior synonym of *Sceliotrachelus* Brues. Upon accumulation of new material and re-examination of the type, Masner and Huggert (1989) reinstated *Pulchrisolia* as a valid genus based on a series of characters not found in *Sceliotrachelus*: fore wing with a short, tubular submarginal vein; a transverse frontal ledge just above the toruli; and a ventrally-produced, apically-bifurcated interantennal process. As revealed by this revision, the latter two characters are present in most, but not all, species. *Pulchrisolia* also resembles *Isolia* Förster and *Afrisolia* Masner & Huggert but can be separated from those genera using some of the characters mentioned above as well as characters unique to each genus.

The purpose of this study is to revise the species-level taxonomy of *Pulchrisolia* and update its generic concept. The contributions of the authors are as follows: Z. Lahey: character definition, generic concept development, species concept development, imaging, key development, manuscript preparation; S. van Noort: character definition, key development, provision of specimens; imaging; A. Polaszek: initial proposal for redefinition of the *Isolia*-cluster, character definition, provision of specimens; L. Masner: character definition, generic concept development, species concept development, provision of specimens; N.F. Johnson: character definition, generic concept development, species concept development.

Materials and methods

The numbers prefixed with "CASENT", "HNHM", "NHMUK", "OSUC", "SAM", and "USNMENT" are unique identifiers for the individual. Details of the data associated with these specimens may be accessed at the following link: https://hol.osu.edu and entering the identifier in the form.

Abbreviations and morphological terms used in the text: sensillar formula of clavomeres: distribution of papillary sensilla on the ventral clavomeres of the female (Yang et al. 2016), with the segment interval specified followed by the number of papillary sensilla (PS) per segment (e.g., A10–A8/1-2-2) (Bin 1981; Bin et al. 1989); T1, T2, ... T6: metasomal tergite 1, 2, ... 6; S1, S2, … S6: metasomal sternite 1, 2, … 6. Morphological terminology generally follows Masner and Huggert (1989), Mikó et al. (2007), Talamas and Masner (2016), and Lahey et al. (2019). Morphological terms were matched to concepts in the Hymenoptera Anatomy Ontology (Yoder et al. 2010) using the text analyzer function.

Images were captured at OSUC with a Leica MC170 HD digital camera attached to a Leica Z16 APOA microscope using Leica Application Suite (LAS; version 4.12.0).

Image stacks were combined into a single montage image using Zerene Stacker (version 1.04). Montage images at OSUC were postprocessed with Adobe Photoshop CC and are archived at http://specimage.osu.edu, the image database at The Ohio State University, which includes supplementary images not included in this paper. Images were acquired at SAMC with a Leica LAS 4.9 imaging system, comprising a Leica Z16 APOA microscope (using either a 2× or 5× objective) with a Leica DFC450 Camera and 0.63× video objective attached. The imaging process, using an automated Z-stepper, and subsequent image stacking was managed using the LAS (version 4.9) software installed on a desktop computer. Diffused lighting was achieved using a Leica LED5000 HDI dome. All images presented in this paper, as well as supplementary images, are available at http://www.waspweb.org.

Scanning electron micrographs were produced with a Hitachi TM300 Tabletop Microscope. The specimen was disarticulated with a minuten probe and forceps, mounted on a 12 mm slotted aluminum mounting stub (EMS Cat. #75220) using carbon adhesive tabs (EMS Cat. #77825-12), and sputter coated with approximately 70 nm of gold/palladium.

Collections

This work is based on specimens deposited in the following repositories:

CAS	California Academy of Sciences, San Francisco, California, USA
CNCI	Canadian National Collection of Insects, Ottawa, Ontario, Canada
NHMUK	Natural History Museum, London, United Kingdom
HNHM	Hungarian Natural History Museum, Budapest, Hungary
OSUC	C.A. Triplehorn Collection, The Ohio State University, Columbus, Ohio, USA
SAMC	Iziko South African Museum, Cape Town, South Africa
USNM	Smithsonian National Museum of Natural History, Washington, DC, USA

Abbreviations and characters annotated in the figures

aad	antero-admedian depression (Figure 5)
atp	anterior tentorial pit (Figures 54, 55)
auc	axillular carina (Figure 5)
axu	axillula (Figure 57)
cly	clypeus (Figures 54, 55)
diap	dorsal surface of interantennal process (Figures 54, 55)
dmpa	dorsal metapleural area (Figure 56)
epc	epomium (Figure 56)
fld	frontal ledge (Figure 54)

fs foamy structures (Figure 58)
fsS1 foamy structures on S1 (Figures 61, 62)
iap interantennal process (Figure 55)
loc lateral ocellus (Figure 5)
lpar lateral propodeal area (Figure 57)
lpc lateral propodeal carina (Figures 5, 57)
lt1 lateral tergite 1 (Figure 61)
lt2 lateral tergite 2 (Figure 61)
mc mesopleural carina (Figure 56)
mdb mandible (Figure 54)
metp metapleural pit (Figure 58)
mml median mesoscutal line (Figure 5)
mnt metanotal trough (Figures 57, 59)
msct metascutellum (Figure 57)
mtsr metascutellar carina (Figure 5)
not notaulus (Figure 5)
pad paraocellar depression (Figure 5)
plc plica (Figure 57)
pns pronotal shoulder (Figure 5)
prcs pronotal cervical sulcus (Figure 56)
prd preocellar depression (Figure 52)
prsl parapsidal line (Figure 5)
pts protibial spur (Figure 63)
R (sbmv) radial vein (submarginal vein) (Figure 5)
scu mesoscutellum (Figures 5, 57)
sss scutoscutellar sulcus (Figure 5)
vmpa ventral metapleural area (Figure 56)

Taxonomy

Pulchrisolia Szabó

Pulchrisolia Szabó, 1959: 395 (original description. Type: *Pulchrisolia maculata* Szabó, by monotypy and original designation); Masner 1964: 11 (treated as a synonym of *Sceliotrachelus* Brues); Masner and Huggert 1989: 29, 108 (keyed, description, diagnosis, species list); Vlug 1995: 73 (cataloged, catalog of world species); Veenakumari et al. 2019: 453 (key to genera of the *Isolia*-cluster, keyed).

Description. Coloration: yellow; orange; light to dark red; brown to brownish-black. Antennal formula: 10-10. Male antennae: filiform. Clava: subcompact. Number of clavomeres: 3. Arrangement of setae on ventral surface of clavomeres: chevron-shaped

leading to posterior-most papillary sensillum. Sensillar formula of clavomeres: A10–A8/1-2-2. Position of lateral ocellus: remote from inner margin of compound eye by > 3 ocellar diameters. Hyperoccipital carina: present. Frontal ledge: present; absent. Interantennal process: present. Shape of clypeus: ovoid, abruptly widening below ventral surface of interantennal process. Labrum: concealed by clypeus. Facial striae: absent. Malar striae: absent. Malar sulcus: absent. Epomium: incomplete dorsally. Notaulus: present; absent. Anterior admedian depression: present; absent. Axilla: absent. Axillular carina: present, potentially fused with transaxillar carina, sometimes with the posterior margin projecting over metanotal trough. Sculpture of anterior margin of mesoscutellum: smooth; weakly crenulate. Scutoscutellar sulcus: undifferentiated from transcutal articulation. Posterior mesoscutellar sulcus: undifferentiated from mesoscutellar disc. Metascutellum: differentiated from metanotal trough by metascutellar carinae. Sculpture of metascutellum: smooth. Sculpture of metanotal trough: smooth. Netrion: absent. Sculpture of dorsal mesopleuron: transversely ridged. Transepisternal line: absent. Mesopleural carina: present. Foamy structures on metapleuron: present posteriorly. Metapleural carina: concealed by foamy structures. R (submarginal vein) of fore wing: present, < 1/10 length of fore wing. Marginal cilia of fore wing: present; absent. Shape of fore and hind wing microtrichia: scale-like pegs, some nearly as wide as long. Shape of T1 in dorsal view: transverse. Foamy structures on T1: present anterolaterally. Foamy structures on S1: present, transverse, sometimes projecting between hind coxae. Transverse felt field on S2: absent. Tibial spur formula: 1-2-2. Protibial spur: combed. Setation of dorsal metatibia: present as linear tract of dense setae.

Diagnosis. Species of *Pulchrisolia* may be diagnosed from other platygastroids by the following combination of characters: fore wing with incredibly short, tubular R vein terminating in a knob and at least some microtrichia of the fore and hind wings in the form of short, scale-like pegs. The coloration of the adult (most species are yellow, orange, red, or a combination thereof); frontal ledge on the lower frons; bilobed, protuberant interantennal process; and tract of dense setae on the metatibia are additional characters that may aid in the recognition of the genus.

Definition of the *Isolia*-cluster

As part of their treatment of the subfamily Sceliotrachelinae, Masner and Huggert (1989) grouped genera into clusters based on combinations of characters shared between their constituent species. Genera within the *Isolia*-cluster are recognizable by the combed fore tibial spur (Figure 63) and the microtrichia on the fore and hind wings that are distinctly spike- or scale-like in most, but not all, species (e.g., certain *Isolia*). Masner and Huggert (1989) also placed emphasis on the compact arrangement of the ocelli; however, this character is highly variable between species and between sexes within a species (Veenakumari et al. 2019). There are no host records for any of the genera within this cluster.

Key to genera of the *Isolia*-cluster

1 Microtrichia of fore wing distinctly bicolored, giving the appearance of patches or stripes (Figures 1, 2, 48, 64) **2**

– Microtrichia of fore wing not bicolored (Figures 3, 4) **3**

2 Fore wing with short, tubular submarginal vein terminating in knob (Figs 1, 5, 23, 31, 38); microtrichia on fore wing in the form of scale-like pegs (Figs 1, 12, 31, 38); mesoscutum longer than visible portion of pronotum in dorsal view (Figures 5, 23, 50); S2 glabrous; inner margin of metatibia with comb of setae (Figures 15, 22) ..... ***Pulchrisolia*** **Szabó**

– Fore wing veinless (Figure 2); microtrichia on fore wing dense, overlapping, and needle-like (see Masner and Huggert 1989, p. 197); S2 with long setae; mesoscutum transverse, shorter than visible portion of pronotum (Figure 2); inner margin of metatibia without comb of setae ..... ***Sceliotrachelus*** **Brues**

3 Fore wing with tubular submarginal vein (Figure 3); transepisternal line present; anterior notaular pits present (Figure 3) .. ***Afrisolia*** **Masner & Huggert**

– Fore wing veinless (Figure 4); transepisternal line absent; anterior notaular pits absent (Figure 4) ..... ***Isolia*** **Förster**

Key to species of *Pulchrisolia* (males and females)

1 Fore wing with one black band or a black band and a circular black area (Figs 8, 38); marginal cilia of female fore wing absent; costal margin of hind wing without dark, thick sclerotization posterior to hamuli; frontal ledge present or absent (Figures 5, 10, 21) **2**

– Fore wing with two black bands (Figures 15, 20, 28); marginal cilia of female fore wing present or absent; costal margin of hind wing with dark, thick sclerotization posterior to hamuli; frontal ledge present (Figures 5, 14, 16, 19, 21) **5**

