



Monograph

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Taxonomic revision of the southern African bee genus *Sphecodopsis* Bischoff, 1923 (Hymenoptera: Apidae: Nomadinae)

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Abstract. The southern African bee genus *Sphecodopsis* Bischoff, 1923 is revised and 30 species are described as new for science, bringing the total number of species in this genus to 44: *S. acuta* sp. nov. ♀, *S. albomaculata* sp. nov. ♂, *S. angulata* sp. nov. ♀, *S. aquifolia* sp. nov. ♀, *S. atra* sp. nov. ♀, *S. atricapillata* sp. nov. ♀♂, *S. bifida* sp. nov. ♀, *S. catastropha* sp. nov. ♀, *S. chaotica* sp. nov. ♀, *S. chrysea* sp. nov. ♂, *S. corona* sp. nov. ♀♂, *S. crassipunctata* sp. nov. ♀, *S. directa* sp. nov. ♀, *S. felix* sp. nov. ♀♂, *S. fimbriata* sp. nov. ♀, *S. keiskiensis* sp. nov. ♀, *S. leliefonteinensis* sp. nov. ♀, *S. magna* sp. nov. ♀♂, *S. microscopica* sp. nov. ♀, *S. minuta* sp. nov. ♂, *S. nana* sp. nov. ♂, *S. nigra* sp. nov. ♂, *S. obscura* sp. nov. ♀♂, *S. parvula* sp. nov. ♀, *S. regina* sp. nov. ♀♂, *S. roggeveldensis* sp. nov. ♀, *S. rufipes* sp. nov. ♀♂, *S. subtilis* sp. nov. ♀♂, *S. tenera* sp. nov. ♀♂, *S. vicfalls* sp. nov. ♀. The species status of *Sphecodopsis leonis* (Cockerell, 1933) sp. rev. is restored, and the previously unknown males of *S. capensis* (Friese, 1915) and *S. vespericena* Eardley, 1997 are described for the first time. *Sphecodopsis argyrura* (Cockerell, 1933) is treated as a nomen dubium. Within *Sphecodopsis* seven species groups are recognised and redefined. All available species are imaged and included in a key to facilitate their identification.

Keywords. *Sphecodopsis*, cuckoo bees, South Africa, new species, taxonomy.

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Introduction

The genus *Sphecodopsis* Bischoff, 1923 includes small to medium-sized (3–9 mm body length), predominantly black cuckoo bees with a usually anteriorly reddish metasoma. They can be easily distinguished from other Afrotropical cuckoo bees by the distal ends of mandibles crossing diagonally in repose (Eardley & Brothers 1997; Michener 2007). Like all cuckoo bees *Sphecodopsis* do not collect pollen as provision for their offspring but instead are often highly host specific cleptoparasites of other pollen-collecting bees (Michener 2007). The genus is endemic to southern Africa and has its center of diversity in the winter rainfall region of western South Africa.

Sphecodopsis belongs to the subfamily Nomadinae and tribe Ammobatini which in sub-Saharan Africa comprises three additional genera: *Ammobates* Latreille, 1809, *Melanempis* Saussure, 1890 (endemic to Madagascar) and *Pasites* Jurine, 1807 (Eardley & Brothers 1997; Michener 2007). Phylogenetically, the Ammobatini belong to the ‘nomadine line’ of the Nomadinae (sensu Sless *et al.* 2022) and, apart from the Neotropical Caenoprosopidini, represent the most basal Old World tribe of this clade (Sless *et al.* 2022).

Sphecodopsis was first revised by Eardley & Brothers (1997) and another three species were described later by Eardley (2007) bringing the total number of taxa to thirteen. Since then, extensive new material of *Sphecodopsis* has become available and many new species have been discovered. This allowed a re-evaluation of intraspecific variation and required the revision of previous synonymizations as well as the description of new taxa.

The large number of new species is not surprising. Although little is known about the biology of *Sphecodopsis* species, especially their host bees, the few available observations suggest that *Scrapter* Lepeletier & Serville, 1828 (Hymenoptera: Apoidea: Colletidae) (Rozen & Michener 1968) and *Patellapis* Friese, 1909 (Hymenoptera: Apoidea: Halictidae) (Timmermann & Kuhlmann 2008) are parasitised by them. These two genera are extremely species-rich, particularly in the species diversity hotspot of Greater Cape Floristic Region (Born *et al.* 2007; Kuhlmann 2009; Melin *et al.* 2024), including many undescribed species (Eardley 1996; Davies *et al.* 2005; Davies & Brothers 2006; Timmermann & Kuhlmann 2009; Kuhlmann 2014; Kuhlmann & Friehs 2020; Mack & Kuhlmann 2023). We therefore expect the discovery of many more *Sphecodopsis* species in the future.

The present study aims to describe the 30 newly discovered species, review all available type material and revise previous synonymisations as well as the species group concept introduced by Eardley & Brothers (1997). A major challenge, especially in the Greater Cape Floristic Region, is that many cuckoo bees are rare and often only a few specimens are available. However, new species of which only a single or very few specimens were available are also described here, provided that clear diagnostic characters are available. As far as material was available, all 44 species were illustrated and described in a standardized way. An identification key is provided to encourage research into this fascinating group of bees, in particular to obtain information about their largely unknown host species. New distributional records are given for most of the already described species. For many species only one sex is known, highlighting the importance of conducting further field work.

Material and methods

This study is based on a morphological species concept. For the examination of specimens, the stereomicroscope Zeiss Stemi 508 (Carl Zeiss AG, Oberkochen, Germany) was used. The morphology was described according to Michener (2007). For measurements a measuring eyepiece was used. Body length was measured from the vertex to the apex of the body. Furthermore, the puncture density is characterized by the relationship between puncture diameter (d) and the space between these punctures (i). For species that have already been described, where possible a standardised description is provided to simplify the comparison of the often very similar and difficult to identify species. Labrum and mandibles are quite uniform in *Sphecodopsis* and show no meaningful species-specific morphological characters suitable for identification so they are disregarded.

Images were taken with the Digital Microscope Keyence VHX-5000 (Keyence Deutschland GmbH, Neu-Isenburg, Germany) using the VH-Z20R/Z20T (20× to 200×) zoom lens and the OP-42305 super diffused illumination adapter. Photoshop elements (Adobe Systems Software Ireland Limited, Dublin, Republic of Ireland) was used for image processing.

Missing coordinates on the original specimen labels were identified using Google Earth (Google Earth Pro© 2021, version 7.3.4.8248) and added in square brackets (e.g., [32°50' S, 18°40' E]).

Permits for fieldwork and wild bee collecting in South Africa were granted by Cape Nature for Western Cape Province (permit numbers 202/1999, 250/2000, 368/2001, AAA004-00212-0035, AAA004-00446-0035, AAA004-01055-0035, 0056-AAA008-00076, CN44-87-21440) and by Northern Cape Department of Environment and Nature Conservation for Northern Cape Province (025/2002, 056/2003, 0055/04, 0332/05, 0648/06, 0317/07, FAUNA 074/2008, FAUNA 1299/2008, FAUNA 082/2010, FAUNA 557/2011, FAUNA 638/2012, FAUNA 155/2013, FAUNA 1213/2014, FAUNA 0529/2016, FAUNA 0345/2017, FAUNA 0461/2022).

The following abbreviations are used for morphological structures

S1, S2, etc. = first, second, etc. metasomal sternum

T1, T2, etc. = first, second, etc. metasomal tergum

Acronyms used for collections where specimens are deposited

DNMNH = Ditsong National Museum of Natural History (former Transvaal Museum: TMSA), Pretoria, South Africa

NHML = Natural History Museum, London, UK

RCMK = Research collection of Michael Kuhlmann, Zoologisches Museum Kiel, Germany

RCMS = Research collection of M. Schwarz, Ansfelden, Austria

SAMC = Iziko South African Museum, Cape Town, South Africa

SANC = South African National Collection of Insects, Pretoria, South Africa

ZMHB = Museum für Naturkunde, Berlin, Germany

Abbreviations used for collectors

CE = C. Eardley

CM = C. Mayer

DrB = Dr Brauns

GP = G. Peringuey

HE = H. Erhardt

HGR = H. G. Robertson

JG = J. Gusenleitner

KT = K. Timmermann

MH = M. Halada

MK = M. Kuhlmann

MS = M. Schwarz

MSn = M. Snížek

MSt = M. Struck

QM = Q. Mthethwa

RW = R. Watmough

SAM = S.A.M. (= South African Museum)

SvN = S. van Noort

VBW = V.B. Whitehead

Results

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Apoidea Latreille, 1802
Epifamily Anthophila Latreille, 1804
Family Apidae Latreille, 1802
Subfamily Nomadinae Latreille, 1802
Tribe Ammobatini Handlirsch, 1925

Genus *Sphecodopsis* Bischoff, 1923

Species groups

The nomenclatural history and the subgeneric concept of *Sphecodopsis* has been discussed in detail by Eardley & Brothers (1997) and is briefly summarized here. The species currently grouped together as *Sphecodopsis* were originally described by Bischoff (1923) in two different genera, namely *Pseudodichroa* Bischoff, 1923 and *Sphecodopsis*, with the latter divided into two subgenera: *Pseudopasites* Bischoff, 1923 and *Sphecodopsis* s. str. Instead, Cockerell (1933a) treated *Sphecodopsis* and *Pseudopasites* as subgenera of *Morgania* Smith, 1854 and consistently placed all species now belonging to *Sphecodopsis* in that genus (Eardley & Brothers 1997). The species described as *Pseudodichroa* correspond to today's *S. capensis* group, while the species from the other (sub)genera represent a mix of different species groups.

Based on a phylogenetic analysis, Eardley & Brothers (1997) synonymised Bischoff's (1923) genera and subgenera and introduced five species groups instead, three of them monotypic. We basically follow this concept and use seven morphologically characterised species groups. Nine species do not fit in any of them and might represent monotypic species groups. They are summarised as 'isolated species' at the end.

The group affiliation of the *Sphecodopsis* species known to Eardley & Brothers (1997) essentially corresponds to our classification. The exception is the *S. capicola* group, of which only two (*S. capicola* Strand, 1911, *S. vespericena* Eardley, 1997) of the original seven species remain. The other five are distributed among three other species groups and two are monotypic.

Species groups are first defined and then the species belonging to them are listed. The *S. capensis* species group is listed first because it can be easily separated from the others, based on the unique apically undivided female S6. The other species groups and all species within the groups are arranged in alphabetical order.

Sphecodopsis capensis species group

The group consists of the following four species: *S. albomaculata* sp. nov., *S. aquifolia* sp. nov., *S. capensis* (Friese, 1915) and *S. fumipennis* (Bischoff, 1923). Characteristics of this group are the following: head covered with long, black hair (Figs 1C, 3C, 5C, 7C, 9C); mesoscutum covered with long, black hair mixed with shorter, yellowish-white hair (Figs 1D, 3D, 5D, 7D, 9D); patches with very dense white pubescence apically on the tibia (Figs 1A, 3A, 5A, 7A, 9A); female S6 simple posteriorly, shape as shown in Figs 4D, 6D, 10D; male gonostylus approximately the same length or longer as gonocoxa (Figs 2C–D, 8C–D). This group includes the type species of the genus *Pseudodichroa* Bischoff, 1923 (= *S. capensis*), that Michener (2007) treated as a subgenus of *Sphecodopsis*.

Sphecodopsis albomaculata sp. nov.

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Figs 1–2

Diagnosis

The female of *S. albomaculata* sp. nov. is unknown. The male can be separated from that of all other species of this genus by the combination of the following characters: metasomal terga T1–T3 red (Fig. 1B); fore legs usually black (Fig. 1A); head and mesosoma with black hair, mixed with lighter hair (Fig. 1C); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 1D); metapostnotum twice as high as wide (Fig. 1E); propodeum covered with white plumose hair mixed with at least a few black hairs (Fig. 1E); gonostylus approximately the same length as gonocoxa (Fig. 2C–D) and with a bump dorsally (Fig. 2D).

Etymology

The name refers to the white hair patches on the legs.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♂; C.P., Piketberg, Banghook, 32180A; [32°50' S, 18°40' E]; 20 Sep. 1991; VBW leg.; SANC.

Description

Female

Unknown.

Male

BODY LENGTH. 8.5 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair mixed with shorter, yellowish-white hair around antenna. Face and clypeus with fairly dense ($i=0-0.25$ d), coarse and deep punctation, except supraclypeal area with more dispersed ($i=0.5-1$ d) punctation (Fig. 1C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula dark brown to black. Mesoscutum slightly shiny. Mesoscutum, mesoscutellum and propodeum densely ($i=0.25-0.5$ d), coarsely and deeply punctate, metapostnotum matt (Fig. 1D–E). Mesoscutum, mesoscutellum, metanotum and mesepisternum sparsely covered with long, black, erect hair mixed with shorter, white hair (Fig. 1D). Propodeum covered with short, white hair and few long, black hairs, metapostnotum without hair (Fig. 1E).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 1A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi covered with short black and white hair. Patches of very dense white pubescence apically on the tibia, on middle and hind tibia, anterior leg generally less hairy (Fig. 1A).

METASOMA. Integument of T1 dark basally. Rest of T1–T3 red, T4–T7 black. T1–T3 sparsely covered with short white and black hair, from T4 increasingly more and longer hair (Fig. 1B). T4–T6 marginal

zone with white hair, disc with long, black hair. T7 covered with short, white and gold hair, only few longer, black hairs (Fig. 1F).

TERMINALIA. Genitalia (Fig. 2C–D), S7 (Fig. 2A) and terminal plate of S8 (Fig. 2B) as illustrated.

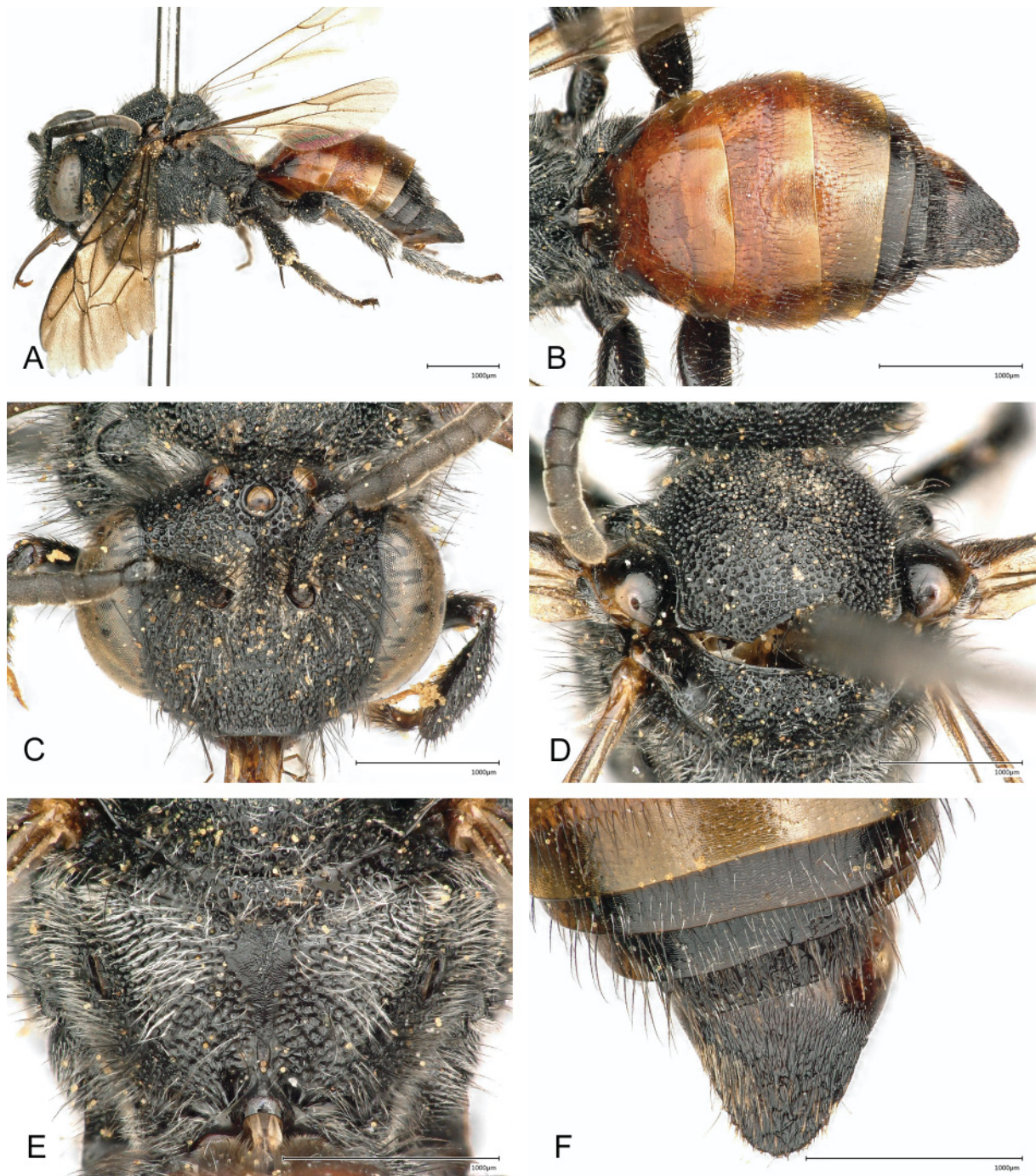


Fig. 1. *Sphecodopsis albomaculata* sp. nov., holotype, ♂ (SANC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

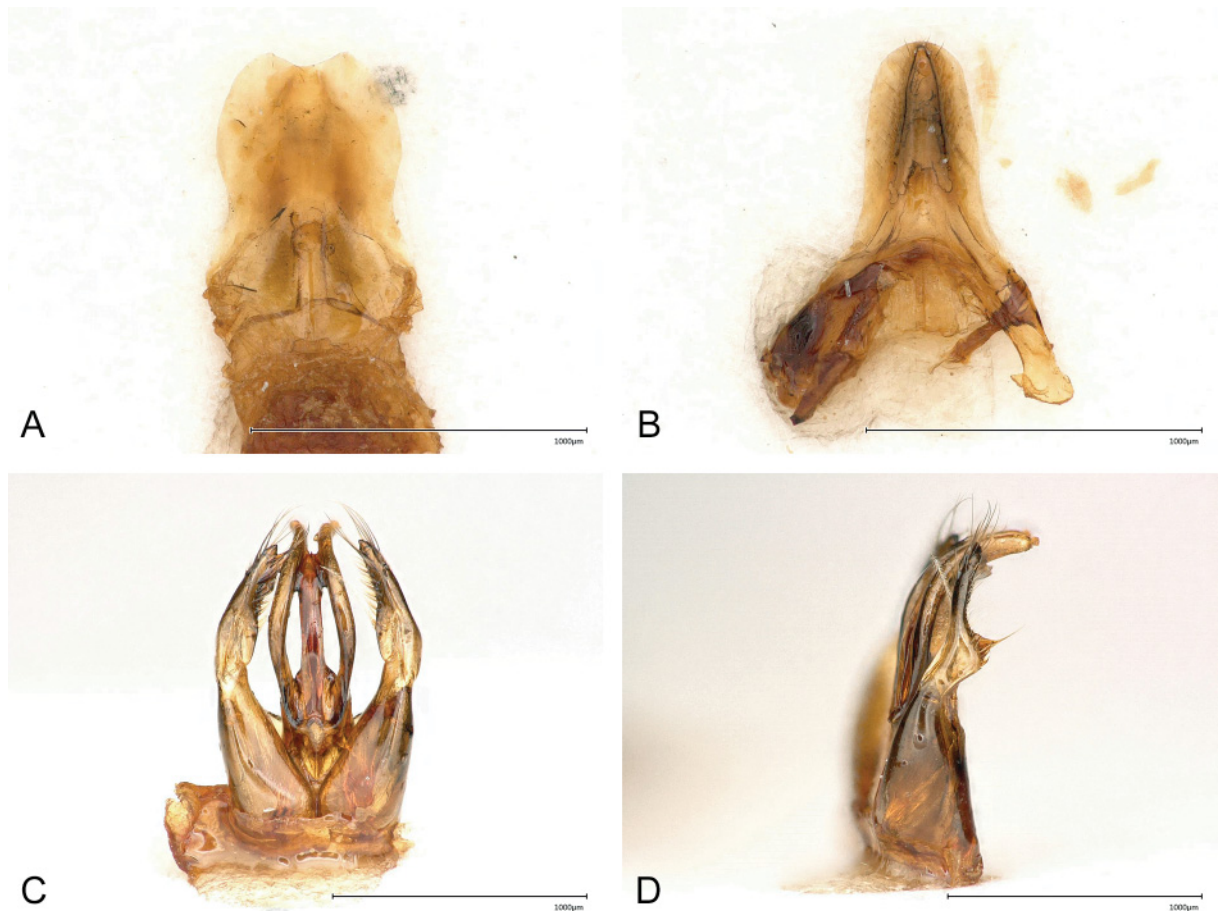


Fig. 2. *Sphecodopsis albomaculata* sp. nov., holotype, ♂ (SANC). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Distribution

Only known from the type locality.

Host bees

Unknown.

Seasonal activity

September.

Sphecodopsis aquifolia sp. nov.

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Figs 3–4

Diagnosis

The female of *S. aquifolia* sp. nov. can be separated from that of all other species of this genus by the combination of the following characters: S6 pointed posteriorly, shiny on surface and more pointed

apically (Fig. 4D); T6 broad and rounded apically (Fig. 4C); Punctuation on mesoscutum dense ($i=0.25-0.5$ d) and fine, individual punctures not always clearly separated (Fig. 3D). The male is unknown.

Etymology

The name refers to the undivided tip of the female S6.

Type material (7 specimens)

Holotype

SOUTH AFRICA • ♀; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 2 Sep. 2017; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 30 Aug. 2016; MK leg.; RCMK • 1 ♀; Keiskie Mts, 5 km S of Farm Nooiensrivier, new burned area; 31°45'41" S, 19°50'17" E; 1270 m a.s.l.; 1 Oct. 2014; MK leg.; RCMK • 1 ♀; same collection data as for holotype; RCMK • 2 ♀♀; same collection data as for holotype; 29 Aug. 2018; RCMK • 1 ♀; same collection data as for holotype; 20 Sep. 2022; RCMK.



Fig. 3. *Sphecodopsis aquifolia* sp. nov., paratype, ♀ (Farm Allemansdam, RCMK) . A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view).

Description

Female

BODY LENGTH. 7.4–8.9 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair. Face and clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, except supraclypeal area with more dispersed ($i=1\text{--}1.5$ d) punctation (Fig. 3C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula dark brown to black. Mesoscutum slightly matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}1$ d) and fairly finely but deeply punctate (Fig. 3D). Propodeum with dense ($i=0.25\text{--}0.5$ d) and fine but deep punctation, metapostnotum matt (Fig. 4A). Mesoscutum, mesoscutellum, metanotum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 3D). Propodeum covered with short, yellowish-white hair and few long, black hairs, metapostnotum without hair (Fig. 4A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 3A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi covered with long, black hair and densely covered

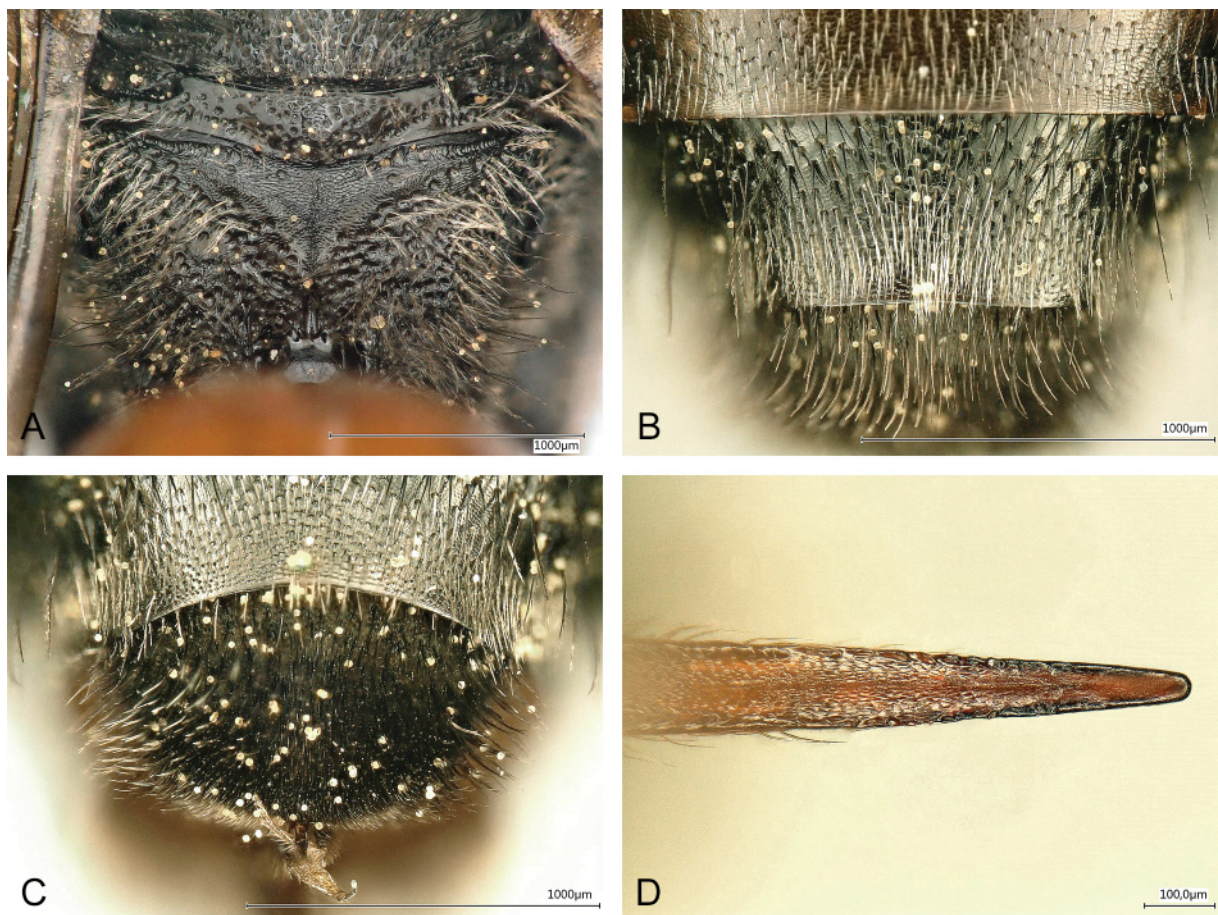


Fig. 4. *Sphecodopsis aquifolia* sp. nov., paratype, ♀ (Farm Allemansdam, RCMK). A. Propodeum. B. T5. C. T6. D. S6.

with shorter white hair; patches with very dense white pubescence apically on the tibia, particularly conspicuous on middle and hind tibia, anterior leg generally less hairy (Fig. 3A).

METASOMA. Integument of T1 dark basally. Rest of T1–T3 red, T4 with extension of red coloration, from basal half red to completely black, T5–T6 black. T1–T3 sparsely covered with short, white and black hair, from T4 increasingly more and longer hair (Fig. 3B). T5 marginal zone with bright white hair, disc covered with long, black hair (Fig. 4B). T6 with dense long, black hair and shorter, bright white hair underneath, broad and rounded apically (Fig. 4C). Shape of S6 (Fig. 4D) as illustrated.

Male

Unknown.

Distribution

Only known from the Keiskie Mts and the northern part of the Roggeveld Mts south of Calvinia.

Host bees

Unknown.

Seasonal activity

August–October.

***Sphecodopsis capensis* (Friese, 1915)**

Figs 5–8

Omachtes capensis Friese, 1915: 296–297, holotype ♀ (type locality: ‘Kapland’ (= Cape Colony), South Africa) (ZMHB), examined.

Diagnosis

The female of *S. capensis* can be separated from that of all other species of this species group by the combination of the following characters: S6 pointed posteriorly, matt on surface and rounded apically (Fig. 6D); T6 broad and rounded apically (Fig. 6C); punctation on mesoscutum slightly more dispersed ($i=0.25-1$ d) and coarser, individual punctures clearly separated (Fig. 5D). The male is here described for the first time and can be separated from that of all other species of this species group by the combination of the following characters: T2 completely, T1 and T3–T5 to a variable extent red (Fig. 7B); fore legs usually black (Fig. 7A); head and mesosoma with black hair (Fig. 7C); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 7D); propodeum covered with white hair mixed with at least a few black hairs (Fig. 7E); metapostnotum twice as wide as high (Fig. 7E); gonostylus longer than gonocoxa (Fig. 8C–D) and straight dorsally (Fig. 8D).

Additional material examined (49 specimens)

SOUTH AFRICA • 1 ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; RCMK • 3 ♀♀; Kamiesberg Mts, 5 km SE of Leliefontein, roadside; 30°20'09" S, 18°06'24" E; 1400 m a.s.l.; 5 Oct. 2014; MK leg.; RCMK • 4 ♀♀; same collection data as for preceding; 11 Sep. 2016; RCMK • 1 ♀; N Cape, Fynbos, 15 km NW of Nieuwoudtville, Farm Engelsepunt; 31°14'31" S, 18°59'08" E; 830 m a.s.l.; 7 Oct. 2003; KT leg.; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 1 Sep. 2009; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 24 Aug. 2012; RCMK • 1 ♀; Nieuwoudtville, Hantam Botanical Garden, Renosterveld at entrance; 31°23'25" S, 19°07'56" E; 730 m a.s.l.; 2 Sep. 2010; MK leg.; RCMK • 1 ♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S,

19°08'31" E; 680 m a.s.l.; 27 Aug. 2010; MK leg.; RCMK • 4 ♀♀; same collection data as for preceding; 20 Sep. 2014; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 30 Aug. 2018; RCMK • 1 ♀; 18 km S of Calvinia, Nooiensrivier Pad, dolerite; 31°37'16" S, 19°46'20" E; 1100 m a.s.l.; 31 Aug. 2016; MK leg.; RCMK • 1 ♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 15 Sep. 2016; MK leg.; RCMK • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, new burned area; 31°45'41" S, 19°50'17" E; 1270 m a.s.l.; 1 Oct. 2014; MK leg.; RCMK • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, burned area; 31°45'47" S, 19°50'17" E; 1275 m a.s.l.; 28 Sep. 2009; MK leg.; RCMK • 5 ♀♀; same collection data as for preceding; 4 Oct. 2009; RCMK • 1 ♀; same collection data as for preceding; 12 Sep. 2010; RCMK • 1 ♀; Roggeveld Mts, 2 km S of Farm Perdekloof, rivier, dolerite; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 2 Sep. 2017; MK leg.; RCMK • 1 ♂; Roggeveld Mts, 1.5 km S of Farm Allemansdam, Renosterveld; 31°49'25" S, 19°59'38" E; 1285 m a.s.l.; 11 Sep. 2018; MK leg.; RCMK • 2 ♀♀; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 2 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 24 Aug. 2018; RCMK • 3 ♀♀; same collection data as for preceding; 29 Aug. 2018; RCMK • 1 ♀; Tankwa Karoo, Gannaga Pass / Lodge; 32°06'24" S, 20°07'40" E; 1290 m a.s.l.; 21 Sep. 2016; HE leg.; RCMK • 2 ♀♀; Roggeveld Mts, 2 km S of Farm Houdembek, roadside; 32°18'03" S, 20°23'16" E; 1280 m a.s.l.; 16 Sep. 2018; MK leg.; RCMK • 1 ♀; 6 km NNW of Farm Kanariesfontein, 30 km W of Sutherland, roadside; 32°22'17" S, 20°22'50" E; 1310 m a.s.l.; 16 Sep. 2017; MK leg.; RCMK • 1 ♀; 3 km NW of Farm Kanolfontein, 22 km W of Sutherland, roadside; 32°23'17" S, 20°26'32" E; 1350 m a.s.l.; 18 Sep. 2017; MK leg.; RCMK • 1 ♀; Cape Province, 28 km E of Velddrif, [32°47' S, 18°10' E]; 15 Oct.

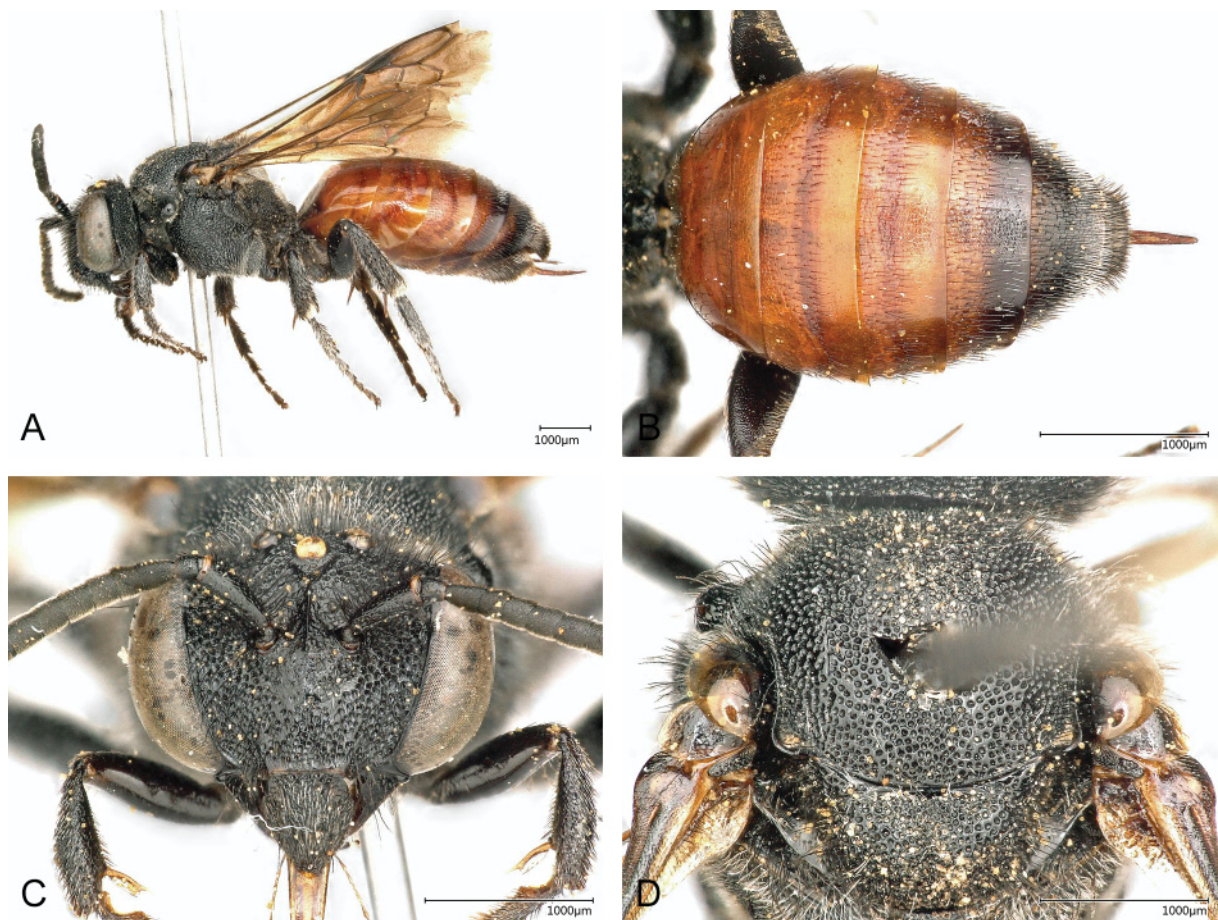


Fig. 5. *Sphecodopsis capensis* (Friese, 1915), ♀ (Farm Papkuilsfontein, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

1972; SANC • 1 ♀; Cape Province, Kommetjie; [34°08' S, 18°20' E]; 12 Oct. 1972; SANC • 1 ♀; same collection data as for preceding; 25 Oct. 1972; SANC • 3 ♀♀; Bredasdorp, Div. Pearly Beach; [34°40' S, 19°30' E]; 1 Sep. 1959; SAM leg.; SANC.

Description

Female

BODY LENGTH. 5.9–8.8 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair (Fig. 5C). Face and clypeus with fairly dense ($i=0-0.25$ d), coarse and deep punctation, except supraclypeal area more dispersed ($i=0.5-1$ d) (Fig. 5C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum, mesoscutellum and propodeum densely ($i=0.25-0.5$ d) and finely but deeply punctate, metapostnotum matt (Figs 5D, 6A). Mesoscutum, mesoscutellum, metanotum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 5D). Propodeum covered with short, yellowish-white hair and few long, black hairs posteriorly, metapostnotum glabrous (Fig. 6A).

WINGS. Fuscous; wing venation brown to dark brown and stigma dark brown to black (Fig. 5A).

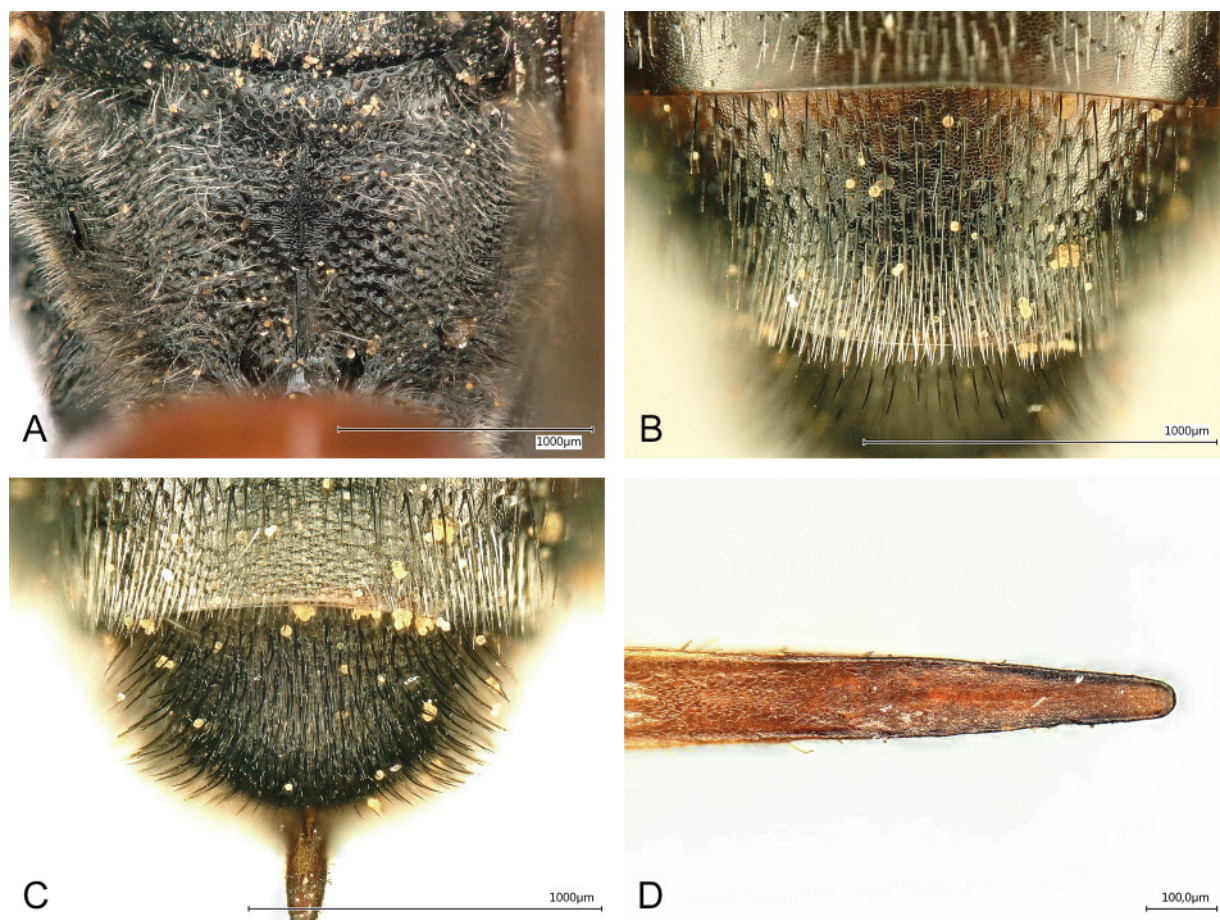


Fig. 6. *Sphecodopsis capensis* (Frieze, 1915), ♀ (Farm Papkuilsfontein, RCMK). A. Propodeum. B. T5. C. T6. D. S6.

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and densely covered with shorter white hair. Patches with very dense white pubescence apically on the tibia, particularly conspicuous on middle and hind tibia, anterior leg generally less hairy (Fig. 5A).



Fig. 7. *Sphecodopsis capensis* (Friese, 1915), ♂ (Farm Papkuilsfontein, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

METASOMA. Integument of T1 dark basally, rest of T1 and T2 red, T3–T5 to a variable extent red, from completely red to completely black; T6 black. T1–T3 sparsely covered with short white and black hair, from T4 with increasingly more and longer hair (Fig. 5B). T5 marginal zone with bright white hair, disc covered with long, black hair (Fig. 6B). T6 broad and rounded apically (Fig. 6C), with long, black hair and shorter, bright white hair underneath. Shape of S6 (Fig. 6D) as illustrated.

Male

BODY LENGTH. 7.8–9.0 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair. Face and clypeus with fairly dense ($i=0-0.25$ d), coarse and deep punctation, except supraclypeal area more dispersed ($i=0.5-1$ d) (Fig. 7C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula dark brown to black. Mesoscutum slightly shiny. Mesoscutum, mesoscutellum and propodeum densely ($i=0.25-0.5$ d) and finely but deeply punctate, metapostnotum matt (Fig. 7D–E). Mesoscutum, mesoscutellum, metanotum and mesepisternum sparsely covered with long, black, erect hair mixed with shorter, yellowish-white hair (Fig. 7D). Propodeum covered with short, yellowish-white hair and few long, black hairs, metapostnotum glabrous (Fig. 7E).

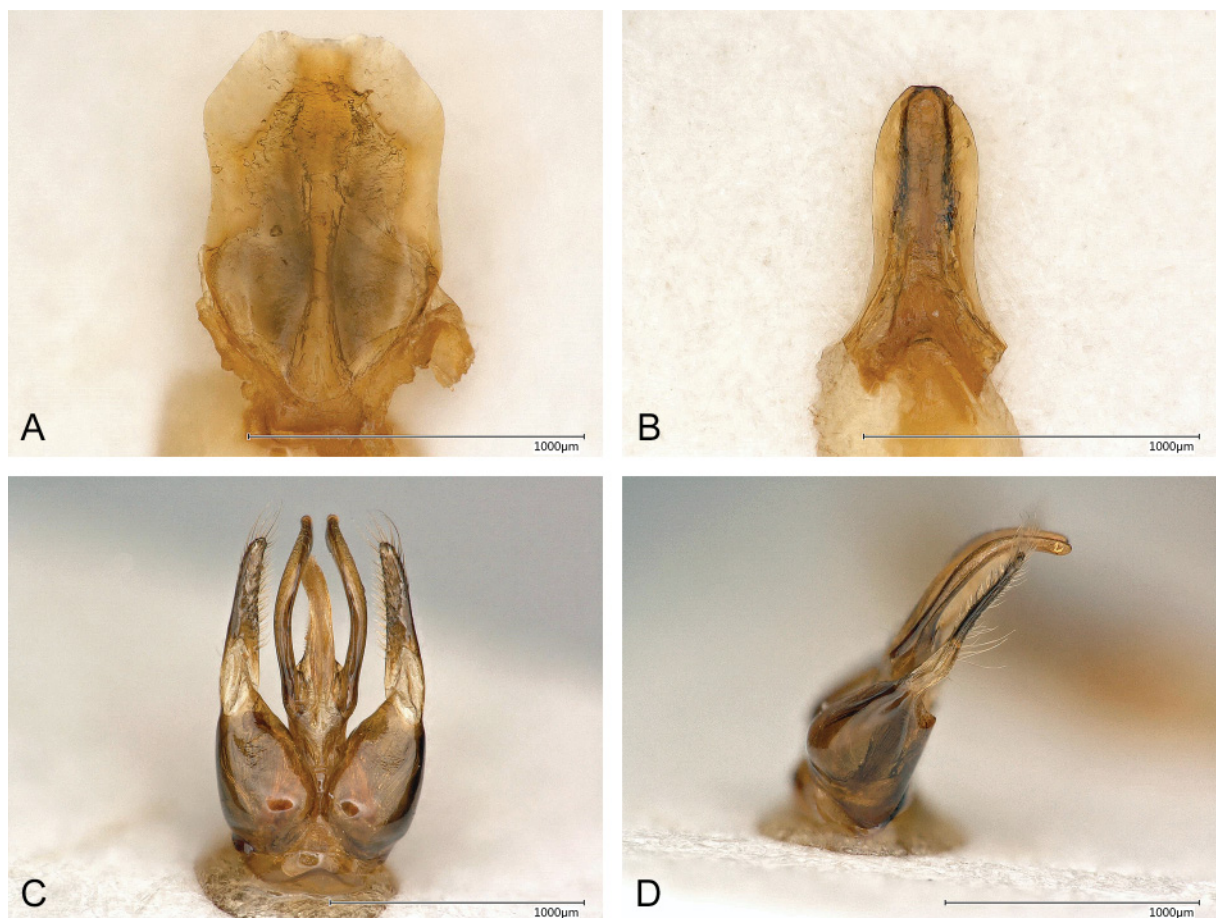


Fig. 8. *Sphecodopsis capensis* (Friese, 1915), ♂ (Farm Papkuilsfontein, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 7A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and densely covered with shorter white hair. Patches with very dense white pubescence apically on the tibia, particularly conspicuous on middle and hind tibia, anterior leg generally less hairy (Fig. 7A).

METASOMA. Integument of T1 dark basally. Rest of T1–T3 red, T4 to a variable extent red, from basal half red to completely black; T5–T7 black. T1–T3 sparsely covered with short white and black hair, from T4 increasingly more and longer hair. T4–T6 marginal zone with bright white hair increasingly denser, disc with long, black hair (Fig. 7B). T7 covered with short, bright white hair, only few longer, black hairs (Fig. 7F).

TERMINALIA. Genitalia (Fig. 8C–D), S7 (Fig. 8A) and terminal plate of S8 (Fig. 8B) as illustrated.

Distribution

Found throughout western South Africa from Namaqualand in the north to the Cape Peninsula in the south (Eardley & Brothers 1997).

Host bees

Confirmed host bee is *Scrapter niger* Lepelletier & Serville, 1828 (= *S. longula* Friese, 1912) (Rozen & Michener 1968).

Seasonal activity

August–November (Eardley & Brothers 1997).

Sphecodopsis fumipennis (Bischoff, 1923)

Figs 9–10

Pseudodichroa fumipennis Bischoff, 1923: 596, holotype ♀ (type locality: ‘Java’; the specimen was obviously mislabelled; see discussion in Bischoff 1923, Rozen 1968 and Eardley & Brothers 1997) (ZMHB), examined.

Diagnosis

The female of *S. fumipennis* can be separated from that of all other species of the genus by the combination of the following characters: S6 pointed posteriorly (Fig. 10D); T6 narrow and almost truncate apically (Fig. 10B). The male is unknown.

Additional material examined (17 specimens)

SOUTH AFRICA • 2 ♀♀; 12 km NW of Nieuwoudtville, Farm Avontuur, dolerite hill; 31°16′02″ S, 19°04′05″ E; 830 a.s.l.; 27 Aug. 2008; HE leg.; RCMK • 1 ♀; same collection data as for preceding; 6 Sep. 2008; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 9 Sep. 2022; HE leg.; RCMK • 2 ♀♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21′56″ S, 19°08′52″ E; 735 m a.s.l.; 6 Sep. 2002; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 11 Sep. 2002; RCMK • 2 ♀♀; same collection data as for preceding; 11 Sep. 2003; RCMK • 2 ♀♀; same collection data as for preceding; 13 Aug. 2004; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve, dolerite hills; 31°22′10″ S, 19°08′50″ E; 770 m a.s.l.; 21 Aug. 2007; KT leg.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve, Rondell, Car Park East; 31°22′18″ S, 19°08′58″ E; 730 m a.s.l.; 30 Sep. 2006; MK leg.; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve, Car Park East; 31°22′18″ S, 19°08′58″ E; 730 a.s.l.;

14 Aug. 2010; MK leg.; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve; 31°22'25" S, 19°08'46" E; 770 m a.s.l.; 10 Sep. 2007; KT leg.; RCMK • 1 ♀; Bredasdorp, Div. Pearly Beach; [34°40' S, 19°30' E]; 1 Sep. 1959; SAM leg.; SANC.

Description

Female

BODY LENGTH. 7.4–8.9 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair. Face and clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, supraclypeal almost without punctation (Fig. 9C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and finely but deeply punctate (Fig. 9D). Propodeum densely ($i=0.25\text{--}0.5$ d), finely and shallowly punctate, metapostnotum matt (Fig. 10A). Mesoscutum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 9D). Mesoscutellum, metanotum, mesepisternum and propodeum sparsely covered with long, black, erect hair mixed with shorter, dark brown hair, metapostnotum glabrous (Figs 9D, 10A).

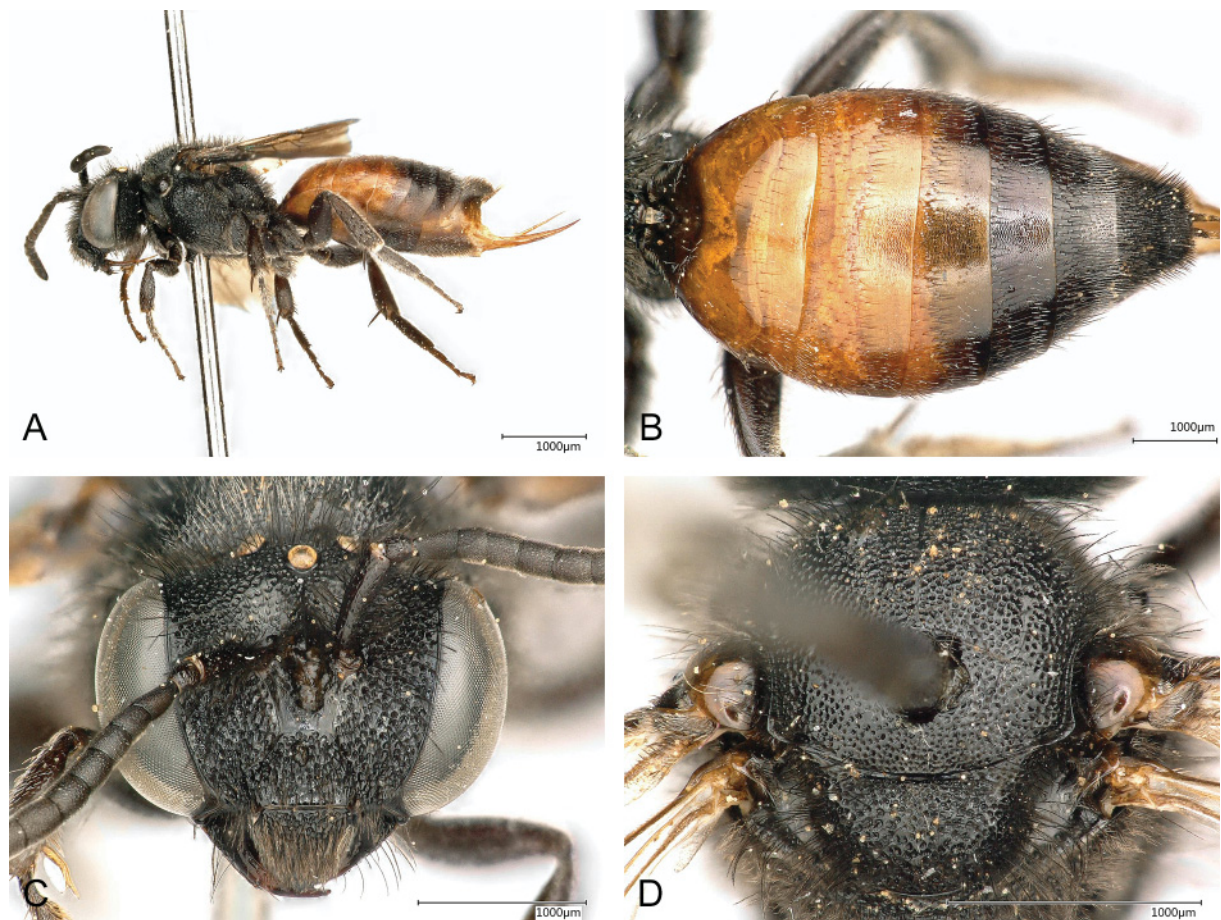


Fig. 9. *Sphecodopsis fumipennis* (Bischoff, 1923), ♀ (Nieuwoudtville Flower Reserve, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

WINGS. Yellowish-brown; wing venation dark brown and stigma dark brown to black (Fig. 9A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter, white hair. Femur with few long, black hairs. Tibia and tarsi covered with long, black hair and densely covered with shorter, white hair. Patches with very dense white pubescence apically on the tibia, particularly conspicuous on middle and hind tibia, anterior leg generally less hairy (Fig. 9A).

METASOMA. Integument of T1 dark basally. Rest of T1 and T2 red, T3 variable color expansion of red, from completely red to completely black and T4–T6 black. T1–T4 sparsely covered with short, white and black hair (Fig. 9B). T5 marginal zone with bright white hair, disc covered with long, black hair. T6 with dense long, black hair, narrow and almost straight apically (Fig. 10B). Shape of S6 (Fig. 10D) as illustrated.

Male

Unknown.

Distribution

Found from southern Namaqualand to the Cape Peninsula (Eardley & Brothers 1997).

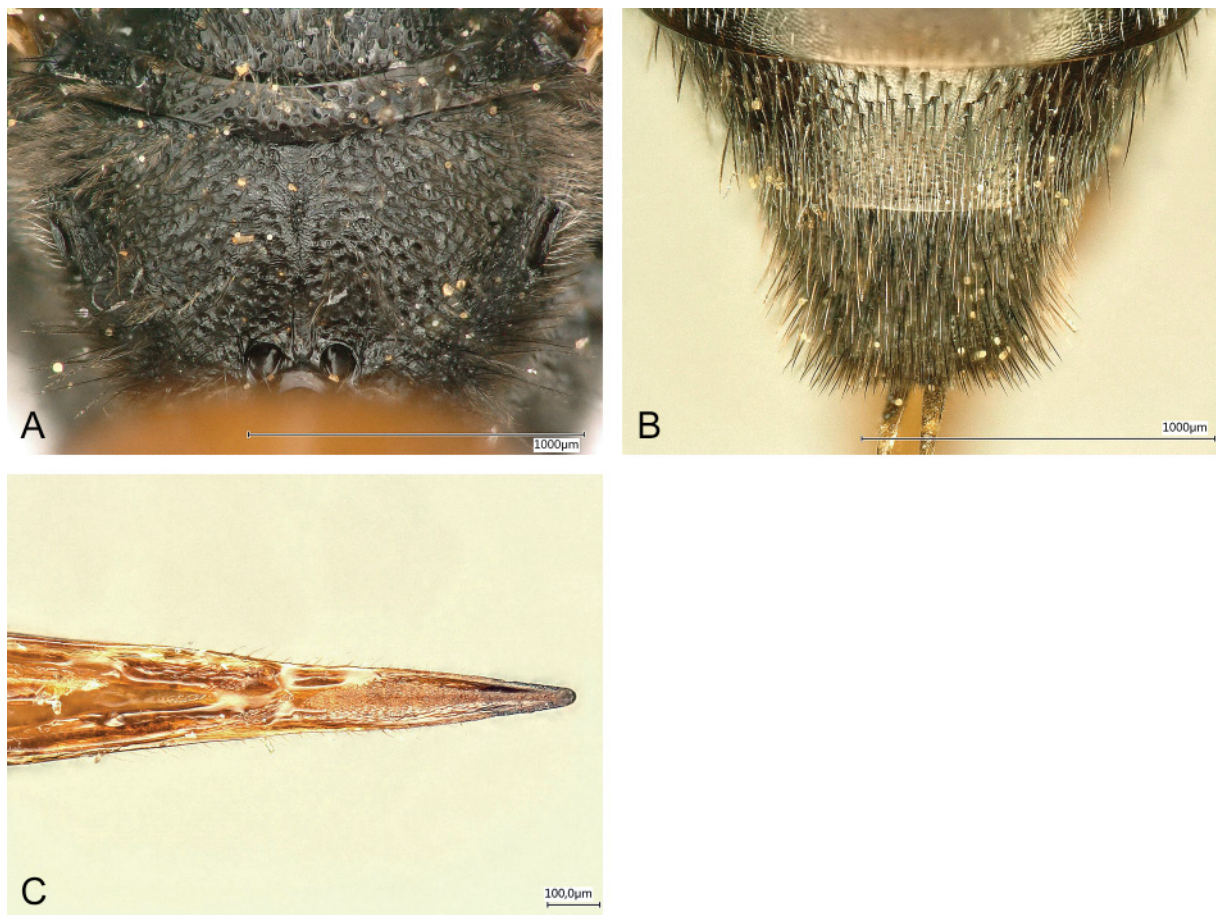


Fig. 10. *Sphecodopsis fumipennis* (Bischoff, 1923), ♀ (Nieuwoudtville Flower Reserve, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Host bees

Confirmed host bee is *Scrapter erubescens* (Friese, 1925) (= *S. crassula* Cockerell, 1932) (Rozen & Michener 1968).

Seasonal activity

August–November (Eardley & Brothers 1997).

Sphecodopsis aculeata species group

The group consists of the following two species: *S. aculeata* and *S. chaotica* sp. nov. Characteristics of this group are the following: head covered with short, white or yellowish-white hair (Figs 11C, 13C, 15C); mesoscutum covered with short, white or yellowish-white hair (Figs 11D, 13D, 15D); female S6 bifid posteriorly, shape as shown in Figs 12C and 16C; male gonostylus not inclined inward and slightly tapered, penis valves broader, about as long as gonostylus (Fig. 14C). This group includes the type species of the subgenus *Sphecodopsis* (*Pseudopasites*) Bischoff, 1923 (= *S. pygmaeus*, syn of *S. aculeata*), that Michener (2007) treated as a synonym of *Sphecodopsis*.

Sphecodopsis aculeata (Friese, 1922)

Figs 11–14

Pasites aculeatus Friese, 1922: 37, holotype ♀ (type locality: ‘Kap Sown [sic]’ (= Cape Town), South Africa) (ZMHB), examined.

Pasites pygmaeus Friese, 1922: 37, lectotype ♂ [designated by Eardley & Brothers 1997] (type locality: ‘Kapland’ (= Cape Colony), South Africa) (ZMHB), examined.

Sphecodopsis (*Pseudopasites*) *rufescens* Bischoff, 1923: 593–594, holotype ♀ (type locality: ‘S.-W.-Afrika’, South Africa) (ZMHB), examined.

Sphecodopsis (*Pseudopasites*) *algoensis* Bischoff, 1923: 595, lectotype ♂ [designated by Eardley & Brothers 1997] (type locality: ‘Algoa-bai’, South Africa) (DNMNH), examined.

Morgania (*Pseudopasites*) *perpunctata* Cockerell, 1933a: 383–384, holotype ♂ (type locality: Rapenburg, Cape Flats, South Africa) (NHML), examined.

Diagnosis

The female of *S. aculeata* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch without a small tip distally, shape as in Fig. 12C; body length >6 mm; metasoma partially red (Fig. 11B); T6 covered with white hair (Fig. 12B); front legs completely black (Fig. 11A); head and mesosoma with white hair (Fig. 11C–D); T6 rounded apically (Fig. 12B). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 13B); fore legs black (Fig. 13A); head and mesosoma with white hair (Fig. 13C–D); gonostylus not inclined inward and slightly tapered, penis valves broader, about as long as gonostylus (Fig. 14C).

Additional material examined (68 specimens)

SOUTH AFRICA • 1 ♀; Remhoogte slope; 30°14' S, 18°10' E; 5 Sep. 2003; yellow trap; CM leg.; SANC • 1 ♂; C.P., Kamieskroonberg near Kamieskroon; 30°32' S, 18°08' E; 3 Oct. 1990; CE leg.; SANC • 1 ♀, 3 ♂♂; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 24 Aug. 2012; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 25 Sep. 2014; RCMK • 1 ♂; same collection data as for preceding; 25 Aug. 2017; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 30 Aug. 2018; RCMK • 5 ♀♀, 5 ♂♂; same collection data as for preceding; 9 Sep. 2018; RCMK • 1 ♀; Nieuwoudtville, Farm Glen Lyon, garden; 31°23'50" S, 19°08'26" E;

700 m a.s.l.; 4 Sep. 2003; MK leg.; RCMK • 3 ♀♀, 1 ♂; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 20 Aug. 2010; MK leg.; RCMK • 1 ♀, 2 ♂♂; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2010; MK leg.; RCMK • 1 ♀; 18 km S of Calvinia on R355, 200 m S of Farm Boskloof; 31°38'36" S, 19°44'36" E; 1000 m a.s.l.; 22 Sep. 2022; MK leg.; RCMK • 1 ♂; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 13 Sep. 2016; MK leg.; RCMK • 2 ♀♀, 11 ♂♂; Roggeveld Mts, 2 km S of Farm Perdekloof, rivier, dolerite; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 1 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 20. Sep. 2022; RCMK • 1 ♂; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 23 Aug. 2012; MK leg.; RCMK • 1 ♀, 13 ♂♂; Roggeveld Mts, 1.5 km S of Farm Allemansdam, Renosterveld; 31°49'25" S, 19°59'38" E; 1285 m a.s.l.; 11 Sep. 2018; MK leg.; RCMK • 2 ♀♀; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 29 Aug. 2018; MK leg.; RCMK • 1 ♀; W Cape S of Lamberts Bay; [32°04' S, 18°20' E]; 7–9 Oct. 1999; MH leg.; RCMS • 1 ♂; Lamberts Bay, Strandveld, sand; 32°06'19" S, 18°18'16" E; 5 m a.s.l.; 7 Sep. 2017; MK leg.; RCMK • 1 ♂; Pakhuis Pass, C.P.; [32°08' S, 19°01' E]; SANC • 3 ♀♀; W Cape, Kunje Farm, 28 km SE of Citrusdal; 32°40' S, 19°10' E; 23 Sep. 2001; CE leg.; SANC • 1 ♀; Pearly Beach, Bredasdorp; [34°40' S, 19°30' E]; SANC.

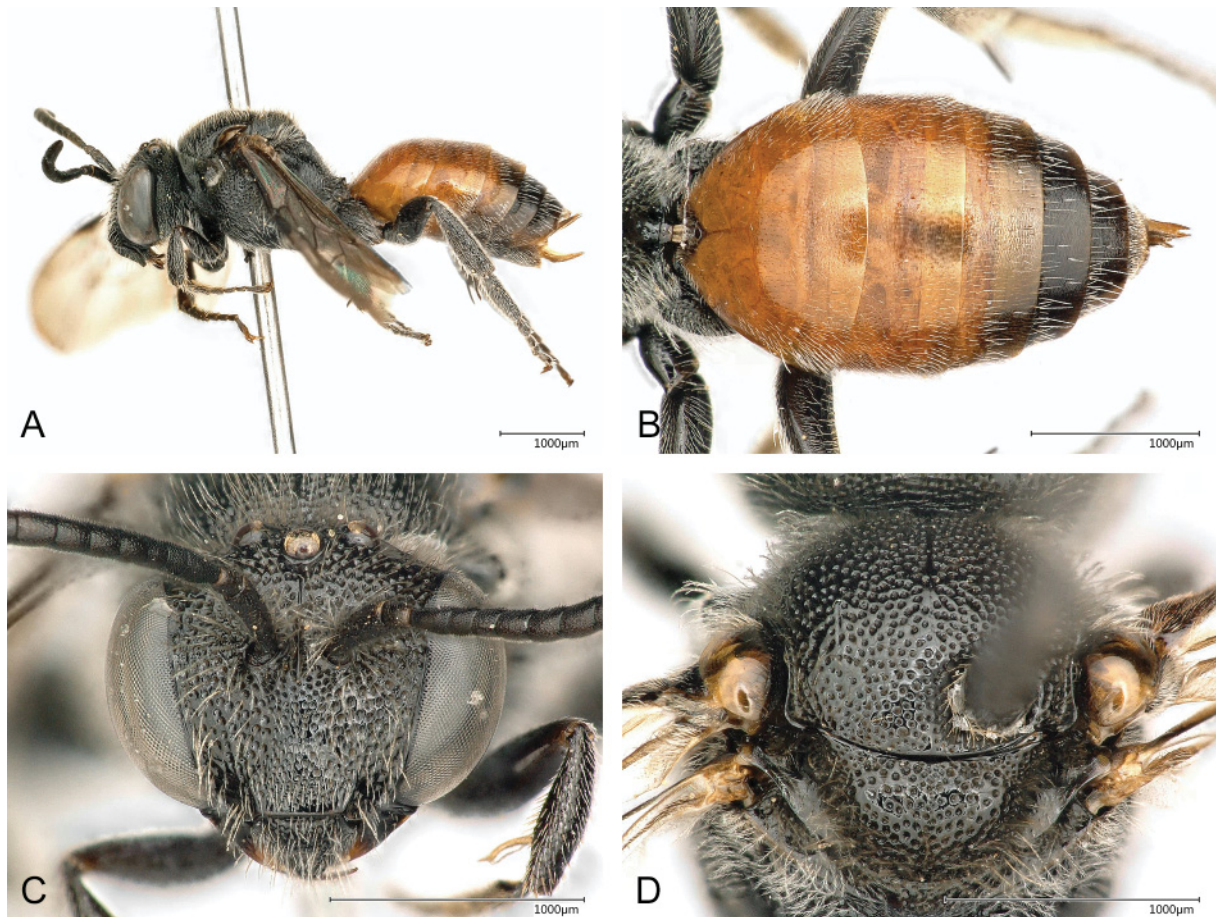


Fig. 11. *Sphecodopsis aculeata* (Fries, 1922), ♀ (Farm Avontuur, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Description

Female

BODY LENGTH. 4.5–6.0 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, yellowish-white hair. Face with dense ($i=0.25\text{--}0.5$ d) and coarse but shallow punctation, clypeus and supraclypeal area with finer and denser ($i=0\text{--}0.25$ d) punctation (Fig. 11C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula red. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}1$ d) and coarsely but shallowly punctate (Fig. 11D). Propodeum with dense ($i=1\text{--}1.5$ d), coarse and deep punctation, metapostnotum matt (Fig. 12A). Mesoscutum, mesoscutellum, metanotum, propodeum and mesepisternum sparsely covered with short, yellowish-white hair, metapostnotum glabrous (Figs 11D, 12A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 11A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with relatively long, white hair mixed with shorter, plumose, white hair. Tibia and tarsus covered with short, plumose, white hair (Fig. 11A).

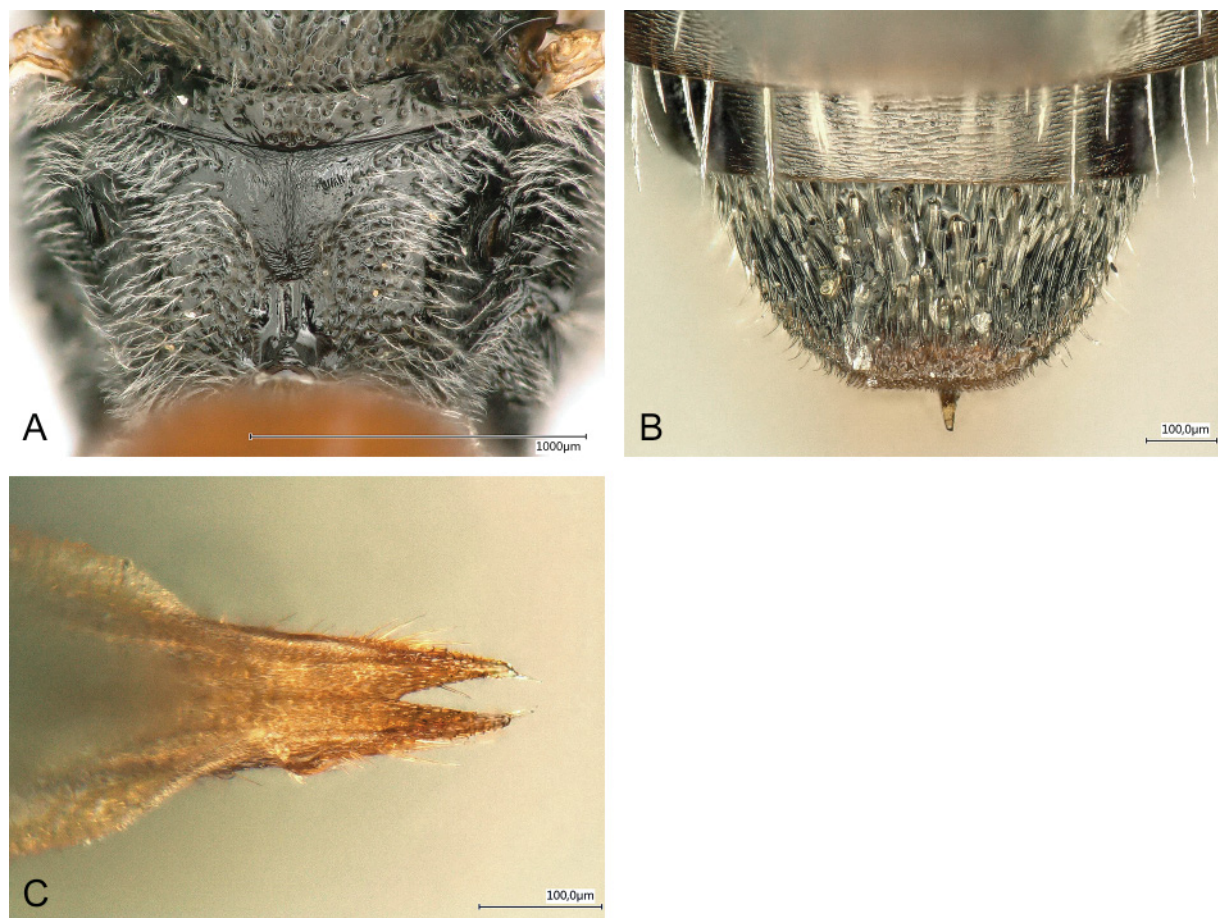


Fig. 12. *Sphecodopsis aculeata* (Fries, 1922), ♀ (Farm Avontuur, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

METASOMA. Integument of T1 and T2 red; T3 and T4 to a variable extent red, from T3 basal half red to T4 basal quarter red; T5 and T6 black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 11B). T6 covered with short, white hair, broad and rounded apically (Fig. 12B). Shape of S6 (Fig. 12C) as illustrated.



Fig. 13. *Sphecodopsis aculeata* (Fries, 1922), ♂ (Farm Avontuur, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

Male

BODY LENGTH. 5.0–6.8 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, yellowish-white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$) and coarse but shallow punctation, clypeus and supraclypeal area and denser ($i=0\text{--}0.5\text{ d}$), finer and shallow punctation (Fig. 13C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula red. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}1\text{ d}$) and coarsely but shallowly punctate (Fig. 13D). Propodeum with dense ($i=1\text{--}1.5\text{ d}$), coarse and deep punctation, metapostnotum matt (Fig. 13E). Mesoscutum, mesoscutellum, metanotum, propodeum and mesepisternum sparsely covered with short, yellowish-white hair, metapostnotum glabrous (Fig. 13D–E).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 13A.).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with fairly long, white hair mixed with short, plumose, white hair. Tibia and tarsi covered with short, white hair (Fig. 13A).

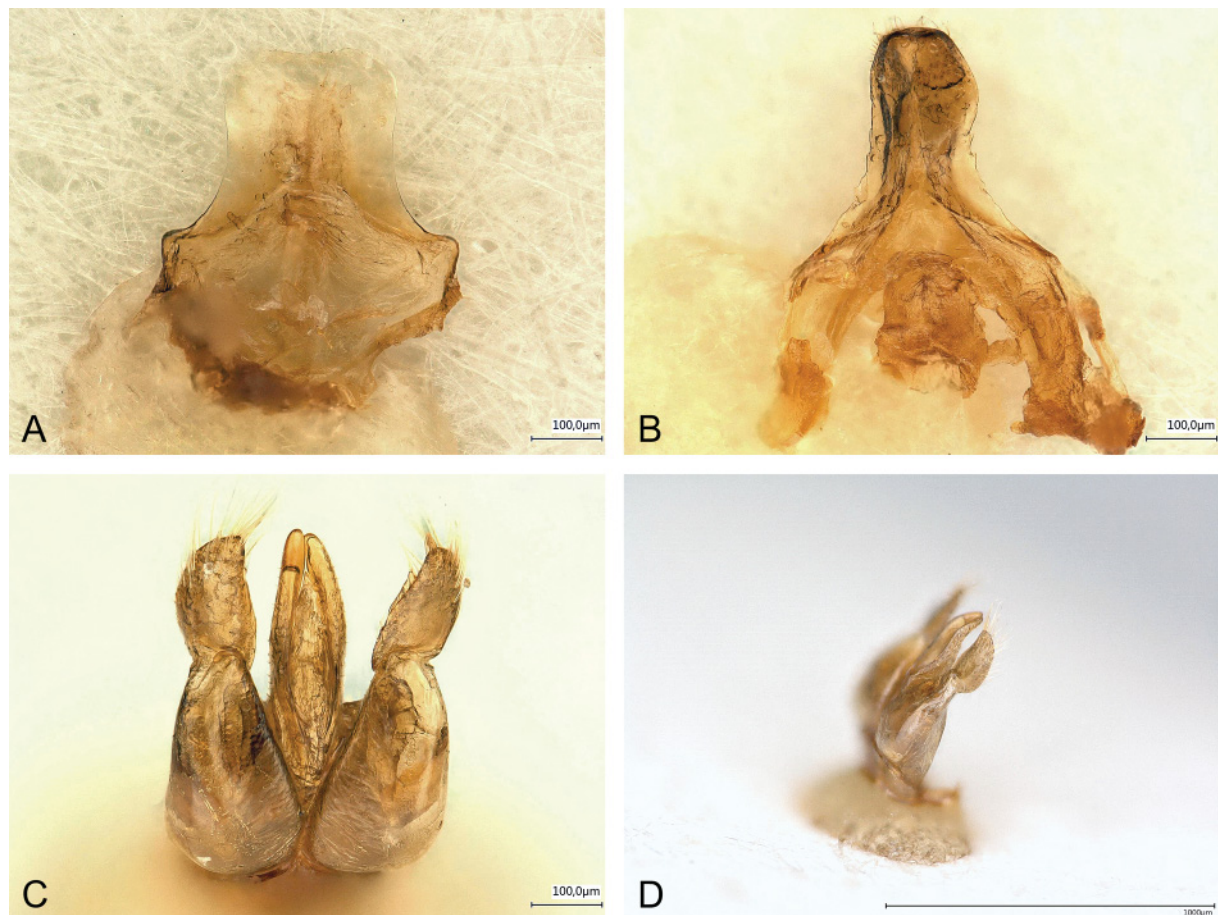


Fig. 14. *Sphecodopsis aculeata* (Friese, 1922), ♂ (Farm Avontuur, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

METASOMA. Integument of T1–T3 to a variable extent red, from only T1 basal half and T2 basal half red to T3 basal quarter red; T4–T7 black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 13B). T7 covered with short, white hair (Fig. 13F).

TERMINALIA. Genitalia (Fig. 14C), S7 (Fig. 14A) and terminal plate of S8 (Fig. 14B) as illustrated.

Distribution

A widespread species that has been recorded from southern Namaqualand to the Cape Peninsula and eastwards to Algoa Bay and Grahamstown (Eardley & Brothers 1997).

Host bees

Unknown.

Seasonal activity

July–November (Eardley & Brothers 1997).

Comment

Sphecodopsis aculeata is quite variable in size and some morphological characters. Based on the rich new material we confirm the synonymization of Eardley & Brothers (1997). However, two single specimens show more marked differences: *Sphecodopsis* cf. 1 *aculeata* is clearly larger with a body length of about 9 mm and the apical notch of S6 about three times as long as its apical width, compared to about twice as long, and overall narrower. In *S.* cf. 2 *aculeata* T6 is broader and more truncate apically and the apical notch of S6 about three times as long as its apical width and narrower. At present their taxonomic status is unclear so we do not assign them to *S. aculeata* but make their collection data available here to enable further investigations:

Sphecodopsis cf. 1 *aculeata*: SOUTH AFRICA • 1 ♀; 15 km NW of Nieuwoudtville, Farm Zoetfontein E, Fynbos; 31°14'05" S, 19°02'50" E; 775 m a.s.l.; 7 Oct. 2022; MK leg.; RCMK.

Sphecodopsis cf. 2 *aculeata*: SOUTH AFRICA • 1 ♀; W Cape, Greyton, Riviersonderend r.; [34°03' S, 19°37' E]; 21 Oct. 1999; MH leg.; RCMK.

Sphecodopsis chaotica sp. nov.

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Figs 15–16

Diagnosis

The female of *S. chaotica* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch two times as long as its apical width (Fig. 16C); metasoma completely black (Fig. 15B); T6 sparsely covered with short white hair (Fig. 16B). The male is unknown.

Etymology

This taxonomically difficult species is named for the initially chaotic process of clarifying its true identity.

Type material (6 specimens)

Holotype

SOUTH AFRICA • ♀; Betty's Bay Botanical Gardens; 34°21' S, 18°55' E; 29. Sep. 2001; CE leg.; SANC.

Paratypes

SOUTH AFRICA • 1 ♀; Cape Town; [33°57' S, 18°27' E]; 1913; GP leg.; SANC • 1 ♀; W Cape, Kleinmond, coast; [34°20' S, 19°02' E]; 6. Nov. 1999; MH leg.; RCMS • 1 ♀; same collection data as for preceding; RCMK • 1 ♀; W Cape, 25 km S of Bredasdorp, coast; [34°40' S, 20°02' E]; 23. Oct. 1999; MSn leg.; RCMS • 1 ♀; same collection data as for preceding; RCMK.

Description

Female

BODY LENGTH. 6.0–7.5 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles reddish-brown. Face covered with short, white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$), coarse and deep punctation, clypeus and supraclypeal area with denser ($i=0\text{--}0.25\text{ d}$), finer, shallow punctation (Fig. 15C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum, mesoscutellum and metanotum densely ($i=0.25\text{--}0.5\text{ d}$) and coarsely but shallowly punctate (Fig. 15D). Propodeum with dense ($i=0.25\text{--}1\text{ d}$) and coarse but shallow punctation, metapostnotum matt (Fig. 16A).

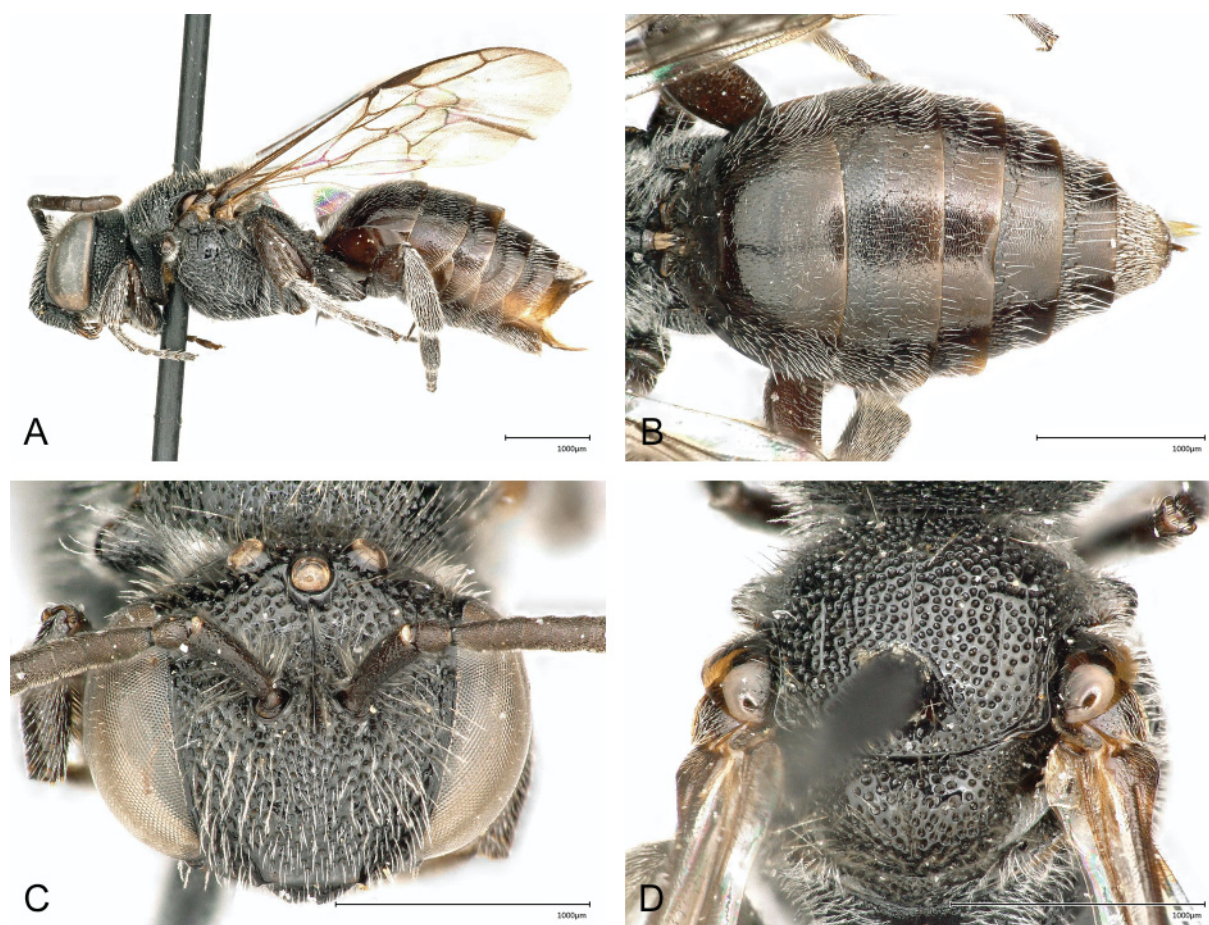


Fig. 15. *Sphecodopsis chaotica* sp. nov., paratype, ♀ (Kleinmond, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Mesoscutum, mesoscutellum, metanotum, propodeum and mesepisternum covered with long, white hair, metapostnotum glabrous (Figs 15D, 16A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 15A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsus densely covered with short, white hair (Fig. 15A).

METASOMA. Integument of T1–T6 completely black. T1 and T2 with few short, white hair, from T3 with longer, white hair (Fig. 15B). T6 broad and rounded apically, covered with short, white hair (Fig. 16B). Shape of S6 (Fig. 16C) as illustrated.

Male

Unknown.

Distribution

So far only known from the SW coast of South Africa from Cape Town to Bredasdorp.

Host bees

Unknown.

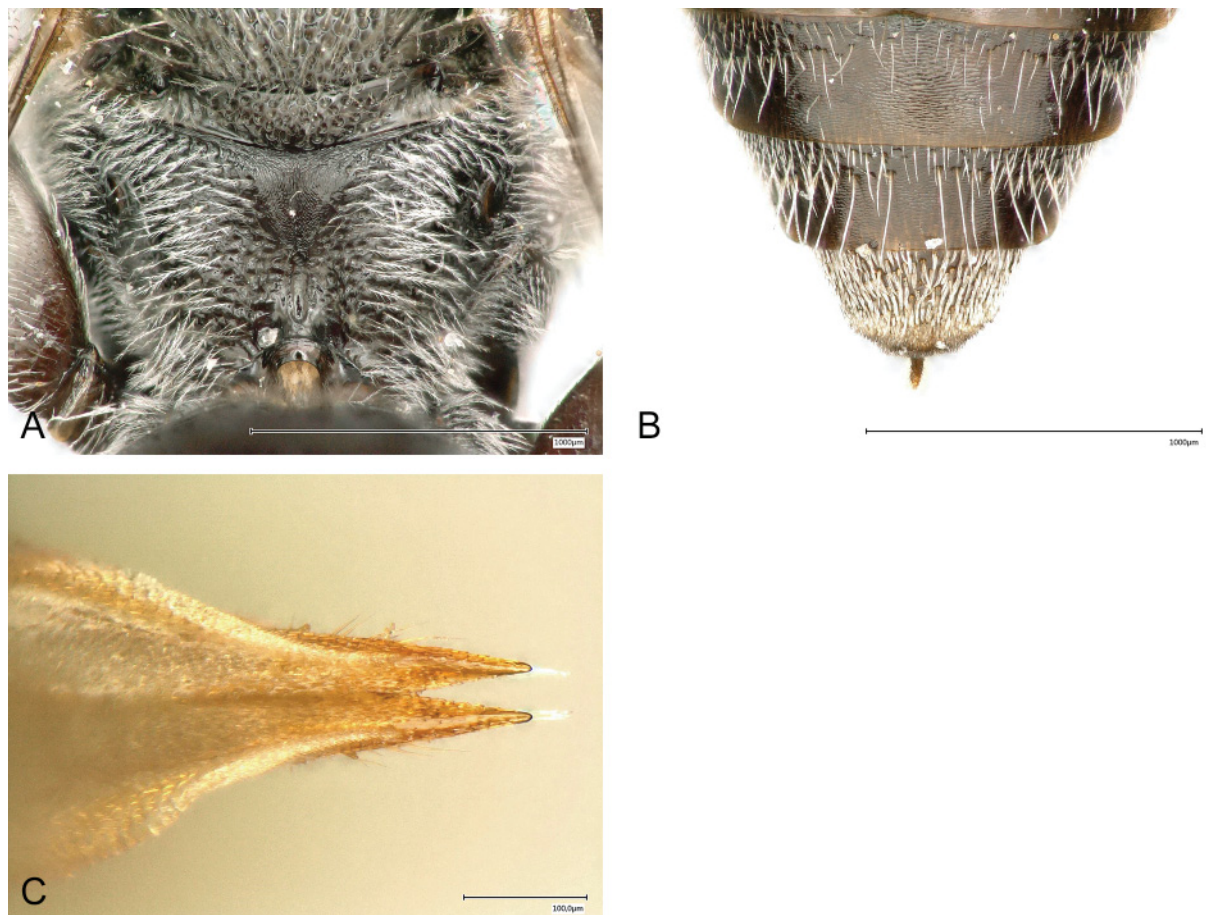


Fig. 16. *Sphecodopsis chaotica* sp. nov., paratype, ♀ (Kleinmond, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Seasonal activity

September–November.

Sphecodopsis acuta species group

The group consists of the following five species: *S. acuta* sp. nov., *S. angulata* sp. nov., *S. magna* sp. nov., *S. obscura* sp. nov. and *S. subtilis* sp. nov. Characteristics of this group are the following: mesoscutum shiny with dense, fine and shallow punctation (Figs 17D, 19D, 21D, 23D, 25D, 27D, 29D, 31D); propodeum sparsely covered with short, white hair (Figs 18A, 20A, 22A, 23E, 26A, 27E, 30A, 31E); female S6 bifid posteriorly, apical notch one to three times as long as its apical width, needle-thin tips, partly apical notch with a small tip distally, shape as shown in Figs 18C, 20C, 22C, 26C, 30C; male gonostylus shorter than gonocoxa (Figs 24C–D, 28C, 32C).

Sphecodopsis acuta sp. nov.

urn:lsid:zoobank.org:act:9DED7D33-1CEE-4A4E-B35B-A3EF8700C171

Figs 17–18

Diagnosis

The female of *S. acuta* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, tips barely curved inward, apical notch with a small tip distally, shape as shown in Fig. 18C. Body length max. 5.3 mm; metasomal terga T1–T2 red (Fig. 17B); fore tibia and tarsi usually black (Fig. 17A); T6 covered with black hair (Fig. 17B); head and mesosoma with shorter black hair and more dispersed punctation (Fig. 17C–D); propodeum covered with short, white hair only (Fig. 18A); mesoscutum more finely and densely ($i=0.25\text{--}0.5$ d) punctate (Fig. 17D). The male is unknown.

Etymology

The name refers to the unusual thin and needle-like sharp tip of the female S6.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♀; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'42" S, 19°09'00" E; 700 m a.s.l.; 25 Aug. 2006; KT leg.; SAMC.

Description

Female

BODY LENGTH. 4.9 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5$ d), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5\text{--}1.5$ d) punctation (Fig. 17C). Surface between punctures matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula reddish-brown, partially translucent. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d), very finely and shallowly punctate (Fig. 17D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 18A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair

(Fig. 17D). Metanotum and propodeum very sparsely covered with short, white hair, metapostnotum glabrous (Figs 17D, 18A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 17A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 17A).

METASOMA. Integument of T1 black basally. T1 and T2 red and T3–T6 black. T1 and T2 with only few short, white hair, from T3 increasingly more black hair (Fig. 17B). T5 marginal zone with few white, short hairs. T6 narrow and almost straight apically, covered with long, black hair (Fig. 18B). Shape of S6 (Fig. 18C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality near Nieuwoudtville.