2 Frontal ledge absent (Figure 10) ..... ***P. ankremos*** **Lahey, sp. nov.**

– Frontal ledge present (Figures 14, 16, 30, 36, 51, 54) **3**

3 Fore wing with a circular arrangement of black microtrichia (Figure 38); mesoscutellum longitudinally striate (Figure 33) ..... ***P. nephelae*** **Lahey, sp. nov.**

– Fore wing without circular pattern of black micotrichia (Figure 22); mesoscutellum smooth (Figures 12, 31) **4**

4 Notaulus present (Figures 5, 50) ..... ***P. teras*** **Lahey, sp. nov.**

– Notaulus absent (Figure 23) ..... ***P. ellieae*** **Lahey, sp. nov.**

5 Antero-admedian depression present (Figures 5, 23, 50) **6**

– Antero-admedian depression absent (Figures 31, 45) **8**

6 Antero-admedian lines present (Figure 66); mesoscutum and mesoscutellum darker than head and pronotum (Figures 65, 66) ..... ***P. valerieae*** **Polaszek & Lahey, sp. nov.**

– Antero-admedian lines absent; pronotum, mesoscutum and mesoscutellum concolorous and lighter than head and metasoma (Figures 12, 31) **7**

7 Mesoscutellum approximately twice as wide as long (Figure 39); frontal ledge of male distinctly concave medially (Figure 43); forewing microtrichia of female not overlapping; forewing distinctly longer than body length (Figure 42).....***P. robynae*** **van Noort & Lahey, sp. nov.**

– Mesoscutellum approximately 3 times as wide as long (Figure 12); frontal ledge of male straight, not concave medially (Figure 16); forewing microtrichia of female and male overlapping; forewing approximately as long as body length (Figure 15).....***P. asantesana*** **van Noort & Lahey, sp. nov.**

8 Metapleuron completely covered by foamy structures, without setae along anterior margin (Figure 47); posterolateral corners of pronotal shoulders acute (Figures 45, 49) .....***P. sanbornei*** **Lahey & Masner, sp. nov.**

– Metapleuron with anterior margin distinctly setose (Figure 18); posterolateral corners of pronotal shoulders round (Figures 17, 31).....**9**

9 Posterolateral corners of pronotal shoulders remote from anterior margin of tegula (Figures 28, 31); head concolorous with mesosoma (Figures 28, 31); clavomeres distinctly darker than funicle (Figure 28) ..... ***P. maculata*** **Szabó**

– Posterolateral corners of pronotal shoulders closer to anterior margin of tegula (Figures 17, 20); head of female distinctly darker than mesosoma (Figures 17, 18); clavomeres concolorous with funicle..... ..... ***P. diehoekensis*** **van Noort & Lahey, sp. nov.**

Character discussion

Antero-admedian depression

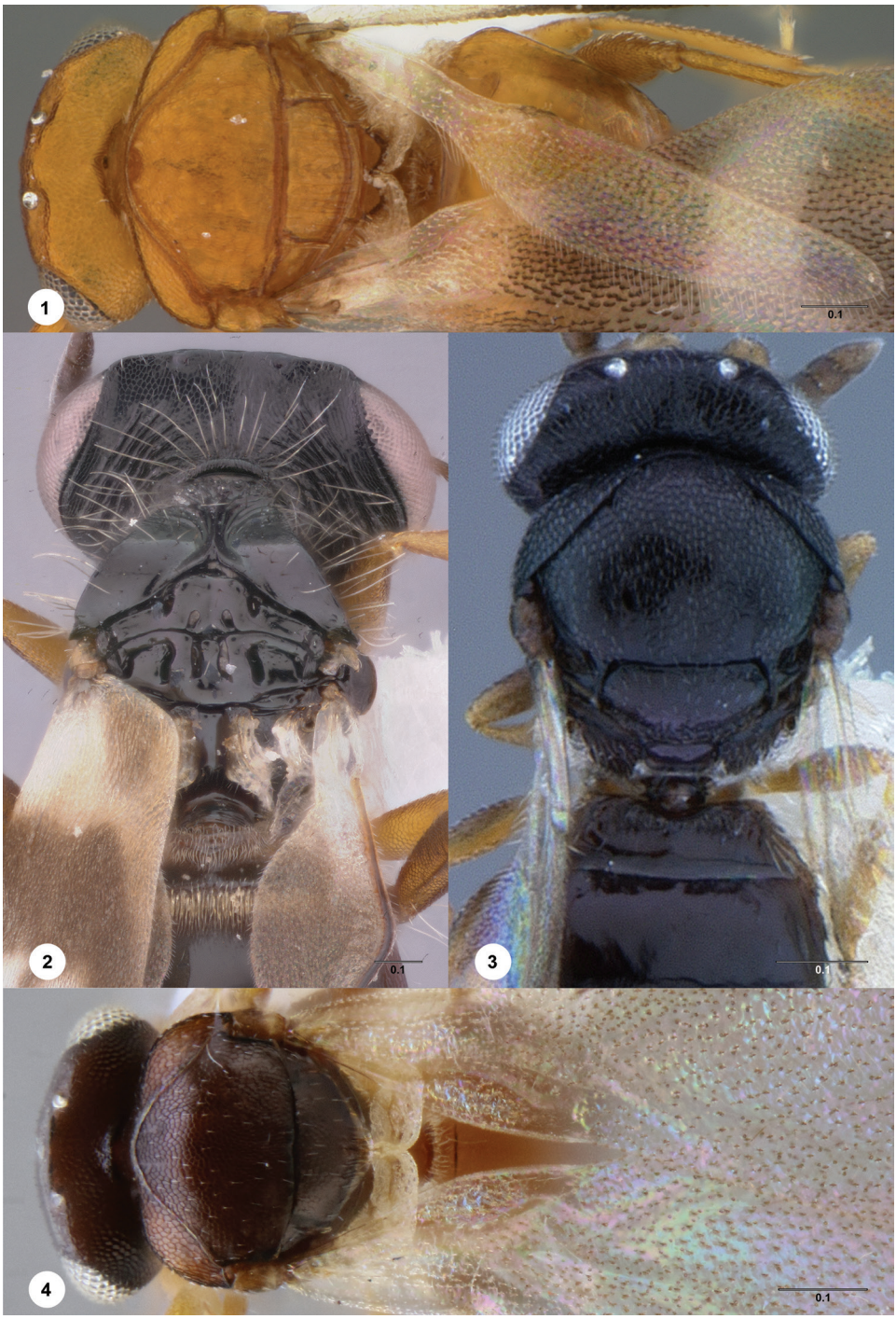
We coin this term for the depression that is located anteromedially on the mesoscutum and is usually separated by a horizontal septum (Figures 1, 5, 23, 50). This character shows little intraspecific or sexual variation, with the notable exception that it may be absent or present in *P. ankremos*.

Interantennal process

All species of *Pulchrisolia* have a distinct, protuberant interantennal process. The dorsal portion ranges in shape from a thin strip that is shorter than the radicle (Figure 10), to an apically bilobate projection longer than the radicle (Figures 16, 21).

Foamy structures and metapleural setation

All species of *Pulchrisolia* have the posterior (Figures 9, 35), and most of the anterior (Figs 40, 47), portion of the metapleuron covered in foamy structures. Foamy structures are extensions of cuticle that usually emanate from carinae on the propodeum and metapleuron but may also occur on T1 and S1. Their structure and coloration (i.e., translucent to yellowish-white) resemble that of a bubbly liquid, with an irregular arrangement of open and closed



Figures 1–4. Genera of the *Isolia*-cluster. *Pulchrisolia nephelae*, male (USNMENT00916688) **1** head, mesosoma, metasoma, dorsal view. *Sceliotrachelus braunsi* Brues, female (OSUC 231999) **2** head, mesosoma, metasoma, dorsal view. *Afrisolia* sp., female (USNMENT00916676) **3** head, mesosoma, metasoma, dorsal view. *Isolia* sp., female (USNMENT00197883) **4** head, mesosoma, metasoma, dorsal view. Scale bars in millimeters.

cells. We hypothesize that they function as an evaporating surface for undetermined glandular products secreted from pores on the associated sclerites. The degree to which the foamy structures are developed and the setation of the anterior margin of the metapleuron are important characters in species identification. We distinguish the anterodorsal from the anteroventral portion of the metapleuron by the location of the metapleural pit (Figures 56, 58), which, although nearly obscured by foamy structures, is generally indicated by an invagination or 'break' along the anterior margin of the foamy structures.

Papillary sensillum

Platygastroids are characterized by the presence of papillary sensilla located on the ventral surface of the distal antennomeres of the adult female (Bin 1981; Bin et al. 1989; Isidoro et al. 2001). These sensilla have been referred to by various names, including plate sensilla (Bin 1981), basiconic sensilla (Bin 1981), multiporous gustatory sensilla (Isidoro et al. 2001), and papillary sensilla (Bin et al. 1989; Yang et al. 2016). We here adopt the term papillary sensilla to describe these structures and suggest other workers on Platygastroidea do the same for the following reasons: (1) the specific function of these sensilla is yet to be elucidated, which obviates the use of terms placing them into a functional category, and (2) the term basiconic has been misapplied to these structures, as histological examinations have confirmed that hundreds, not a few, sensory neurons innervate each sensillum (Isidoro et al. 2001).

Preocellar and paraocellar depressions

We coin these terms to describe the depressions that flank the anterior (preocellar) and/or lateral (paraocellar) margins of the anterior and lateral ocelli, respectively. We prefer not to use the term 'pit' when describing these structures because they may not be homologous with the preocellar pit possessed by some Telenominae, which corresponds internally with an apodeme (Isidoro and Bin 1994). These structures are most noticeable in *P. teras*, where they are semilunar in shape and deep (Figures 5, 50, 52).

Sexual dimorphism

The hyperoccipital carina of some male *Pulchrisolia* is less pronounced than that of conspecific females (Figures 19, 21, 40, 42). In contrast, the interantennal process of males is generally more pronounced and, in species where the interantennal process is apically bilobed, the invagination separating each lobe is longer (Figures 19, 21, 41, 43). Minimal variation was observed in other character systems used to differentiate between males and females of the same species.

Wing microtrichia

The fore and hind wings of *Pulchrisolia* are covered in specialized microtrichia that appear scale-, disc- or paddle-like depending on the angle at which they are observed

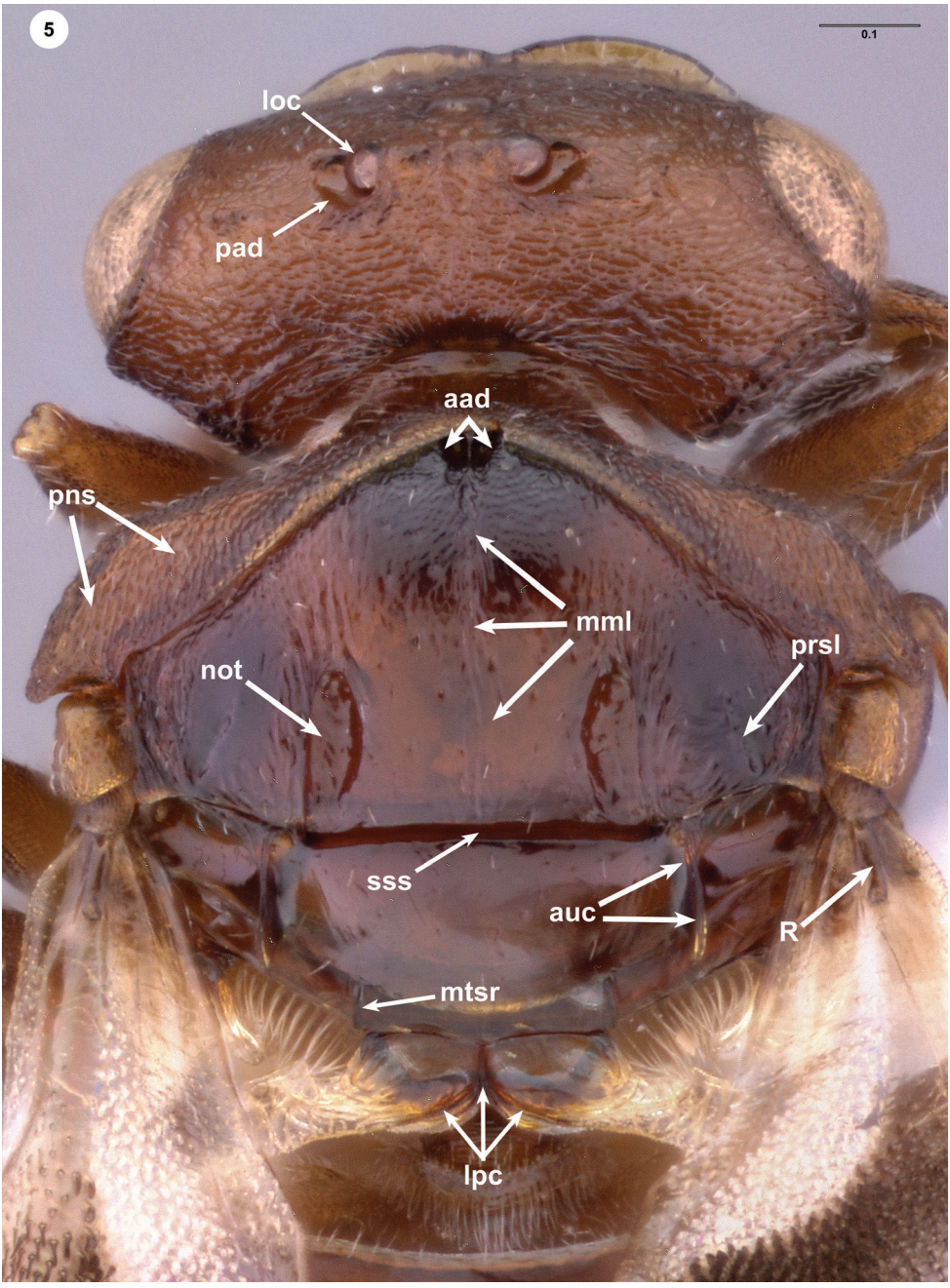


Figure 5. *Pulchrisolia teras*, male (CASENT 2043867), head, mesosoma, T1, dorsal view. Scale bar in millimeters.

(Figures 1, 5, 12, 38, 48, 50). All species possess these structures on at least some portion of their fore and hind wings, but their density and position are species-specific and may require viewing the animal at different angles.

***Pulchrisolia ankremos* Lahey, sp. nov.**
http://zoobank.org/30BE42DD-D219-4643-90CC-25DFA45D263A
Figures 6–11

Description. Female body length: 0.74–1.02 mm (n = 10). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: simple, not strongly projecting. Length of interantennal process: shorter than radicle. Frontal ledge: absent. Preocellar depressions: absent. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: absent. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: absent; present. Parapsidial line: present. Median mesoscutal line: absent. Notaulus: absent. Color of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: reticulate. Sculpture of mesoscutellum: longitudinally striate. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: present. Length of setation of anteroventral metapleuron: short. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: absent. Costal margin of hind wing: fuscous posterior to hamuli. Marginal cilia of female fore wing: absent.

Diagnosis. The lack of a frontal ledge on the lower frons and simple interantennal process that does not extend past the radicle separates *P. ankremos* from all other species of *Pulchrisolia*.

Etymology. Taken from the Greek word for cliff (γκρεμός), in reference to the lack of a frontal ledge on the lower frons. The epithet is treated as a noun in apposition.

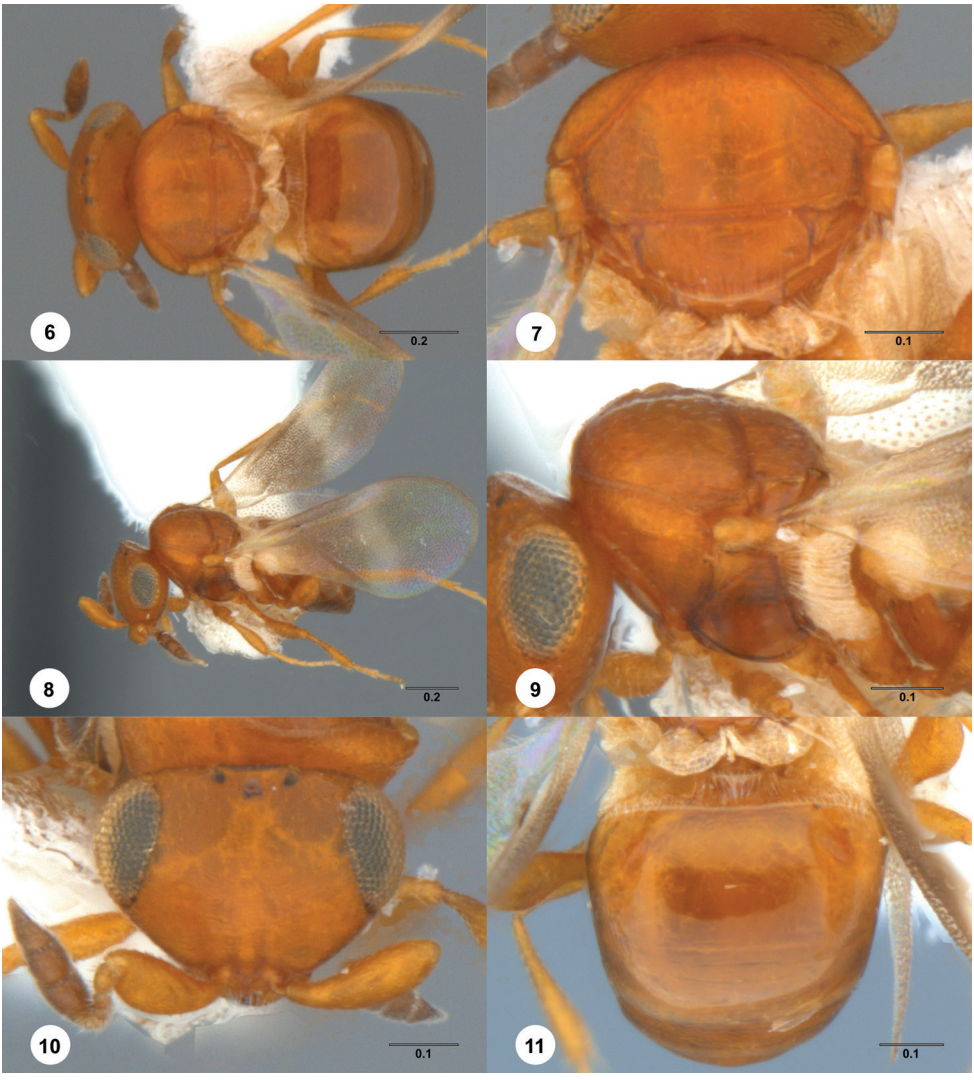
Link to distribution map. [http://hol.osu.edu/map-large.html?id=457749]

Material examined. Holotype, female: GHANA: Ashanti Reg., 06°42'N, 01°20'W, Bobiri Forest Reserve, II-2002, flight intercept trap, C. Carlton & O. Frimpong, OSUC 666426 (deposited in CNCI). Paratypes: (8 females) GHANA: 7 females, OSUC 666420–666422, 666424–666425, 666427–666428 (CNCI). IVORY COAST: 1 female, OSUC 666404 (CNCI).

Comments. *Pulchrisolia ankremos* is most similar to *P. nephelae* both morphologically and in geographic distribution. Nearly all the specimens examined have an antero-admedian depression, but this character is absent from the holotype, despite being present in other specimens collected during the same collecting event.

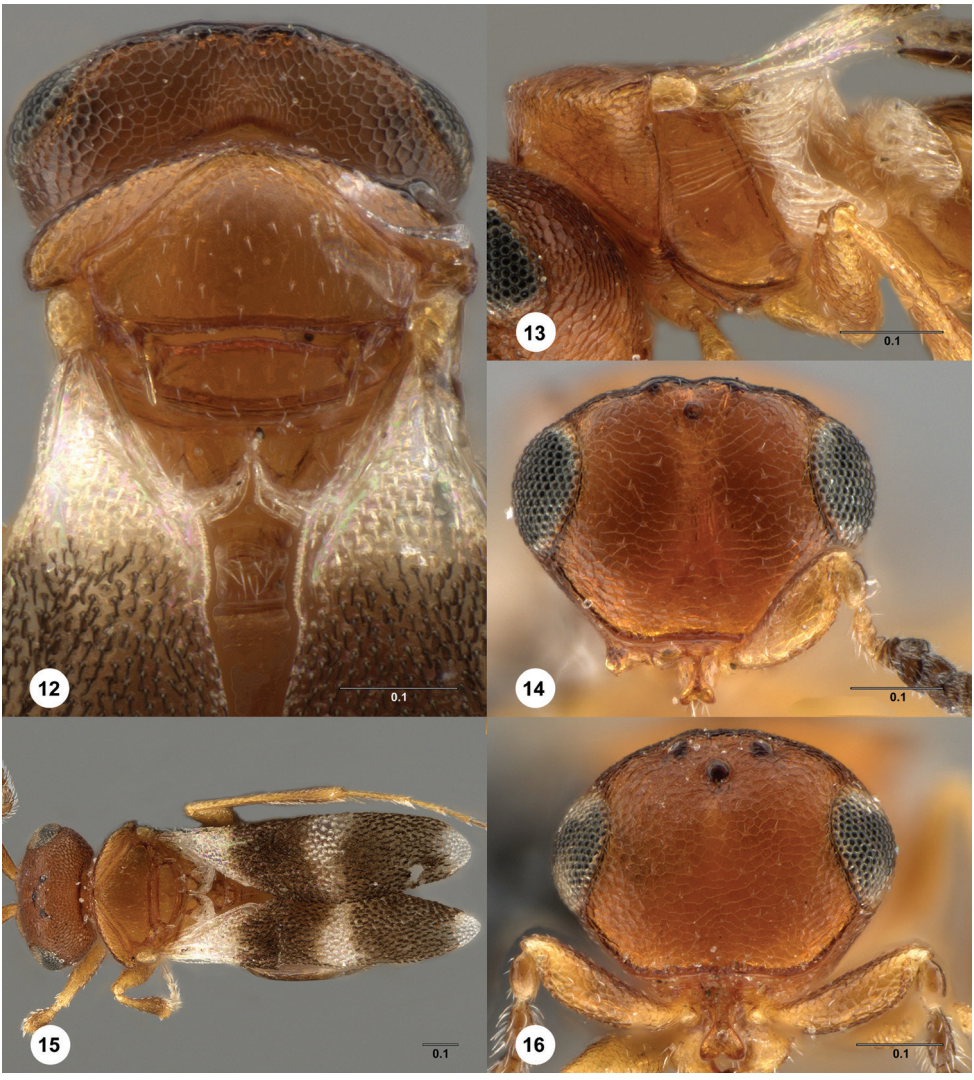
***Pulchrisolia asantesana* van Noort & Lahey, sp. nov.**
http://zoobank.org/A1125BB0-BF57-4317-AB4B-CF9F13B9E040
Figures 12–16

Description. Female body length: 0.88–0.96 mm (n = 10). Male body length: 0.74–0.88 mm (n = 10). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer



Figures 6–11. *Pulchrisolia ankremos*, female holotype (OSUC 666426) **6** head, mesosoma, metasoma, dorsal view **7** mesosoma, dorsal view **8** head, mesosoma, metasoma, lateral view **9** mesosoma, lateral view **10** head, anterior view **11** metasoma, dorsal view. Scale bars in millimeters.

than radicle. Coloration of clavomeres: darker than funicle. Hyperoccipital carina: sunken between lateral ocelli. Frontal ledge: present. Preocellar depressions: absent. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: present. Parapsidial line: absent. Median mesoscutal line: absent. Notaulus: absent. Color of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: reticu-



Figures 12–16. *Pulchrisolia asantesana*, female holotype (SAM-HYM-P046628) **12** head, mesosoma, T1, T2, dorsal view **13** head, mesosoma, S1, lateral view **14** head, anterior view **15** male paratype (SAM-HYM-P046628), head, mesosoma, metasoma, dorsal view **16** head, anterior view. Scale bars in millimeters.

late. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: absent. Foamy structures on anterior metapleuron: absent. Shape of fore wing: oblong. Infuscate banding of fore wing: present. Costal margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of female fore wing: absent.