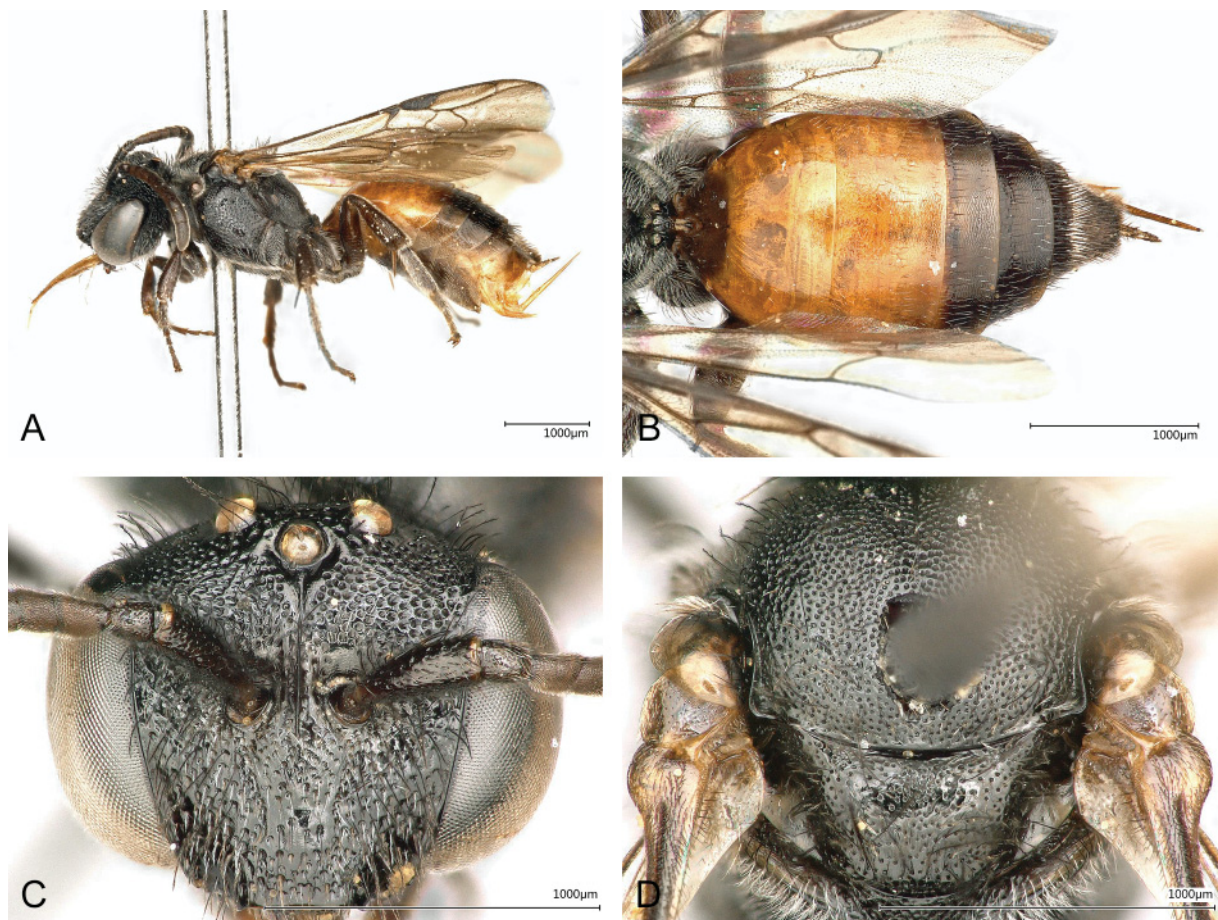


Fig. 17. *Sphecodopsis acuta* sp. nov., holotype, ♀ (SAMC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Host bees

Unknown.

Seasonal activity

August.

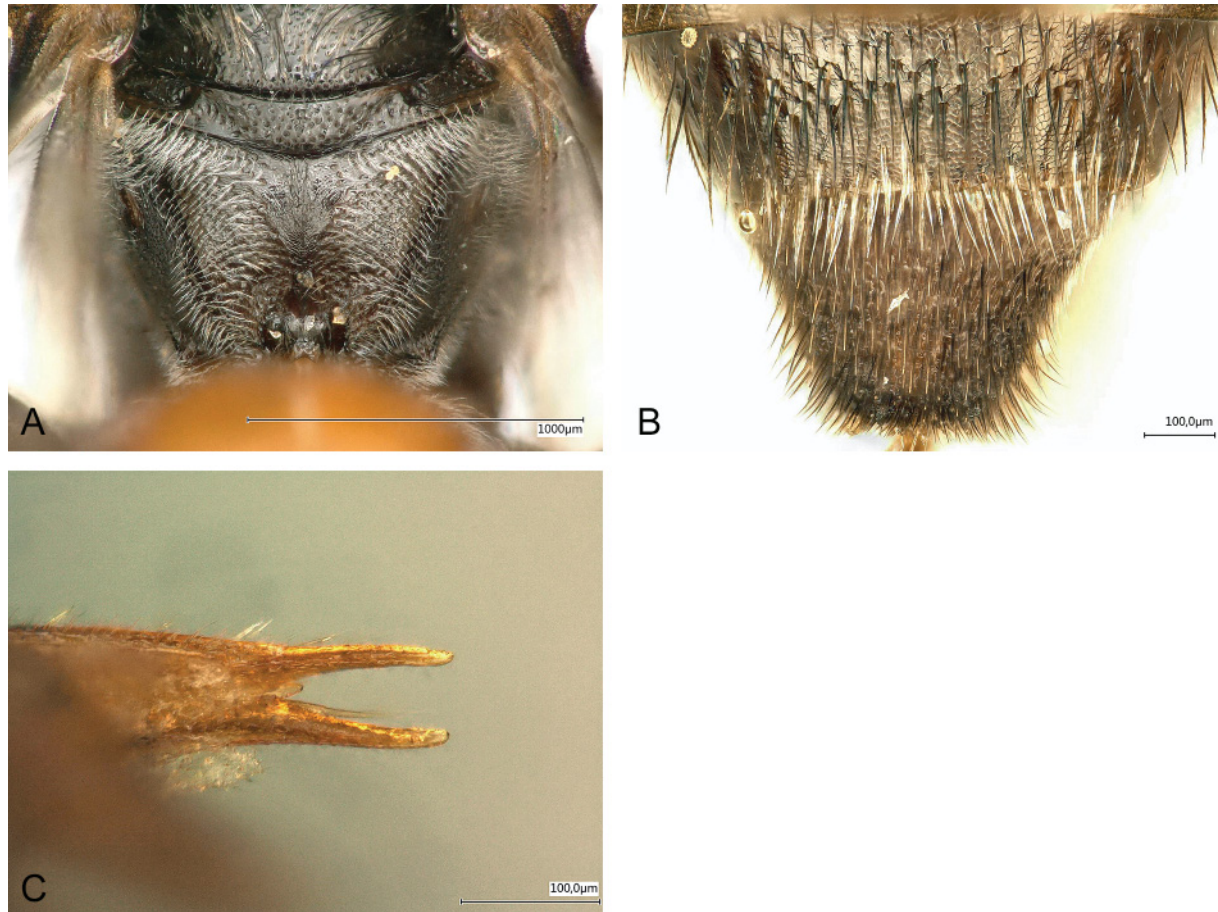


Fig. 18. *Sphecodopsis acuta* sp. nov., holotype, ♀ (SAMC). **A.** Propodeum. **B.** T5 and T6 **C.** S6.

***Sphecodopsis angulata* sp. nov.**

urn:lsid:zoobank.org:act:6EF8C431-D290-466A-BD35-1C4AF5A33B14

Figs 19–20

Diagnosis

The female of *S. angulata* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch one and a half times as long as its apical width and without a small tip distally, notch wide, shape as shown in Fig. 20C; T1–T3 to a variable extent red, from only T1 apical half and T2 basal half red to completely red (Fig. 19B); fore tibia and tarsi with small reddish spots (Fig. 19A); T6 covered with black hair (Fig. 20B); head and mesosoma with short black hair and more dispersed punctation (Fig. 19C–D); T6 almost truncate apically (Fig. 20B). The male is unknown.

Etymology

The species is named for its conspicuously angular female T6.

Type material (3 specimens)

Holotype

SOUTH AFRICA • ♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 17 Aug. 2010; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; 30 km N of Vanrhynsdorp, Knersvlakte, Sukkulent Karoo, Pf K1; 31°22'23" S, 18°42'37" E; 146 m a.s.l.; 6 Sep. 2003; KT leg.; RCMK • 1 ♀; W Cape, Knersvlakte, Kaapse Drif; 31°26'01" S, 18°47'34" E; 23 Sep. 1999; MK leg.; RCMK.

Description

Female

BODY LENGTH. 4.4 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair.

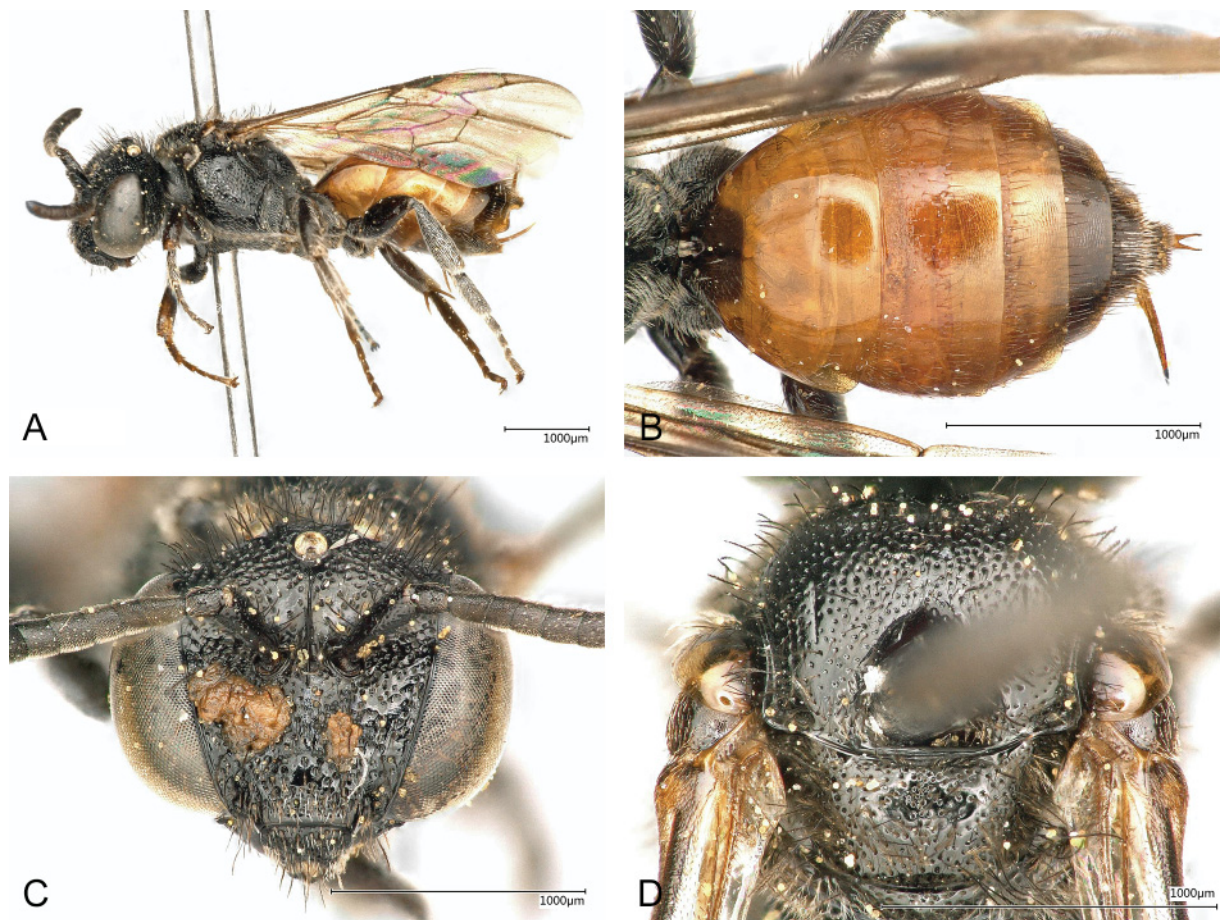


Fig. 19. *Sphecodopsis angulata* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Face with dense ($i=0.25\text{--}0.5$ d), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5\text{--}1.5$ d) punctation (Fig. 19C). Surface between punctures matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d), finely and shallowly punctate (Fig. 19D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 20A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, gold hair (Fig. 19D). Metanotum and propodeum very sparsely covered with short, yellowish-white hair, metapostnotum glabrous (Figs 19D, 20A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 19A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 19A).

METASOMA. Integument of T1 black basally. T1–T3 to a variable extent red, from only T1 apical half and T2 basal half red to completely red; T4–T6 black. T1 and T2 with only few short, white hair, from T3 increasingly more black hair (Fig. 19B). T5 marginal zone with few white, short hairs. T6 very narrow and almost straight apically, covered with long, black hair (Fig. 20B). Shape of S6 (Fig. 20C) as illustrated.

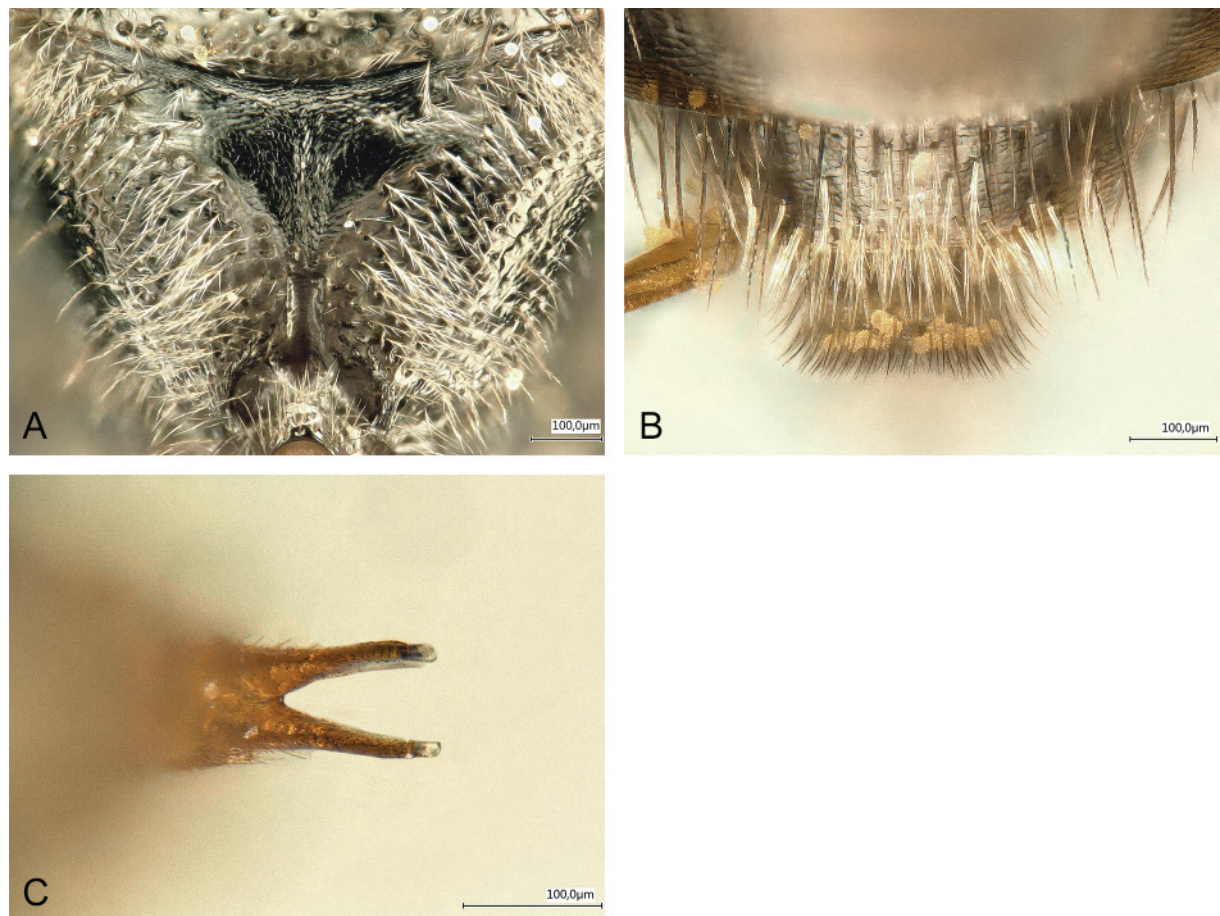


Fig. 20. *Sphecodopsis angulata* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Male

Unknown.

Distribution

Apparently restricted to the Knersvlakte in southern Namaqualand.

Host bees

Unknown.

Seasonal activity

August–September.

Sphecodopsis magna sp. nov.

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Figs 21–24

Diagnosis

The female of *S. magna* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch with a small tip distally, shape as shown in Fig. 22C; body length approx. 5.8–6.6 mm, metasoma partially red (Fig. 21B); fore tibia and tarsi with small reddish spots (Fig. 21A); T6 covered with black hair (Fig. 21B); head and mesosoma with short black hair, mixed with lighter and more dispersed hair (Fig. 21C–D); propodeum densely covered with relatively long, yellowish-white hair mixed with long, black hair (Fig. 22A). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 23B); fore legs with small reddish spots (Fig. 23A); head and mesosoma with black hair, mixed with lighter hair (Fig. 23C–D); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 23D); propodeum covered with white hair mixed with at least a few black hairs (Fig. 23E); gonostylus shorter than gonocoxa (Fig. 24C–D).

Etymology

The species is named for its size because it is the largest in the species group.

Type material (7 specimens)

Holotype

SOUTH AFRICA • ♀; Kamiesberg Mts, 5 km SE of Leliefontein, roadside; 30°20'09" S, 18°06'24" E; 1400 m a.s.l.; 7 Sep. 2016; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Witwater, slope; 30°13' S, 18°07' E; 25 Sep. 2003; CM leg.; yellow + white trap; RCMK • 1 ♀; Kamiesberg Mts, 5 km SE of Leliefontein, roadside; 30°20'09" S, 18°06'24" E; 1400 m a.s.l.; 6 Oct. 2014; MK leg.; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 11 Sep. 2016; RCMK • 2 ♀♀; same collection data as for preceding; 10 Sep. 2017; RCMK.

Description

Female

BODY LENGTH. 5.8–6.6 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$) and fine but deep punctation, except clypeus and supraclypeal area with more dispersed ($i=0.5\text{--}1.5\text{ d}$) punctation (Fig. 21C). Surface between punctures slightly matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5\text{--}1\text{ d}$), finely and shallowly punctate (Fig. 21D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow punctation, metapostnotum matt (Fig. 22A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 21D). Metanotum and propodeum very sparsely covered with short, white hair, propodeum interspersed with few long, black hair apically, metapostnotum glabrous (Figs 21D, 22A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 21A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair, very diffuse patches of white pubescence apically on the tibia, less on anterior leg, generally with less hair (Fig. 21A).

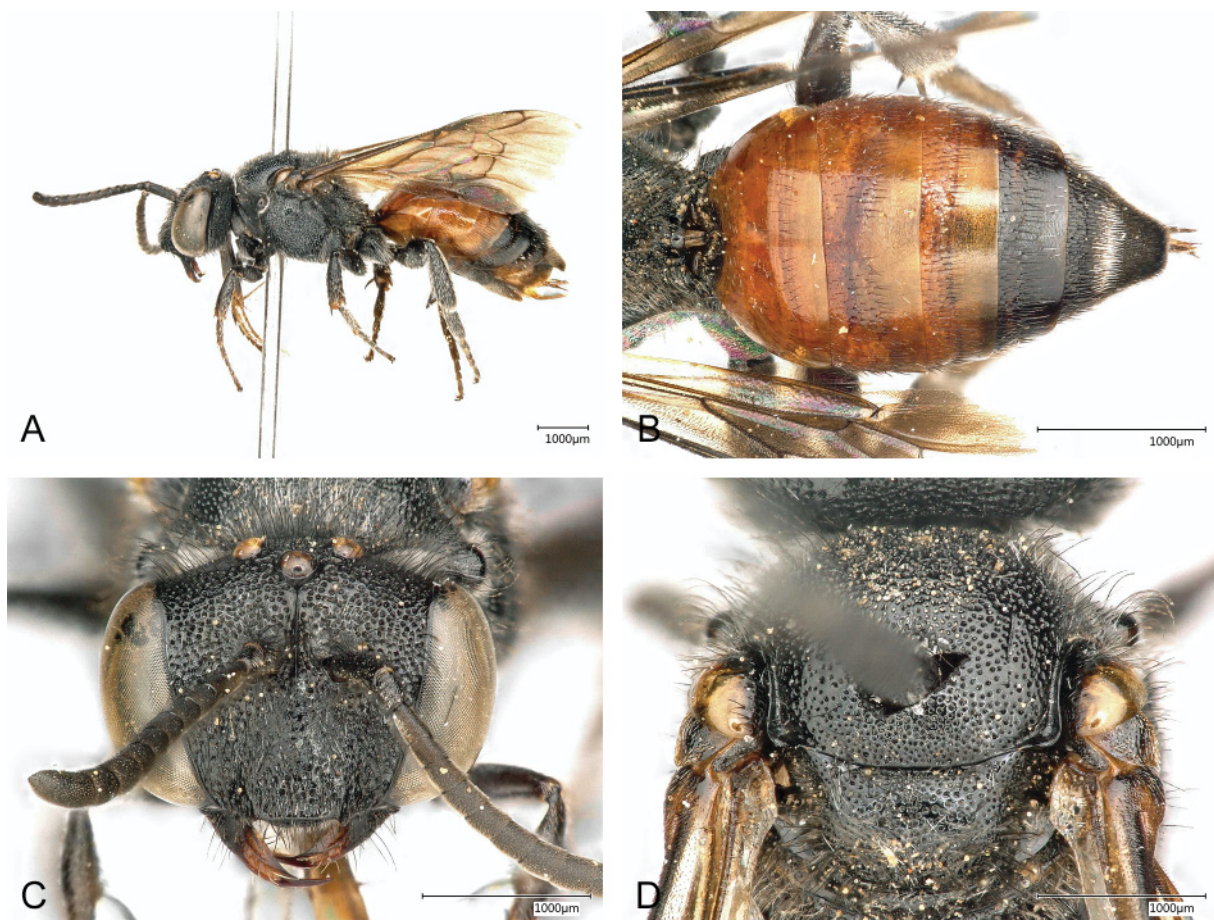


Fig. 21. *Sphecodopsis magna* sp. nov., paratype, ♀ (Leliefontein, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

METASOMA. Integument of T1 black basally, T1 and T2 red, T3 to a variable extent red, from only basal quarter red to completely red; T4–T6 black. T1 and T2 with few short, white and black hair, from T3 increasingly more and longer black hair (Fig. 21B). T5 marginal zone covered with white, short hairs. T6 narrow and almost straight apically, densely covered with short, black hair (Fig. 22B). Shape of S6 (Fig. 22C) as illustrated.

Male

BODY LENGTH. 6.4 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25-0.5$ d) and fine but deep punctation, clypeus and supraclypeal area with more dispersed ($i=0.5-1.5$ d) punctation (Fig. 23C). Surface between punctures matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d), finely and shallowly punctate (Fig. 23D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 23E). Mesoscutum, mesoscutellum, metanotum, propodeum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair, metapostnotum glabrous (Fig. 23D–E).

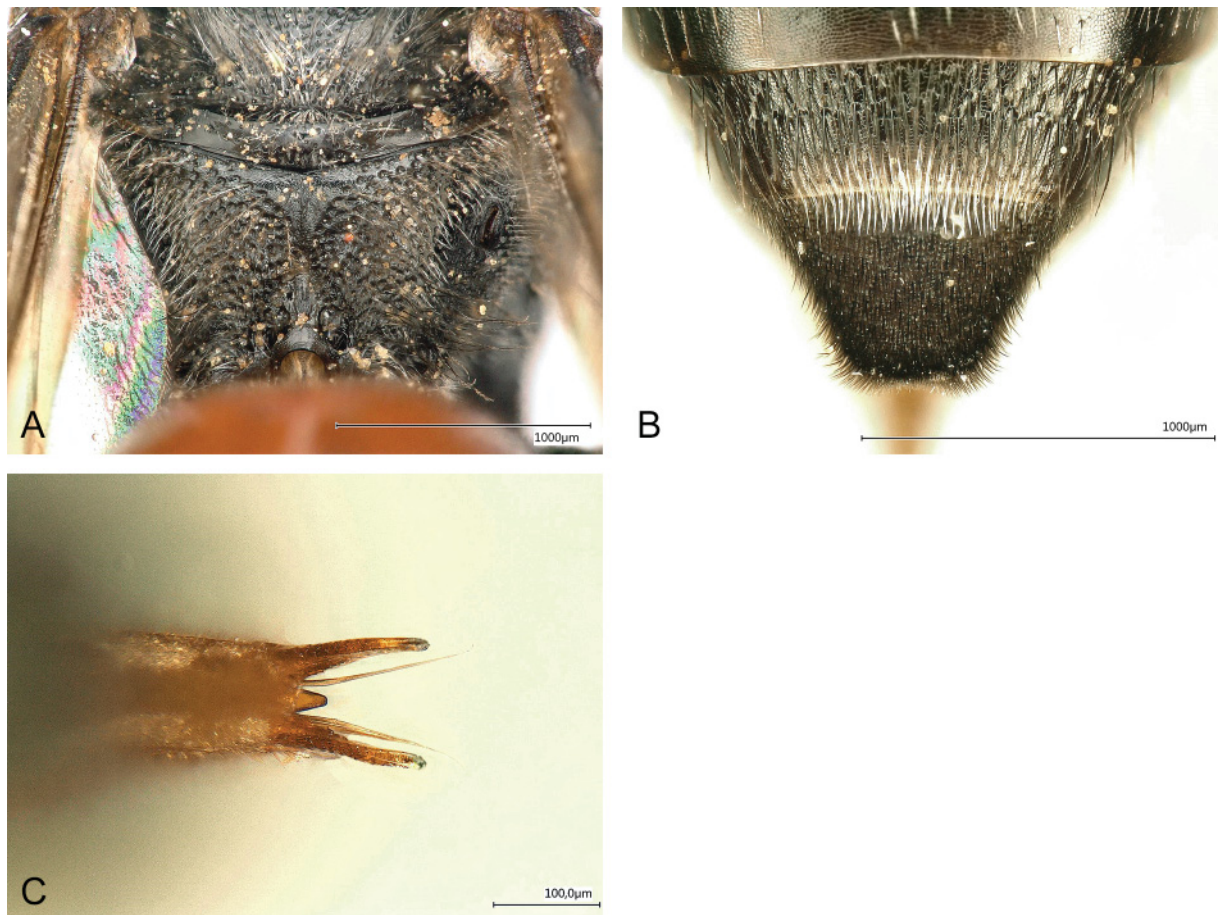


Fig. 22. *Sphecodopsis magna* sp. nov., paratype, ♀ (Leliefontein, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

WINGS. Yellowish-brown; wing venation brown and stigma dark brown to black (Fig. 23A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 23A).

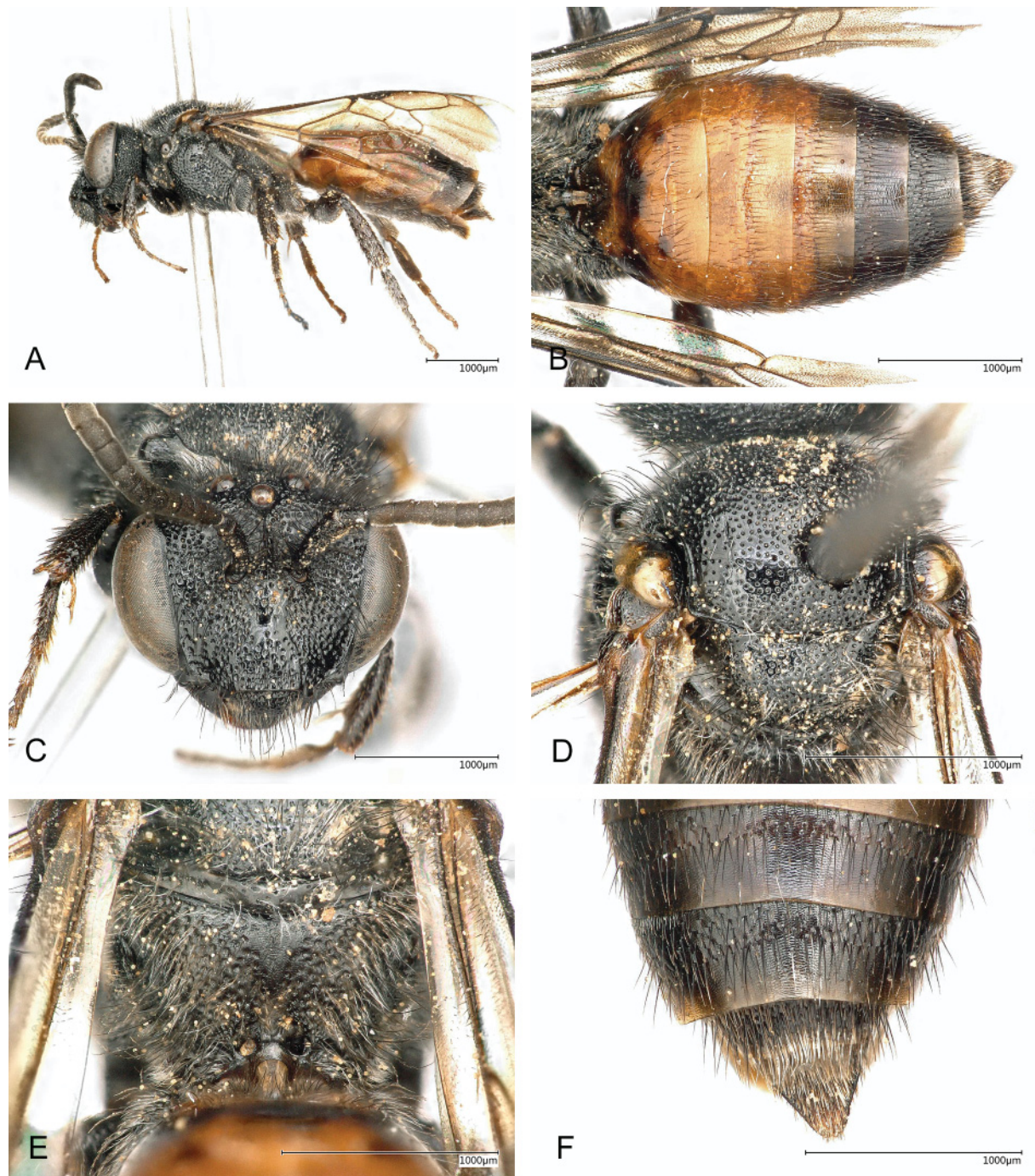


Fig. 23. *Sphecodopsis magna* sp. nov., paratype, ♂ (Leliefontein, RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. F. T4–T7 (dorsal view).

METASOMA. Integument of T1 black basally, T1–T3 red, T4 basal quarter red and T4–T7 black. T1 and T2 very sparsely covered with short white and black hair, from T3 increasingly more and longer, black hair (Fig. 23B). T6 marginal zone covered with short, white hair. T7 covered with short, golden-white hair and longer, black hair (Fig. 23F).

TERMINALIA. Genitalia (Fig. 24C–D), S7 (Fig. 24A) and terminal plate of S8 (Fig. 24B) as illustrated.

Distribution

Only known from the Kamiesberg Mts.

Host bees

Unknown.

Seasonal activity

September–October.

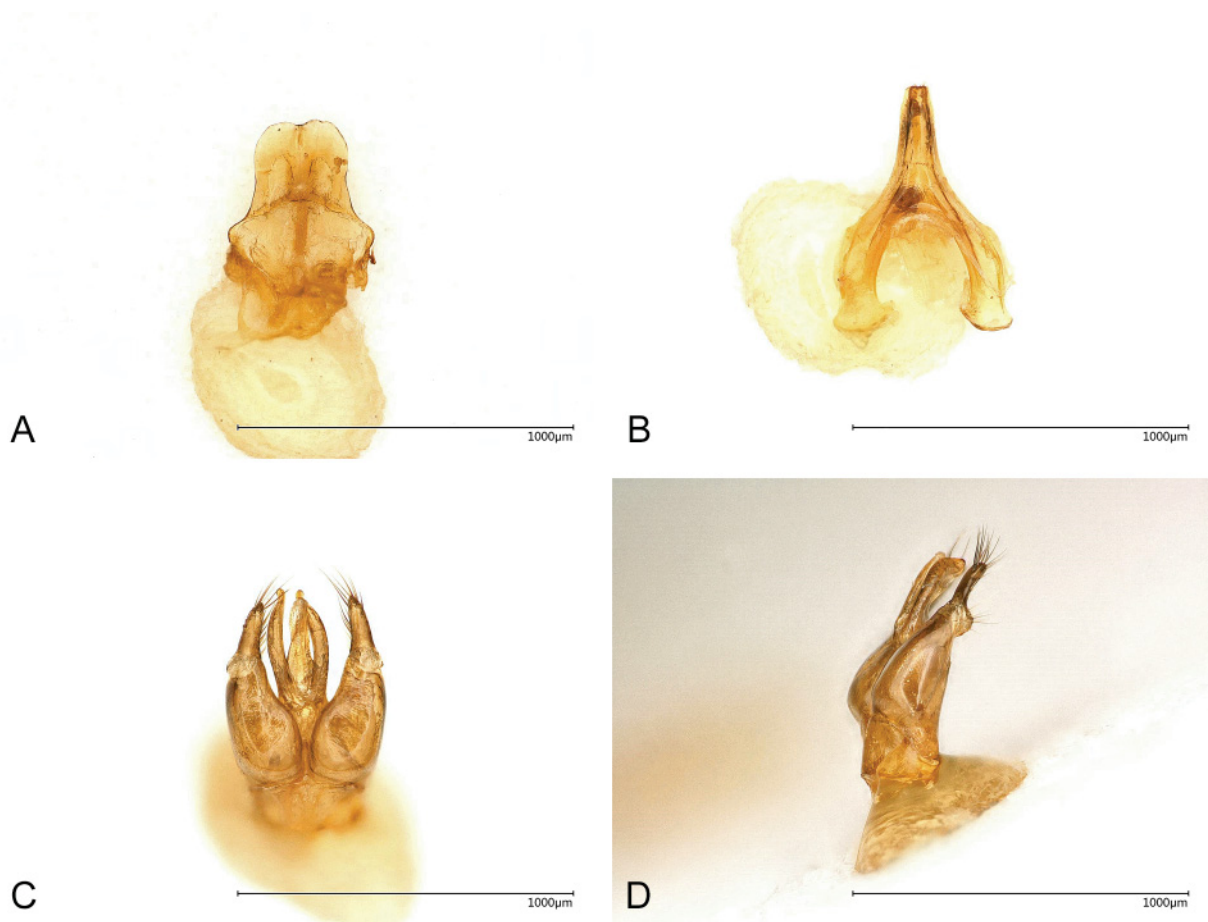


Fig. 24. *Sphecodopsis magna* sp. nov., paratype, ♂ (Leliefontein, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Sphecodopsis obscura sp. nov.

urn:lsid:zoobank.org:act:645C6F27-EA0A-4806-BEC3-4C92C530806E

Figs 25–28

Diagnosis

The female of *S. obscura* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch three times as long as its apical width (Fig. 26C); metasoma completely black (Fig. 25B); T6 covered with long black hair (Fig. 26B). The male can be separated from that of all other species by the combination of the following characters: metasoma completely black (Fig. 25B); head and mesosoma with black hair (Fig. 27C–D).

Etymology

The name refers to the dominantly dark coloration of the species that is unusual in this species group.

Type material (23 specimens)

Holotype

SOUTH AFRICA • ♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2012; MK leg.; SAMC.

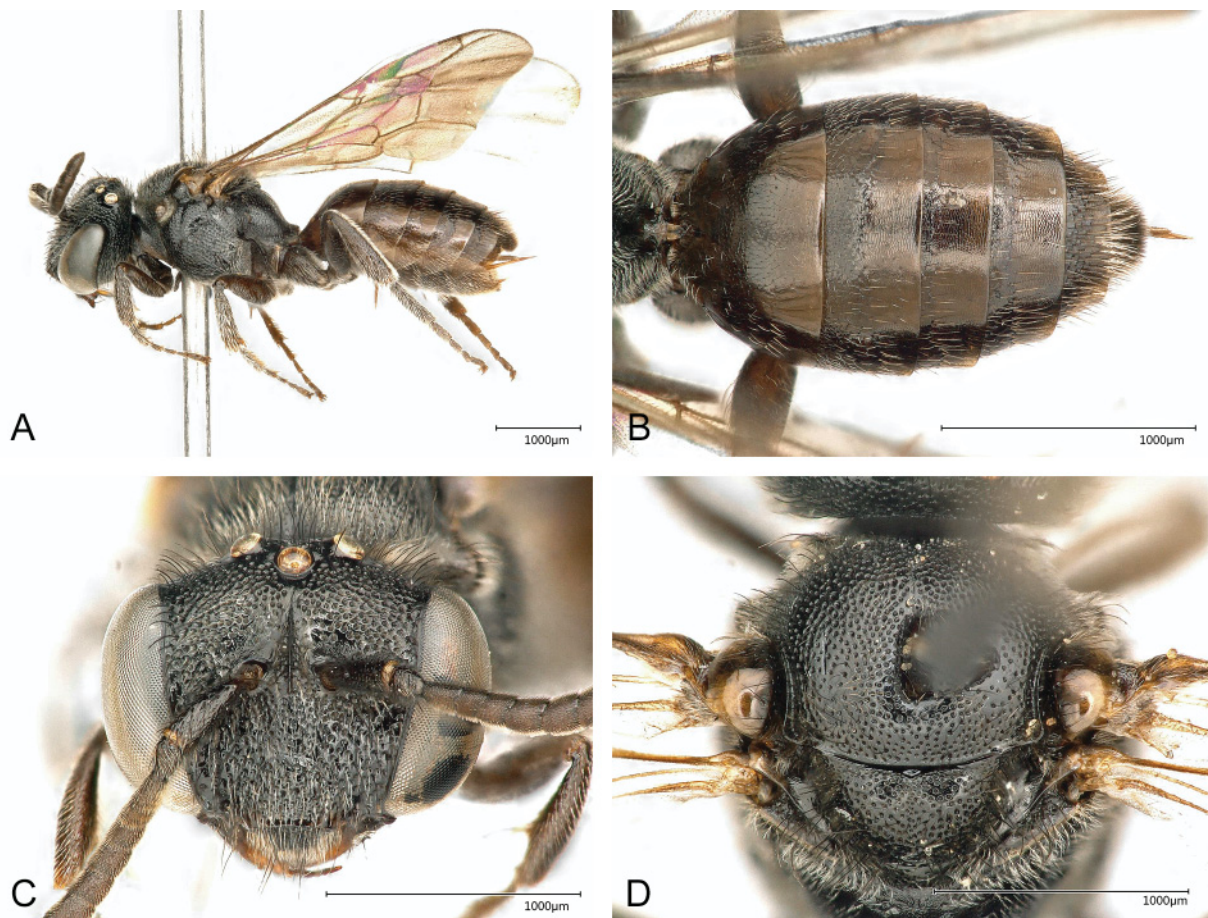


Fig. 25. *Sphecodopsis obscura* sp. nov., paratype, ♀ (Farm Papkuilsfontein, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Paratypes

SOUTH AFRICA • 17 ♀♀, 3 ♂♂; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2012; MK leg.; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 30 Aug. 2018; RCMK.

Description

Female

BODY LENGTH. 4.0–5.2 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5$ d), fine and shallow punctation (Fig. 25C). Surface between punctures slightly shiny. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}1$ d), finely and shallowly punctate (Fig. 25D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 26A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 25D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Figs 25D, 26A).

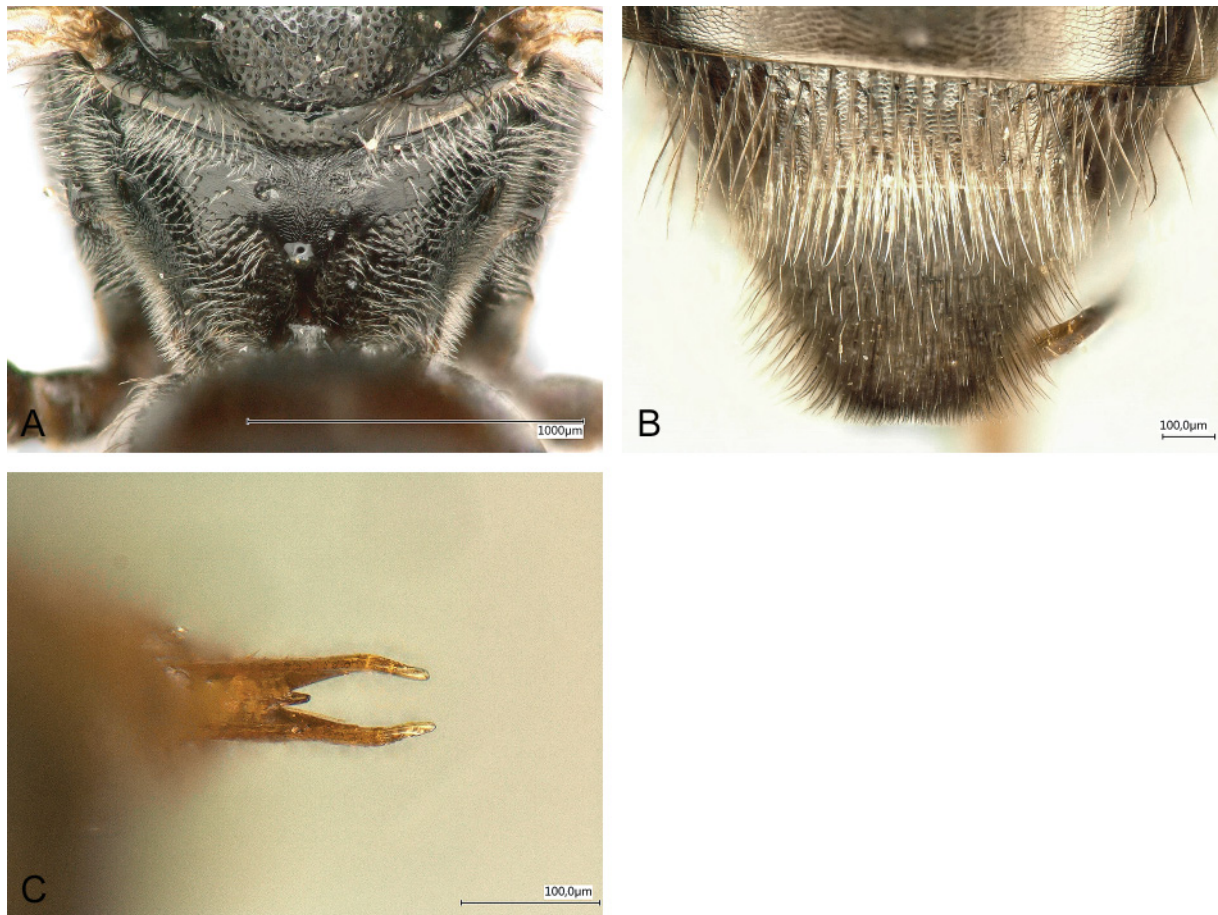


Fig. 26. *Sphecodopsis obscura* sp. nov., paratype, ♀ (Farm Papkuilsfontein, RCMK). A. Propodeum. B. T5 and T6. C. S6.

WINGS. Yellowish-brown; wing venation brown and stigma brown (Fig. 25A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 25A).