Diagnosis. The straight frontal ledge and short fore wings with dense microtrichia readily separate this species from other *Pulchrisolia*.

Etymology. Named after the game reserve where the holotype was collected. Asante Sana is Swahili for "thank you very much". The epithet is treated as a noun in apposition.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=467907]

Material examined. Holotype, female: SOUTH AFRICA: Eastern Cape Prov., Zuurkloof, Camdeboo Escarpment Thicket / tall grass stands / scattered oubos / shrubs, T2S3d, 1621m, 32°16.011'S, 25°00.244'E, Asante Sana Game Reserve, 23.X.2010, pitfall trap, J. Midgley, SAM-HYM-P046628a (deposited in SAMC). Paratypes: SOUTH AFRICA: 16 females, 23 males, SAM-HYM-P037363, P038988, P046626, P046627, P046628b-d; P046629, P046630, P046631, P046632, P046633, P046634, P046635, P046636, P046637, P046638, P046639, P046640, P046641, P046642 (SAMC).

Pulchrisolia diehoekensis van Noort & Lahey, sp. nov.

http://zoobank.org/B7E4613D-560A-4BAA-BDC5-6B3447E3F82E

Figures 17–21

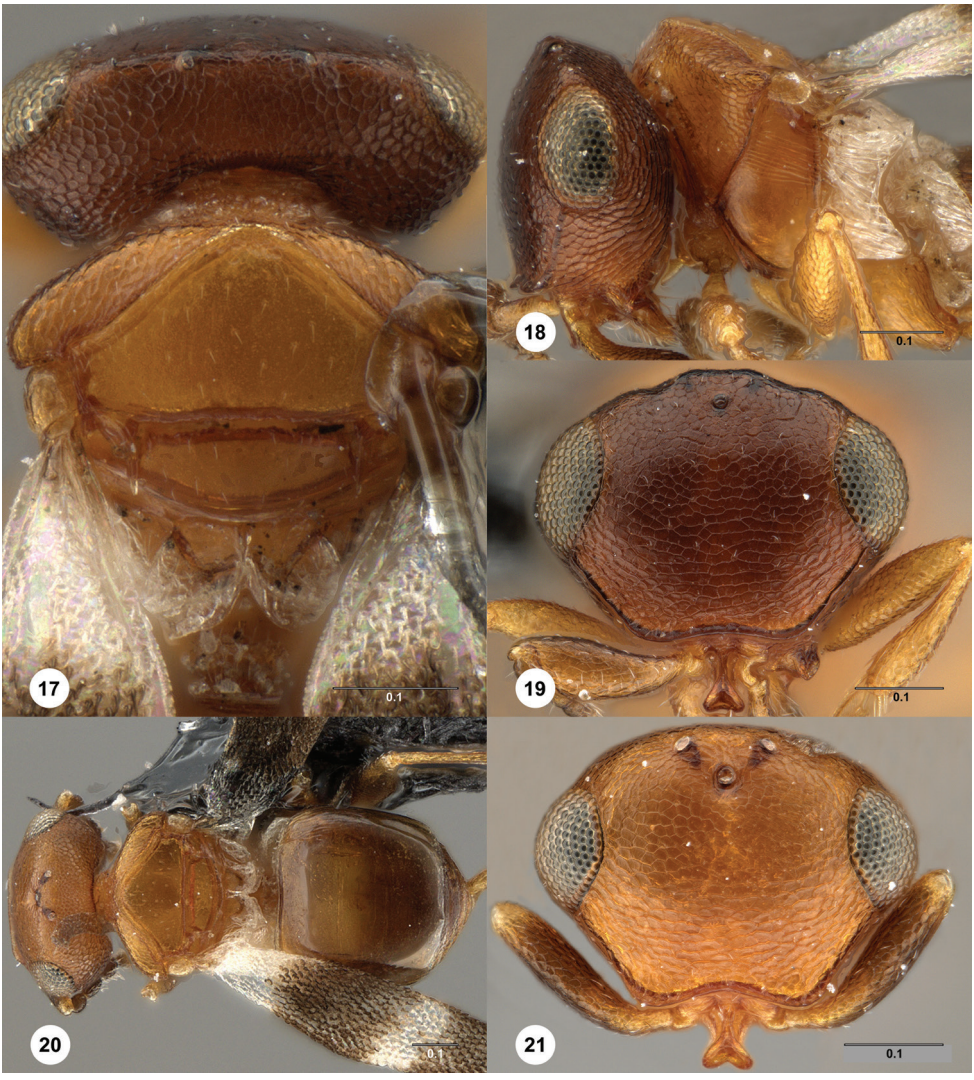
Description. Female body length: 1.04 mm (n = 1). Male body length: 0.80–1.18 mm (n = 4). Coloration of head, female: darker than mesosoma. Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer than radicle. Coloration of clavomeres: concolorous with funicle. Hyperoccipital carina: raised between lateral ocelli. Frontal ledge: present. Preocellar depressions: absent. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: absent. Parapsidial line: absent. Median mesoscutal line: absent. Notaulus: absent. Color of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: mostly smooth. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: absent. Foamy structures on anterior metapleuron: absent. Shape of fore wing: oblong. Infuscate banding of fore wing: present. Costal margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of female fore wing: absent.

Diagnosis. Separated from other species by the absence of an antero-admedian depression, posterolateral corners of the pronotal shoulders that are nearly articulate with the tegula, deep scutoscutellar sulcus, and coloration of the female.

Etymology. Named after the farm where the type series was collected. Die Hoek is Afrikaans for "the corner". The epithet is treated as a noun in apposition.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=467906]

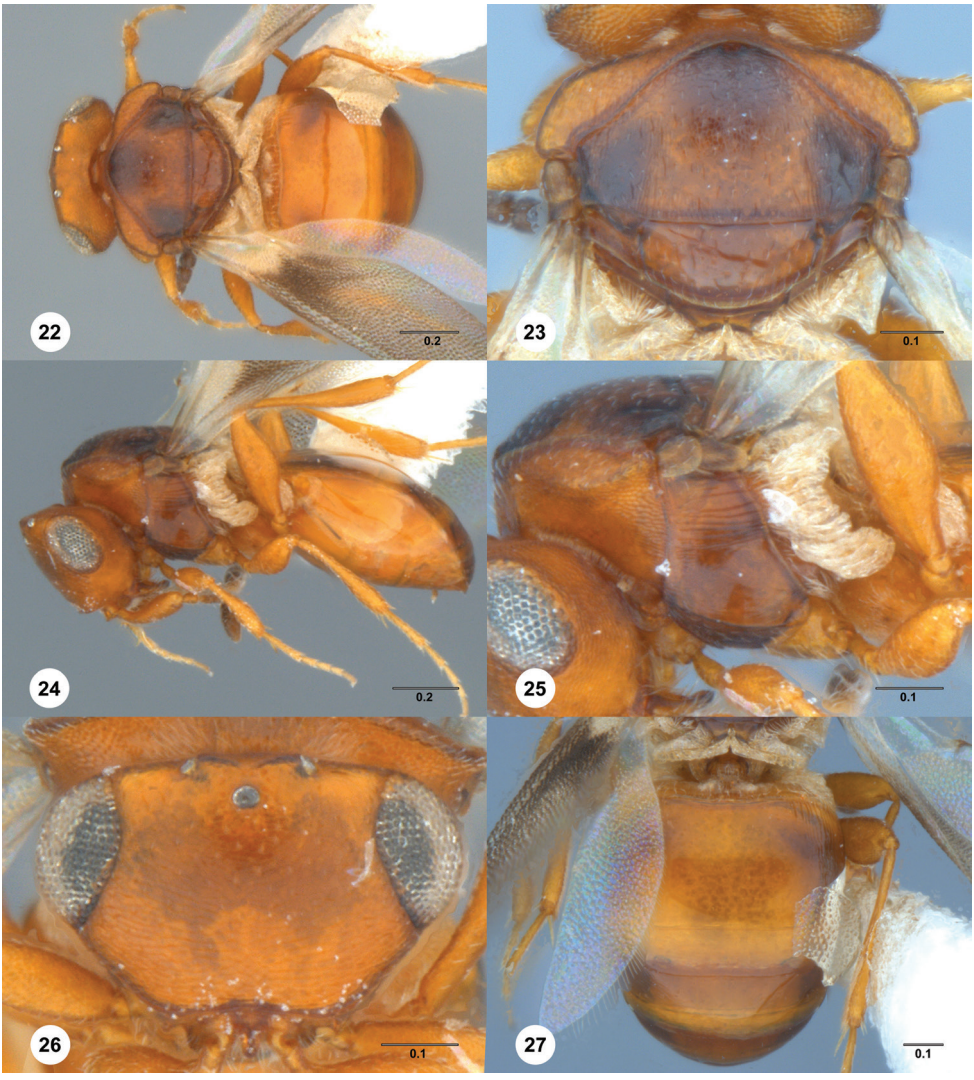
Material examined. Holotype, female: SOUTH AFRICA: Eastern Cape Prov., Winterberg, Amathole Mistbelt Grassland, WTB09-GRA1-Y04, 1879m, 32°21.260'S, 26°23.001'E, The Hoek Farm, 9.IV–26.VII.2010, yellow pan trap, S. van Noort, SAM-HYM-P038987 (deposited in SAMC). Paratypes: SOUTH AFRICA: 4 males, SAM-HYM-P038989, P038990 (SAMC).



Figures 17–21. *Pulchrisolia diehoekensis*, female holotype (SAM-HYM-P038987) **17** head, mesosoma, T1, T2, dorsal view **18** head, mesosoma, S1, lateral view **19** head, anterior view **20** male paratype (SAM-HYM-P038989), head, mesosoma, metasoma, dorsal view **21** head, anterior view. Scale bars in millimeters.