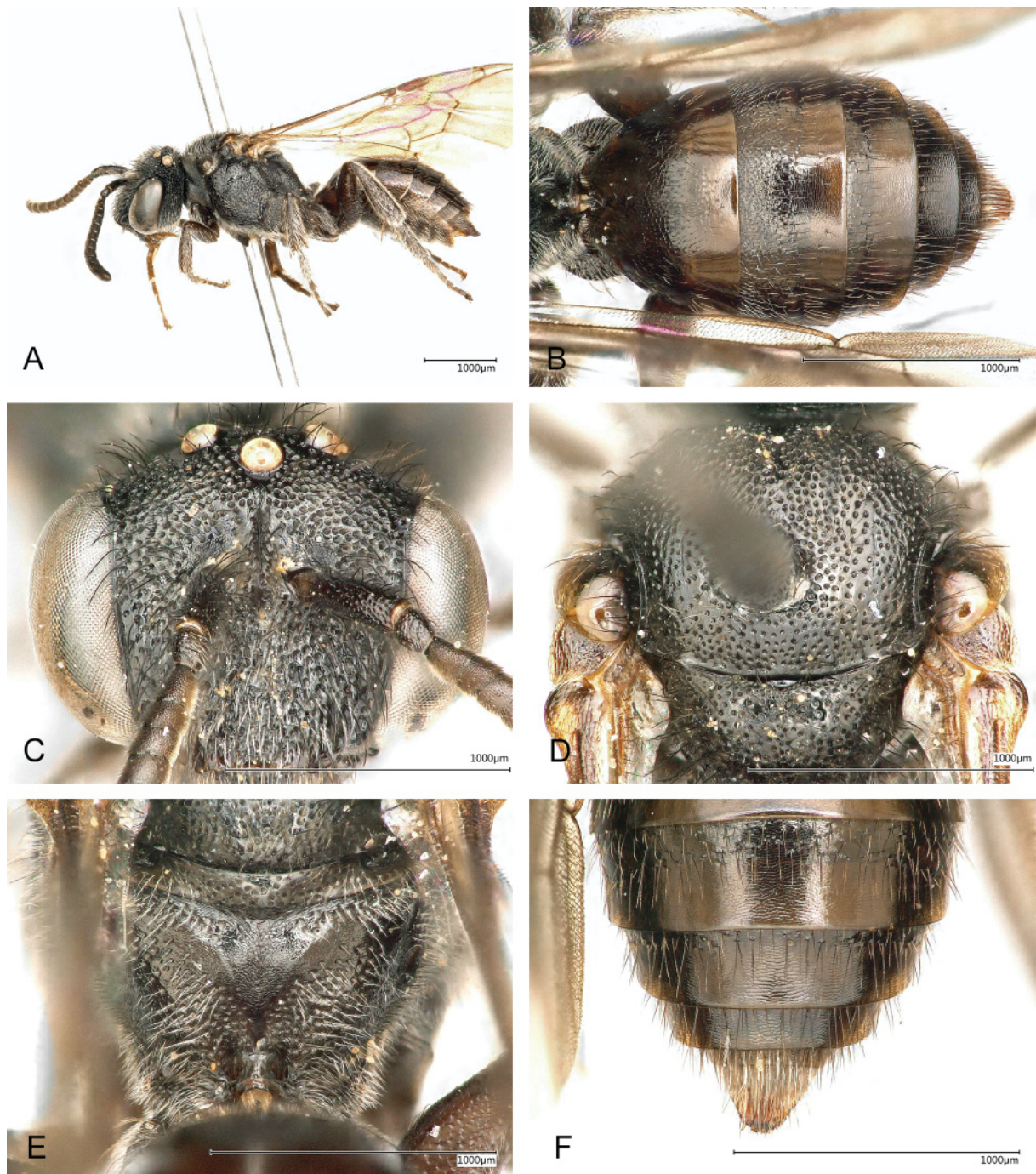


Fig. 27. *Sphecodopsis obscura* sp. nov., paratype, ♂ (Farm Papkuilsfontein, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

METASOMA. Integument black. T1 and T2 with few short, white and black hair, from T3 increasingly more and longer black hair (Fig. 25B). T5 marginal zone covered with white, short hairs. T6 covered with long, black hair, narrow and almost straight apically (Fig. 26B). Shape of S6 (Fig. 26C) as illustrated.

Male

BODY LENGTH. 4.4–5.0 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5$ d) and fine but deep punctation (Fig. 27C). Surface between punctures slightly matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.1$ d), finely and shallowly punctate (Fig. 27D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 27E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 27D). Metanotum and propodeum very sparsely covered with short, white hair, metapostnotum without hair (Fig. 27D–E).

WINGS. Yellowish-brown; wing venation brown and stigma brown (Fig. 27A).

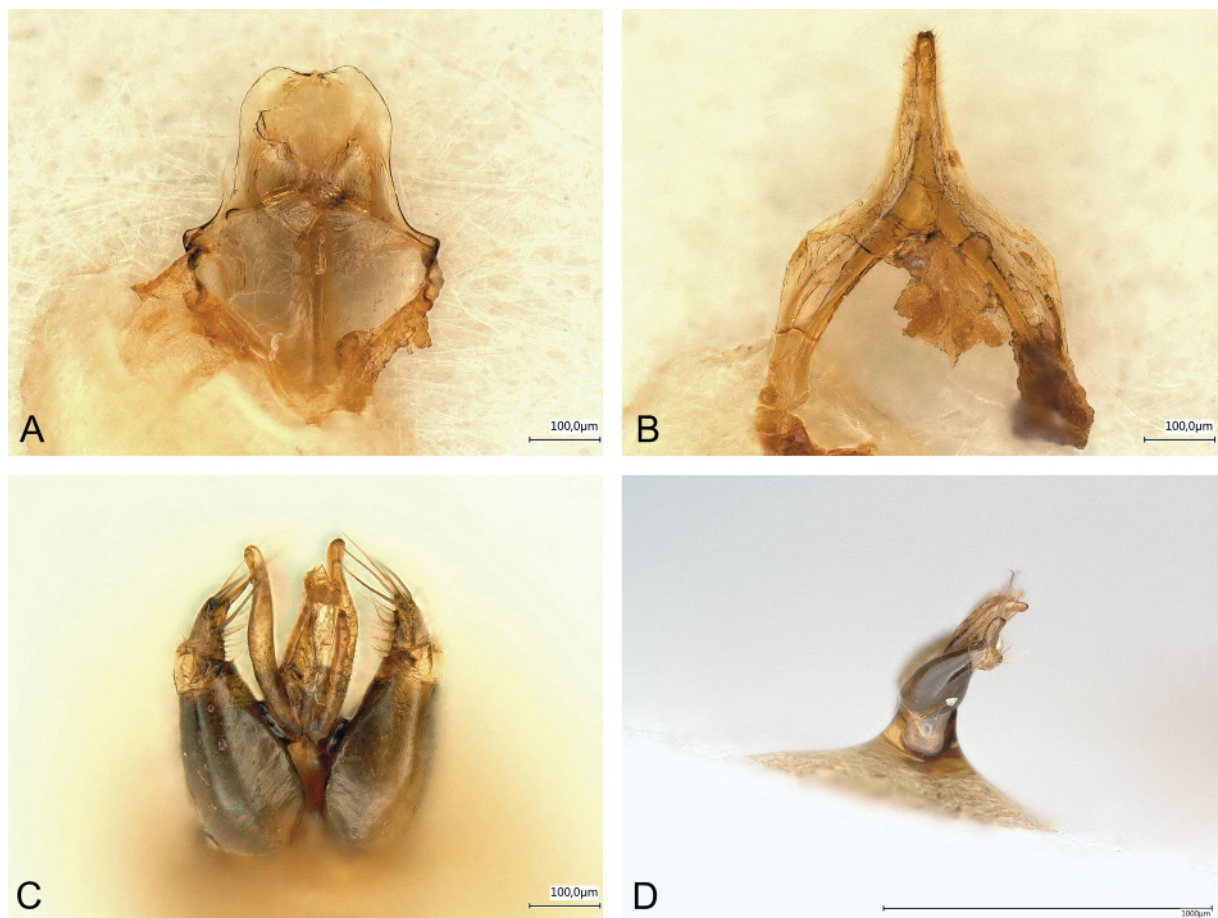


Fig. 28. *Sphecodopsis obscura* sp. nov., paratype, ♂ (Farm Papkuilsfontein, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 27A).

METASOMA. Integument black. T1 and T2 very sparsely covered with short white and black hair, from T3 increasingly more and longer black hair (Fig. 27B). T7 covered with short, gold hair and longer, black hair (Fig. 27F).

TERMINALIA. Genitalia (Fig. 28C), S7 (Fig. 28A) and terminal plate of S8 (Fig. 28B) as illustrated.

Distribution

Only known from the type locality south of Nieuwoudtville.

Host bees

Likely hosts are equally small species of euryglossiform *Scraper* (Kuhlmann 2014; Kuhlmann & Friehs 2020) that were found in association with this cuckoo bee.

Seasonal activity

August.

Sphecodopsis subtilis sp. nov.

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Figs 29–32

Diagnosis

The female of *S. subtilis* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, tips slightly more curved inward, apical notch with a small tip distally (Fig. 30C); body length max. 5.2 mm; metasoma partially red (Fig. 29B); fore tibia and tarsi usually black (Fig. 29A); T6 covered with black hair (Fig. 30B); head and mesosoma with short black hair, mixed with white hair (Fig. 29C–D); propodeum covered with short, white hair only (Fig. 30A); punctation of mesoscutum slightly coarser and more dispersed ($i=0.25-1$ d) (Fig. 29D). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 31B); fore legs usually black (Fig. 31A); head and mesosoma with black hair, mixed with lighter hair (Fig. 31C–D); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 31D); propodeum only covered with white hair (Fig. 31E); genitalia shortened and broad (Fig. 32C).

Etymology

The name refers to the relatively fine and subtle punctation of the species.

Type material (3 specimens)

Holotype

SOUTH AFRICA • ♀; Farm Kanolfontein, 20 km W of Sutherland, roadside; 32°24'43" S, 20°27'28" E; 1385 m a.s.l.; 7 Sep. 2012; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, burnt area; 31°45'47" S, 19°50'17" E; 1275 m a.s.l.; 29 Aug. 2011; MK leg.; RCMK • 1 ♂; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 24 Aug. 2018; MK leg.; RCMK.

Description

Female

BODY LENGTH. 5.2 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair, with dense ($i=0.25-1$ d) and fine but deep punctation; clypeus and supraclypeal area with punctation more dispersed ($i=0.5-1.5$ d) (Fig. 29C). Surface between punctures matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula red. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-1$ d), finely and shallowly punctate (Fig. 29D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 30A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 29D). Metanotum and propodeum very sparsely covered with short, white hair, metapostnotum glabrous (Figs 29D, 30A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 29A).



Fig. 29. *Sphecodopsis subtilis* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 29A).

METASOMA. Integument of T1 and T2 red, T3 marginal zone black and T4–T6 black. T1 and T2 with few short, white and black hairs, from T3 increasingly more and longer black hair (Fig. 29B). T5 marginal zone with few white, short hairs. T6 covered with long, black hair and short, white hair underneath, narrow and almost straight apically (Fig. 30B). Shape of S6 (Fig. 30C) as illustrated.

Male

BODY LENGTH. 4.8 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$) and fine but deep punctation, clypeus and supraclypeal area with more dispersed punctation ($i=0.5\text{--}1.5\text{ d}$) (Fig. 31C). Surface between punctures matt. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5\text{ d}$), finely and shallowly punctate (Fig. 31D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow, metapostnotum matt (Fig. 31E). Mesoscutum, mesoscutellum and mesepisternum

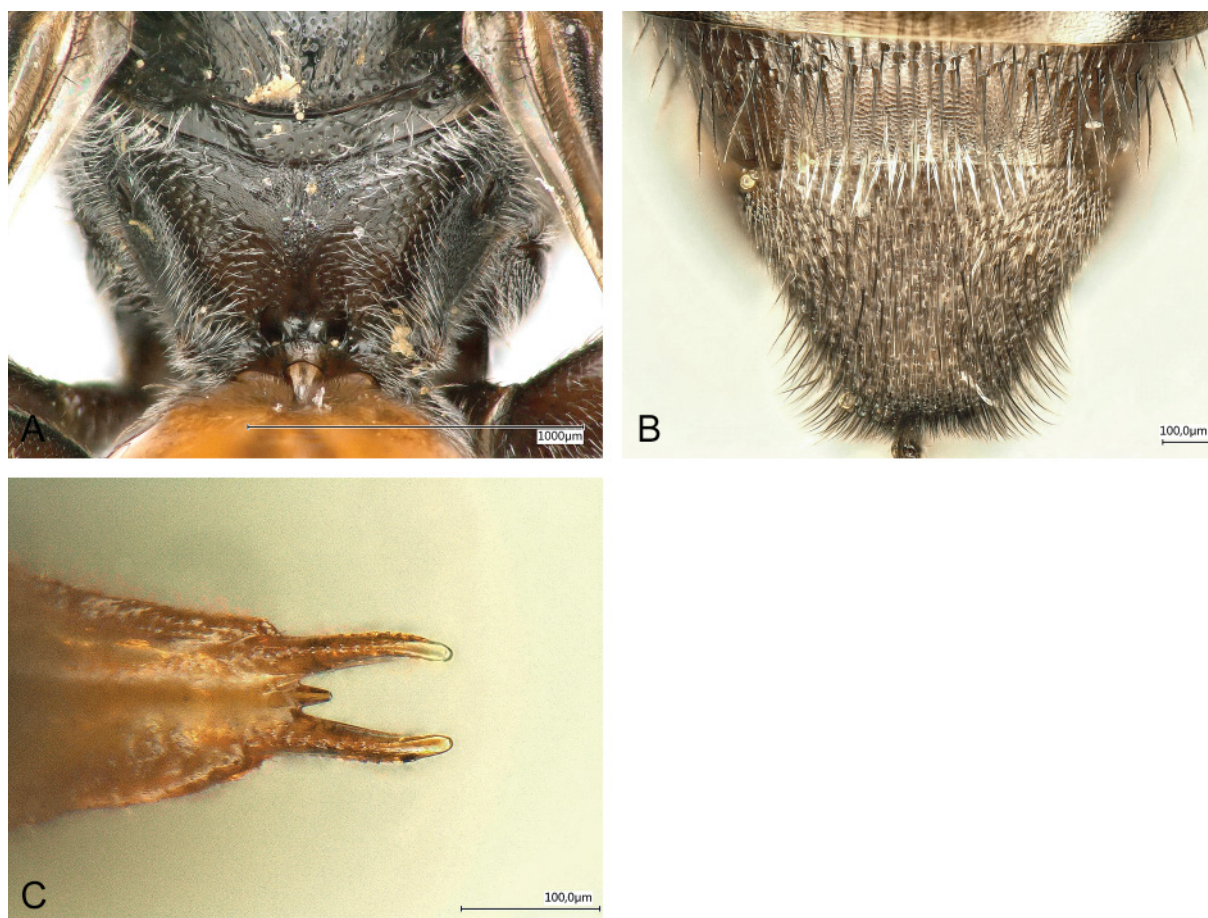


Fig. 30. *Sphecodopsis subtilis* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

sparsely covered with long, black hair mixed with shorter, white hair (Fig. 31D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Fig. 31D–E).

WINGS. Yellowish-brown; wing venation brown and stigma dark brown to black (Fig. 31A).

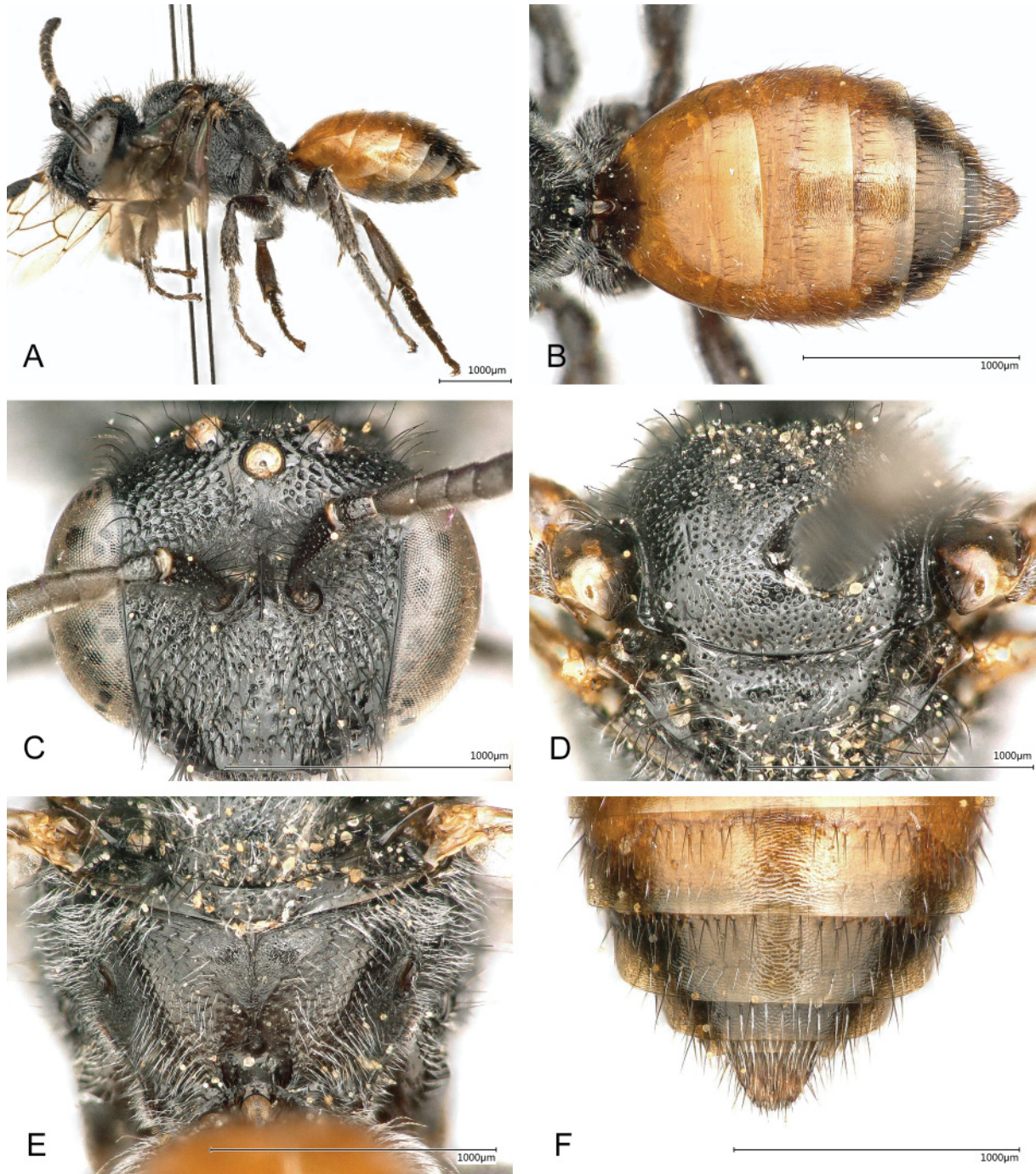


Fig. 31. *Sphecodopsis subtilis* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 31A).

METASOMA. Integument of T1 black basally. T1–T3 red and T4–T7 black. T1 and T2 very sparsely covered with short white and black hair, from T3 increasingly more and longer black hair (Fig. 31B). T7 covered with short, gold hair and longer, black hair (Fig. 31F).

TERMINALIA. Genitalia (Fig. 32C), S7 (Fig. 32A) and terminal plate of S8 (Fig. 32B) as illustrated.

Distribution

Only known from the Keiskie Mts and Roggeveld Mts between Calvinia and Sutherland.

Host bees

Unknown.

Seasonal activity

August–September.

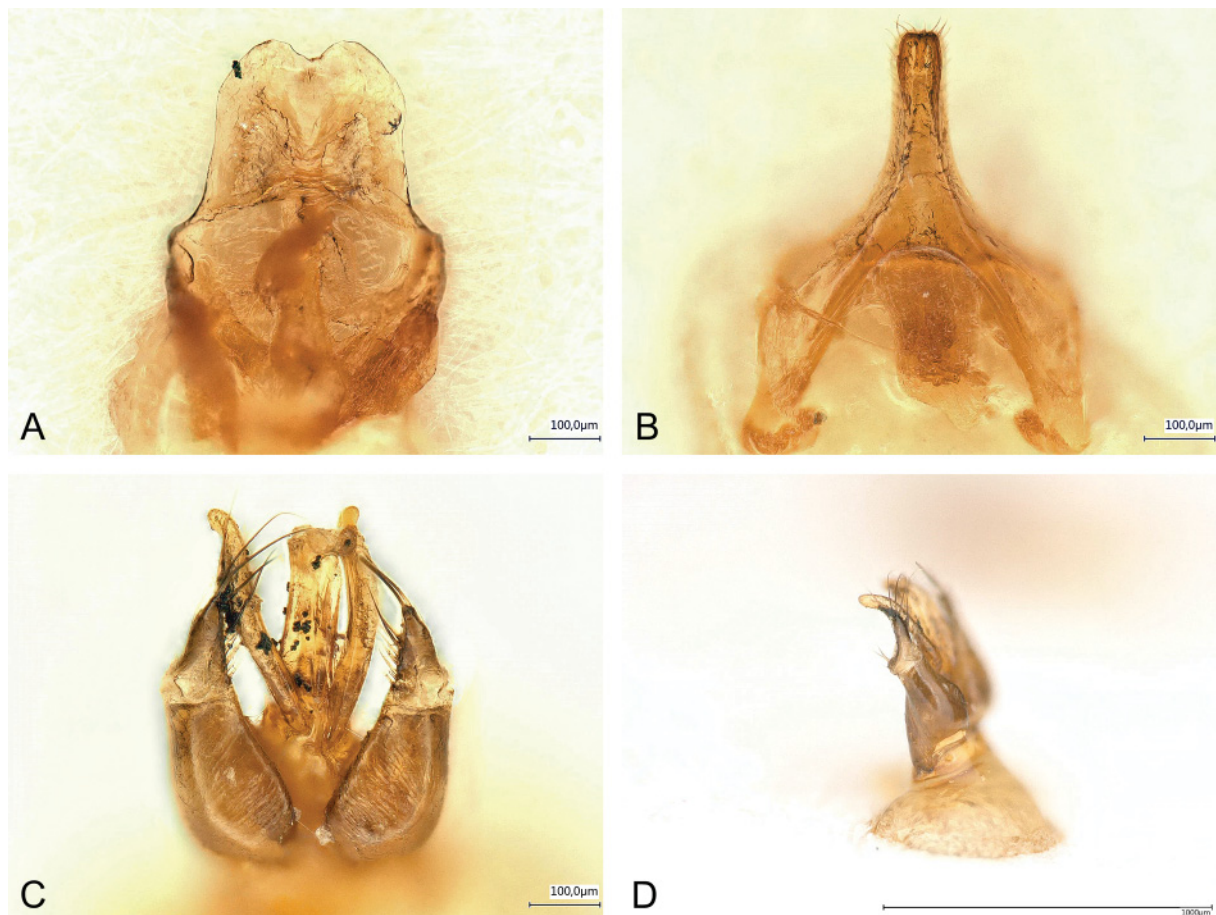


Fig. 32. *Sphecodopsis subtilis* sp. nov., paratype, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Comment

Since males and females were not found together, the sex assignment is not absolutely clear. The specimens obviously belong to the same species group, they were found at neighbouring sites only 3 km away and share subtle characteristics that allow for sex association. The other two species of the group, where the male is unknown, only occur at greater distances and in completely different habitats (*S. acuta* sp. nov.: Fynbos; *S. angulata* sp. nov.: Succulent Karoo).

***Sphecodopsis capicola* species group**

The group consists of the following six species: *S. atricapillata* sp. nov., *S. capicola*, *S. felix* sp. nov., *S. liefonteinensis* sp. nov., *S. roggeveldensis* sp. nov. and *S. vespericena*. Characteristics of this group are the following: head and mesosoma with conspicuously dense, long, black hair (Figs 33C–D, 35C–D, 37C–D, 39C–D, 41C–D, 43C–D, 45C–D, 47C–D, 49C–D); female S6 bifid posteriorly, apical notch about one to one and a half times as long as its apical width, shape as shown in Figs 34C, 40C, 44C, 46C, 48C. This group includes the type species of the genus *Sphecodopsis* Bischoff, 1923 (= *S. capicola*).

***Sphecodopsis atricapillata* sp. nov.**

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Figs 33–36

Diagnosis

The female of *S. atricapillata* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width, shape as shown in Fig. 34C; body length 7–9 mm; metasoma partially red (Fig. 33B); fore tibia and tarsi usually black (Fig. 33A); T6 covered with black hair (Fig. 34B); head and mesosoma with conspicuously dense, long, black hair (Fig. 33C–D); T5 with black hair on the disc and bright white hair on the apical margin (Fig. 34B); T6 apically slightly rounded (Fig. 34B); mesoscutum very densely punctate ($i=0-0.25$ d), surface appears rugged (Fig. 33D). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 35B); fore legs usually black (Fig. 35A); head and mesosoma with conspicuously dense, long, black hair (Fig. 35C–D); mesoscutum more finely punctate (Fig. 35D); gonostylus shorter than gonocoxa and apically broader (Fig. 36C–D); penis valves less distinctly curved downward (Fig. 36C–D).

Etymology

The species is named for its conspicuous black hair.

Type material (50 specimens)**Holotype**

SOUTH AFRICA • ♀; N Cape, Nieuwoudtville, Glen Lyon, garden; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 23 Aug. 2003; MK leg.; on *Chrysanthemum* sp.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Namaqualand, Hester Malan N.R.; [29°38' S, 17°58' E]; 18 Jul. 1985; MSt leg.; SANC • 1 ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 10 Sep. 2017; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 14 Sep. 2017; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 25 Aug. 2010; MK leg.; RCMK • 1 ♂; same collection data as for preceding; 30 Aug. 2018; RCMK • 5 ♀♀, 1 ♂; N Cape, Fynbos, 2 km W of Nieuwoudtville, near Grasberg; 31°21'05" S, 19°05'49" E; 742 m a.s.l.; 23 Aug. 2003; KT leg.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S,

19°08'52" E; 735 m a.s.l.; 3 Sep. 2003; MK leg.; on *Oxalis* sp.; RCMK • 1 ♂; same collection data as for preceding; 7 Sep. 2003; RCMK • 2 ♀♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 11 Sep. 2003; MK leg.; RCMK • 7 ♀♀, 4 ♂♂; N Cape, Nieuwoudtville, Glen Lyon, garden; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 23 Aug. 2003; MK leg.; on *Chrysanthemum* sp.; RCMK • 2 ♀♀; same collection data as for preceding; 27 Aug. 2003; RCMK • 1 ♀, 1 ♂; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 27 Aug. 2003; MK leg.; on *Oxalis* sp.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 30 Aug. 2003; MK leg.; RCMK • 2 ♀♀; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 7 Sep. 2003; MK leg.; on *Oxalis* sp.; RCMK • 2 ♀♀; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 11 Sep. 2003; MK leg.; 1 ind. on *Eriocephalus ericoides*; RCMK • 2 ♀♀; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 12 Sep. 2003; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 11 Aug. 2004; RCMK • 1 ♀, 2 ♂♂; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 30 Aug. 2016; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 15 Sep. 2016; RCMK • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, burned area; 31°45'47" S, 19°50'17" E; 1275 m a.s.l.; 29 Aug. 2011; MK leg.; RCMK • 1 ♂; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 13 Aug. 2012; MK leg.; RCMK • 1 ♀; W Cape, S of Lamberts Bay; [32°04' S, 18°20' E]; 7 Oct. 1999; MH leg.; RCMS •

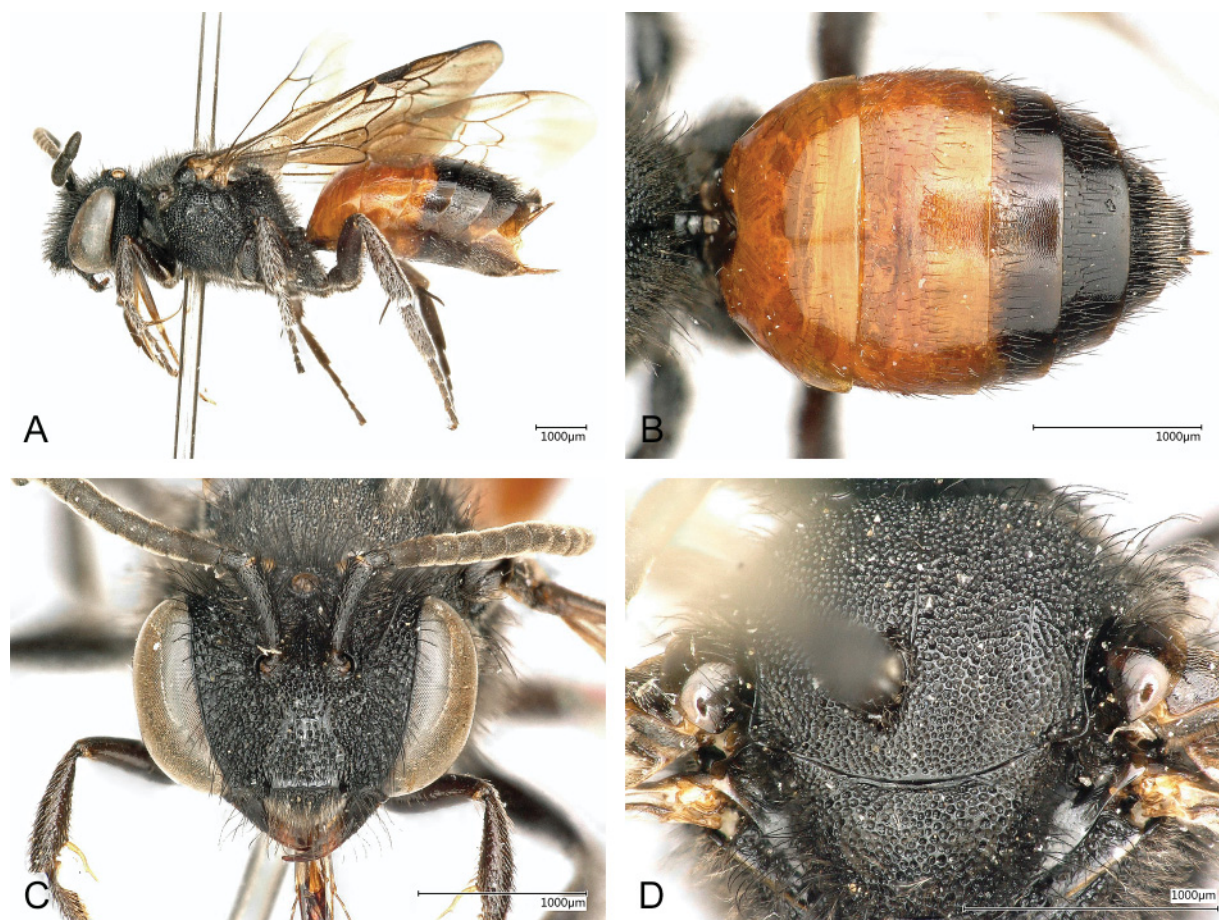


Fig. 33. *Sphecodopsis atricapillata* sp. nov., paratype, ♀ (Nieuwoudtville, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

1 ♀; 6 km NNW of Farm Kanariesfontein, 30 km W of Sutherland, roadside; 32°22'17" S, 20°22'50" E; 1310 m a.s.l.; 16 Sep. 2017; MK leg.; RCMS • 1 ♀; same collection data as for preceding; RCMK.

Description

Female

BODY LENGTH. 6.7–8.7 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus with very dense ($i=0-0.25$ d), coarse and deep punctation (Fig. 33C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly matt. Mesoscutum and mesoscutellum very densely ($i=0-0.25$ d) and finely but deeply punctate (Fig. 33D). Propodeum with dense ($i=0.25-0.5$ d), coarse and deep punctation, metapostnotum matt (Fig. 34A). Mesoscutum and mesoscutellum densely covered with long, black hair mixed with shorter yellowish-white hair (Fig. 33D). Metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum without hair (Figs 33D, 34A).

WINGS. Fuscous; wing venation brown and stigma dark brown to black (Fig. 33A).

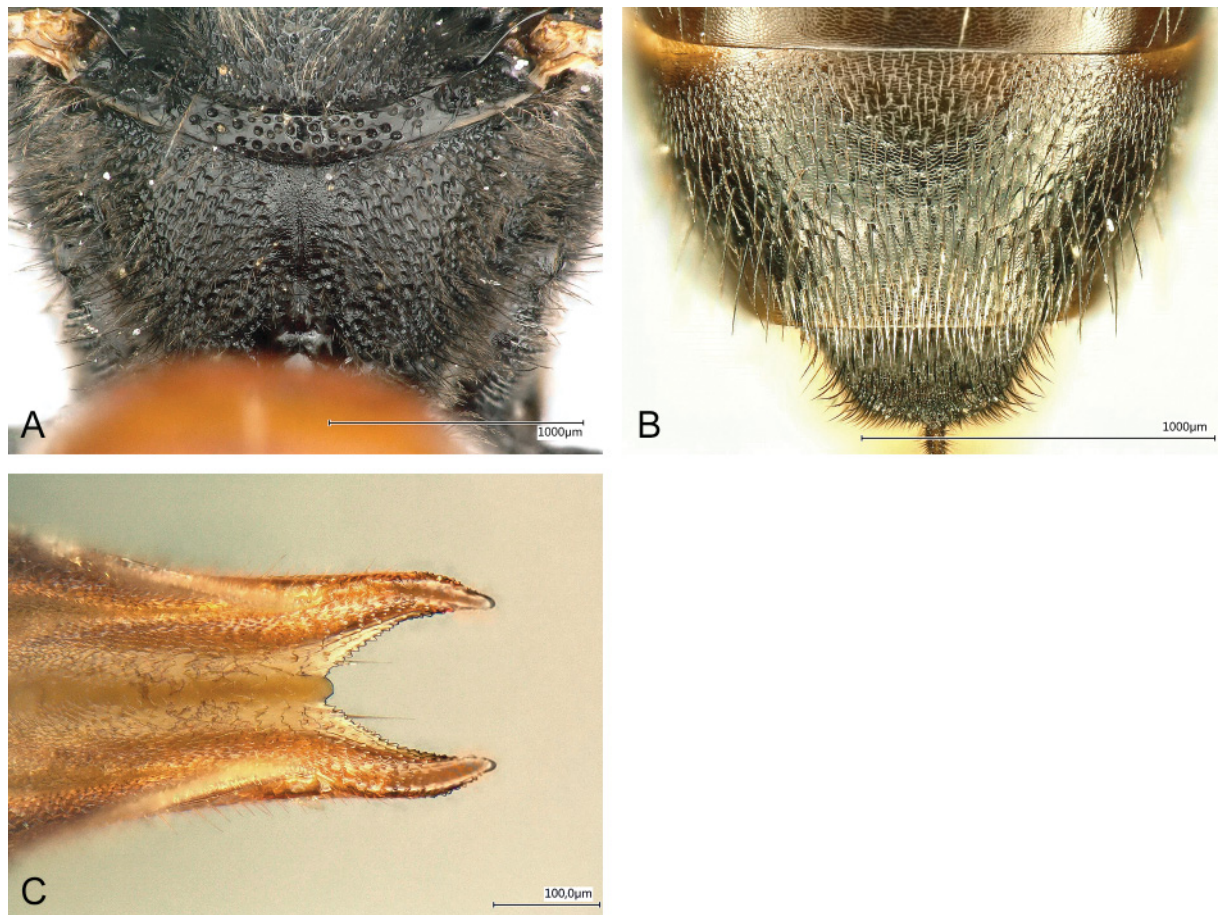


Fig. 34. *Sphecodopsis atricapillata* sp. nov., paratype, ♀ (Nieuwoudtville, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and covered with shorter, white hair; loose patches with dense, white pubescence apically on the tibia, except anterior leg, generally with less hair (Fig. 33A).

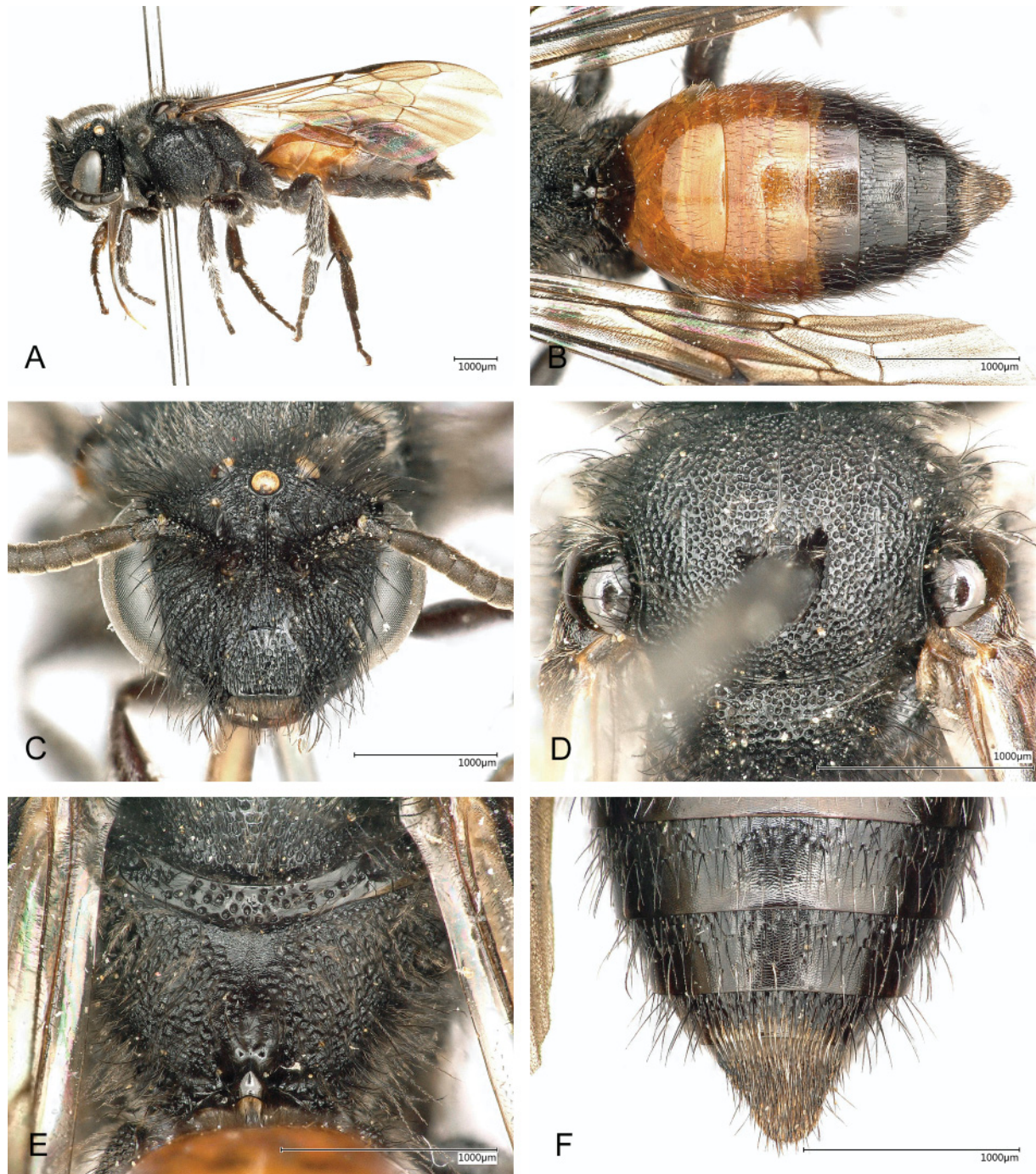


Fig. 35. *Sphecodopsis atricapillata* sp. nov., paratype, ♂ (Nieuwoudtville, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

METASOMA. Integument of T1 dark basally. Rest of T1 and T2 red, T3 and T4 to a variable extent red, from completely red to completely black; T5 and T6 black. T1–T4 sparsely covered with short, white and black hair (Fig. 33B). T5 marginal zone with bright white hair, disc covered with long, black hair. T6 narrow and almost straight apically, with dense, long, black hair and shorter yellowish-white hair underneath (Fig. 34B). Shape of S6 (Fig. 34C) as illustrated.

Male

BODY LENGTH. 5.6–7.4 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus with fairly dense ($i=0-0.25$ d), coarse and deep punctation (Fig. 35C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly matt. Mesoscutum and mesoscutellum fairly densely ($i=0-0.25$ d) and finely but deeply punctate (Fig. 35D). Propodeum with dense ($i=0.25-0.5$ d), coarse and deep punctation, metapostnotum matt (Fig. 35E). Mesoscutum and mesoscutellum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 35D). Metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum without hair (Fig. 35D–E).

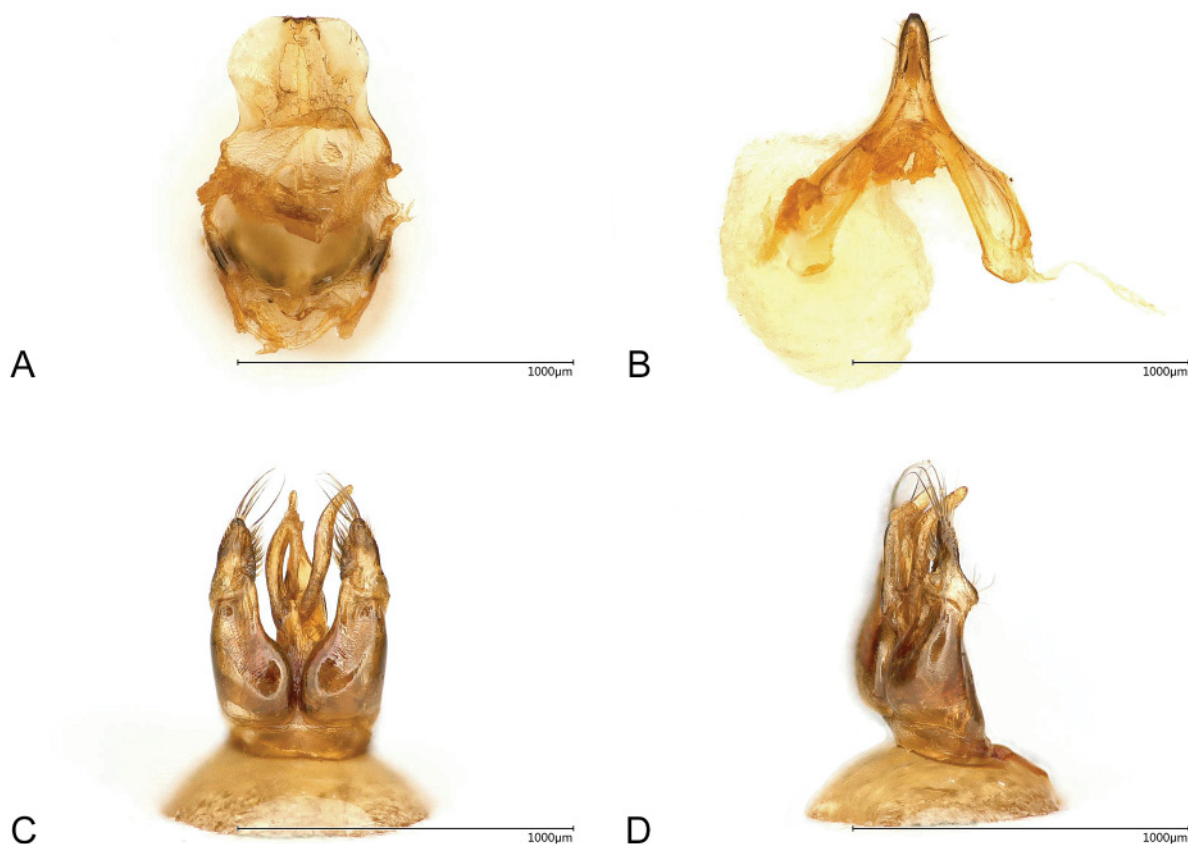


Fig. 36. *Sphecodopsis atricapillata* sp. nov., paratype, ♂ (Nieuwoudtville, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 35A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and covered with shorter white hair; scattered patches with dense white pubescence apically on the tibia, except anterior leg generally with less hair (Fig. 35A).

METASOMA. Integument of T1 dark basally. Rest of T1 and T2 red, T3 to a variable extent red, from basal half red to completely black and T4–T7 black. T1–T3 sparsely covered with short, white and black hair, from T4 increasingly more and longer hair (Fig. 35B). T6 marginal zone with bright white hair, disc with long, black hair. T7 covered with short, yellowish-white hair and longer, black hair (Fig. 35F).

TERMINALIA. Genitalia (Fig. 36C–D), S7 (Fig. 36A) and terminal plate of S8 (Fig. 36B) as illustrated.

Distribution

The species has been found in Namaqualand and the Roggeveld Mts southward to Sutherland.

Host bees

Unknown.

Seasonal activity

July–October.

Sphecodopsis capicola (Strand, 1911)

Figs 37–38

Omachthes capicola Strand, 1911: 224–225, holotype ♂ (type locality: ‘Kapland’ (= Cape Colony), South Africa) (ZMHB), examined.

Diagnosis

The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 37B); fore legs usually black (Fig. 37A); head and mesosoma with conspicuously dense, long, black hair (Fig. 37C–D); gonostylus slightly longer than gonocoxa (Fig. 38C–D). Female specimens were not available for study, compare Eardley & Brothers (1997: 400) for the diagnosis.

Additional material examined (6 specimens)

SOUTH AFRICA • 4 ♂♂; Nieuwoudtville, Farm Glen Lyon, entrance, Renosterveld; 31°23' S, 19°08' E; 700 m a.s.l.; 18 Aug. 2007; KT leg.; RCMK • 2 ♂♂; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2012; MK leg.; RCMK.

Female

Female specimens were not available for study, compare Eardley & Brothers (1997: 400) for a description.

Male

BODY LENGTH. 6.7–7.4 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with

short, white hair. Face and clypeus with dense ($i=0.25-0.5$ d), coarse and deep punctation, except supraclypeal with more dispersed ($i=0.5-1$ d) punctation (Fig. 37C). Surface between punctures matt. Antenna black.

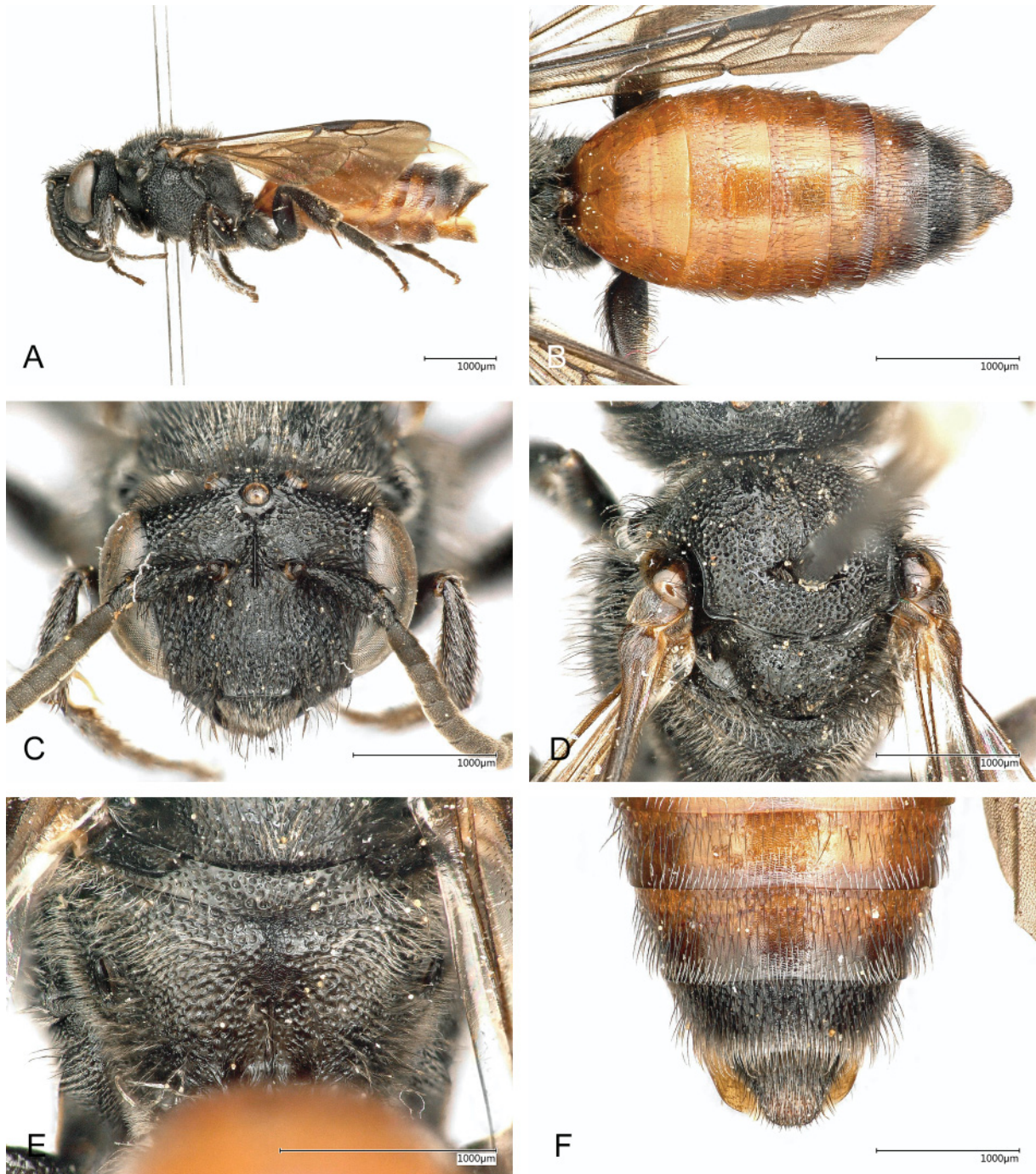


Fig. 37. *Sphecodopsis capicola* (Strand, 1911), ♂ (Nieuwoudtville, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

MESOSOMA. Integument black, tegula reddish-brown, partially translucent. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d), finely and deeply punctate (Fig. 37D). Propodeum with dense ($i=0.25\text{--}1$ d), coarse and deep punctation, metapostnotum matt (Fig. 37E). Mesoscutum, mesoscutellum, metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter white hair, metapostnotum glabrous (Fig. 37D–E).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 37A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with short, black hair mixed with short, white hair (Fig. 37A).

METASOMA. Integument of T1 dark basally. Rest of T1–T3 red, T4 and T4 to a variable extent red, from completely red (except T5 marginal zone) to completely black; T6 and T7 black. T1–T3 sparsely covered with short white and black hair, from T4 increasingly more and longer hair. T4–T6 marginal zone with bright white hair becoming increasingly denser apically, disc with long, black hair (Fig. 37B). T7 covered with short, bright white hair and long, black hair (Fig. 37F).

TERMINALIA. Genitalia (Fig. 38C–D), S7 (Fig. 38A) and terminal plate of S8 (Fig. 38B) as illustrated.

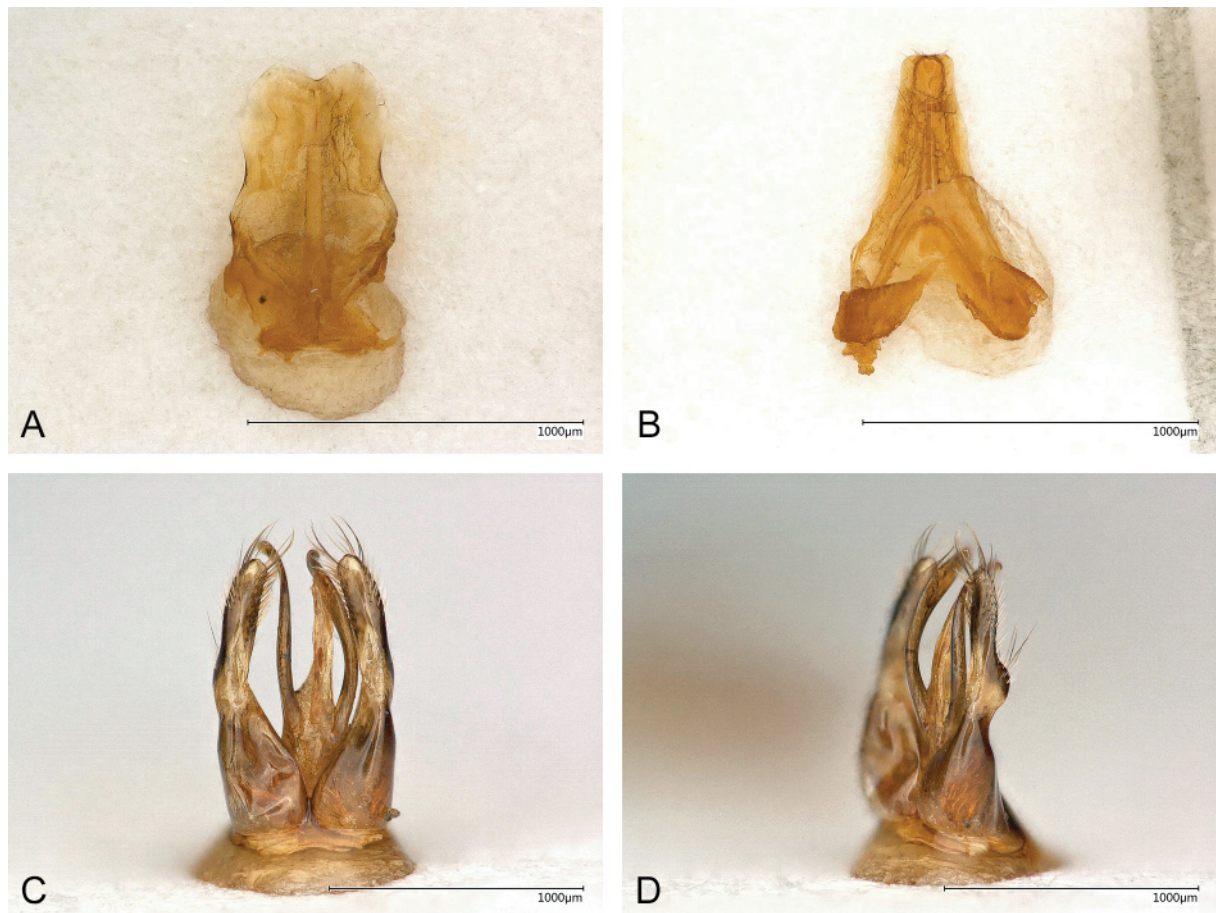


Fig. 38. *Sphecodopsis capicola* (Strand, 1911), ♂ (Nieuwoudtville, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Distribution

Known from the wider Namaqualand. The record from Willowmore (Eardley & Brothers 1997: 401) is isolated and doubtful.

Host bees

Unknown.

Seasonal activity

August–September (Eardley & Brothers 1997).

Sphecodopsis felix sp. nov.

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Figs 39–42

Diagnosis

The female of *S. felix* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width, shape as shown in Fig. 40C; metasoma partially red (Fig. 39B); fore tibia and tarsi usually black

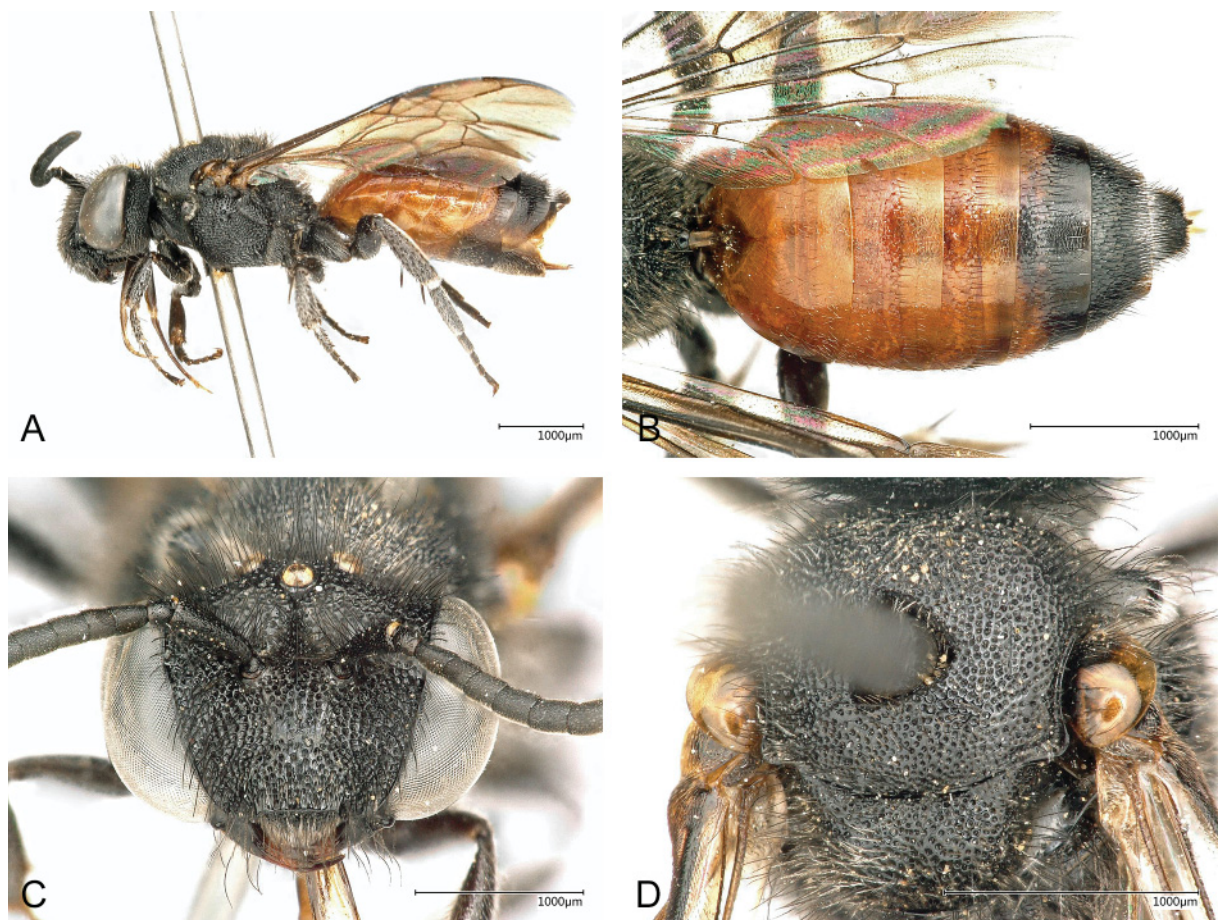


Fig. 39. *Sphecodopsis felix* sp. nov., paratype, ♀ (Farm M’Vera, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

(Fig. 39A); T6 covered with black hair (Fig. 40B); head and mesosoma with conspicuously dense, long, black hair (Fig. 39C–D); T5 with black hair on the disc and bright white hair on the apical margin (Fig. 40B); T6 apically truncate (Fig. 40B). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 41B); fore legs usually black (Fig. 41A); head and mesosoma with conspicuously dense, long, black hair (Fig. 41C–D); mesoscutum more sparsely punctate (Fig. 41D); gonostylus shorter than gonocoxa and apically narrower, penis valves strongly curved downward (Fig. 42C–D).

Etymology

The species is dedicated to my (DP) beloved partner Felix Baumgart for his continuous encouragement and support during the making of this publication. Noun in apposition.

Type material (46 specimens)

Holotype

SOUTH AFRICA • ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 3 Sep. 2012; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 2 ♀♀; W Cape, top Kamiesberg; 30°10'31" S, 18°00'53" E; 15 Sep. 2012; CE leg.; SANC • 1 ♀; same collection data as for preceding; QM leg.; SANC • 3 ♀♀; W Cape, near Nourivier;

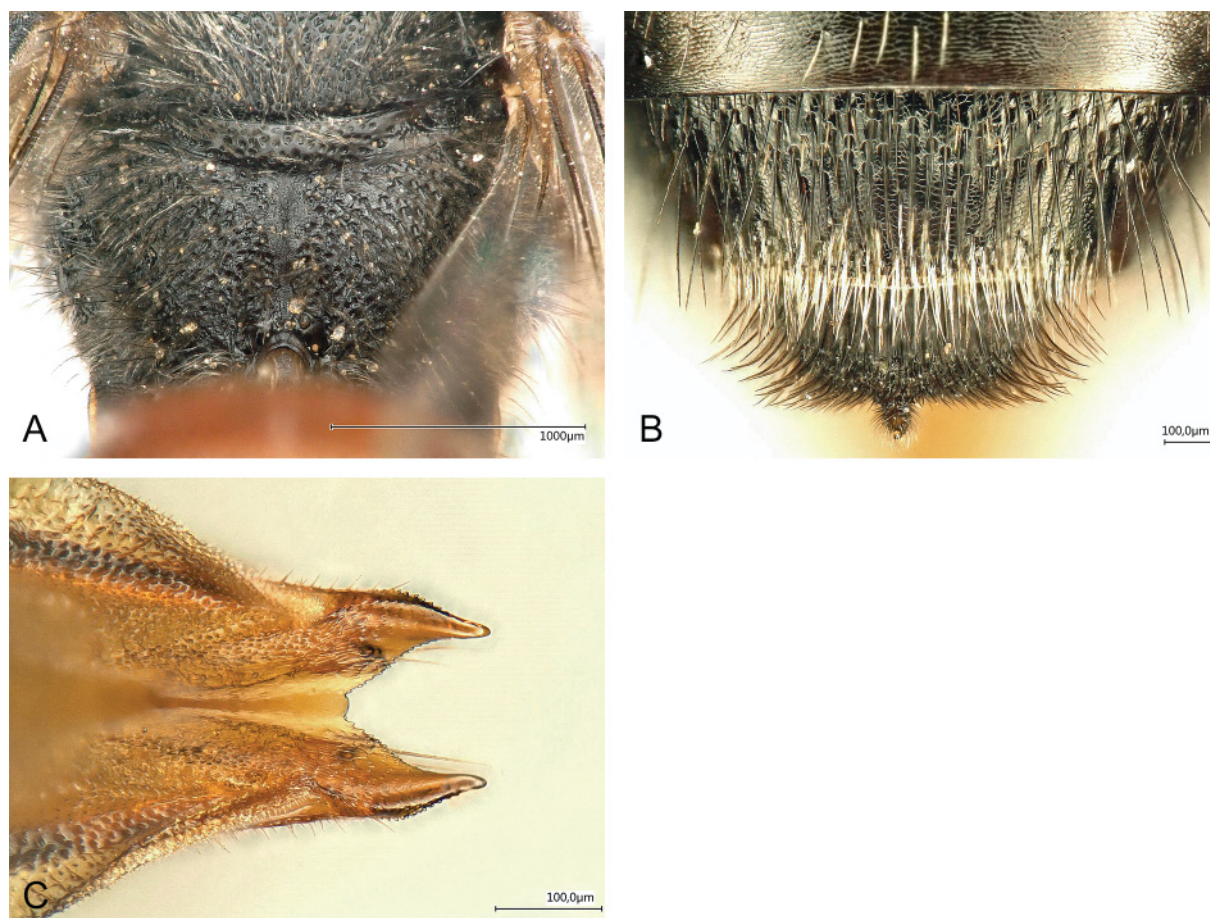


Fig. 40. *Sphecodopsis felix* sp. nov., paratype, ♀ (Farm M’Vera, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

30°13'01" S, 18°07'04" E; 15 Sep. 2012; CE leg.; SANC • 4 ♀♀; W Cape, near Nourivier; 30°14'03" S, 18°03'42" E; 15 Sep. 2012; CE leg.; SANC • 3 ♀♀; W Cape, between Garies and Hondeklipbaai; 30°27'58" S, 17°41'45" E; 14 Sep. 2012; CE leg.; SANC • 2 ♀♀; N Cape, Fynbos, 15 km NW of Nieuwoudtville, Farm Engelsepunt; 31°14'31" S, 18°59'08" E; 830 m a.s.l.; 24 Sep. 2003; KT leg.; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E;

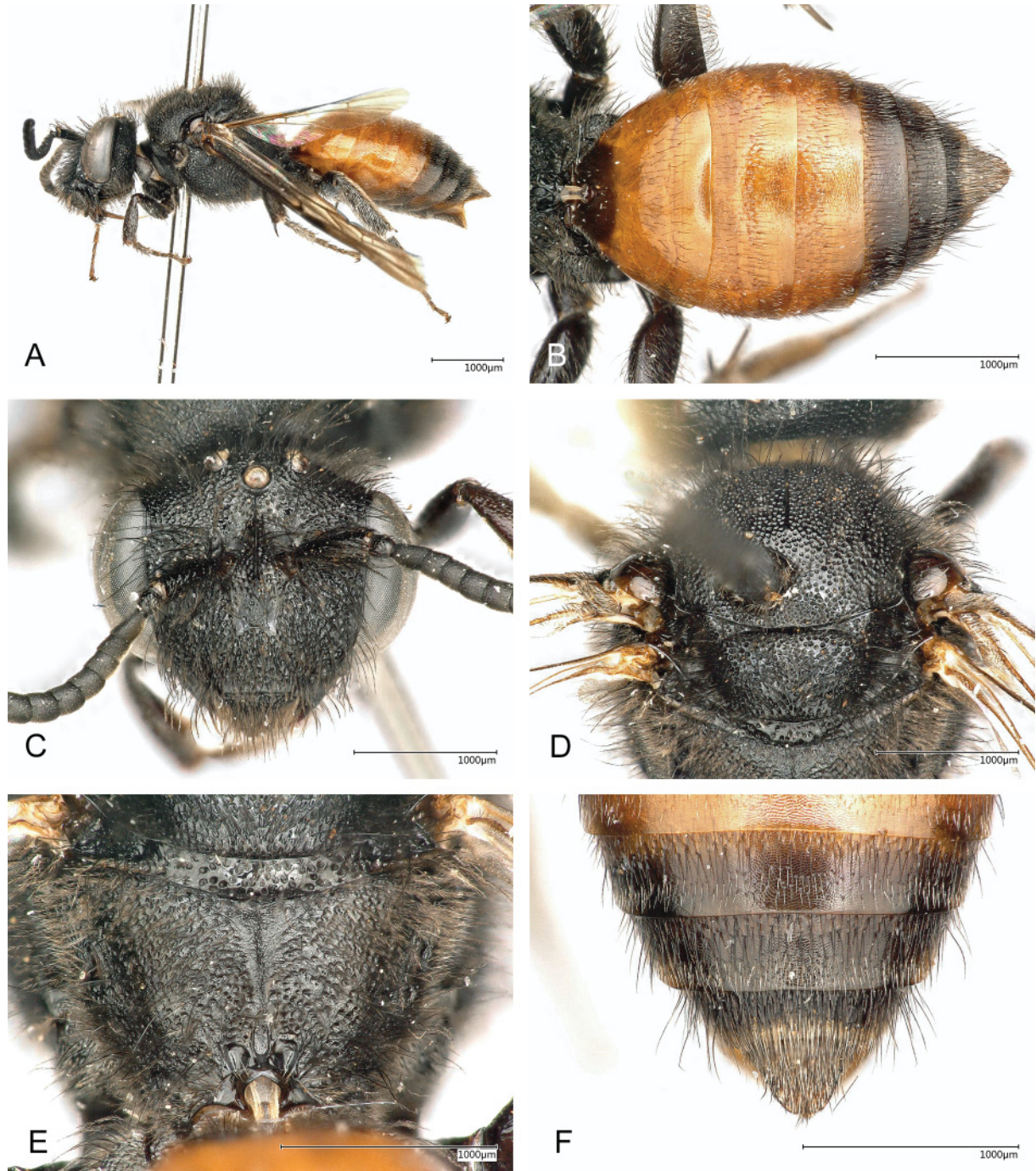


Fig. 41. *Sphecodopsis felix* sp. nov., paratype, ♂ (Nieuwoudtville Flower Reserve, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

770 m a.s.l.; 19 Sep. 2009; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 24 Aug. 2012; RCMK • 2 ♂♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 7 Sep. 2003; MK leg.; on *Oxalis* sp.; RCMK • 1 ♂; same collection data as for preceding; 11 Sep. 2003; RCMK • 1 ♂; C.P., Nieuwoudtville; [31°22' S, 19°07' E]; 21 Jul. 1986; VBW leg.; SANC • 1 ♀; Plateau Hantam Mts, near antenna, 9 km N of Calvinia; 31°22'29" S, 19°47'03" E; 1570 m a.s.l.; 7 Sep. 2010; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 30 Aug. 2011; RCMK • 1 ♂; Nieuwoudtville, path to Farm Glen Lyon, slope; 31°23'25" S, 19°08'28" E; 737 m a.s.l.; 3 Sep. 2007; KT leg.; RCMK • 1 ♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 15 Aug. 2010; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 11 Aug. 2011; RCMK • 1 ♀; same collection data as for preceding; 27 Aug. 2012; RCMK • 1 ♀; same collection data as for preceding; 20 Sep. 2014; RCMK • 1 ♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 30 Aug. 2016; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 13 Sep. 2016; RCMK • 1 ♀; same collection data as for preceding; 15 Sep. 2016; RCMK • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, burned area, shale; 31°45'47" S, 19°50'17" E; 1275 m a.s.l.; 29 Aug. 2010; MK leg.; RCMK • 1 ♀; Roggeveld Mts, 2 km S of Farm Perdekloof, rivier, dolerite; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 28 Sep. 2022; MK leg.; RCMK • 5 ♀♀; same collection data as for preceding; 20 Sep. 2022; RCMK • 1 ♀; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 13 Aug. 2012; MK leg.; RCMK • 1 ♀; W Cape, 30 km NE of Lambert's Bay; 31°48'52" S, 18°26'21" E; 16 Sep. 2012; CE leg.; SANC • 1 ♀; same collection data as for preceding; 23 Aug. 2012; SANC • 1 ♀; same collection data as for preceding; 30 Aug. 2012; SANC • 1 ♀; Roggeveld Mts, 2 km SE

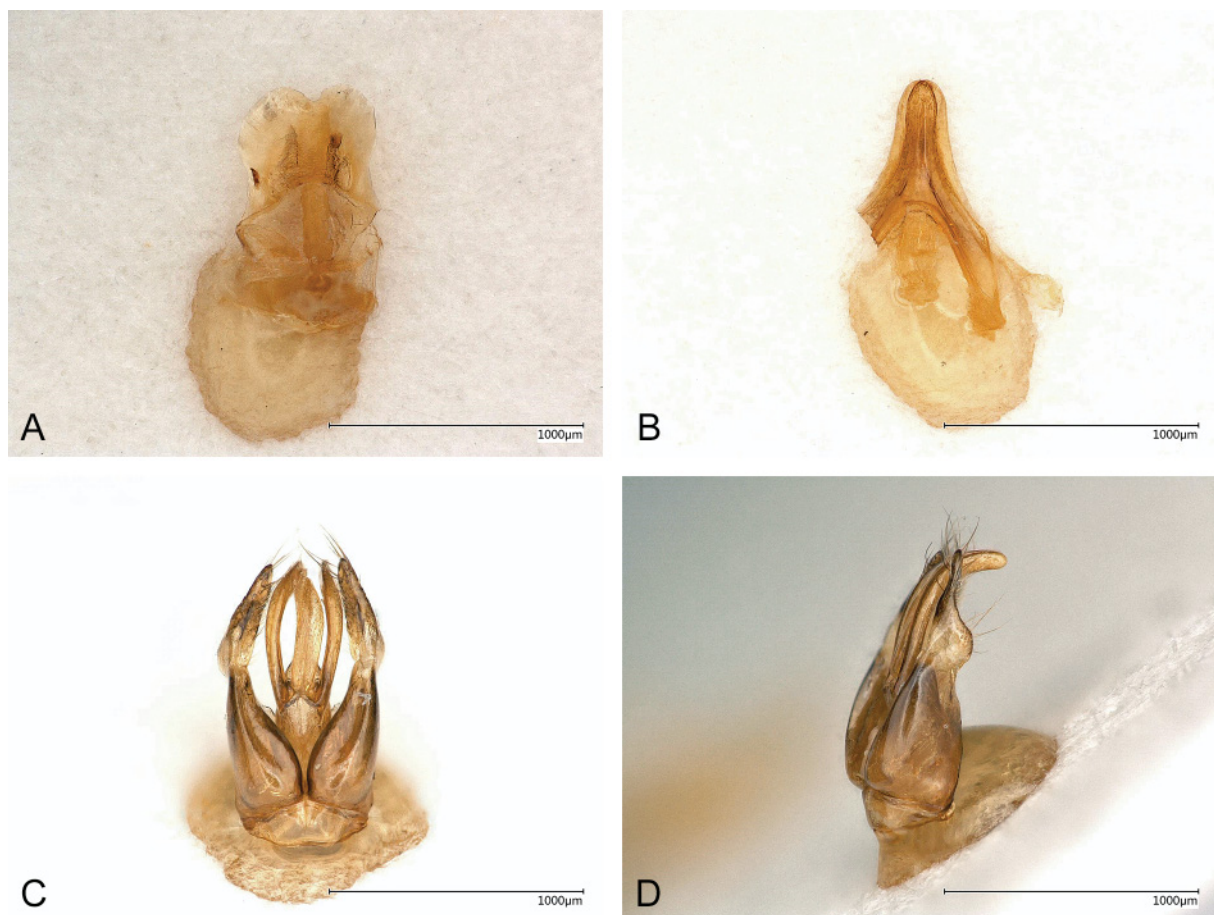


Fig. 42. *Sphecodopsis felix* sp. nov., paratype, ♂ ((Nieuwoudtville Flower Reserve, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 20 Sep. 2022; MK leg.; RCMK • 1 ♀; W Cape, Rietvlei; 32°08'46" S, 18°46'21" E; 22 Sep. 2011; CE leg.; SANC.

Description

Female

BODY LENGTH. 5.8–7.2 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, except supraclypeal with more dispersed ($i=0.5\text{--}1$ d) and shallower punctation (Fig. 39C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d), finely and deeply punctate (Fig. 39D). Propodeum with dense ($i=0.25\text{--}0.5$ d), relatively coarse and shallow punctation, metapostnotum matt (Fig. 40A). Mesoscutum and mesoscutellum densely covered with fairly long, black hair mixed with shorter, yellowish-white hair (Fig. 39D). Metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum glabrous (Figs 39D, 40A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 39A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and covered with shorter white hair; patches with dense white pubescence apically on the tibia, except anterior leg with less hair (Fig. 39A).

METASOMA. Integument of T1 dark basally. Rest of T1 and T2 red, T3 and T4 to a variable extent red, from T3 basal quarter red to T4 basal half red; T5 and T6 black. T1–T4 sparsely covered with short white and black hair (Fig. 39B). T5 marginal zone with bright white hair, disc covered with long, black hair. T6 with dense long, black hair, narrow and straight apically (Fig. 40B). Shape of S6 (Fig. 40C) as illustrated.

Male

BODY LENGTH. 6.0–7.4 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus with dense ($i=0\text{--}0.25$ d), coarse and deep punctation, supraclypeal area with more dispersed ($i=1\text{--}1.5$ d) and less deep punctation (Fig. 41C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and finely but deeply punctate (Fig. 41D). Propodeum dense ($i=0.25\text{--}0.5$ d) and relatively coarse and shallow punctation, metapostnotum matt (Fig. 41E). Mesoscutum densely covered with long, black hair mixed with shorter yellowish-white hair (Fig. 41D). Mesoscutellum, metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum glabrous (Fig. 41D–E).

WINGS. Yellowish-brown; wing venation brown and stigma dark brown to black (Fig. 41A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and covered with shorter, white hair; patches with dense white pubescence apically on the tibia, anterior leg generally with less hair (Fig. 41A).

METASOMA. Integument of T1 dark basally. Rest of T1 red, T2–T4 to a variable extension red, from T2 basal half red to T4 basal quarter red and T5–T7 black. T1–T3 sparsely covered with short, white and black hair, from T4 increasingly more and longer hair. T4–T6 marginal zone with bright white hair increasingly denser, disc with long, black hair (Fig. 41B). T7 covered with short, bright white hair and longer, black hair (Fig. 41F).

TERMINALIA. Genitalia (Fig. 42C–D), S7 (Fig. 42A) and terminal plate of S8 (Fig. 42B) as illustrated.

Distribution

Found in various parts of Namaqualand.

Host bees

Unknown.

Seasonal activity

July–September.

Sphecodopsis leliefonteinensis sp. nov.

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Figs 43–44

Diagnosis

The female of *S. leliefonteinensis* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width, shape as shown in Fig. 44C; metasoma partially red (Fig. 43B); fore tibia and tarsi usually black (Fig. 43A); T6 covered with black hair (Fig. 44B); head and mesosoma with conspicuously dense, long, black hair (Fig. 43C–D); T5 only with long black hair (Fig. 44B). The male is unknown.

Etymology

The species is named after the village Leliefontein where it was discovered.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; SAMC.

Description

Female

BODY LENGTH. 7.3 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and

clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation (Fig. 43C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and finely but deeply punctate (Fig. 43D). Propodeum with dense ($i=0.25\text{--}0.5$ d), coarse and shallow punctation, metapostnotum matt (Fig. 44A). Mesoscutum and mesoscutellum covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 43D). Metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum without hair (Figs 43D, 44A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 43A).

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with long, black hair and covered with shorter white hair; patches with dense white pubescence apically on the tibia, anterior leg generally with less hair (Fig. 43A).

METASOMA. Integument of T1–T4 red and T5 and T6 black. T1–T4 sparsely covered with short white and black hair (Fig. 43B). T5 covered with long, black hair. T6 with dense long, black hair, narrow and almost straight apically (Fig. 44B). Shape of S6 (Fig. 44C) as illustrated.

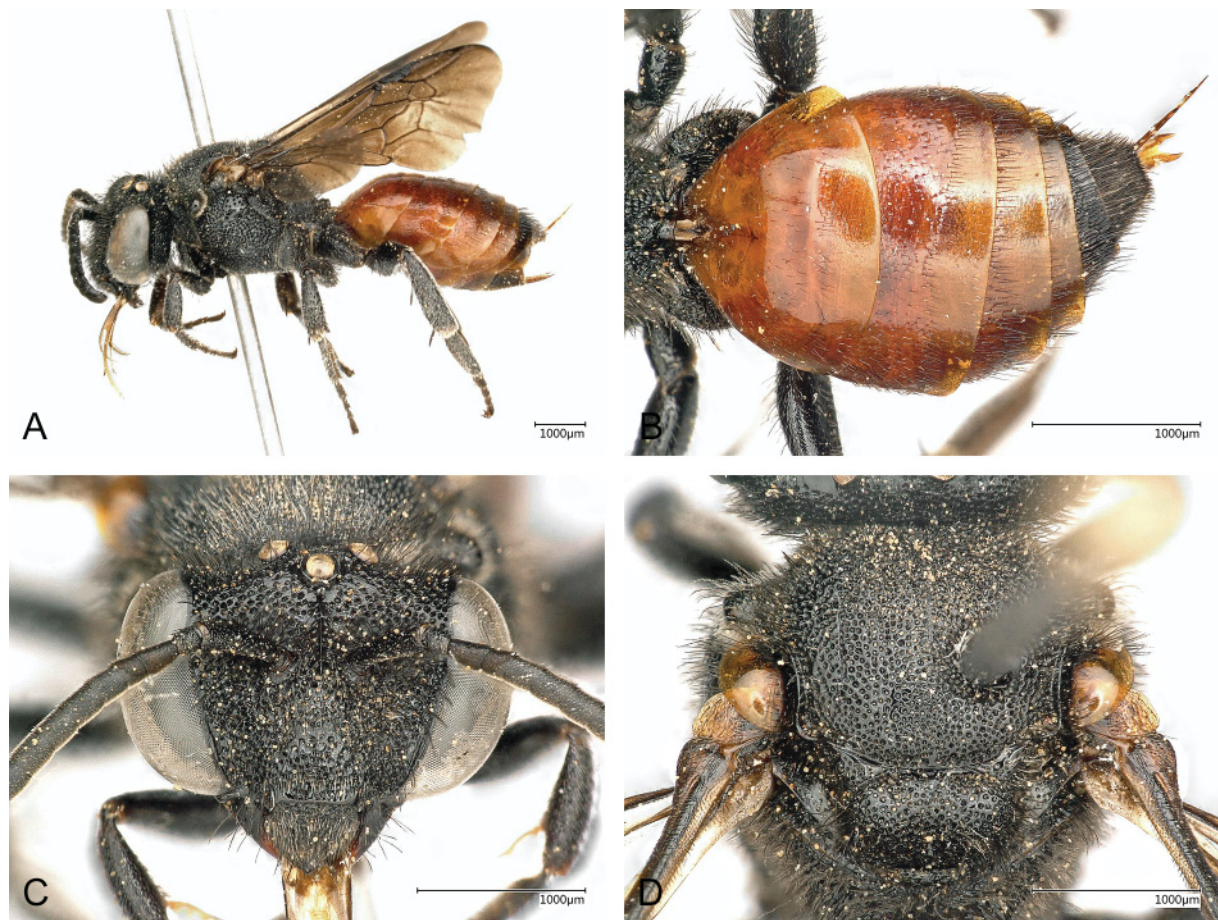


Fig. 43. *Sphecodopsis leliefonteinensis* sp. nov., holotype, ♀ (SAMC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Male

Unknown.

Distribution

Only known from the type locality in the Kamiesberg Mts.

Host bees

Unknown.

Seasonal activity

September.

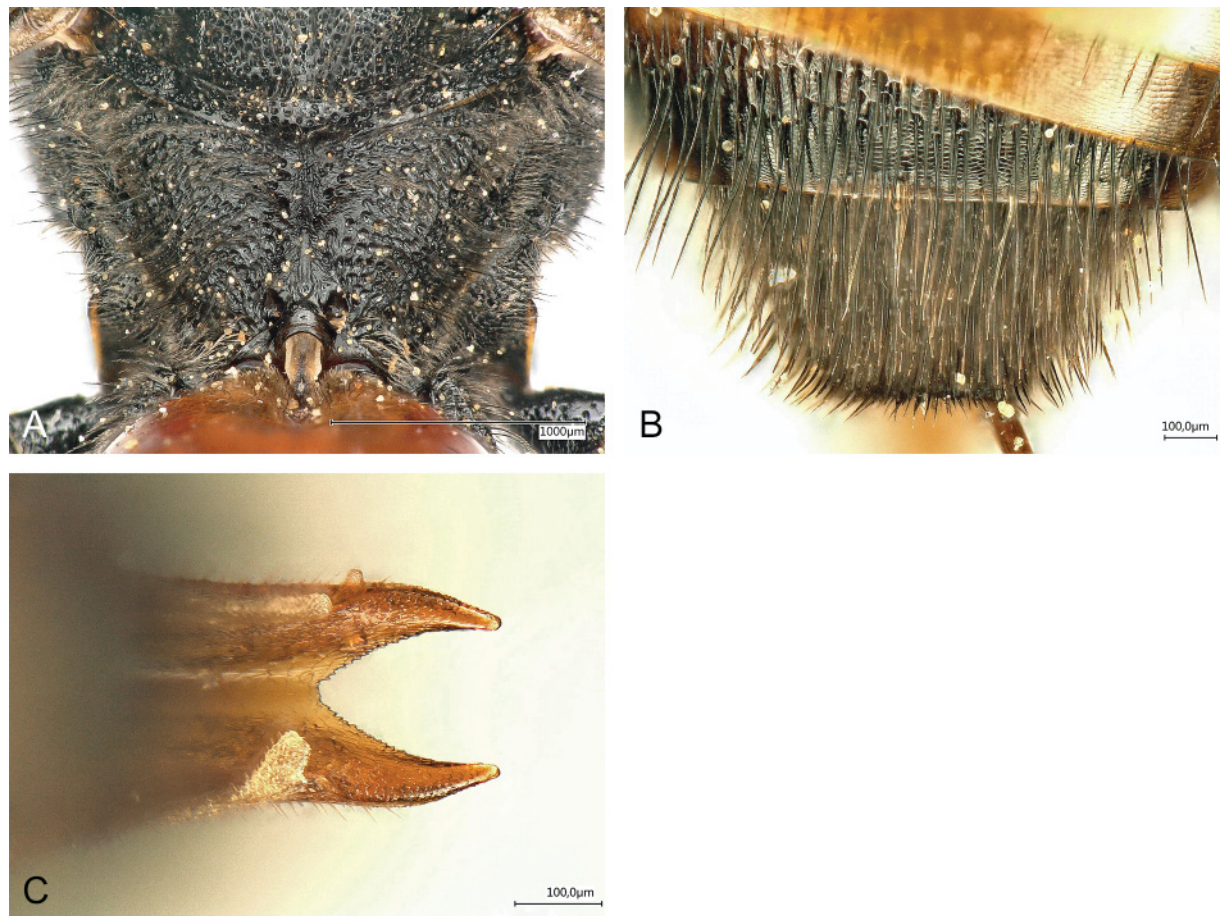


Fig. 44. *Sphecodopsis leliefonteinensis* sp. nov., holotype, ♀ (SAMC). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

***Sphecodopsis roggeveldensis* sp. nov.**

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Figs 45–46

Diagnosis

The female of *S. roggeveldensis* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical

width, shape as shown in Fig. 46C; body length around 5 mm; metasoma partially red (Fig. 45B); fore tibia and tarsi usually black (Fig. 45A); T6 covered with black hair (Fig. 46B); head and mesosoma with conspicuously dense, long, black hair (Fig. 45C–D); T5 with black hair on the disc and bright white hair on the apical margin (Fig. 46B); T6 apically slightly rounded (Fig. 46B); mesoscutum with more dispersed punctation ($i=0.25\text{--}0.5\text{ d}$), surface smooth (Fig. 45D). The male is unknown.

Etymology

The species is named after the Roggeveld Mts where it was discovered.

Type material (3 specimens)

Holotype

SOUTH AFRICA • ♀; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 29 Aug. 2018; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Roggeveld Mts, 2 km S of Farm Perdekloof, river, dolerite; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 1 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 20 Sep. 2022; RCMK.



Fig. 45. *Sphecodopsis roggeveldensis* sp. nov., paratype, ♀ (Farm Perdekloof, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Description

Female

BODY LENGTH. 5.2 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation (Fig. 45C). Surface between punctures slightly matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and finely but deeply punctate (Fig. 45D). Propodeum with dense ($i=0.25\text{--}0.5$ d), coarse and shallow punctation, metapostnotum matt (Fig. 46A). Mesoscutum and mesoscutellum covered with long, black hair mixed with shorter, white hair (Fig. 45D). Metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, dark brown hair, metapostnotum glabrous (Figs 45D, 46A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 45A).

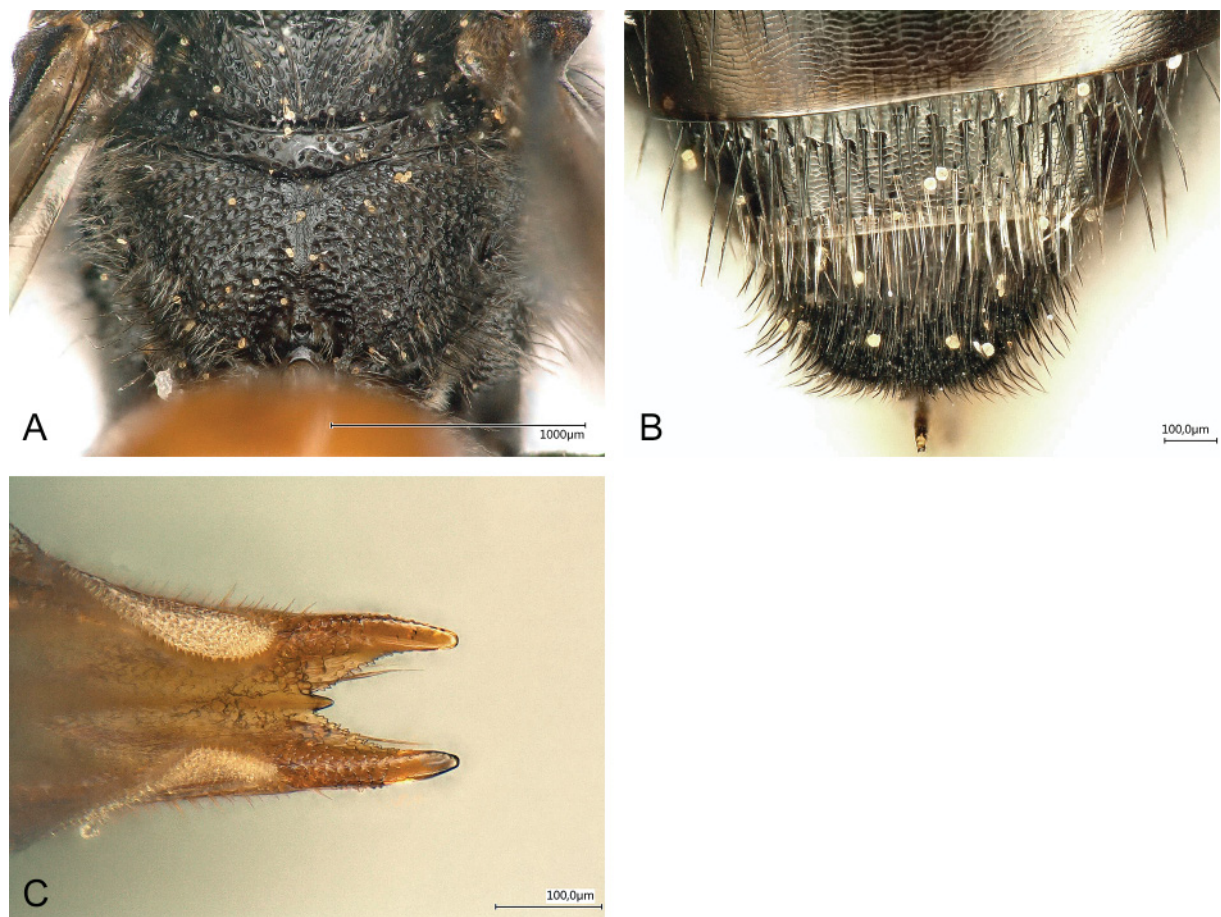


Fig. 46. *Sphecodopsis roggeveldensis* sp. nov., paratype, ♀ (Farm Perdekloof, RCMK). A. Propodeum. B. T5 and T6. C. S6.

LEGS. Integument black. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hairs. Tibia and tarsi sparsely covered with long, black hair and covered with shorter white hair; patches with dense white pubescence apically on the tibia of hind legs (Fig. 45A).

METASOMA. Integument of T1 dark basally. Rest of T1 and T2 red, T3 to a variable extent black, from T3 basal half red to almost completely black; T4–T6 black. T1–T4 sparsely covered with short, white and black hair (Fig. 45B). T5 marginal zone with bright white hair, disc covered with long, black hair. T6 narrow and almost straight apically, with dense, long, black hair (Fig. 46B). Shape of S6 (Fig. 46C) as illustrated.

Male

Unknown.

Distribution

Only known from the northern part of the Roggeveld Mts.

Host bees

Unknown.

Seasonal activity

August–September.

***Sphecodopsis vespericena* Eardley, 1997**

Figs 47–50

Sphecodopsis vespericena Eardley in Eardley & Brothers, 1997: 401–403, holotype ♀ (type locality: 11 km W of Clanwilliam, South Africa) (SANC) examined.