***Pulchrisolia ellieae* Lahey, sp. nov.**
http://zoobank.org/CB7B8FBF-DB38-4367-9879-686BEA83D13A
Figures 22–27

Description. Female body length: 0.97–1.41 mm (n = 2). Coloration of head, female: concolorous with pronotum. Shape of dorsal interantennal process: apically rounded. Length of interantennal process: longer than radicle. Hyperoccipital carina: raised be-



Figures 22–27. *Pulchrisolia ellieae*, female holotype (OSUC 666430) **22** head, mesosoma, metasoma, dorsal view **23** mesosoma, dorsal view **24** head, mesosoma, metasoma, lateral view **25** mesosoma, lateral view **26** head, anterior view **27** metasoma, dorsal view. Scale bars in millimeters.

tween lateral ocelli. Frontal ledge: present. Preocellar depressions: present. Setation of pronotal cervical sulcus: present. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: present. Parapsidial line: present. Median mesoscutal line: present; indicated posteriorly. Notaulus: absent. Coloration of mesoscutum: darker anteromedially and posterolaterally. Shape of mesoscutum in lateral view: flat to slightly convex.

Scupture of mesoscutum: reticulate. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: present. Length of setation of anteroventral metapleuron: long. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: absent. Costal margin of hind wing: fuscous posterior to hamuli. Marginal cilia of female fore wing: absent. Marginal cilia of male fore wing: absent.

Diagnosis. *Pulchrisolia ellieae* is identifiable by the apically rounded interantennal process and absence of notauli.

Etymology. This species is named to honor Ellie, the first author's beloved Coton de Tuléar, the royal dog of Madagascar. The epithet is treated as a noun in the genitive case.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=457304]

Material examined. Holotype, female: MADAGASCAR: Toliara Auto. Prov., 60km NE Morondava, Beroboka Avaratra, 18.V–23.V.1983, J. S. Noyes & M. C. Day, OSUC 666430 (deposited in NHMUK). Paratype: MADAGASCAR: 1 female, OSUC 666429 (CNCI).

***Pulchrisolia maculata* Szabó**

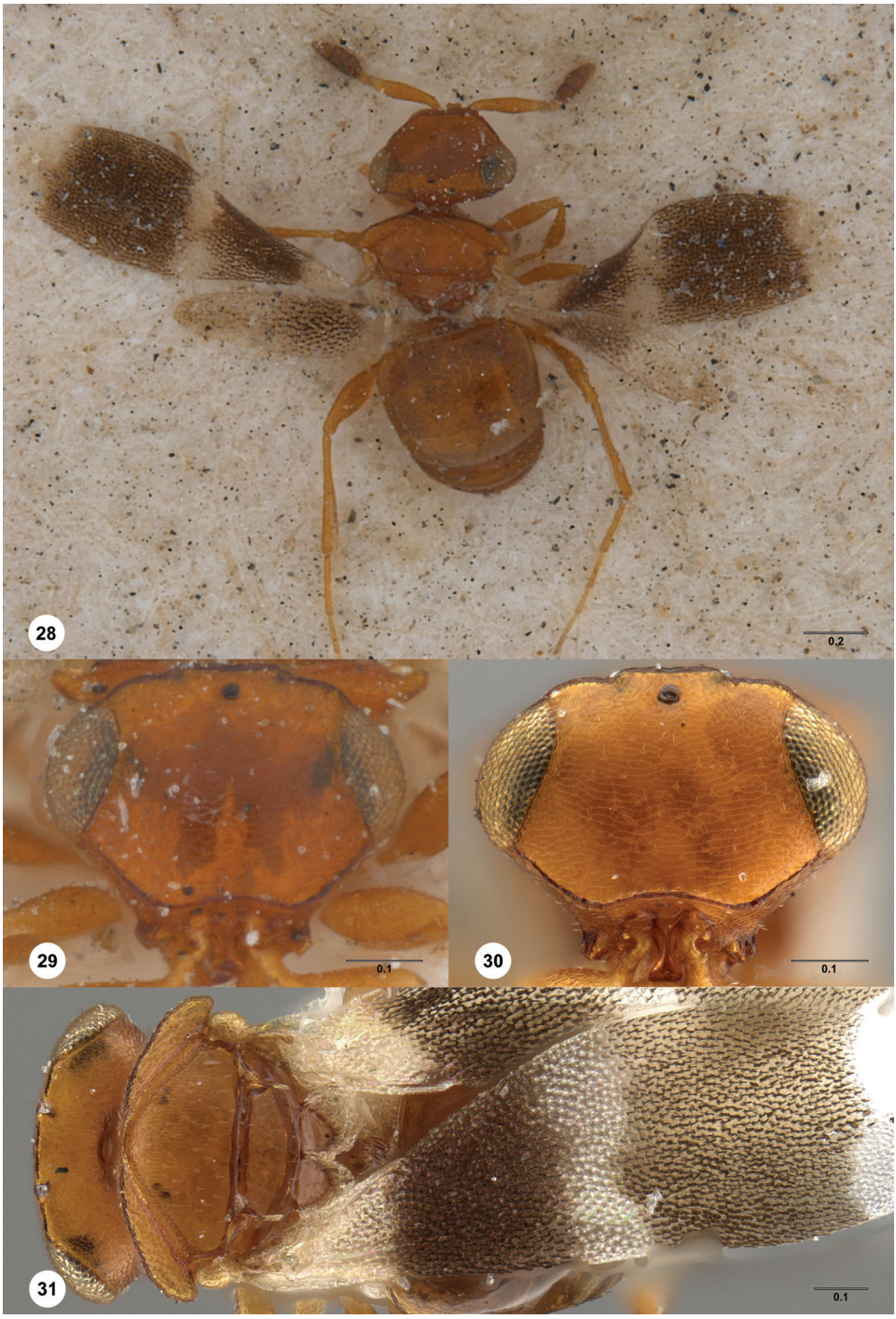
http://zoobank.org/FEFD0E42-14D3-4687-90F5-4D4D91601F08

Figures 28–31

Pulchrisolia maculata Szabó, 1959: 396 (original description); Vlug 1995: 73 (cataloged, type information).

Sceliotrachelus maculatus (Szabó): Masner 1964: 11 (generic transfer); Kozlov 1972: 134 (keyed).

Description. Female body length: 1.15–1.16 mm (n = 2). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer than radicle. Hyperoccipital carina: indicated as lateral tubercles; raised between lateral ocelli; sunken between lateral ocelli. Frontal ledge: present. Preocellar depressions: absent. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: absent. Parapsidial line: absent. Median mesoscutal line: absent. Notaulus: absent. Coloration of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: reticulate. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: present. Length of setation of anteroventral metapleuron: short. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: present. Costal



Figures 28–31. *Pulchrisolia maculata* **28** female holotype (HNHM 152909), head, mesosoma, metasoma, dorsal view **29** female holotype (HNHM 152909), head, anterior view **30** female (SAM-HYM-P020261), head, anterior view **31** female (SAM-HYM-P020261), head, mesosoma, metasoma, dorsal view. Scale bars in millimeters.

margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of female fore wing: present.

Diagnosis. *Pulchrisolia maculata* is identifiable by the absence of an antero-admedian depression, posterolateral corners of the pronotal shoulders that are remote from the tegula, and the anteroventral margin of the metapleuron that is glabrous or sparsely setose.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=12362]

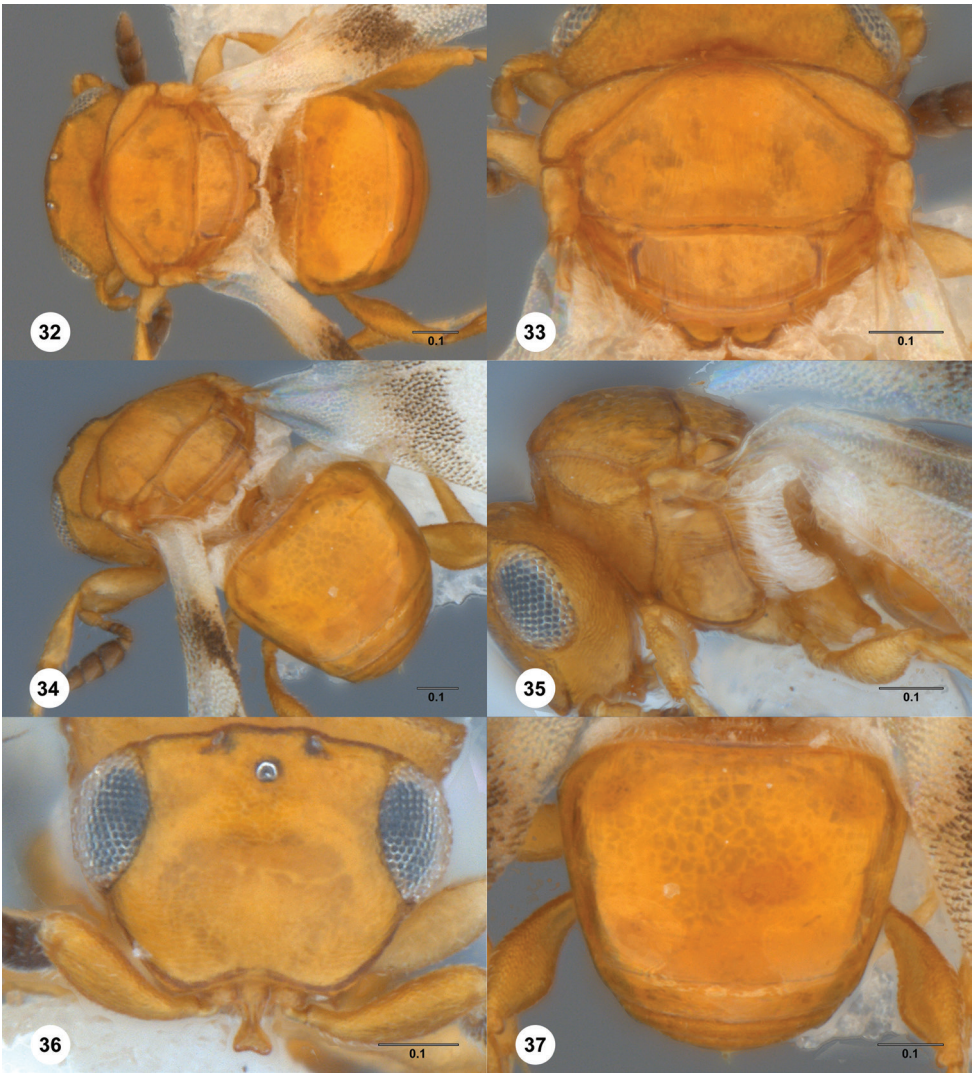
Material examined. Holotype, female: TANZANIA: Mara Reg., Shirati, V-1909, Katona, Hym. Typ. No. 9583 Mus. Budapest (deposited in HNHM). Other material: (6 females) KENYA: 3 females, OSUC 697903, 697951 (OSUC); USNMENT01448452 (USNM). TANZANIA: 3 females, HYM-P019793, P020252, P020261 (SAMC).

Comments. The holotype female is in relatively good condition despite being covered in debris, a result of the method used by Szabó to mount and examine specimens. Additional material collected in Kenya and Tanzania were found to be conspecific with *P. maculata*.