Diagnosis

The female of *S. vespericena* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch longer and broader, about one and a half times as long as its apical width (Fig. 48C); metasoma partially red (Fig. 47B); fore tibia and tarsi completely or largely red (Fig. 47A); head wider than long (Fig. 47C); T5 apically with conspicuously long fringe, hair laterally distinctly longer forming a small medial gap (Fig. 48B); T5 with brown fringe of slightly branched hair (Fig. 48B). The male is here described for the first time and can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 49B); fore tibia and tarsi completely red (Fig. 49A); metapostnotum with hair in upper corners and matt (Fig. 49E); mesoscutum densely punctate, matt (Fig. 49D).

Additional material examined (11 specimens)

SOUTH AFRICA • 1 ♀; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 9 Aug. 2011; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 23 Aug. 2012; RCMK • 1 ♀; W Cape, S of Lamberts Bay; [32°04' S, 18°20' E]; 7–9 Oct. 1999; MH leg.; RCMS • 2 ♀♀, 1 ♂; W Cape, Rietvlei; 32°08'46" S, 18°46'21" E; 22 Sep. 2011; CE leg.; SANC • 4 ♀♀; C.P. 11 km W of Clanwilliam; 32°10' S, 18°47' E; 1 Oct. 1990; CE leg.; RCMS • 1 ♀; W Cape Prov., near Redelinghuys; 32°32'23" S, 18°30'53" E; 96 m a.s.l.; 18 Sep. 2005; CE leg.; SANC.

Description

Female

BODY LENGTH. 7.3–8.0 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face and clypeus with dense ($i=0.25\text{--}0.5\text{ d}$), coarse and deep punctation, supraclypeal area with more dispersed ($i=0.5\text{--}1\text{ d}$) punctation (Fig. 47C). Surface between punctures matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5\text{ d}$) finely and deeply punctate (Fig. 47D). Propodeum with dense ($i=0.25\text{--}1\text{ d}$), coarse and deep punctation, metapostnotum matt (Fig. 48A). Mesoscutum, mesoscutellum, metanotum, mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, white hair, metapostnotum glabrous (Figs 47D, 48A).

WINGS. Fuscous; wing venation dark brown and stigma dark brown to black (Fig. 47A).

LEGS. Integument of coxa, trochanter and the basal quarter of femur black, rest of femur, tibia and tarsi red. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few

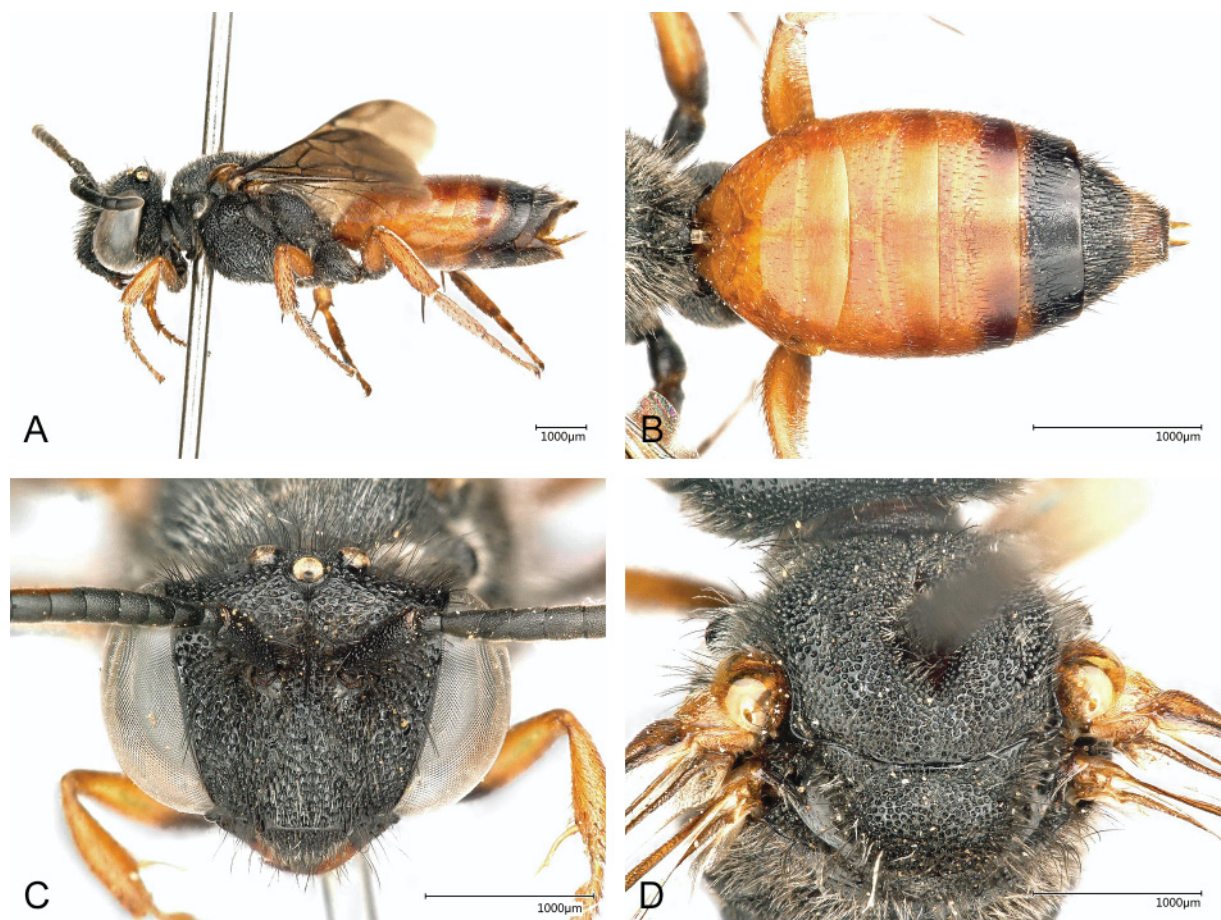


Fig. 47. *Sphecodopsis vespericena* Eardley, 1997, ♀ (Ouberg Pass, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

long, black hair. Tibia and tarsi sparsely covered with short, black hair mixed with short, white hair (Fig. 47A).

METASOMA. Integument of T1–T3, T4 to a variable extension red, from T4 completely red, except marginal zone black to completely black; T5 and T6 black. T1 and T2 sparsely covered with short white and black hair, from T3 increasingly more and longer hair (Fig. 47B). T5 with long, black hair mixed with very short, white hair and apical margin with two brown fringes of hair. T6 with dense short, white hair mixed with short, black hair, broad and almost straight apically (Fig. 48B). Shape of S6 (Fig. 48C) as illustrated.

Male

BODY LENGTH. 9.0 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles reddish-brown. Face covered with long, black hair mixed with short, white hair. Face and clypeus with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, supraclypeal area with more dispersed ($i=0.5\text{--}1$ d) punctation (Fig. 49C). Surface between punctures matt. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) finely and deeply punctate (Fig. 49D). Propodeum with dense ($i=0.25\text{--}1$ d), coarse and deep punctation, metapostnotum matt (Fig. 49E). Mesoscutum, mesoscutellum, metanotum,

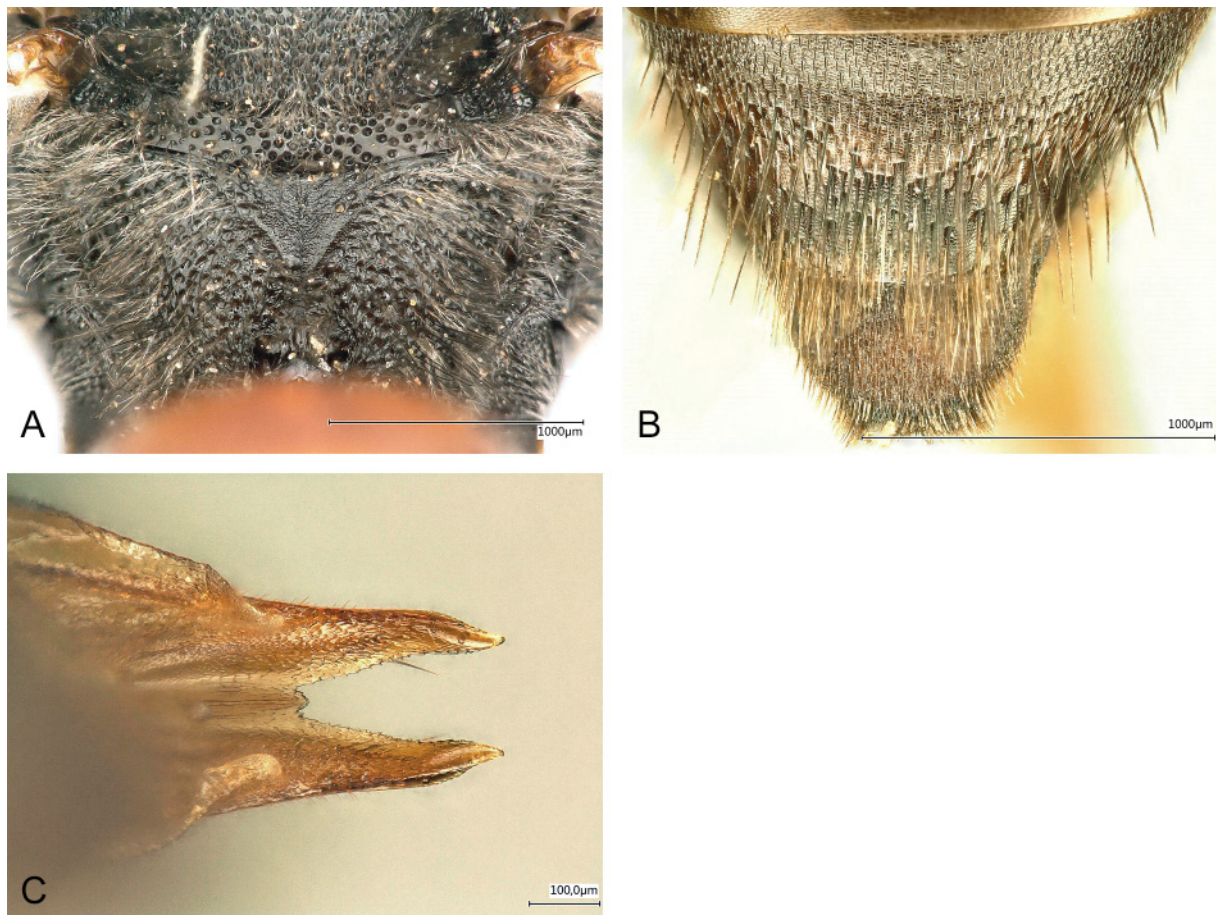


Fig. 48. *Sphecodopsis vespericena* Eardley, 1997, ♀ (Ouberg Pass, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

mesepisternum and propodeum sparsely covered with long, black hair mixed with shorter, white hair, metapostnotum glabrous (Fig. 49D–E).

WINGS. Fuscous; wing venation dark brown and stigma black (Fig. 49A).



Fig. 49. *Sphecodopsis vespericena* Eardley, 1997, ♂ (SANC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T5 and T6 (dorsal view).

LEGS. Integument of coxa, trochanter and the basal quarter of femur black, rest of femur, tibia and tarsi red. Coxa and trochanter sparsely covered with long, black hair and shorter white hair. Femur with few long, black hair. Tibia and tarsi sparsely covered with short, black hair mixed with short, white hair (Fig. 49A).

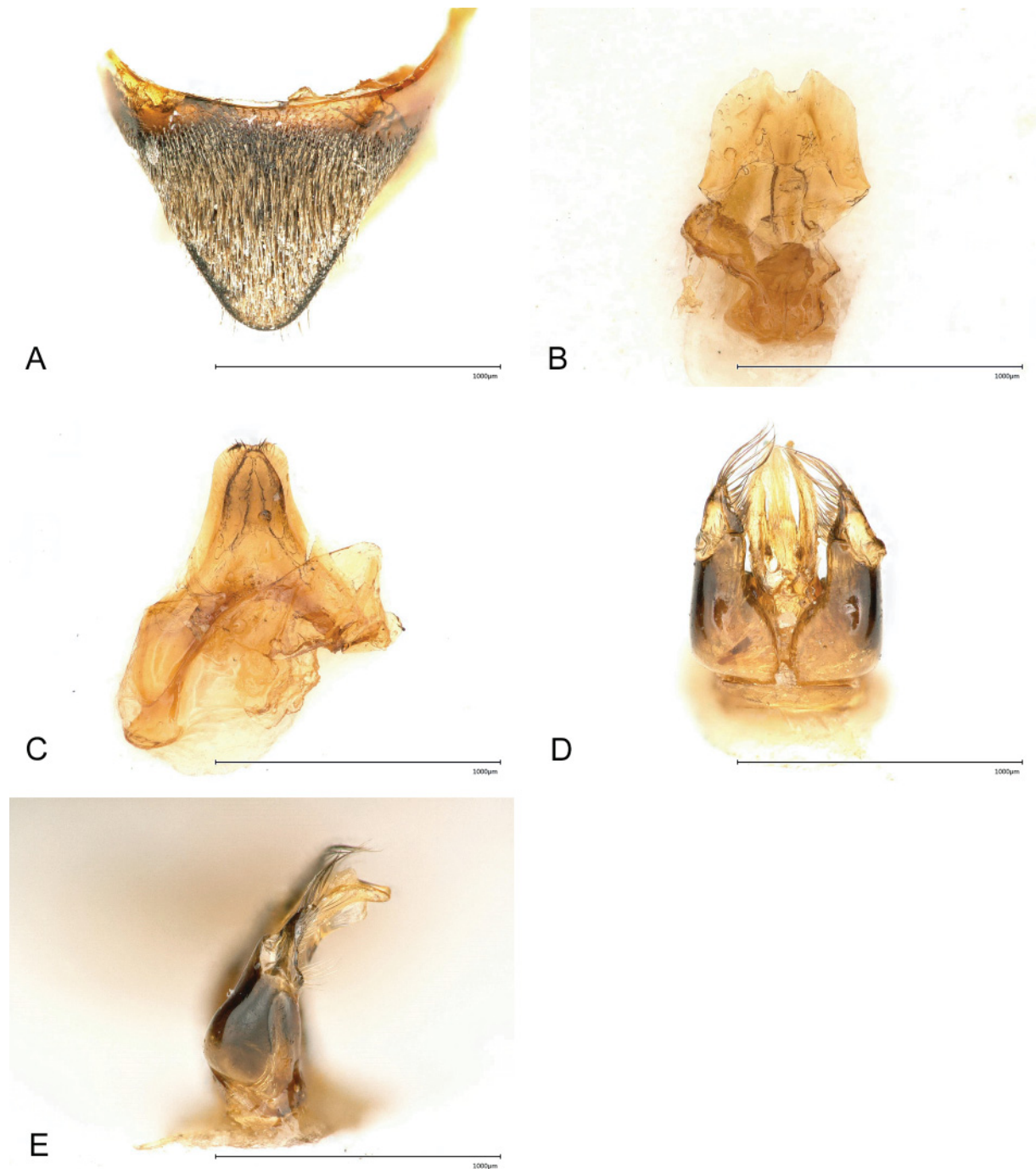


Fig. 50. *Sphecodopsis vespericena* Eardley, 1997, ♂ (SANC). **A.** T7 (dorsal view). **B.** S7 (dorsal view). **C.** S8 (dorsal view). **D.** Genital (dorsal view). **E.** Genital (lateral view).

METASOMA. Integument of T1–T4 red, T5–T7 black. T1 and T2 sparsely covered with short white and black hair, from T3 increasingly more and longer hair (Fig. 49B). T7 covered with dense short, gold hair and few black hairs apically (Fig. 50A).

TERMINALIA. Genitalia (Fig. 50D–E), S7 (Fig. 50B) and terminal plate of S8 (Fig. 50C) as illustrated.

Distribution

Recorded from southern Namaqualand to Malmesbury (Eardley & Brothers 1997).

Host bees

The host bee very likely is *Scrapper bicolor* Lepelletier & Serville, 1828 because both species were always found together in large numbers in the late afternoon, when no other potential host bee species were active (Eardley & Brothers 1997).

Seasonal activity

August–October (Eardley & Brothers 1997).

Sphecodopsis namaquensis species group

The group consists of the following two species: *S. crassipunctata* sp. nov. and *S. namaquensis*. Characteristics of this group are the following: fore tibia and tarsi completely or largely red (Figs 51A, 53A); mesoscutum matt, densely and deeply punctate (Figs 51D, 53D); female S6 bifid posteriorly, apical notch about four to seven times as long as its apical width, shape as shown in Figs 52C, 54C.

Sphecodopsis crassipunctata sp. nov.

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Figs 51–52

Diagnosis

The female of *S. crassipunctata* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about seven times as long as its apical width (Fig. 52C); metasoma partially red (Fig. 51B); fore tibia and tarsi completely or largely red (Fig. 51A); head wider than long, vertex flat (Fig. 51C); T5 apically either without or with short fringe of hair of \pm even length (Fig. 52B); head and mesoscutum with black hair (Fig. 51C–D); mesoscutum matt, densely and deeply punctate (Fig. 51D); T6 broad and rounded apically, laterally slightly rounded, with short golden hair (Fig. 52B). The male is unknown.

Etymology

Named for the relatively coarse punctation of the mesoscutum.

Type material (2 specimens)

Holotype

SOUTH AFRICA • ♀; W Cape, S of Lamberts Bay 21 km E; [31°26' S, 18°58' E]; 22 Sep. 2001; CE leg.; SANC.

Paratype

SOUTH AFRICA • 1 ♀; W Cape, S of Lamberts Bay; [32°04' S, 18°20' E]; 7 Oct. 1999; MH leg.; RCMK.

Description

Female

BODY LENGTH. 6.5 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, black hair. Face with dense ($i=0.25-0.5$ d), coarse and deep punctation, supraclypeal area with more dispersed ($i=0.5-1$ d) punctation (Fig. 51C). Surface between punctures slightly shiny. Antenna reddish-brown to brown.

MESOSOMA. Integument black, tegula yellow. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-0.5$ d), coarsely and deeply punctate (Fig. 51D). Propodeum with dense ($i=0.5-1$ d) and fine but deep punctation, metapostnotum matt (Fig. 52A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with short, black hair (Fig. 51D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Figs 51D, 52A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 51A).

LEGS. Integument of coxa and trochanter reddish-brown. Femur basal half reddish-brown, apical half light red, tibia and tarsi light red. Coxa, trochanter and femur sparsely covered with short, white hair

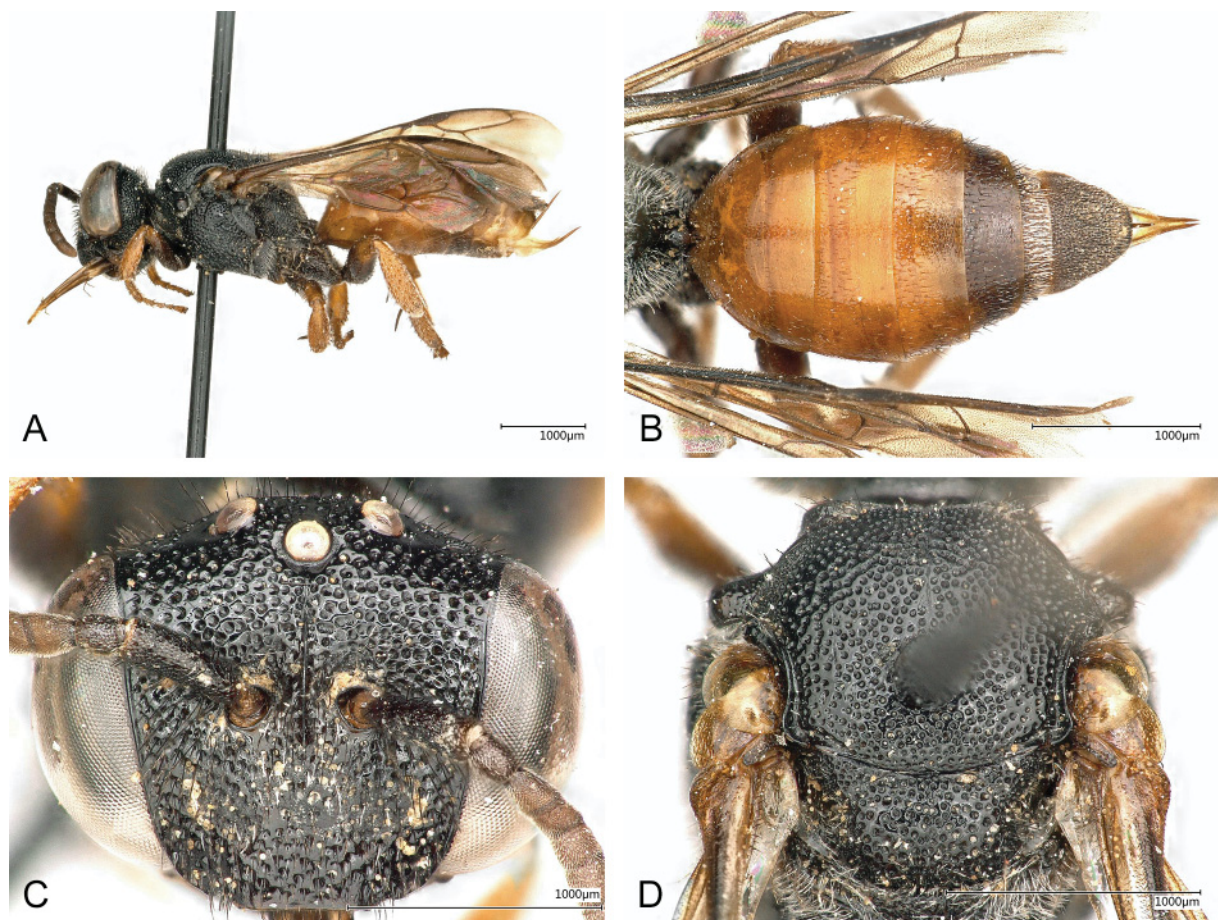


Fig. 51. *Sphecodopsis crassipunctata* sp. nov., paratype, ♀ (RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view).

mixed with short, black hair. Tibia and tarsus covered with short, white hair mixed with short, black hair (Fig. 51A).

METASOMA. Integument of T1–T3 red, T4–T6 black. T1–T4 with few short, white hair mixed with short, black hair (Fig. 51B). T5 with dense short, white hair. T6 covered with short, white hair, broad and rounded apically (Fig. 52B). Shape of S6 (Fig. 52C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality Lamberts Bay at the southwest coast of South Africa.

Host bees

Unknown.

Seasonal activity

September–October.

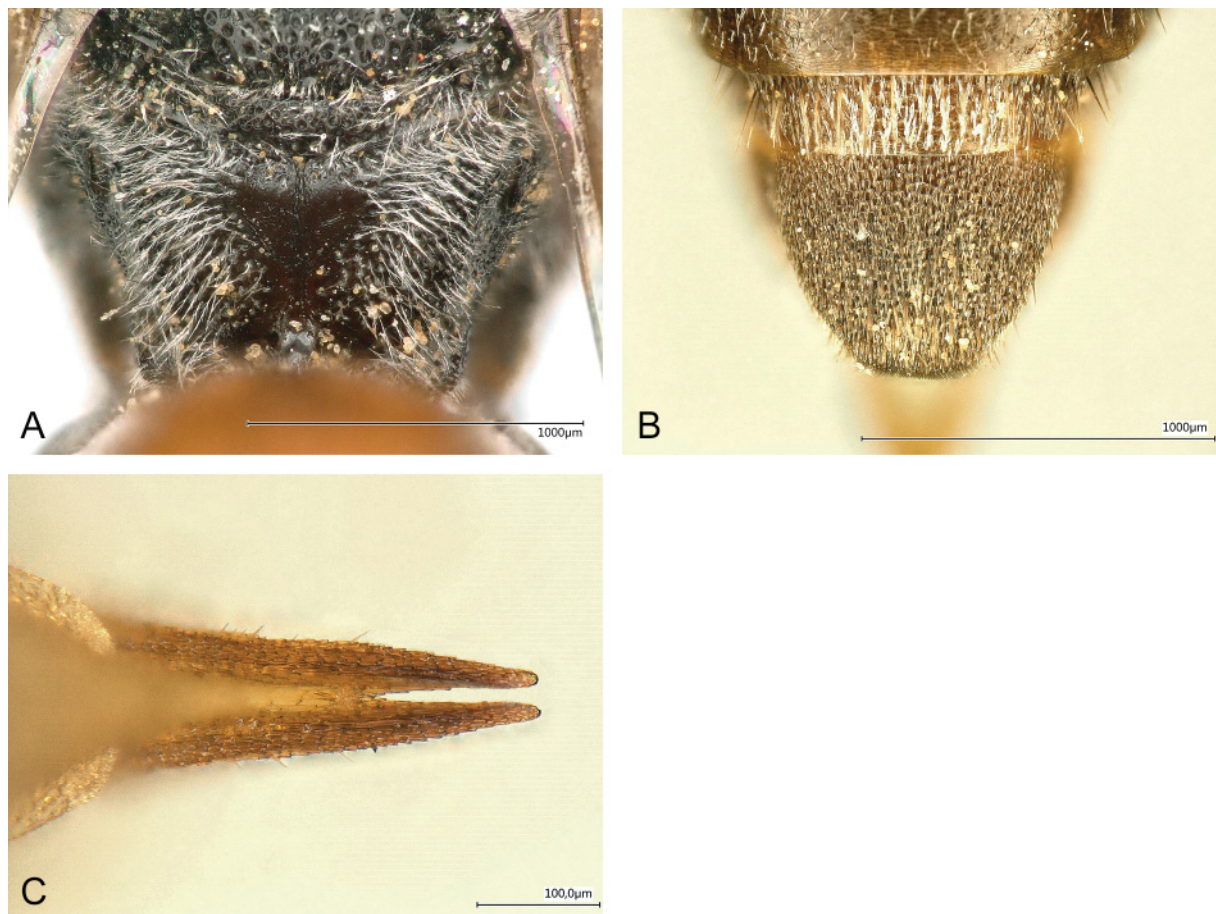


Fig. 52. *Sphecodopsis crassipunctata* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Sphecodopsis namaquensis Eardley, 1997

Figs 53–54

Sphecodopsis namaquensis Eardley in Eardley & Brothers, 1997: 404–406, holotype ♀ (type locality: Biedouw Valley, South Africa) (SANC) examined.

Diagnosis

The female of *S. namaquensis* can be separated from that of all other species by the combination of the following characters: S6 bifid posteriorly, apical notch about twice as long as its apical width (Fig. 54C); metasoma partially red (Fig. 53B); fore tibia and tarsi completely or largely red (Fig. 53A); head wider than long, vertex flat (Fig. 53C); T5 apically either without or with short fringe of hair of \pm even length (Fig. 54B); head and mesoscutum with black hair (Fig. 53C–D); mesoscutum matt, densely and deeply punctate (Fig. 53D); T6 broad and rounded apically, laterally almost straight, with short golden hair (Fig. 54B). The male is unknown.

This characteristic species was described in detail by Eardley & Brothers (1997). Thus, to facilitate the identification, only images are provided without repeating the description.

Additional material examined

None.

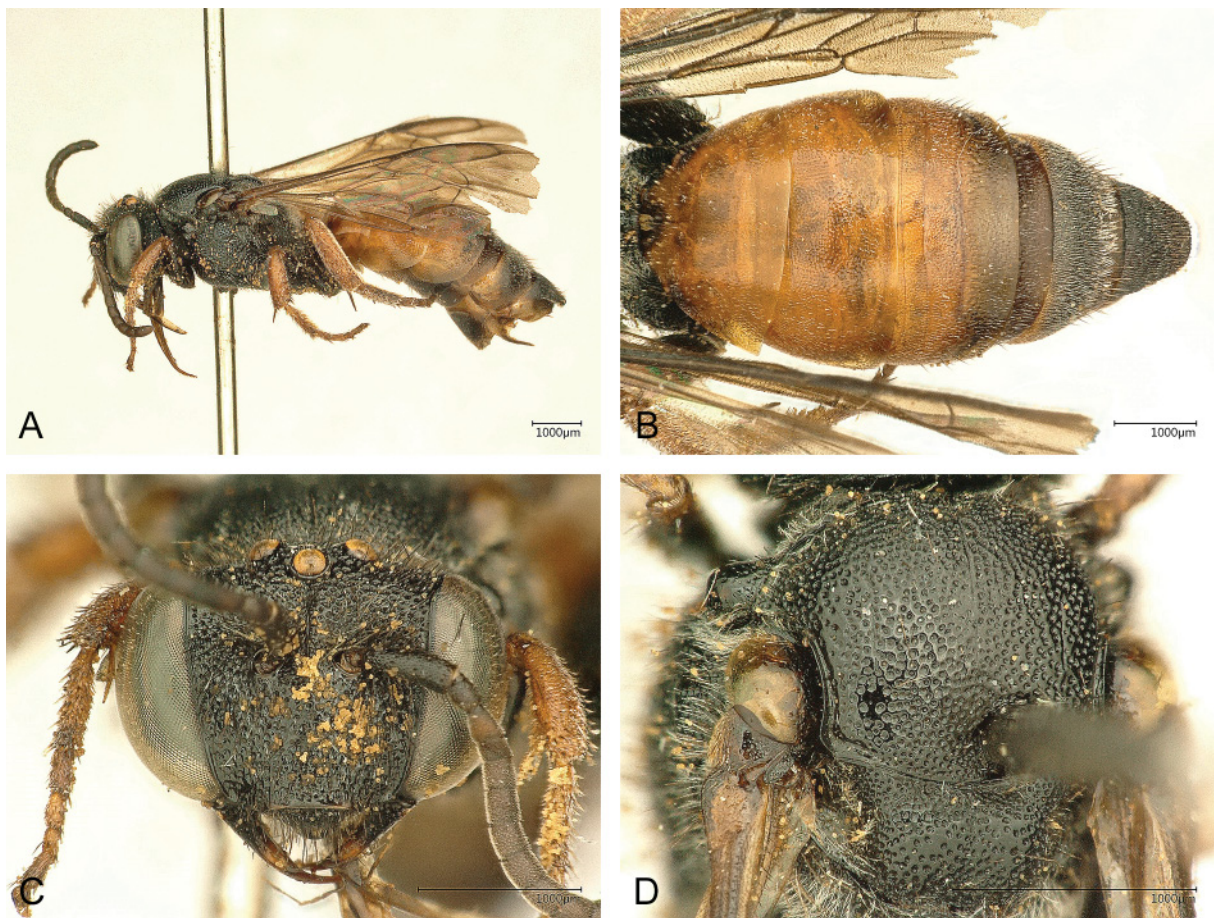


Fig. 53. *Sphecodopsis namaquensis* Eardley, 1997, holotype, ♀ (SANC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Distribution

Southern Namaqualand (Eardley & Brothers 1997).

Host bees

Unknown.

Seasonal activity

September (Eardley & Brothers 1997).

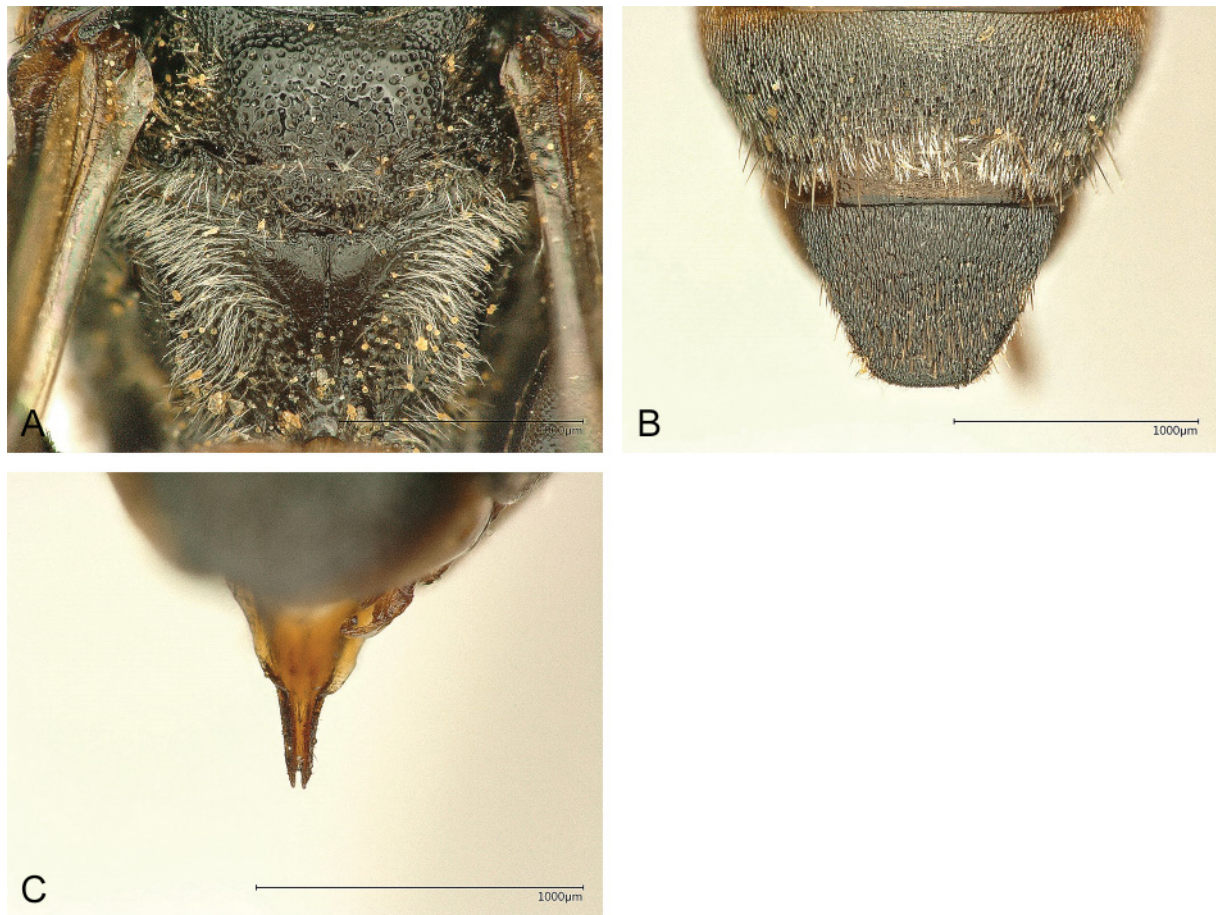


Fig. 54. *Sphecodopsis namaquensis* Eardley, 1997, holotype, ♀ (SANC). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Sphecodopsis papilla species group

The group consists of ten species: *S. atra* sp. nov., *S. catastropha* sp. nov., *S. corona* sp. nov., *S. microscopica* sp. nov., *S. minuta* sp. nov., *S. nana* sp. nov., *S. nigra* sp. nov., *S. papilla* Eardley, 2007, *S. parvula* sp. nov. and *S. tenera* sp. nov. Characteristics of this group are the following: small species, body length < 6 mm (Figs 55A, 57A, 59A, 61A, 63A, 65A, 67A, 69A, 71A, 73A, 75A, 77A); fore tibia and tarsi usually black with small reddish spots (Figs 55A, 57A, 59A, 61A, 63A, 65A, 67A, 69A, 71A,

73A, 75A, 77A); propodeum covered with short white or yellowish-white hair (Figs 56A, 58A, 60A, 61E, 64A, 65E, 67E, 69E, 72A, 74A, 76A, 77E); female T6 covered with golden hair (Figs 56B, 58B, 60B, 64B, 72B, 74B, 76B); female S6 bifid posteriorly, apical notch about three to nine times as long as its apical width, more or less spatulate, shape as illustrated (Figs 56C, 58C, 60C, 64C, 72C, 74C, 76C); male gonostylus inclined inward, penis valves narrow, slightly shorter than gonostylus (Figs 62C, 66C–D, 68C–D, 70B–C, 78C–D).

Sphecodopsis atra sp. nov.

urn:lsid:zoobank.org:act:DC4BA407-AAC3-4EFB-B8B1-51CDCBFE2082

Figs 55–56

Diagnosis

The female of *S. atra* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch five times as long as its apical width (Fig. 56C); metasoma completely black (Fig. 55B); punctation of the mesoscutum more dispersed ($i=0.5-1$ d) and coarser (Fig. 55D). The male is unknown.

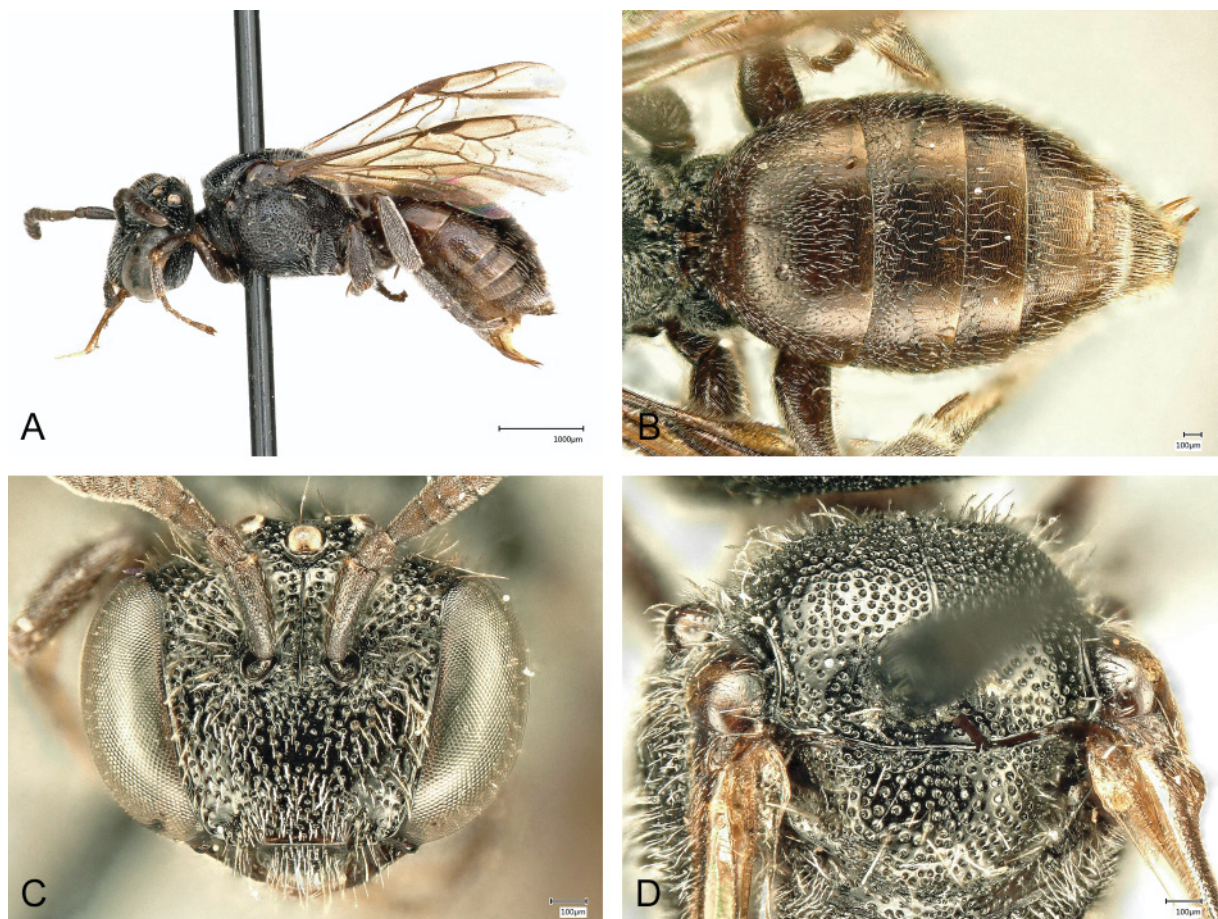


Fig. 55. *Sphecodopsis atra* sp. nov., paratype, ♀ (RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view).

Etymology

The name refers to the black colour of the species.

Type material (3 specimens)

Holotype

SOUTH AFRICA • ♀; W Cape, 25 km S of Bredasdorp, coast; [34°40' S, 20°02' E]; 23 Oct. 1999; MH leg.; RCMS.

Paratypes

SOUTH AFRICA • 2 ♀♀; same collection data as for holotype; RCMK.

Description

Female

BODY LENGTH. 4.5–4.9 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles reddish-brown. Face sparsely covered with short, yellowish-white hair. Face with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, except clypeus with dense ($i=0.25\text{--}1$ d) and fine but deep punctation (Fig. 55C). Surface between punctures slightly shiny. Antenna black and reddish-brown.

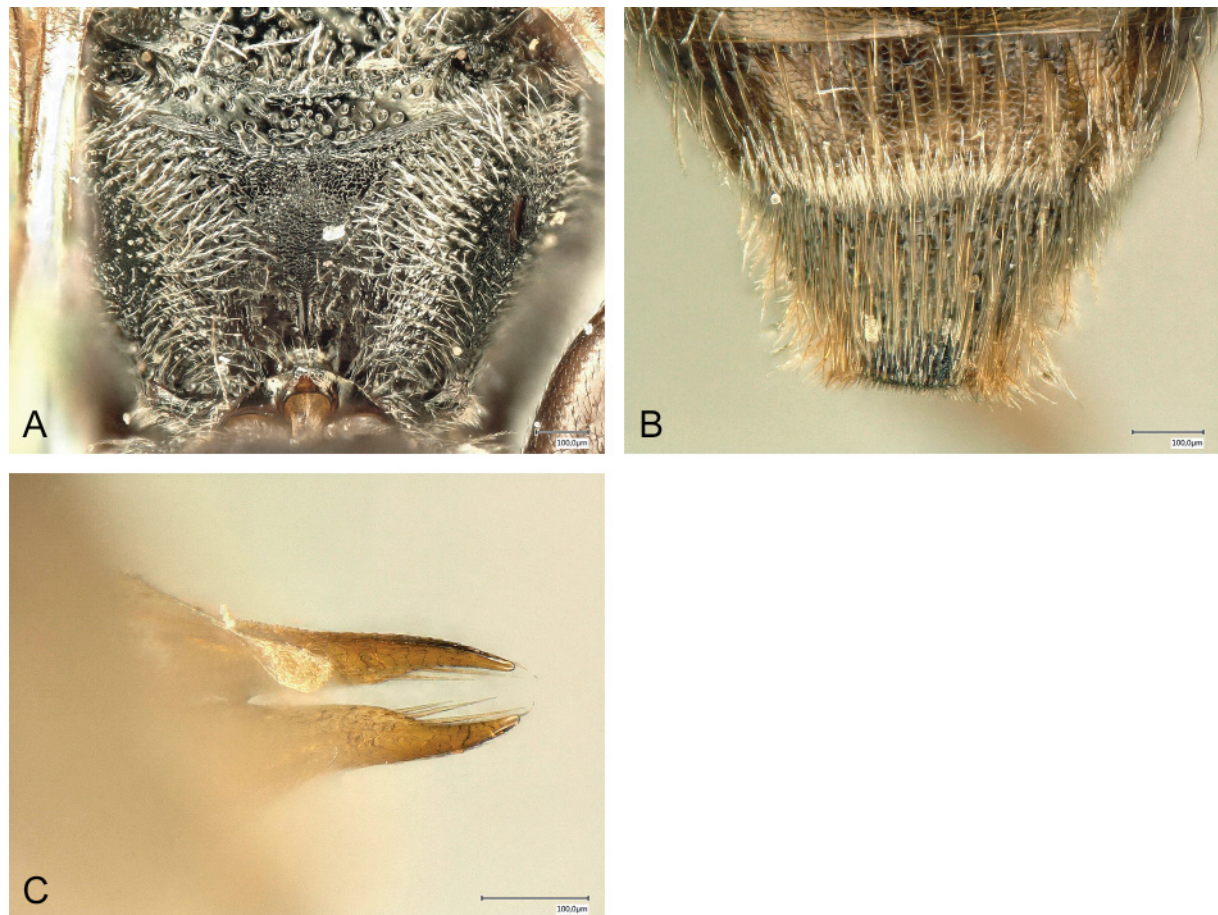


Fig. 56. *Sphecodopsis atra* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d), coarsely and deeply punctate (Fig. 55D). Propodeum with dense ($i=0.5-1$ d) and fine but deep punctation, metapostnotum matt (Fig. 56A). Mesoscutum, metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Figs 55D, 56A). Mesoscutellum sparsely covered with longer, yellowish-white hair. Mesepisternum with short, white hair (Fig. 55D).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 55A).

LEGS. Integument black to reddish-brown. Coxa, trochanter, femur, tibia and tarsi covered with short, white hair (Fig. 55A).

METASOMA. Integument of T1–T6 black. T1 and T2 with sparse short, white and golden hair, from T3 increasingly more and longer hair (Fig. 55B). T5 disc with long golden hairs, marginal zone covered with short, white hairs. T6 slightly rounded apically and with a hair fringe, densely covered with short, golden hair (Fig. 56B). Shape of S6 (Fig. 56C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality at the coast near Bredasdorp.