***Pulchrisolia nephelae* Lahey, sp. nov.**
http://zoobank.org/AF822308-21BA-45B1-8EF9-5E1B070A64FE
Figures 32–38

Description. Female body length: 0.73–1.14 mm (n = 10). Male body length: 0.73–1.07 mm (n = 10). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: simple; apically bilobed. Length of interantennal process: longer than radicle. Hyperoccipital carina: indicated as lateral tubercles; sunken between lateral ocelli. Frontal ledge: present; not traceable to ventral margin of compound eye. Preocellar depressions: present. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: absent. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: evenly rounded. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: absent. Anterior admedian depression or pit: present. Parapsidial line: absent. Median mesoscutal line: present; indicated posteriorly. Notaulus: absent. Coloration of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: strongly convex. Scupture of mesoscutum: longitudinally striate. Sculpture of mesoscutellum: longitudinally striate. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: present. Length of setation of anteroventral metapleuron: long. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: absent. Costal margin of hind wing: fuscous posterior to hamuli. Marginal cilia of female fore wing: absent. Marginal cilia of male fore wing: present.

Diagnosis. *Pulchrisolia nephelae* closely resembles *P. ankremos* but can be separated from all other *Pulchrisolia* species due to the circular arrangement of black microtrichia in the disc of the fore wing.



Figures 32–37. *Pulchrisolia nephelae*, female holotype (OSUC 666433) **32** head, mesosoma, metasoma, dorsal view **33** mesosoma, dorsal view **34** head, mesosoma, metasoma, posterodorsal view **35** mesosoma, lateral view **36** head, anterior view **37** metasoma, dorsal view. Scale bars in millimeters.

Etymology. Named for the cloud nymphs of Greek mythology. The epithet is treated as a noun in the genitive case.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=457303]

Material examined. Holotype, female: MALI: Koulikoro Reg., Mourdiah, 25.VIII–5.IX.1986, Malaise trap, M. Matthews, OSUC 666433 (deposited in CNCI). Paratypes: (29 females, 12 males) BENIN: 3 females, OSUC 666440–666441 (CNCI); OSUC 418469 (OSUC). BURKINA FASO: 4 females, 8 males, OSUC 666409–666416–666419, 666442–666443 (CNCI). GAMBIA: 2 females, OSUC

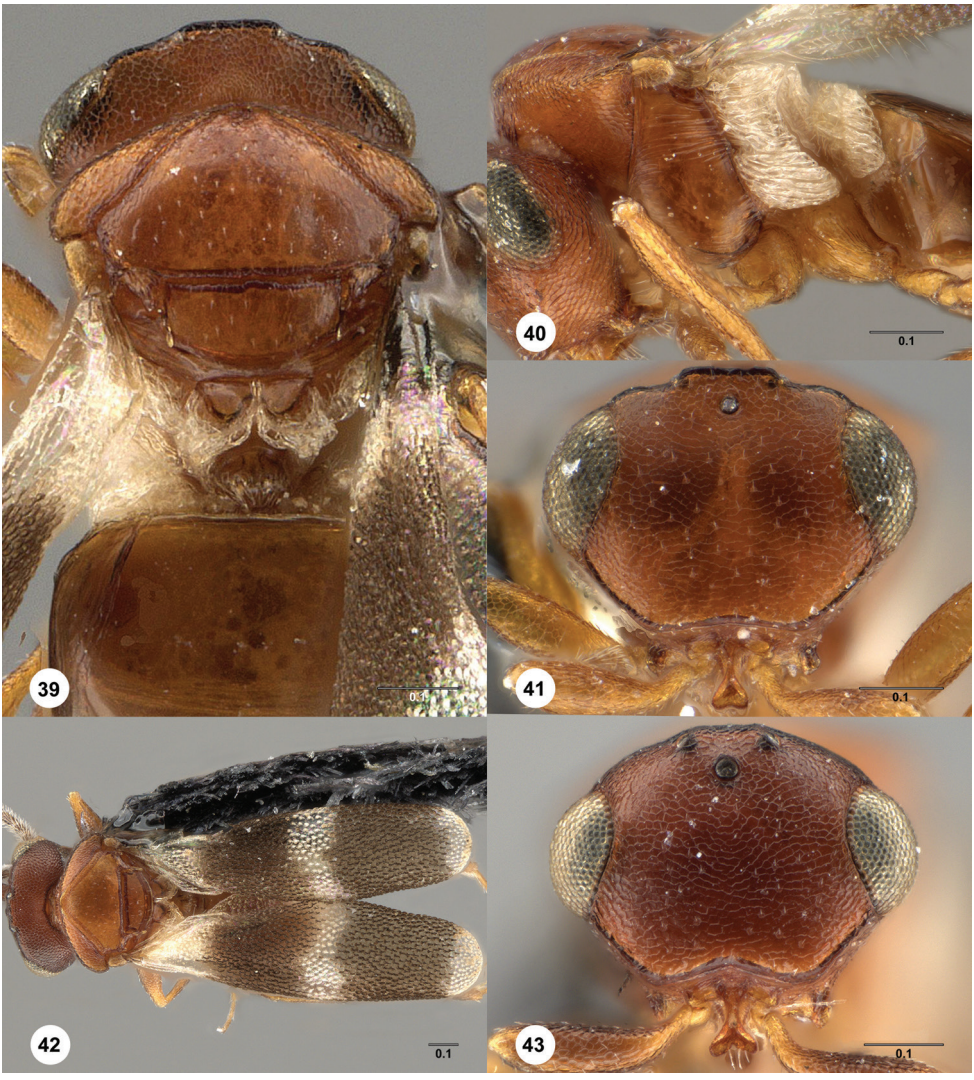
Figure 38. *Pulchrisolia nephelae*, female (OSUC 697956) **38** fore wing, slide mount. Scale bar in micrometers.

666438–666439 (CNCI). IVORY COAST: 18 females, 1 male, OSUC 666444–666462 (CNCI). MALI: 1 female, 3 males, OSUC 666432, 666434–666436 (CNCI). NIGERIA: 1 female, OSUC 666437 (CNCI).

Comments. The most abundant and widely distributed *Pulchrisolia* species currently known. *Pulchrisolia nephelae* is the species figured in the line drawings of Masner and Huggert (1989).

***Pulchrisolia robynae* van Noort & Lahey, sp. nov.**
http://zoobank.org/A8DD409E-A457-4C08-9AF3-DD3A29532972
Figures 39–43

Description. Female body length: 0.93–1.10 mm (n = 6). Male body length: 0.84–1.40 mm (n = 8). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer than radicle. Coloration of clavomeres: darker than funicle. Hyperoccipital carina: indicated as lateral tubercles; raised between lateral ocelli. Frontal ledge: present. Preocellar depressions: present. Setation of pronotal cervical sulcus: present. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: evenly rounded. Posterior margin of pronotal shoulders: rounded. Anteroadmedian line: absent. Anterior admedian depression or pit: present. Parapsidial line: absent. Median mesoscutal line: present. Notaulus: absent. Coloration of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: mostly smooth. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: absent. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical; oblong. Infuscate banding



Figures 39–43. *Pulchrisolia robynae*, female holotype (SAM-HYM-P031619) **39** head, mesosoma, T1, dorsal view **40** head, mesosoma, S1, lateral view **41** head, anterior view **42** male paratype (SAM-HYM-033748), head, mesosoma, metasoma, dorsal view **43** head, anterior view. Scale bars in millimeters.

of fore wing: present. Costal margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of female fore wing: present.

Diagnosis. *Pulchrisolia robynae* is morphologically similar to *P. maculata* but differs from that species by the presence of an antero-admedian depression, the posterolateral margin of the pronotal shoulders that are nearly articulate with the tegula, and the scutoscutellar sulcus that is weakly crenulate.

Etymology. Named in honor of Robyn Tourle, who was employed as a research assistant on the GEF-funded Conservation Farming project that produced these speci-

mens, in recognition of all her hard work in the field as well as her sorting and curation of specimens. The epithet is treated as a noun in the genitive case.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=467905]

Material examined. Holotype, female: SOUTH AFRICA: Eastern Cape Prov., 25.6km (254°) W Kirkwood, valley bushveld (goat trashed), VB01-R4T-P06, 33°32.635'S, 25°13.678'E, Marais Hoop Farm, 10.II–17.II.2001, pitfall trap, H. G. Robertson & R. Tourle, SAM-HYM-P031619 (deposited in SAMC). Paratypes: SOUTH AFRICA: Eastern Cape Province: 5 females, 5 males, SAM-HYM-P031616, P031617, P031618, P033082, P033745, P033746, P033747, P033748 (SAMC); Western Cape Province, Gamkaberg Nature Reserve: 3 males, SAM-HYM-P035656, P038480, P038642 (SAMC).

***Pulchrisolia sanbornei* Lahey & Masner, sp. nov.**

http://zoobank.org/0B2AA4D0-2345-4D8D-977A-D8A9A719495B

Figures 44–49

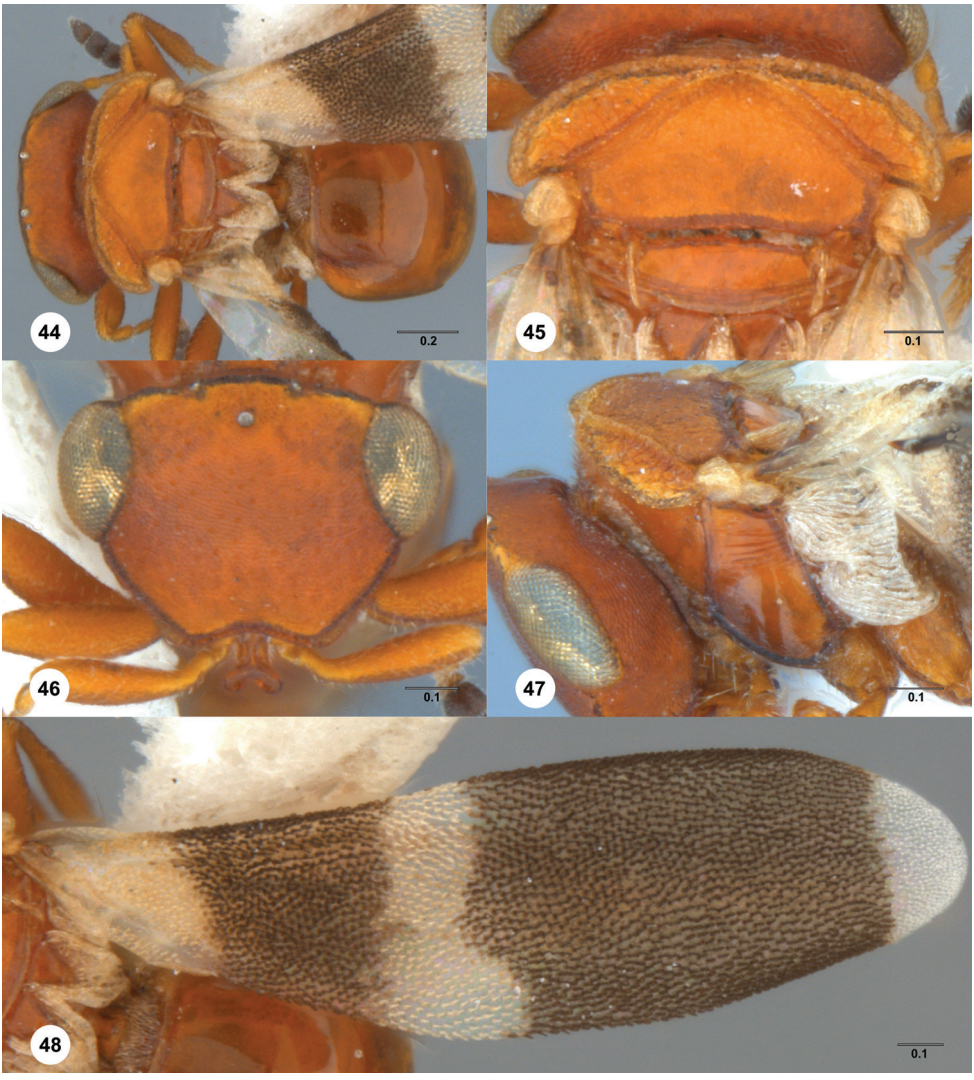
Description. Female body length: 1.61–1.98 mm (n = 10). Male body length: 1.56–1.74 mm (n = 8). Coloration of head, female: concolorous with mesosoma. Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer than radicle. Hyperoccipital carina: indicated as lateral tubercles; raised between lateral ocelli. Frontal ledge: present. Preocellar depressions: absent. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: absent. Sculpture of pronotal shoulders: rugose. Sculpture of anterior margin of pronotal shoulders: serrate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: carinate. Antero-admedian line: absent. Anterior admedian depression or pit: absent. Parapsidial line: absent. Median mesoscutal line: absent. Notaulus: absent. Coloration of mesoscutum: concolorous with pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: longitudinally striate. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: absent. Setation of anteroventral metapleuron: absent. Foamy structures on anterior metapleuron: present. Shape of fore wing: oblong. Infuscate banding of fore wing: present. Costal margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of female fore wing: present. Marginal cilia of male fore wing: present.