Host bees

Unknown.

Seasonal activity

October.

***Sphecodopsis catastropha* sp. nov.**

urn:lsid:zoobank.org:act:44AD2A28-7943-41C5-A59E-51D935555398

Figs 57–58

Diagnosis

The female of *S. catastropha* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch nine times as long as its apical width (Fig. 58C); metasoma completely black (Fig. 57B); punctation of mesoscutum denser ($i=0.25-0.5$ d) and finer (Fig. 57D). The male is unknown.

Etymology

The name refers to the catastrophic condition the only known specimen was initially in. Noun in apposition.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♀; Leliefontein, slope; 30°14' S, 18°09' E; 23 Sep. 2003; yellow + white trap; CM leg.; SAMC.

Description

Female

BODY LENGTH. 5.3 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles reddish-brown. Face sparsely covered with short, black hair mixed with yellowish-white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$) and fine but deep punctation (Fig. 57C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5\text{ d}$) and finely but deeply punctate (Fig. 57D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow punctation, metapostnotum matt (Fig. 58A). Mesoscutum sparsely covered with short, black hair, mixed with shorter white hair. Mesoscutellum covered with short yellowish-white hair mixed with few longer, black hairs (Fig. 57D). Propodeum and metanotum sparsely covered with short, white hair metapostnotum glabrous (Figs 57D, 58A). Mesepisternum covered with short white hair mixed with few longer black hairs.

WINGS. Fuscous; wing venation brown and stigma brown (Fig. 57A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi covered with short, white hair (Fig. 57A).

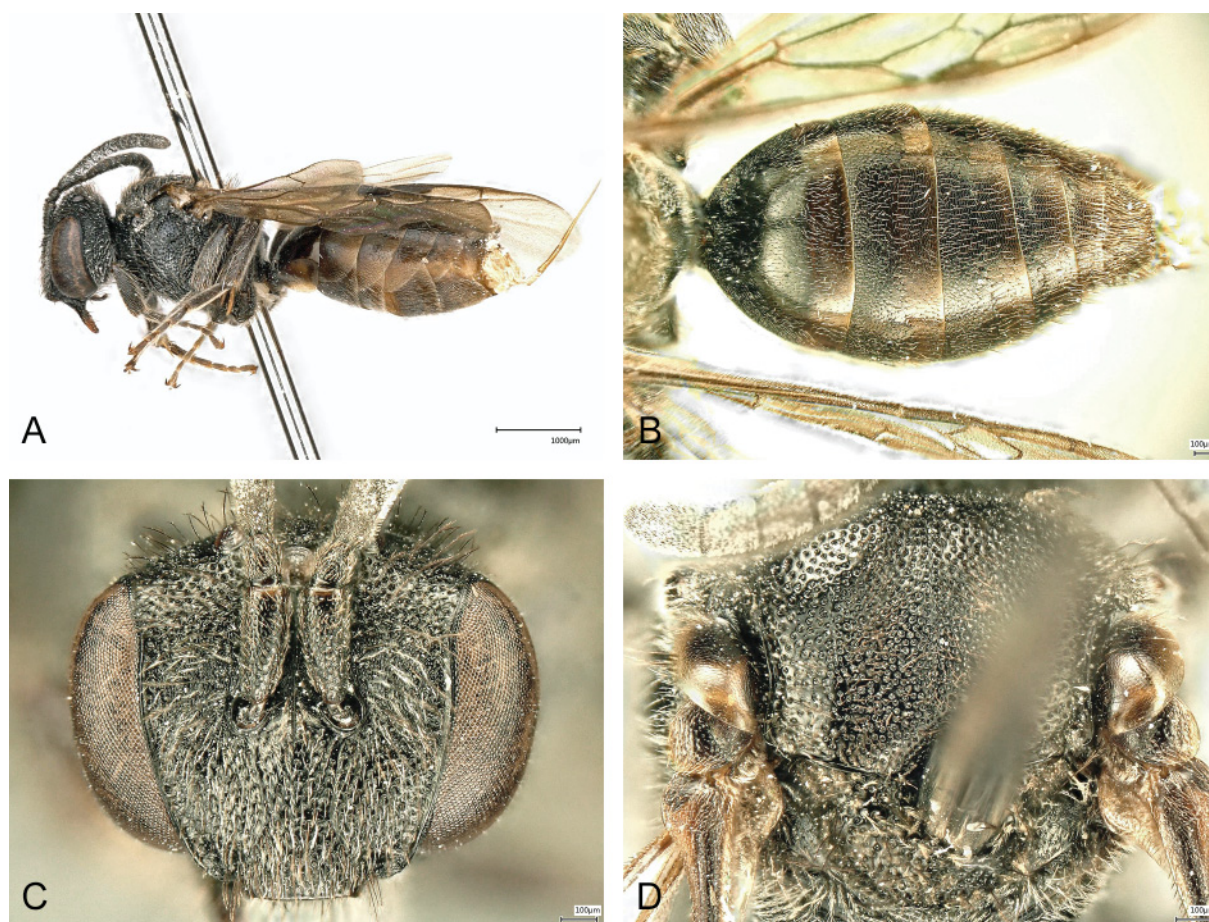


Fig. 57. *Sphecodopsis catastropa* sp. nov., holotype, ♀ (SAMC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

METASOMA. Integument of T1–T6 black. T1 and T2 with few short, golden hairs, from T3 increasingly more and longer hair (Fig. 57B). T5 disc with long golden hairs, marginal zone sparsely covered with short, white hairs. T6 almost straight apically, densely covered with short, golden hair (Fig. 58B). Shape of S6 (Fig. 58C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality in the Kamiesberg Mts.

Host bees

Unknown.

Seasonal activity

September.

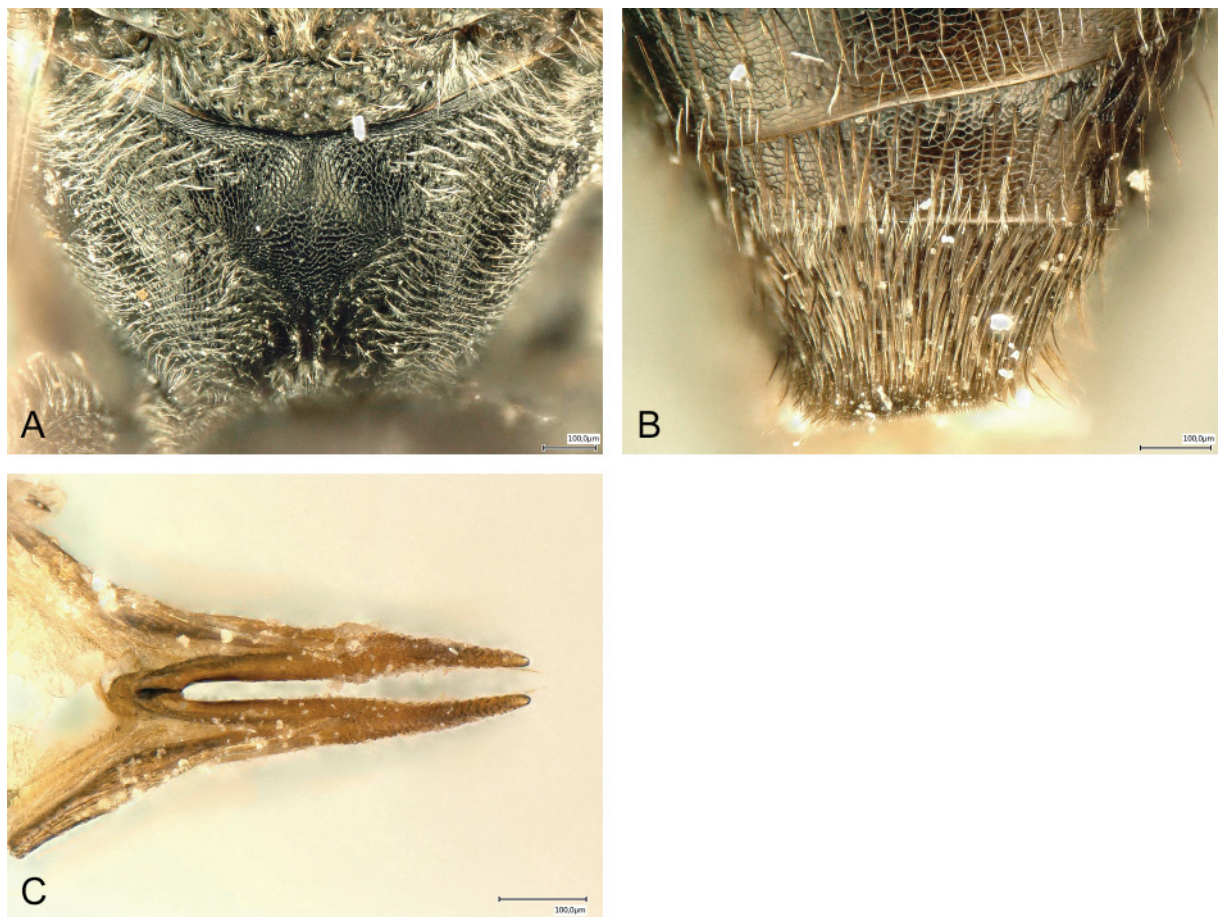


Fig. 58. *Sphecodopsis catastropha* sp. nov., holotype, ♀ (SAMC). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Sphecodopsis corona sp. nov.

urn:lsid:zoobank.org:act:E625F4C2-AE83-4931-A92D-0C378EDA189F

Figs 59–62

Diagnosis

The female of *S. chrysea* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch three times as long as its apical width, more or less spatulate, shape as shown in Fig. 60C; body length 3.5–5.8 mm; T1–T3 completely and T4–6 to a variable extent red (Fig. 59B); fore tibia and tarsi usually black, sometimes with small reddish spots (Fig. 59A); T6 covered with only thin golden hair (Fig. 60B); head and mesosoma with light hair (Fig. 59C–D); propodeum densely covered with short white or yellowish-white hair (Fig. 60A); T5 apically sparsely covered with short white hair (Fig. 60B); T6 almost truncate apically, covered with short golden hair but without a fringe (Fig. 60B). The male can be separated from that of all other species by the combination of the following characters: T1–T4 completely and T5–T7 to a variable extent red (Fig. 61B); fore legs usually black, sometimes with small reddish spots (Fig. 61A); propodeum covered with white or golden hair (Fig. 61E); head and mesosoma with golden hair (Fig. 61C–D); T7 more densely covered with short golden hair (Fig. 61F); gonostylus inclined inward, penis valves narrower, slightly shorter than gonostylus (Fig. 62C); S8 narrowly rounded apically (Fig. 62B).

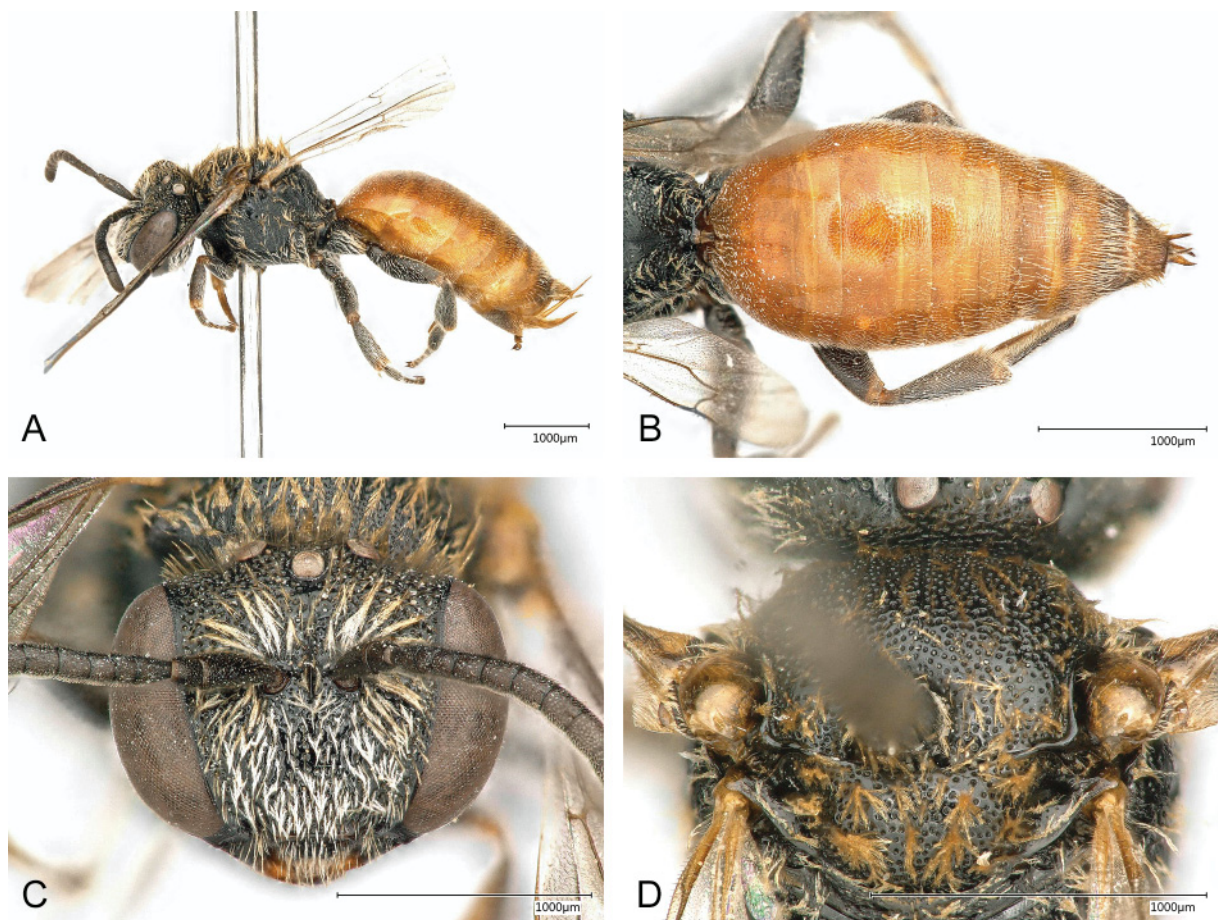


Fig. 59. *Sphecodopsis corona* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Etymology

The name, in apposition, is reminiscent of the fact that the species has crown-like golden hairs on the vertex and that much of the revisionary study was done during the covid-19 pandemic.

Type material (8 specimens)

Holotype

SOUTH AFRICA • ♂; W Cape, Knersvlakte, Sukkulent Karoo, 30 km N of Vanrhynsdorp; 31°22'23" S, 18°42'37" E; 146 m a.s.l.; 6 Sep. 2003; KT leg.; SAMC.

Paratypes

SOUTH AFRICA • 4 ♀♀, 3 ♂♂; same collection data as for holotype; 5–6 Sep. 2003; RCMK.

Description

Female

BODY LENGTH. 4.3–5.2 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, golden hair mixed with short, white hair. Face with dense ($i=0.5-1$ d), coarse and deep punctation (Fig. 59C). Surface between punctures matt. Antenna black.

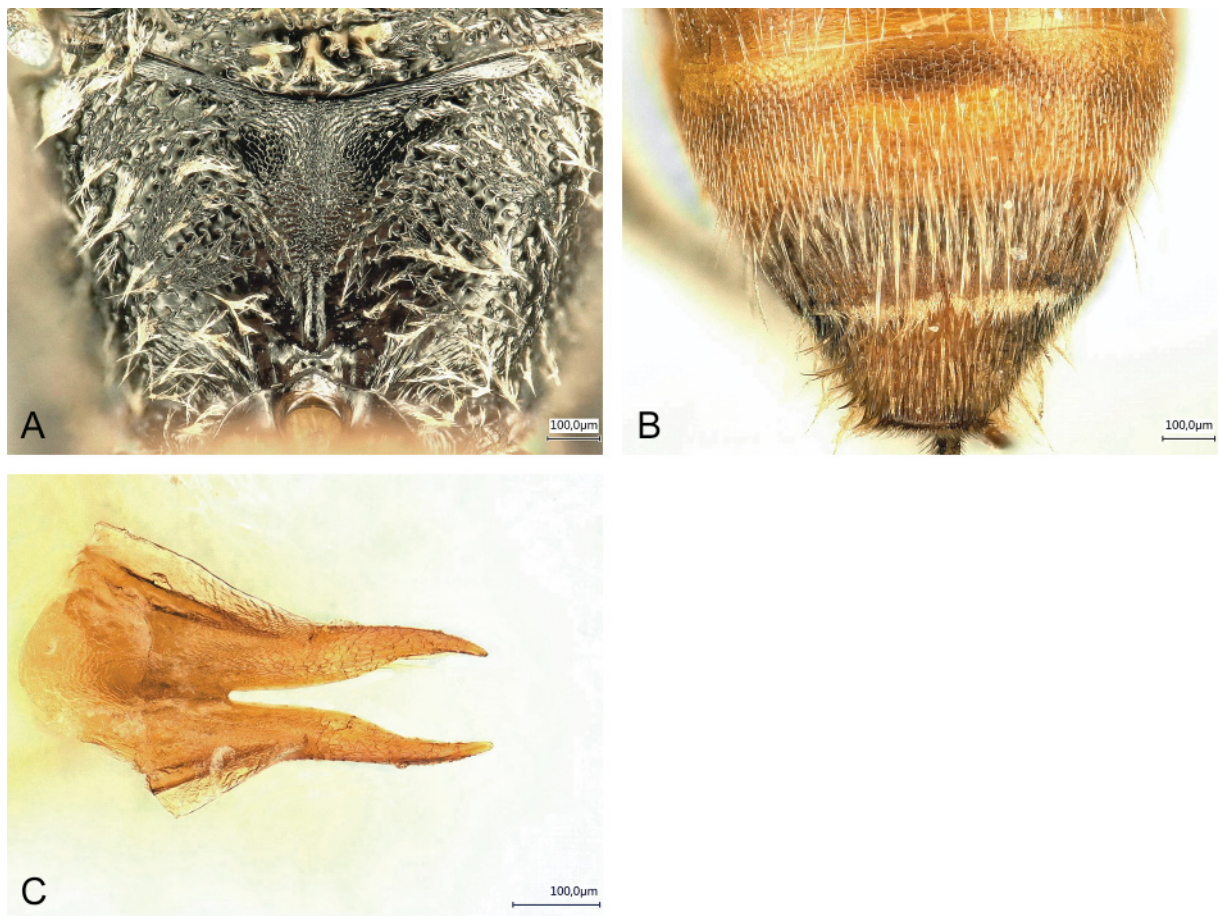


Fig. 60. *Sphecodopsis corona* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d) and finely but coarsely punctate (Fig. 59D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 60A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, golden hair (Fig. 59D). Metanotum and propodeum very sparsely covered with short, golden hair, metapostnotum glabrous (Figs 59D, 60A).

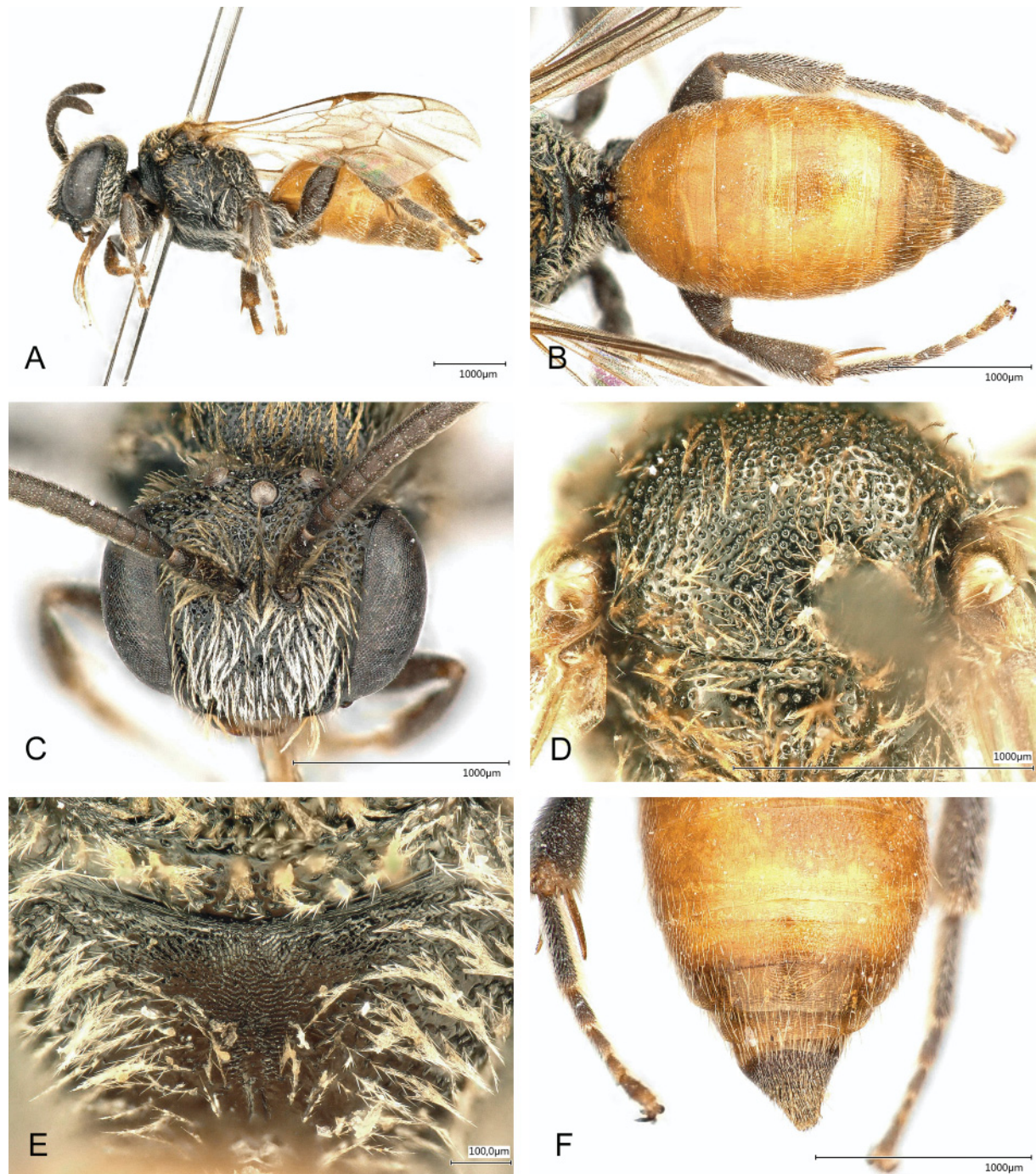


Fig. 61. *Sphecodopsis corona* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 59A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 59A).

METASOMA. Integument of T1–T3 red, T4–6 to a variable extent red, from T4 basal half red to completely red. T1 and T2 with few short, white and golden hair, from T3 increasingly more and longer hair (Fig. 59B). T5 marginal zone covered with short, golden hairs. T6 slightly rounded apically, densely covered with short, golden hair (Fig. 60B). Shape of S6 (Fig. 60C) as illustrated.

Male

BODY LENGTH. 4.0–4.8 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or dark reddish-brown. Face covered with short, golden hair mixed with short, white hair. Face with dense ($i=0.5-1$ d), coarse and deep punctation (Fig. 61C). Surface between punctures matt. Antenna reddish-brown to brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d) and finely but coarsely punctate (Fig. 61D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 61E). Mesoscutum, mesoscutellum and

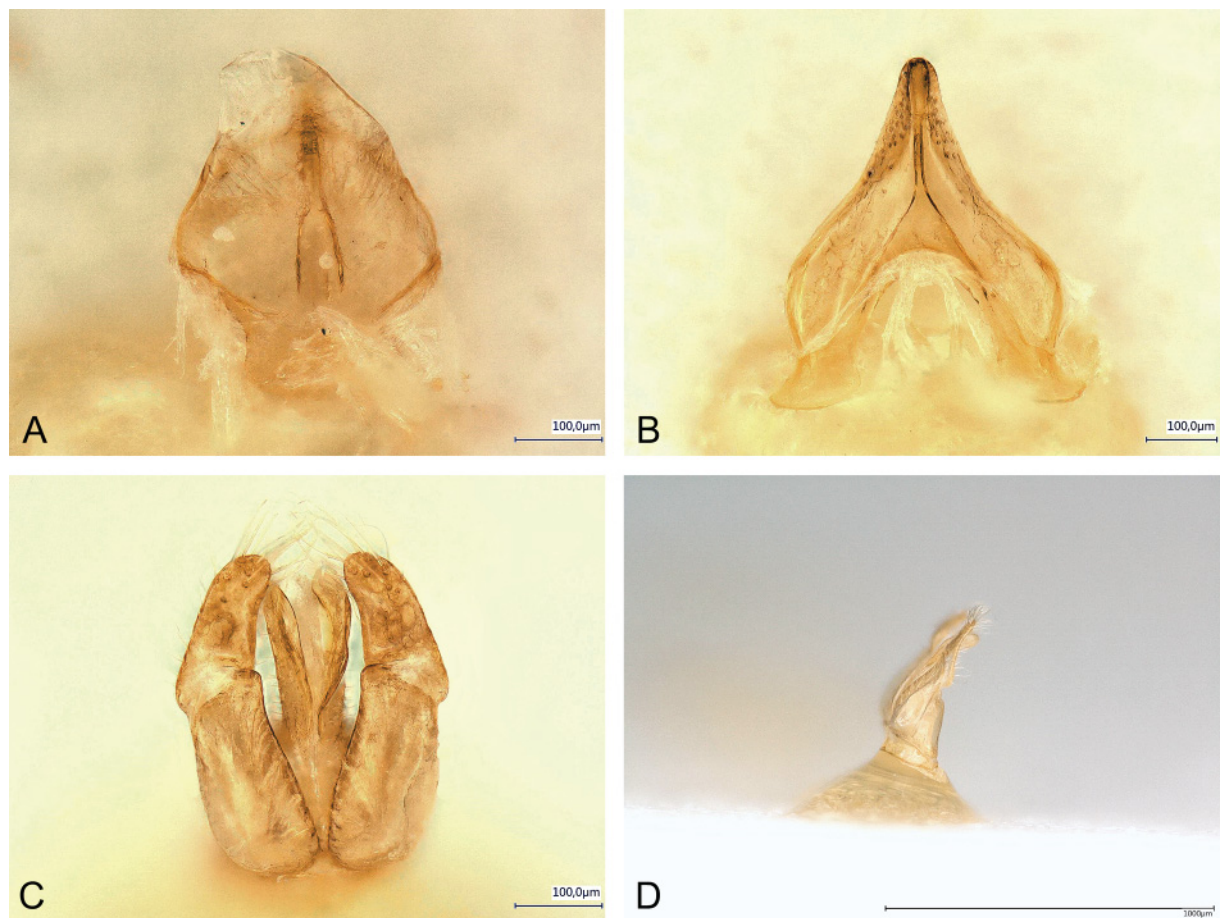


Fig. 62. *Sphecodopsis corona* sp. nov., paratype, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

mesepisternum sparsely covered with long, golden hair (Fig. 61D). Metanotum and propodeum very sparsely covered with short, golden hair, metapostnotum glabrous (Fig. 61D–E).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 61A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 61A).

METASOMA. Integument of T1–T4 red; T5–T7 to a variable extent red, from T5 only basal quarter red and rest black to T5–T7 completely red. T1 and T2 with few short, white and golden hairs, from T3 increasingly more and longer hair (Fig. 61B). T7 covered with short, golden hair (Fig. 61F).

TERMINALIA. Genitalia (Fig. 62C), S7 (Fig. 62A) and terminal plate of S8 (Fig. 62B) as illustrated.

Distribution

Only known from the type locality in the Knersvlakte.

Host bees

Unknown.

Seasonal activity

September.

Comment

Four specimens from the Fynbos biome adjacent to the collecting site of *S. chrysea* sp. nov. in the Knersvlakte display slight morphological differences: T6 of *S.* cf. *1 corona* is more truncate and with denser hair apically, T5 laterally and on the marginal zone is more densely covered with short, golden hairs.

At present the taxonomic status of these specimens is unclear so we do not assign them to *S. chrysea* sp. nov. but make their collection data available to enable further investigation:

Sphecodopsis cf. *1 corona*: SOUTH AFRICA • 1 ♀; N Cape, Fynbos, 15 km NW of Nieuwoudtville, Flower Engelsepunt; 31°14'31" S, 18°59'08" E; 830 m a.s.l.; 7 Oct. 2003; KT leg.; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Flower Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 9 Sep. 2018; MK leg.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 19 Aug. 2004; MK leg.; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve, dolerite hills; 31°22'10" S, 19°08'50" E; 770 m a.s.l.; 17 Sep. 2007; KT leg.; RCMK.

Sphecodopsis microscopica sp. nov.

urn:lsid:zoobank.org:act:86F371F1-6556-4232-BFE2-042D66CBE1AB

Figs 63–64

Diagnosis

The female of *S. microscopica* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch seven times as long as its apical width, more or less spatulate, shape as shown in Fig. 64C; body length 3.5–5.8 mm; metasoma partially red (Fig. 63B); fore tibia and tarsi usually black, sometimes with small reddish spots (Fig. 63A); T6 covered with only thin golden hair (Fig. 64B); head and mesosoma with light hair (Fig. 63C–D); propodeum very sparsely covered with short white hair (Fig. 64A); T6 almost straight apically with a distinct fringe, hair laterally much longer than medially (Fig. 64B). The male is unknown.

Etymology

The species is named for its minute size.

Type material (13 specimens)

Holotype

SOUTH AFRICA • ♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 22 Aug. 2012; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; W Cape, Knersvlakte, Sukkulent Karoo, 30 km N of Vanrhynsdorp; 31°22'23" S, 18°42'37" E; 146 m a.s.l.; 5–6 Sep. 2003; KT leg.; RCMK • 1 ♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 15 Aug. 2011; MK leg.; RCMK • 3 ♀♀; same collection data as for preceding; 6 Sep. 2016; RCMK • 1 ♀; W Cape, Knersvlakte, Kaapse Drif; 31°26'01" S, 18°47'34" E; 22 Sep. 1999; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 23 Sep. 1999; RCMK • 1 ♀; Knersvlakte, roadside, 23 km ESE of Vanrhynsdorp; 31°44'06" S, 18°55'32" E; 200 m a.s.l.; 17 Aug. 2010; MK leg.; RCMK • 2 ♀♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 28 Sep. 2022; MK leg.; RCMK • 1 ♀; same collection data as for preceding; SANC • 1 ♀; Roggeveld Mts, 2 km S of Farm Houdenberg, roadside; 32°18'03" S, 20°23'16" E; 1280 m a.s.l.; 16 Sep. 2018; MK leg.; RCMK.

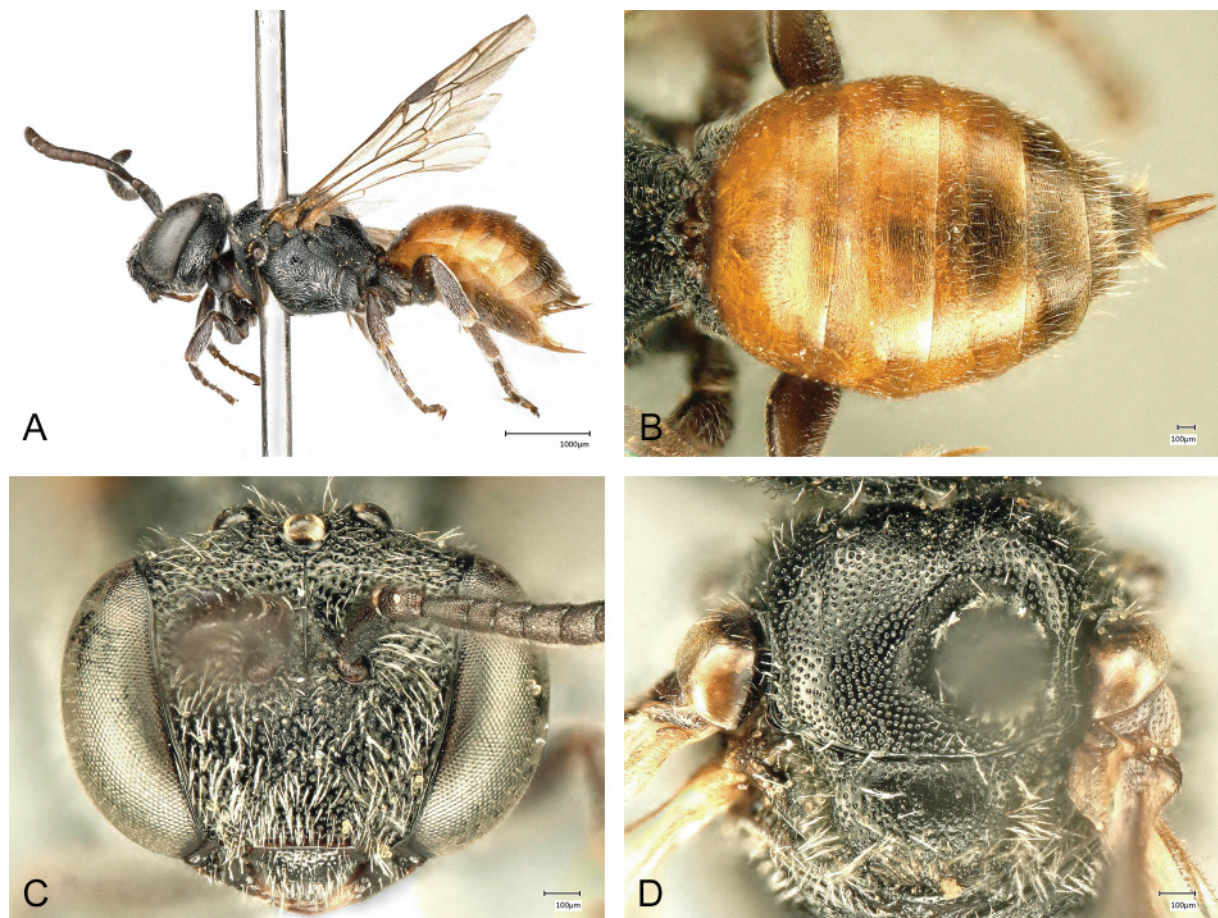


Fig. 63. *Sphecodopsis microscopica* sp. nov., paratype, ♀ (Gemsbokrivier-Pad, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Description

Female

BODY LENGTH. 3.2–4.5 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with short, yellowish-white hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$) and fine but deep punctation (Fig. 63C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5\text{ d}$) and finely but deeply punctate (Fig. 63D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow punctation, metapostnotum matt (Fig. 64A). Mesoscutum, mesoscutellum and metanotum sparsely covered with short, white hair (Fig. 63D). Propodeum sparsely covered with few short white hairs, metapostnotum glabrous (Fig. 64A). Mesepisternum covered with slightly long, white hair.

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 63A).

LEGS. Integument black, except tibia apically light red. Coxa, trochanter, femur, tibia and tarsi covered with short, white hair (Fig. 63A).

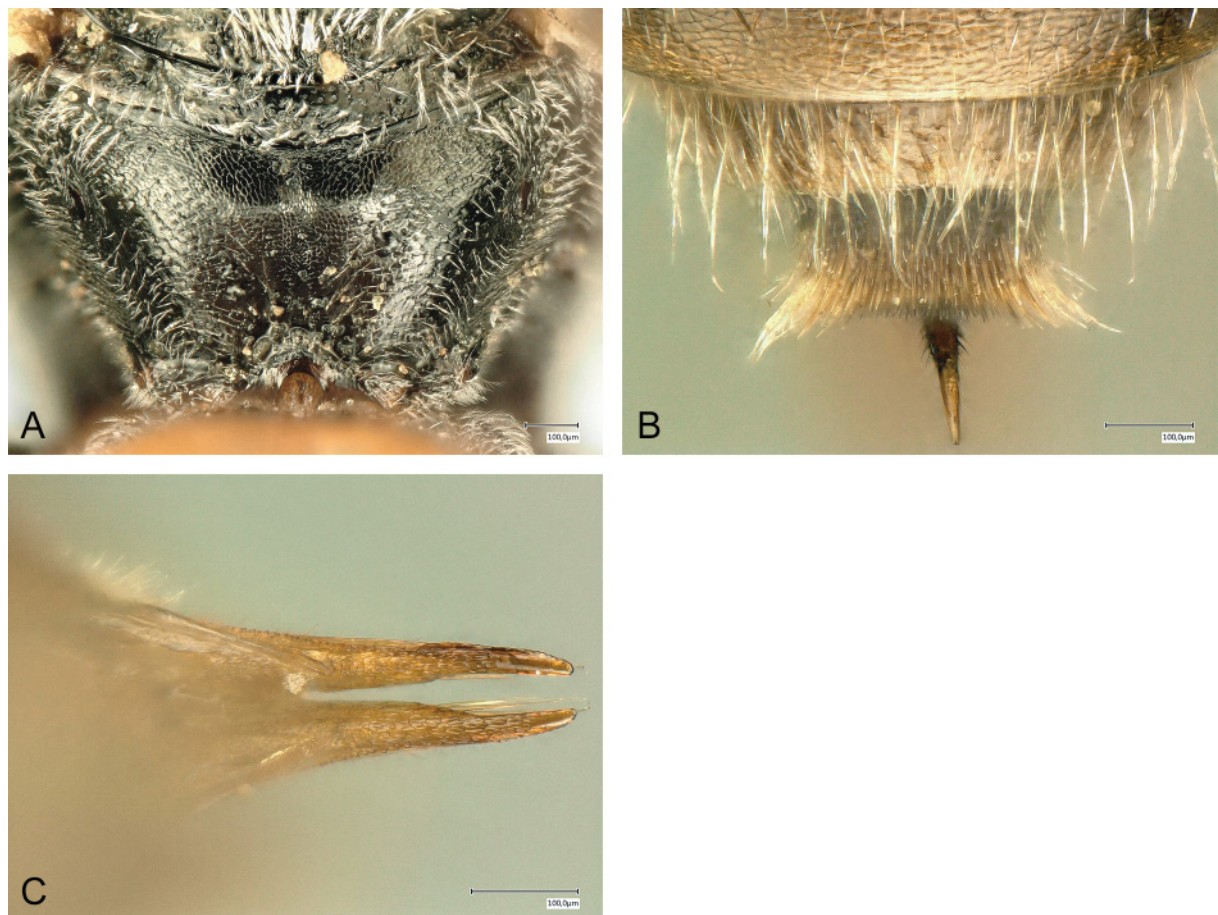


Fig. 64. *Sphecodopsis microscopica* sp. nov., paratype, ♀ (Gemsbokrivier-Pad, RCMK). A. Propodeum. B. T5 and T6. C. S6.

METASOMA. Integument of T1–T2 red, T3 to a variable extent red, from completely black to only black on the disc, T4–T6 black. T1 and T2 with few short, white and golden hairs, from T3 increasingly more and longer hair (Fig. 63B). T5 disc covered with long, white hair, marginal zone covered with short, white hairs. T6 almost square and straight apically with a small, short hair fringe on either side, densely covered with short golden and white hair (Fig. 64B). Shape of S6 (Fig. 64C) as illustrated.

Male

Unknown.

Distribution

So far, the species has been recorded in the Knersvlakte, the Keiskie Mts and the Roggeveld Mts.

Host bees

Likely hosts are equally small species of euryglossiform *Scapter* (Kuhlmann 2014; Kuhlmann & Friehs 2020) that were found in association with this cuckoo bee.

Seasonal activity

August–September.

Sphecodopsis minuta sp. nov.

urn:lsid:zoobank.org:act:2DCEBB40-135C-4FFD-B4E9-DAD96D1B5816

Figs 65–66

Diagnosis

The female of *S. minuta* sp. nov. is unknown. The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 65B); fore legs usually black (Fig. 65A); head, mesosoma and propodeum with white hair (Fig. 65C–E); gonostylus inclined inward, penis valves narrower, slightly shorter than gonostylus (Fig. 66C–D); S8 apically slightly notched (Fig. 66B).

Etymology

The species is named for its small size.

Type material (2 specimens)

Holotype

SOUTH AFRICA • 1 ♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 21 Aug. 2004; MK leg.; SAMC.

Paratype

SOUTH AFRICA • 1 ♂; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 8 Aug. 2012; MK leg.; RCMK.

Description

Female

Unknown.

Male

BODY LENGTH. 4.2–5.3 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with short, yellowish-white hair. Face with dense ($i=0.5\text{--}1\text{ d}$) and fine but deep punctation (Fig. 65C). Surface between punctures slightly matt. Antenna brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}1\text{ d}$), coarsely and deeply punctate (Fig. 65D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine

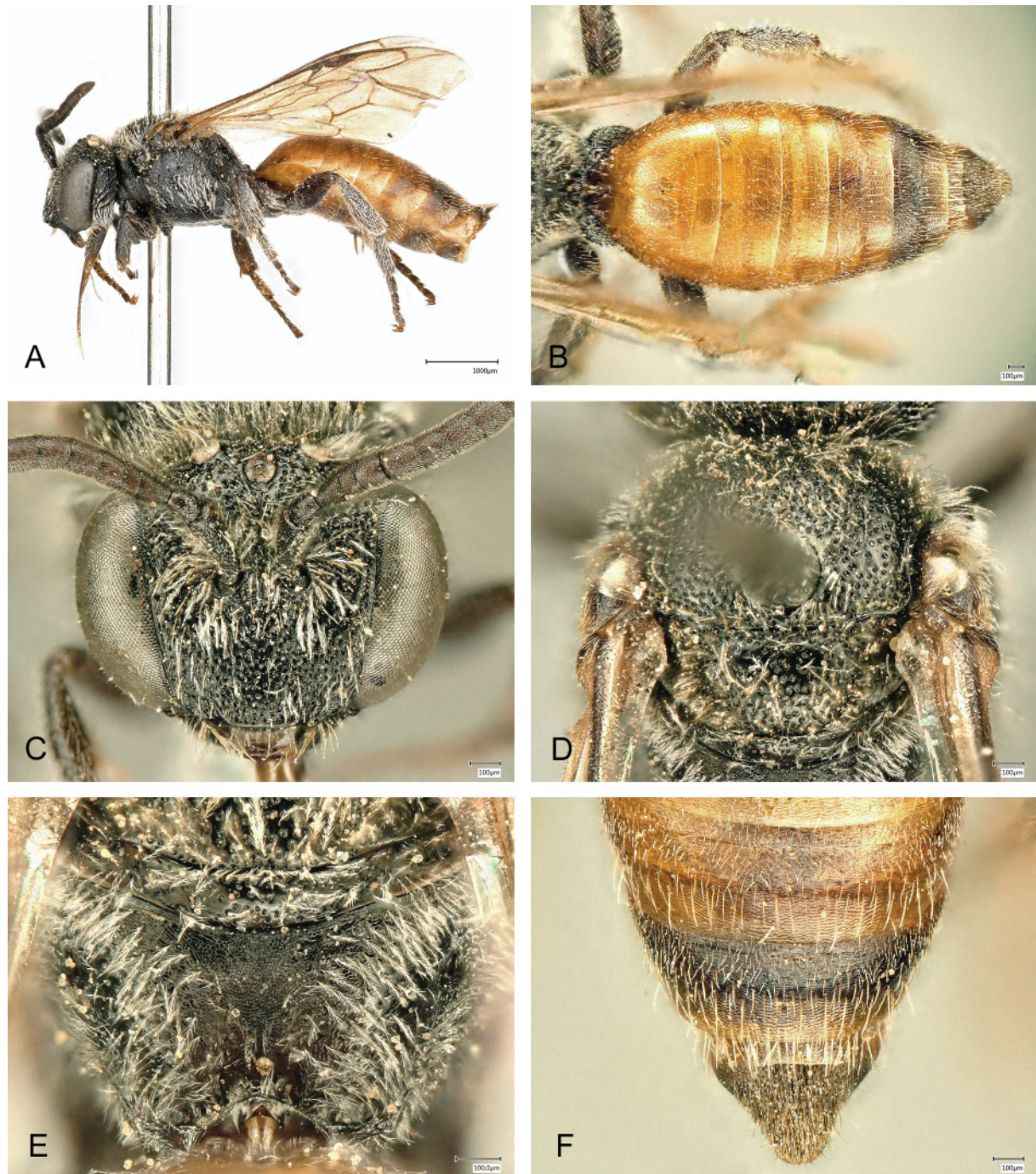


Fig. 65. *Sphecodopsis minuta* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

and shallow punctation, metapostnotum matt (Fig. 65E). Mesoscutum, mesoscutellum and metanotum covered with short, golden hair (Fig. 65D). Propodeum sparsely covered with short, white hair, metapostnotum glabrous (Fig. 65E). Mesepisternum covered with relatively long, white hair.

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 65A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 65A).

METASOMA. Integument of T1 red, except base of T1 black. T2–T4 to a variable extent red, from T2 basal half red to T4 completely red. T5–T7 black. T1 and T2 with few short, white and golden hairs, from T3 increasingly more and longer hair (Fig. 65B). T6 disc covered with long, white hair, marginal zone with few short, white hairs. T7 covered with short, golden hair (Fig. 65F).