Diagnosis. The metapleuron completely covered in foamy structures and the rugose sculpture of the pronotal shoulders separates *P. sanbornei* from other species of *Pulchrisolia*.

Etymology. Named in honor of the late Michael Sanborne (Carleton University, Ottawa, Canada) for his efforts during a field expedition to South Africa which yielded a long series of this beautiful species. The epithet is treated as a noun in the genitive case.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=457751]

Material examined. Holotype, female: SOUTH AFRICA: Limpopo Prov., 15km E Klaserie, Guernsey Farm, 19.XII-31.XII.1985, pan trap, M. Sanborne, OSUC 666387 (deposited in SAMC). Paratypes: SOUTH AFRICA: 8 females, 9 males, OSUC 666386, 666388–666403 (CNCI).



Figures 44–48. *Pulchrisolia sanbornei*, female holotype (OSUC 666387) **44** head, mesosoma, metasoma, dorsal view **45** mesosoma, dorsal view **46** head, anterior view **47** mesosoma, lateral view **48** fore wing, dorsal view. Scale bars in millimeters.

Pulchrisolia teras Lahey, sp. nov.

http://zoobank.org/22736A8D-13BE-4518-BB7C-B251CA2EE713

Figures 5, 50–63

Description. Female body length: 2.37 mm (n = 1). Male body length: 1.17–1.95 mm (n = 7). Coloration of head, female: concolorous with pronotum. Shape of dorsal interantennal process: apically rounded. Length of interantennal process: longer than radicle. Hyperoccipital carina: indicated as lateral tubercles; raised between lateral ocel-

Figure 49. *Pulchrisolia sanbornei*, male paratype (OSUC 666396) **49** head, mesosoma, metasoma, dorsal view. Scale bars in millimeters.

li. Frontal ledge: present. Preocellar depressions: present. Setation of pronotal cervical sulcus: present. Setation of cervical pronotal area: present. Sculpture of pronotal shoulders: rugose. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: carinate. Antero-admedian line: absent. Anterior admedian depression or pit: present. Parapsidial line: present. Median mesoscutal line: absent; present. Notaulus: present in posterior portion of mesoscutum. Shape of notaulus: broad, deep, abbreviated anteri-

Figure 50. *Pulchrisolia teras*, female holotype (CASENT 2043862) **50** head, mesosoma, T1, T2, dorsal view. Scale bar in millimeters.

orly. Coloration of mesoscutum: darker anteromedially and posterolaterally. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: mostly smooth. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: present. Length of setation of anteroventral metapleuron: long. Foamy

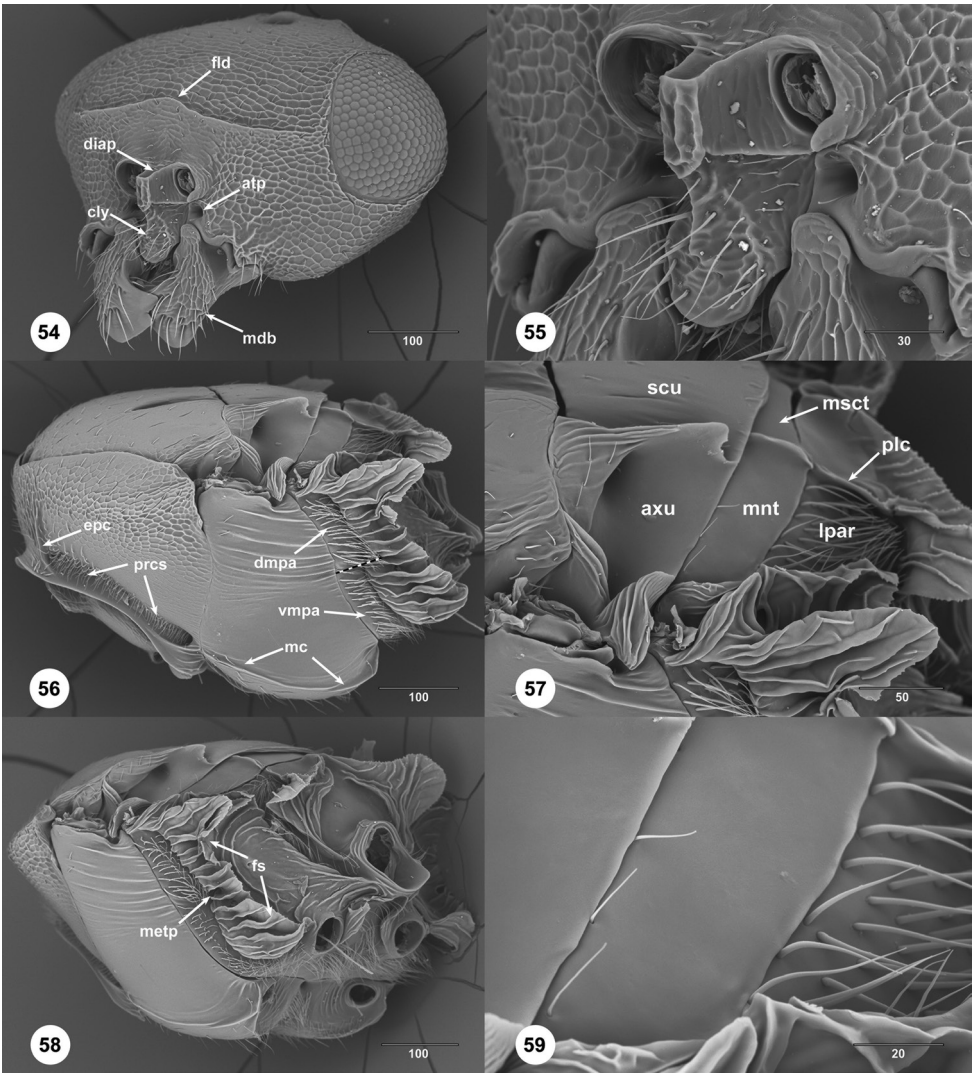
Figures 51–53. *Pulchrisolia teras*, female holotype (CASENT 2043862) **51** head, mesosoma, lateral view **52** head, anterior view **53** head, anteroventral view. Scale bars in millimeters.

structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: absent. Costal margin of hind wing: fuscous posterior to hamuli. Marginal cilia of female fore wing: absent. Marginal cilia of male fore wing: absent.

Diagnosis. *Pulchrisolia teras* is separated from all other species by the presence of deep notauli and well-defined preocellar depressions.

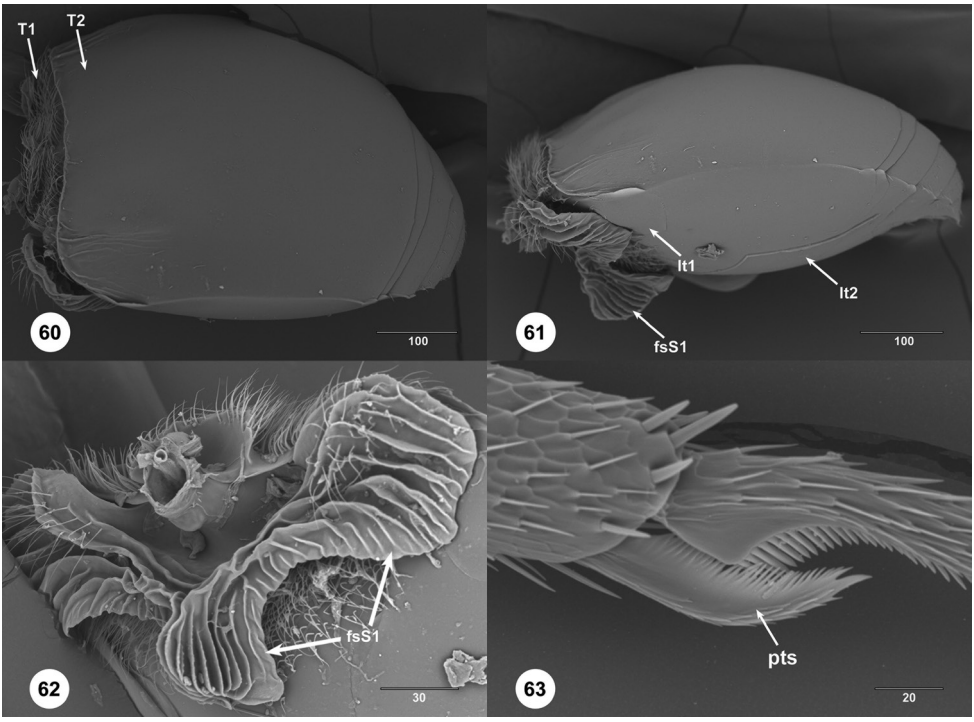
Etymology. Taken from the Greek word for monster (τέρας), in reference to the size and appearance of this formidable creature. The epithet is treated as a noun in apposition.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=457302]



Figures 54–59. *Pulchrisolia teras*, female (OSUC 698062) **54** head, anterolateral view **55** interantennal process, clypeus, anterolateral view **56** mesosoma, lateral view **57** axillar complex, metanotum, propodeum, dorsolateral view **58** mesosoma, posterolateral view **59** metanotal trough, dorsal view. Scale bars in micrometers.

Material examined. Holotype, female: MADAGASCAR: Toliara Auto. Prov., 36.1km (308°) NW Tolagnaro, 1.7km (61°) ENE Tsimelahy, Ambohibory Forest, tropical dry forest, BLF4915, 300m, 24°55'48"S, 46°38'44"E, Andohahela National Park, 16.I-20.I.2002, pitfall trap, Fisher, Griswold et al., CASENT 2043862 (deposited in CAS). Paratypes: MADAGASCAR: 7 males, CASENT 2043863–2043869 (CAS).



Figures 60–63. *Pulchrisolia teras*, female (OSUC 698062) **60** metasoma, dorsolateral view **61** metasoma, lateral view **62** S1, S2, anteroventral view **63** protibial spur, lateral view. Scale bars in micrometers.

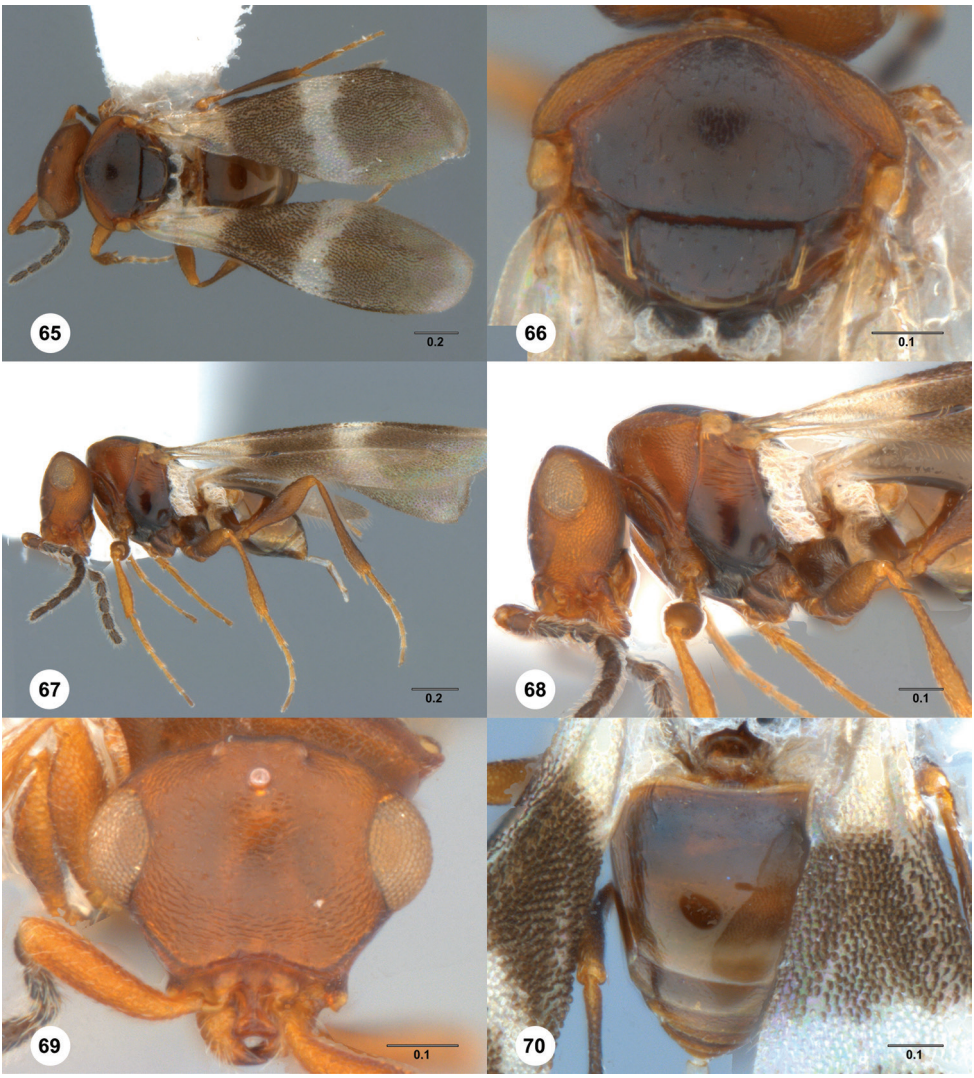
Comments. The holotype of *P. teras* is considerably larger and more robust than most of the type series, which may indicate polyphagy or intraspecific variability in the size of its host(s).

***Pulchrisolia valerieae* Polaszek & Lahey, sp. nov.**
http://zoobank.org/6A48C19F-3196-47B6-B9C2-93D607C13A08
Figures 64–70

Description. Male body length: 1.18 mm (n = 1). Shape of dorsal interantennal process: apically bilobed. Length of interantennal process: longer than radicle. Hyperoccipital carina: raised between lateral ocelli. Frontal ledge: present. Preocellar depressions: present. Setation of pronotal cervical sulcus: absent. Setation of cervical pronotal area: absent. Sculpture of pronotal shoulders: reticulate. Sculpture of anterior margin of pronotal shoulders: carinate. Posterolateral margin of pronotal shoulders: sharply angled. Posterior margin of pronotal shoulders: rounded. Antero-admedian line: present. Anterior admedian depression or pit: present. Parapsidial line: absent. Median mesoscutal line: absent. Notaulus: absent. Coloration of mesoscutum: darker than

Figures 64. *Pulchrisolia valerieae,* male holotype (BMNH 010823075) **64** head, mesosoma, metasoma, lateral view (top), dorsal view (bottom).

pronotum. Shape of mesoscutum in lateral view: flat to slightly convex. Scupture of mesoscutum: reticulate. Sculpture of mesoscutellum: absent. Setation of anterodorsal metapleuron: present. Length of setation of anterodorsal metapleuron: long. Setation of anteroventral metapleuron: absent. Foamy structures on anterior metapleuron: absent. Shape of fore wing: elliptical. Infuscate banding of fore wing: present. Costal



Figures 65–70. *Pulchrisolia valerieae*, male holotype (BMNH 010823075) **65** head, mesosoma, metasoma, dorsal view **66** mesosoma, dorsal view **67** head, mesosoma, metasoma, lateral view **68** mesosoma, lateral view **69** head, anterior view **70** metasoma, dorsal view. Scale bars in millimeters.

margin of hind wing: darkly sclerotized posterior to hamuli. Marginal cilia of male fore wing: present.

Diagnosis. *P. valerieae* is unique among the species described due to the presence of antero-admedian lines and for its dark mesoscutum, mesoscutellum, legs, and metasoma.

Etymology. Named in honor of the late Valerie Coughlin, a friend of Andrew Polaszek. The epithet is treated as a noun in the genitive case.

Link to distribution map. [http://hol.osu.edu/map-large.html?id=457948]

Material examined. Holotype, male: ZAMBIA: Lukwakwa, open Dambo, 12°39"40"S; 24°26'13"E, 1147m, 4–8.ix.13, Yellow Pan, leg. Smith, Takano and Oram, NHMUK010823075, type number 9.1020 (deposited in NHMUK).

Comments. We describe *P. valerieae* from a single male based on our observations of interspecific, intraspecific, and intersexual variation within the genus. The coloration of all *Pulchrisolia* species known from males and females is virtually identical, with slight differences having been observed on the head (Figures 19, 21) and mesoscutum (Figures 5, 50) of certain species. Most species in the genus are light yellow, orange, or dark red in color; however, the male of *P. valerieae* has most of its mesosoma, and portions of its metasoma and legs, brownish-black (Figures 65–68, 70). The only other species that approximates the coloration of *P. valerieae* is *P. teras*, but this species has notauli and the antero-admedian depression is prominent and hemispherical in shape, even in smaller specimens. Based on what we have observed in other species of the genus, we expect both male and female *P. valerieae* to share similar coloration patterns and possess antero-admedian lines that flank a shallow antero-admedian depression of similar size, making it unlikely that the holotype male is conspecific with *P. maculata* or any of the newly described species of *Pulchrisolia* known only from females.

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References

Bin F (1981) Definition of female antennal clava based on its plate sensilla in Hymenoptera Scelionidae Telenominae. Redia 64: 245–261.

Bin F, Colazza S, Isidoro N, Solinas M, Vinson SB (1989) Antennal chemosensillar and glands, and their possible meaning in the reproductive behavior of *Trissolcus basalis* (Woll.) (Hym.: Scelionidae). Entomologica 24: 33–97. https://doi.org/10.15162/0425-1016/623

Isidoro N, Bin F (1994) Fine structure of the preocellar pit in *Trissolcus basalis* (Woll.) (Hymenoptera : Scelioindae). International Journal of Insect Morphology and Embryology 23: 189–196. https://doi.org/10.1016/0020-7322(94)90017-5

Isidoro N, Romani R, Bin F (2001) Antennal multiporous sensilla: their gustatory features for host recognition in female parasitic wasps (Insecta, Hymenoptera: Platygastroidea). Microscopy Research and Technique 55: 350–358. https://doi.org/10.1002/jemt.1183

Kozlov MA (1972) [A Palearctic representative of the genus *Sceliotrachelus* Brues, 1908 (Hymenoptera, Platygastridae) from the Mongolian People's Republic.] Entomologicheskoye Obozreniye 61: 133–135. https://doi.org/10.5281/zenodo.24377

Lahey Z, Masner L, Johnson NF (2019) *Calixomeria*, a new genus of Sceliotrachelinae (Hymenoptera, Platygastridae) from Australia. ZooKeys 830: 63–73. https://doi.org/10.3897/zookeys.830.32463

Masner L (1964) Remarks on *Sceliotrachelus* Brues and allied genera (Hymenoptera, Platygasteridae). Psyche 71: 8–11. https://doi.org/10.1155/1964/40282

Masner L, Huggert L (1989) World review and keys to genera of the subfamily Inostemmatinae with reassignment of the taxa to the Platygastrinae and Sceliotrachelinae (Hymenoptera: Platygastridae). Memoirs of the Entomological Society of Canada 147: 1–214. https://doi.org/10.4039/entm121147fv

Mikó I, Vilhelmsen L, Johnson NF, Masner L, Pénzes Z (2007) Skeletomusculature of Scelionidae (Hymenoptera: Platygastroidea): head and mesosoma. Zootaxa 1571: 1–78. https://doi.org/10.11646/zootaxa.1571.1

Szabó JB (1959) Notes on the new tribus Amitini with the descriptions of a new genus and some new species of the Aretogaea (Hymenoptera, Proctotrupoidea, Platygasteridae). Annales Historico-Naturales Musei Nationalis Hungarici 51: 389–396.

Talamas EJ, Masner L (2016) Revision of New World *Helava* Masner & Huggert (Platygastridae, Sceliotrachelinae). Journal of Hymenoptera Research 53: 1–24. https://doi.org/10.3897/jhr.53.10217

Veenakumari K, Buhl PN, Mohanraj P (2019) Review of the genus *Isolia* Förster (Platygastroidea: Platygastridae: Sceliotrachelinae) with description of two new species from India. Zootaxa 4565: 451–474. https://doi.org/10.11646/zootaxa.4565.4.1

Vlug HJ (1995) Catalogue of the Platygastridae (Platygastroidea) of the world (Insecta: Hymenoptera). Hymenopterorum Catalogus 19: 1–168. https://doi.org/10.5281/zenodo.24358

Yang SY, Zhong YZ, Zhang JP, Wang XP, Zhang F (2016) A comparative scanning electron microscopy study on antennal sensilla of *Trissolcus japonicus* and *Trissolcus plautiae*, egg parasitoids of stink bugs (Pentatomidae). Annals of the Entomological Society of America 109: 112–120. https://doi.org/10.1093/aesa/sav104

Yoder MJ, Mikó I, Seltmann K, Bertone MA, Deans AR (2010) A gross anatomy ontology for Hymenoptera. PLosONE 5(12): e15991. https://doi.org/10.1371/journal.pone.0015991