TERMINALIA. Genitalia (Fig. 66C–D), S7 (Fig. 66A) and terminal plate of S8 (Fig. 66B) as illustrated.

Distribution

Only known from the wider vicinity of Nieuwoudtville.

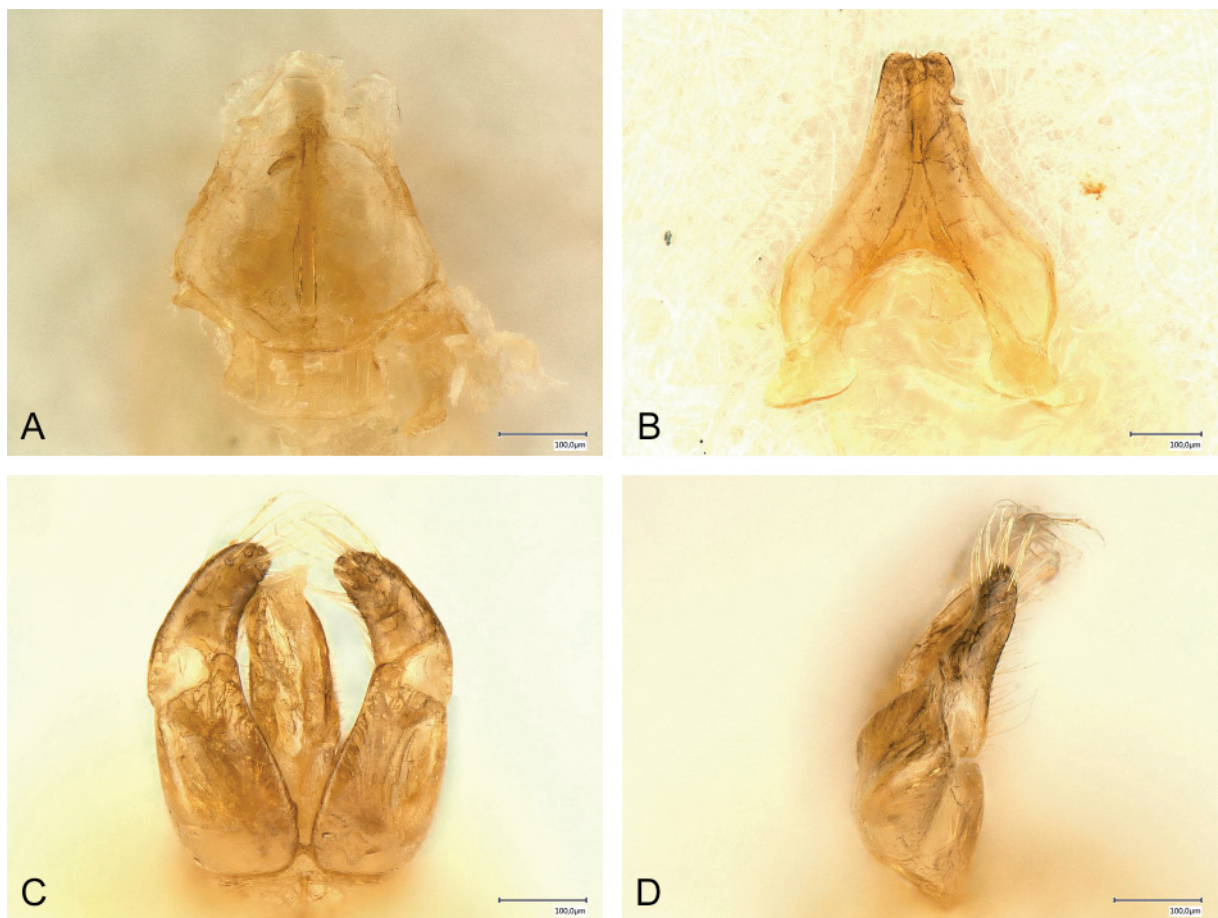


Fig. 66. *Sphecodopsis minuta* sp. nov., paratype, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Host bees

Unknown.

Seasonal activity

August.

Sphecodopsis nana sp. nov.

urn:lsid:zoobank.org:act:ED2DA301-FD9B-4949-AF00-7CDC9BFF4DF3

Figs 67–68

Diagnosis

The female of *S. nana* sp. nov. is unknown. The male can be separated from that of all other species of the genus by the combination of the following characters: T1 apically, T2 basally and T3 to a variable extent dark reddish-brown (Fig. 67B); fore legs usually black (Fig. 67A); head and mesosoma with golden or white hair (Fig. 67C–D); propodeum very sparsely covered with short white hair (Fig. 67E); gonostylus inclined inward, penis valves narrower, slightly shorter than gonostylus (Fig. 68C–D); S8 narrow and almost truncate apically (Fig. 68B).

Etymology

The species is named for its small size.

Type material (6 specimens)

Holotype

SOUTH AFRICA • ♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 19 Aug. 2004; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 2 ♂♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 13 Aug. 2004; MK leg.; RCMK • 3 ♂♂; same collection data as for preceding; 19 Aug. 2004; RCMK.

Description

Female

Unknown.

Male

BODY LENGTH. 3.7–4.3 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with short, gold and white hair. Face with dense ($i=0.5-1$ d) and fine but deep punctation (Fig. 67C). Surface between punctures slightly shiny. Antenna brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-1$ d) and finely but deeply punctate (Fig. 67D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 67E). Mesoscutum and metanotum covered with short, gold hair. Mesoscutellum covered with slightly long, golden hair. Propodeum with few short, white hairs, metapostnotum glabrous (Fig. 67E). Mesepisternum sparsely covered with slightly long, white hair.

WINGS. Yellowish; wing venation red and stigma red (Fig. 67A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 67A).

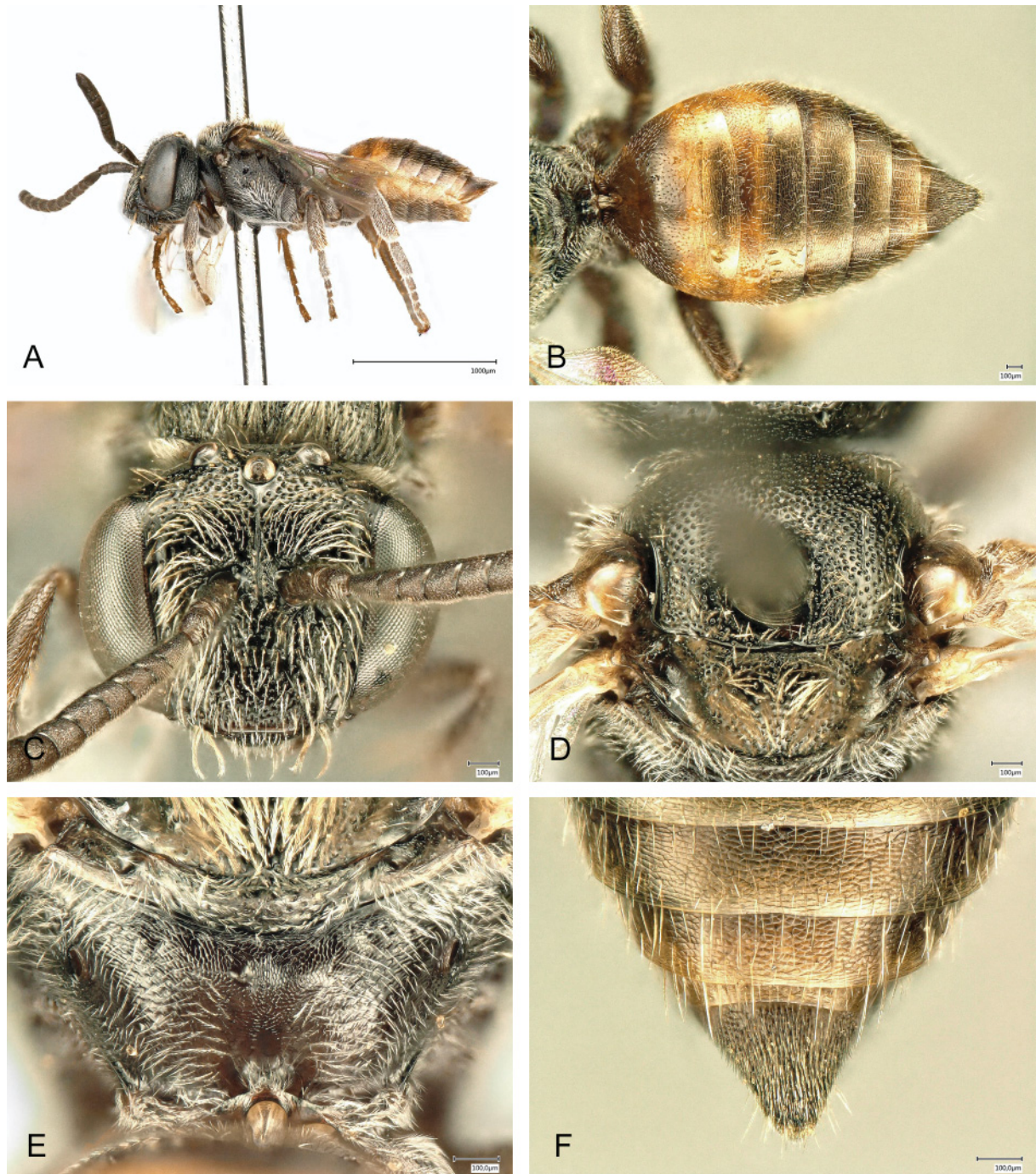


Fig. 67. *Sphecodopsis nana* sp. nov., paratype, ♂ (Nieuwoudtville Flower Reserve, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

METASOMA. Integument of T1 and T2 dark reddish-brown, except base of T1 black. T3 to a variable extent red, from completely black to completely red. T1 and T2 with few short, white and golden hair, from T3 increasingly more and longer hair (Fig. 67B). T6 disc covered with long white hair, marginal zone with short white hairs. T7 covered with short white hair (Fig. 67F).

TERMINALIA. Genitalia (Fig. 68C–D), S7 (Fig. 68A) and terminal plate of S8 (Fig. 68B) as illustrated.

Distribution

Only known from the Nieuwoudtville area.

Host bees

Unknown.

Seasonal activity

August.

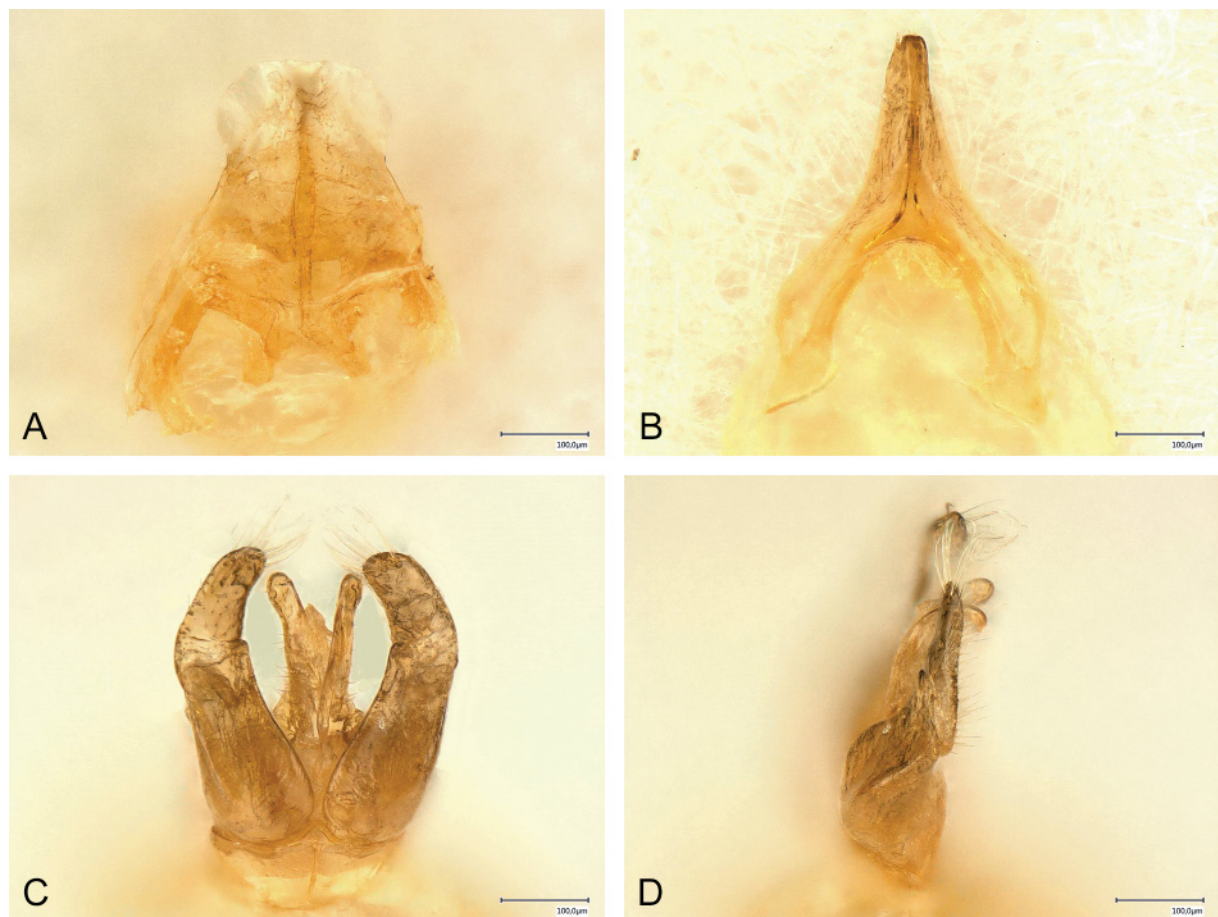


Fig. 68. *Sphecodopsis nana* sp. nov., paratype, ♂ (Nieuwoudtville Flower Reserve, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Sphecodopsis nigra sp. nov.

urn:lsid:zoobank.org:act:563CEA18-BB16-4C29-BEB8-4DD1F2AF9265

Figs 69–70

Diagnosis

The female of *S. nigra* sp. nov. is unknown. The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma completely black (Fig. 69B); head and mesosoma with white hair (Fig. 69C–D).

Etymology

The name refers to the black colour of the species.

Type material (4 specimens)

Holotype

SOUTH AFRICA • ♂; Cape Town; [33°57' S, 18°27' E]; Sep. 1913; GP leg.; SANC.

Paratypes

SOUTH AFRICA • 1 ♂; Cape Town; [33°57' S, 18°27' E]; Sep. 1913; GP leg.; SANC • 2 ♂♂; Cape Town; [33°57' S, 18°27' E]; 1913; GP leg.; RCMK.

Description

Female

Unknown.

Male

BODY LENGTH. 5.0–5.5 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with long, white hair. Face with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation (Fig. 69C). Surface between punctures slightly shiny. Antenna brown.

MESOSOMA. Integument black, tegula red. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5\text{--}1$ d), coarsely and deeply punctate (Fig. 69D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 69E). Mesoscutum, mesoscutellum, metanotum and mesepisternum covered with long, white hair. Propodeum covered with short, white hair, metapostnotum glabrous (Fig. 69D).

WINGS. Yellowish; wing venation red and stigma red (Fig. 69A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 69A).

METASOMA. Integument of T1–T6 black, except T1 red apically. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 69B). T6 disc covered with long, white hair. T7 covered with short, white hair (Fig. 69F).

TERMINALIA. Genitalia (Fig. 70B–C) and terminal plate of S8 (Fig. 70A) as illustrated. Unfortunately, S7 of this brittle and old specimen was lost during dissection.

Distribution

Only known from Cape Town.

Host bees

Unknown.

Seasonal activity

September.

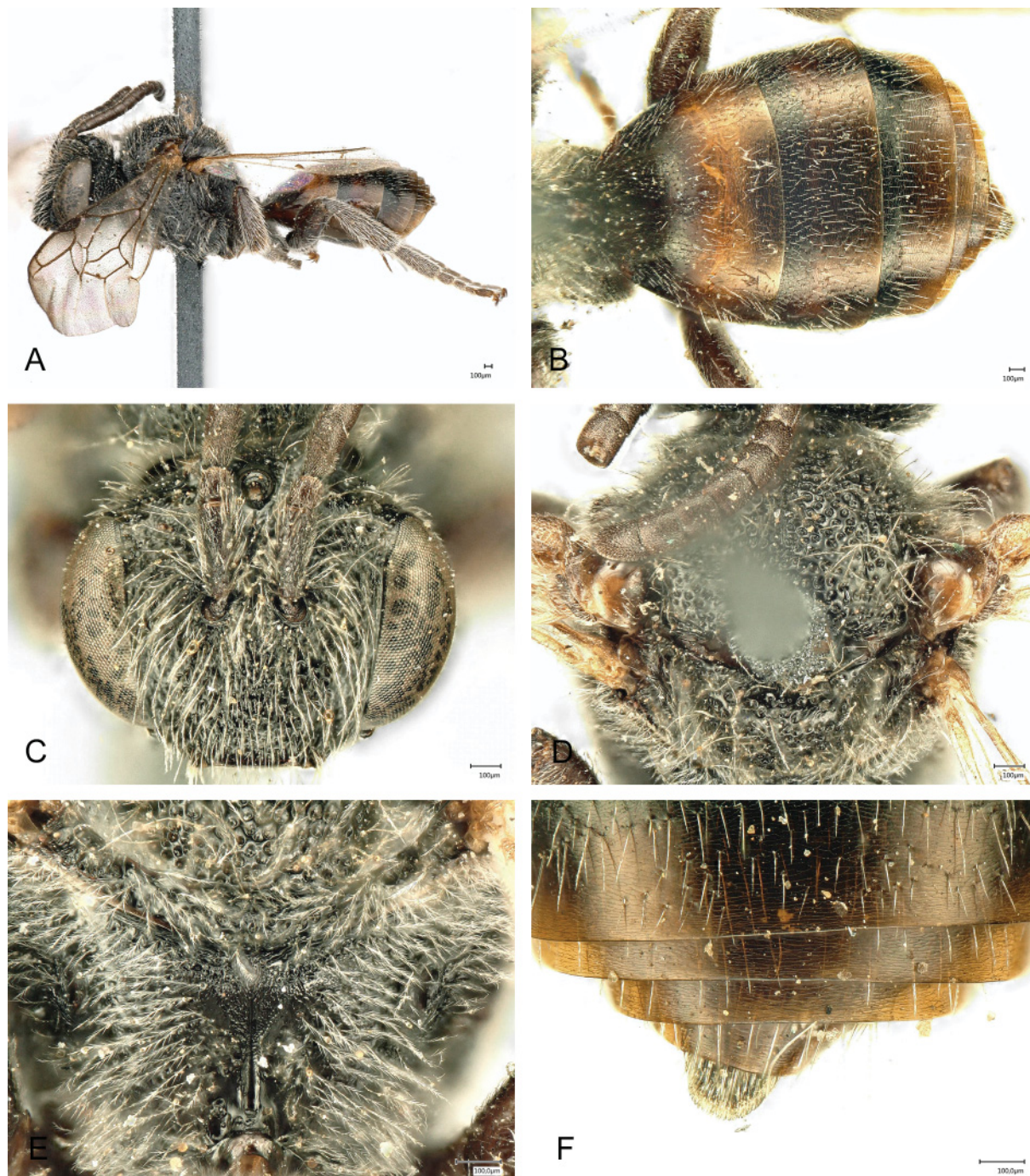


Fig. 69. *Sphecodopsis nigra* sp. nov., paratype, ♂ (Cape Town, RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. F. T4–T7 (dorsal view).

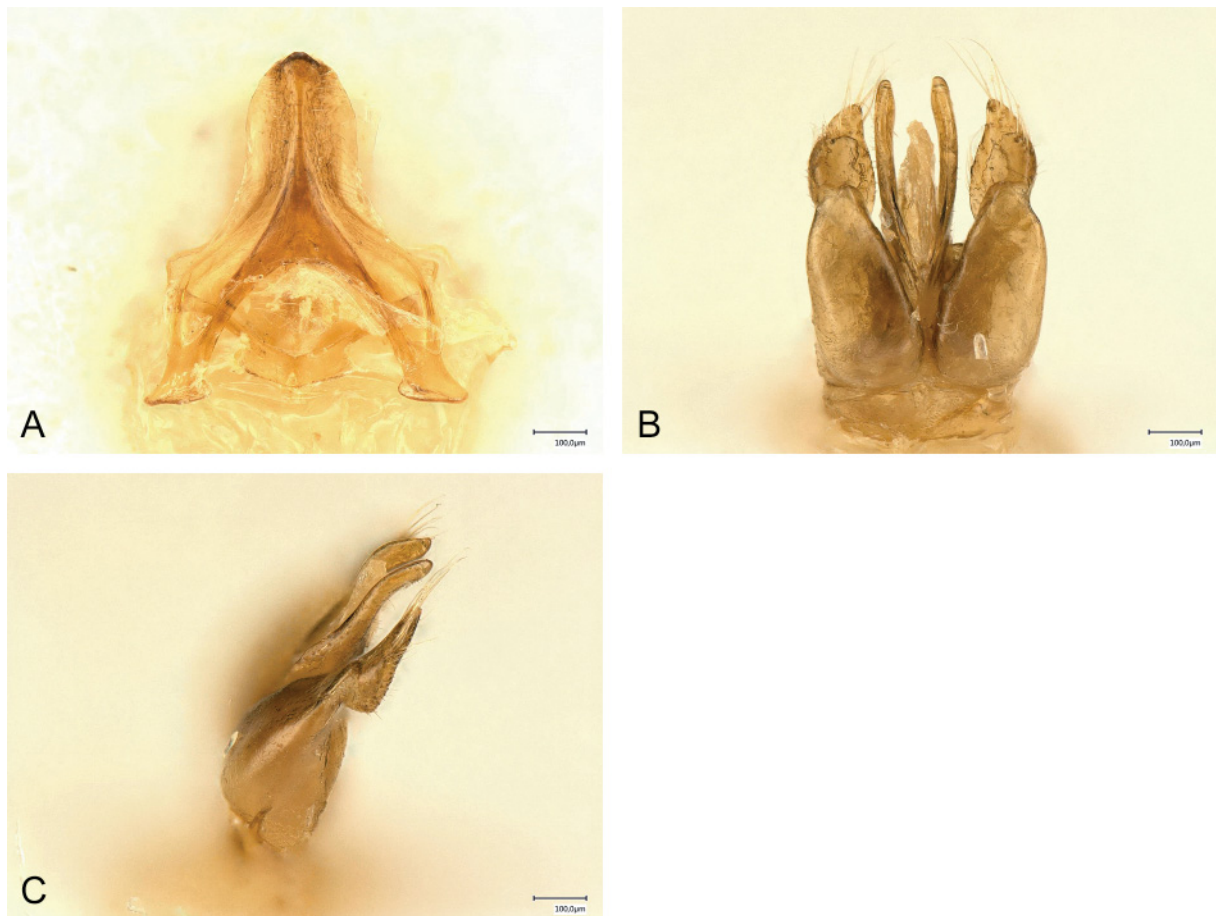


Fig. 70. *Sphecodopsis nigra* sp. nov., paratype, ♂ (Cape Town, RCMK). **A.** S8 (dorsal view). **B.** Genital (dorsal view). **C.** Genital (lateral view).

***Sphecodopsis papilla* Eardley, 2007**

Figs 71–72

Sphecodopsis papilla Eardley, 2007: 194–195, holotype ♀ (type locality: Nieuwoudtville, Flower Reserve East, South Africa) (SANC), examined.

Diagnosis

The female of *S. papilla* can be separated from that of all other species by the combination of the following characters: S6 bifid posteriorly, apical notch three times as long as its apical width, more or less spatulate, shape as shown in Fig. 72C; body length 3.5–5.8 mm; metasoma partially red (Fig. 71B); fore tibia and tarsi usually black (Fig. 71A); T6 covered with black hair (Fig. 72B); head and mesoscutum with black hair, partially mixed with white hair (Fig. 71C). The male is unknown.

Additional material examined (3 specimens)

SOUTH AFRICA • 1 ♀; N Cape, Fynbos, 15 km NW of Nieuwoudtville, Farm Engelsepunt; 31°14'31" S, 18°59'08" E; 830 m a.s.l.; 23–26 Jul. 2003; KT leg.; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Renosterveld along Pad; 31°15'27" S, 19°03'38" E; 770 m a.s.l.; 11 Jun. 2013; MK leg.; RCMK • 1 ♀; Nieuwoudtville, Hantam Botanical Garden, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 23 May 2013; MK leg.; RCMK.

Description

Female

BODY LENGTH. 5.4–5.8 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with fairly long, black hair mixed with short, white hair, with patches of white hair above the antenna. Face with dense ($i=0.25\text{--}0.5$ d) and fine but deep punctation, supraclypeal area with fine and more dispersed ($i=0.5\text{--}1$ d) punctation (Fig. 71C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula orange, partially translucent. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5\text{--}1$ d), finely and shallowly punctate (Fig. 71D). Propodeum with dense ($i=0.25\text{--}0.5$ d), fine and shallow punctation, metapostnotum finely carinate (Fig. 72A). Mesoscutum, mesoscutellum, metanotum, propodeum and mesepisternum sparsely covered with long, black hair mixed with short, white hair, metapostnotum glabrous (Figs 71D, 72A).

WINGS. Yellowish; wing venation brown and stigma brown to dark brown (Fig. 71A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with fairly long, black hair mixed with short, white hair. Tibia and tarsi covered with short, white hair mixed with short, black hair (Fig. 71A).

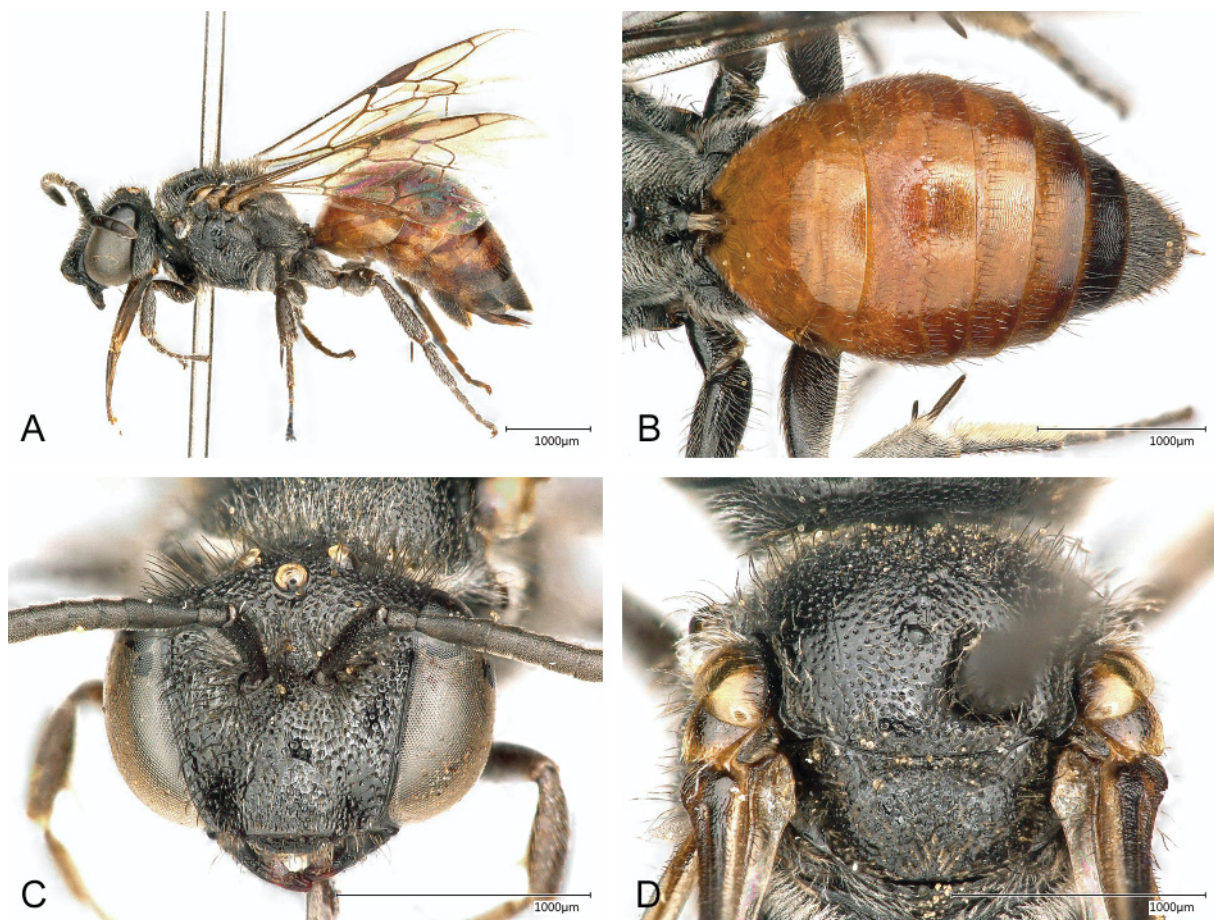


Fig. 71. *Sphecodopsis papilla* Eardley, 2007, ♀ (Farm Avontuur, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

METASOMA. Integument of T1–T4 red, T4 to a variable extent red, from only basal quarter red to only marginal zone black; T6 black. T1 and T2 with few short, white hairs mixed with short, black hair, from T3 increasingly more and longer hair (Fig. 71B). T6 broad and rounded apically, densely covered with short, black hair and shorter, white hair underneath (Fig. 72B). Shape of S6 (Fig. 72C) as illustrated.

Male

Unknown.

Distribution

Only known from the vicinity of Nieuwoudtville.

Host bees

Unknown.

Seasonal activity

May–July, September (Eardley 2007).

Comment

Potentially, *S. chrysea* sp. nov. is the unknown male of *S. papilla* as both were collected in autumn in the same area.

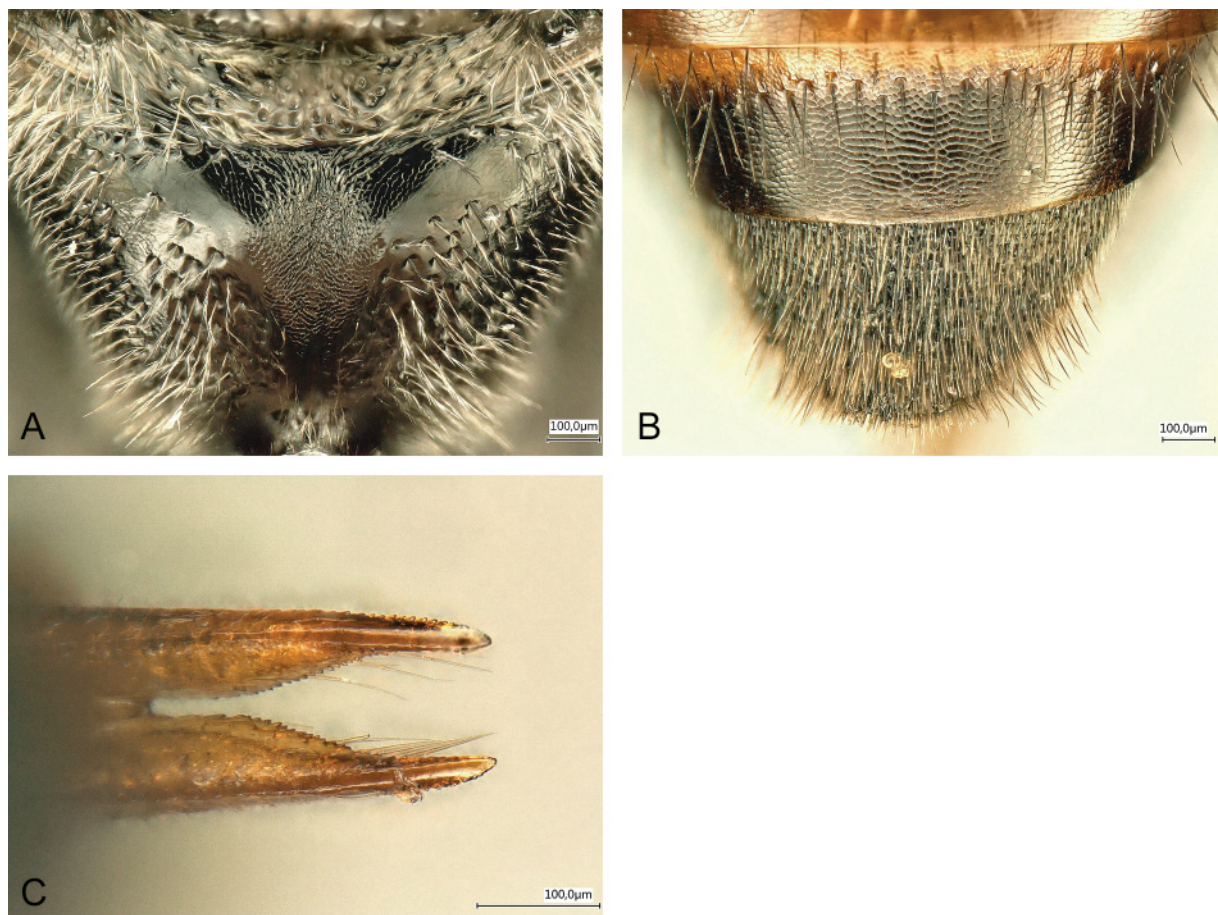


Fig. 72. *Sphecodopsis papilla* Eardley, 2007, ♀ (Farm Avontuur, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Sphecodopsis parvula sp. nov.

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Figs 73–74

Diagnosis

The female of *S. parvula* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch six times as long as its apical width, more or less spatulate, shape as shown in Fig. 74C; body length 3.5–5.8 mm; metasoma partially red (Fig. 73B); fore tibia and tarsi usually black, sometimes with small reddish spots (Fig. 73A); T6 covered with only thin golden hair (Fig. 74B); head and mesosoma with light hair (Fig. 73C–D); propodeum very sparsely covered with short white hair (Fig. 74A); T6 rounded apically with inconspicuous fringes, hair laterally about as long as medially (Fig. 74B). The male is unknown.

Etymology

The species is named for its small size.

Type material (2 specimens)

Holotype

SOUTH AFRICA • ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; SAMC.

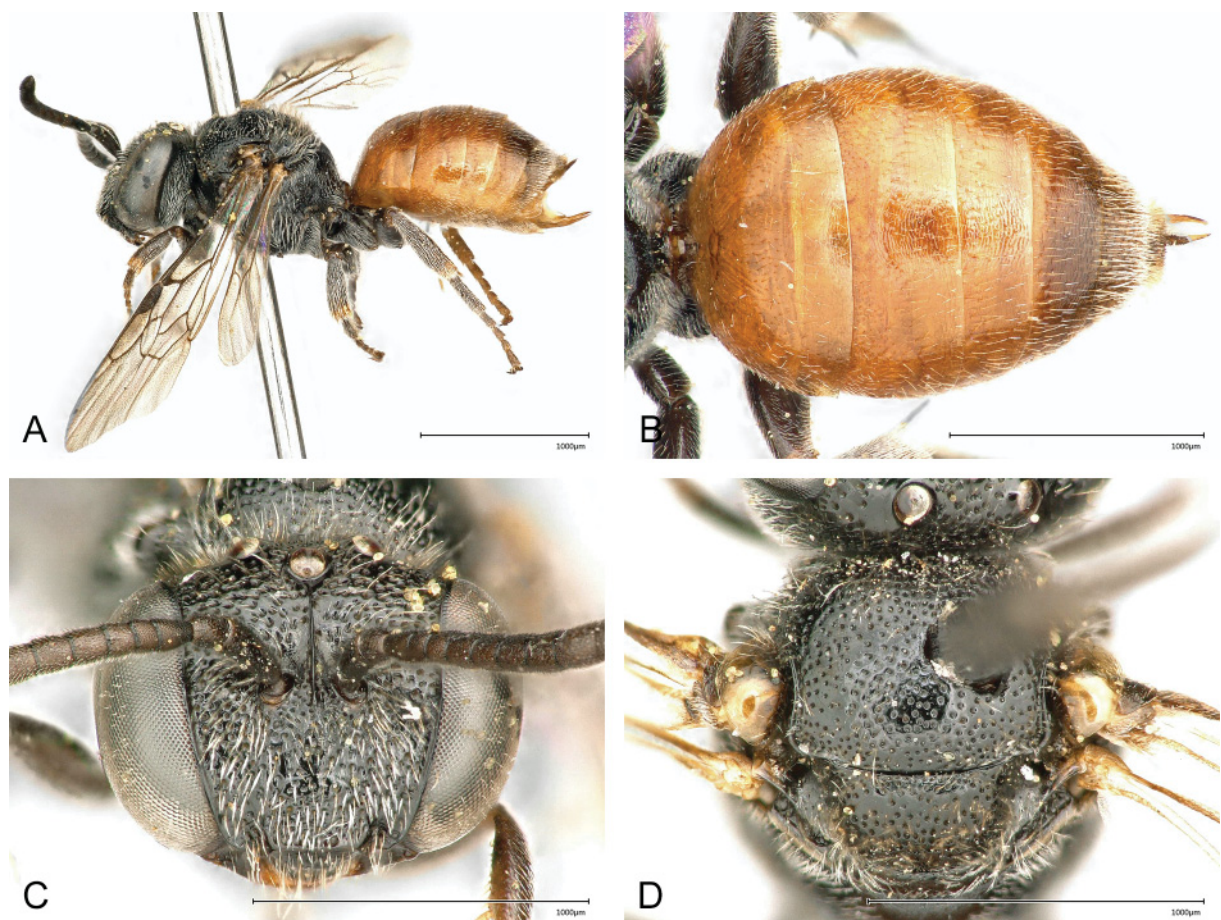


Fig. 73. *Sphecodopsis parvula* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Paratype

SOUTH AFRICA • 1 ♀; Nieuwoudtville, Wild flower reserve, dolerite hills; 31°22'10" S, 19°08'50" E; 770 m a.s.l.; 19 Aug. 2007; KT leg.; RCMK.

Description

Female

BODY LENGTH. 3.8–4.0 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, yellowish-white hair. Face with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, supraclypeal area more dispersed (Fig. 73C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5\text{--}1$ d) and finely but deeply punctate (Fig. 73D). Propodeum with dense ($i=0.5\text{--}1$ d), fine and shallow punctation, metapostnotum matt (Fig. 74A). Mesoscutum, metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Figs 73D, 74A). Mesepisternum covered with short, white hair. Mesoscutellum covered with long, yellowish-white hair (Fig. 73D).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 73A).

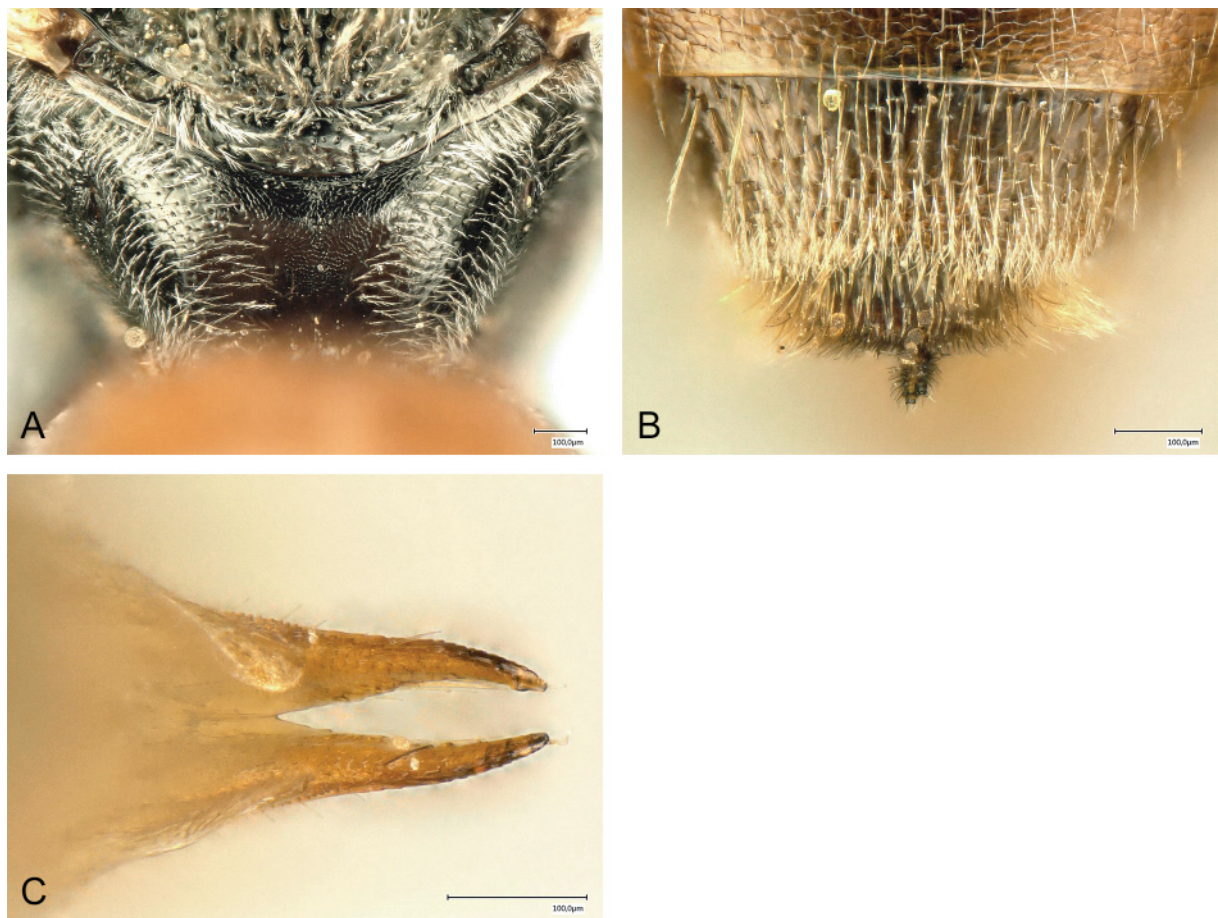


Fig. 74. *Sphecodopsis parvula* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

LEGS. Integument black, except tibia apically light red and on fore legs tarsi light red. Coxa, trochanter, femur, tibia and tarsi covered with short, white hair (Fig. 73A).

METASOMA. Integument of T1–T2 red, T3–6 to a variable extent red, from T3 basal half red to T4 apical half black. T5 and T6 black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 73B). T5 marginal zone covered with short, white hairs. T6 slightly rounded apically with a hair fringe, densely covered with short, white and golden hair (Fig. 74B). Shape of S6 (Fig. 74C) as illustrated.

Male

Unknown.

Distribution

Only known from the Kamiesberg Mts and the Nieuwoudtville area.

Host bees

Unknown.

Seasonal activity

August–September.

***Sphecodopsis tenera* sp. nov.**

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Figs 75–78

Diagnosis

The female of *S. tenera* sp. nov. can be separated from that of all other species by the combination of the following characters: S6 bifid posteriorly, apical notch four times as long as its apical width, more or less spatulate, shape as shown in Fig. 76C; body length 3.5–5.8 mm; metasoma partially red (Fig. 75B); fore tibia and tarsi usually black, sometimes with small reddish spots (Fig. 75A); T6 covered with golden hair (Fig. 76B); head and mesosoma with light hair (Fig. 75C–D); propodeum densely covered with short white or yellowish-white hair (Fig. 76A); T5 apically densely covered with short white hair (Fig. 76B); T6 rounded apically, covered with short golden hair forming a fringe (Fig. 76B). The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 77B); fore legs usually black, sometimes with small reddish spots (Fig. 77A); propodeum covered with white hair (Fig. 77E); head and mesosoma with white hair (Fig. 77C–D); T7 very sparsely covered with short golden hair (Fig. 77F); gonostylus inclined inward, penis valves narrower, slightly shorter than gonostylus (Fig. 78C); S8 broadly rounded apically (Fig. 78B).

Etymology

The name refers to the small and delicate appearance of the species.

Type material (29 specimens)

Holotype

SOUTH AFRICA • ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 30 Aug. 2018; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; RCMK • 1 ♀; Kamiesberg Mts, 5 km SE of Leliefontein, roadside;

30°20'09" S, 18°06'24" E; 1400 m a.s.l.; 10 Sep. 2017; MK leg.; RCMK • 1 ♀; N Cape, 15 km NW of Nieuwoudtville, Farm Engelsepunt, Fynbos; 31°14'31" S, 18°59'08" E; 830 m a.s.l.; 6 Oct. 2003; KT leg.; RCMK • 1 ♀; same collection data as for preceding; 7 Oct. 2003; RCMK • 1 ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; 770 m a.s.l.; 25 Aug. 2010; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 3 Sep. 2016 • 1 ♀, 1 ♂; same collection data as for preceding; 30 Aug. 2018; RCMK • 4 ♂♂; same collection data as for preceding; 9 Sep. 2018; RCMK • 1 ♀; same collection data as for preceding; 21 Sep. 2022; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve, dolerite hills; 31°22'10" S, 19°08'50" E; 770 m a.s.l.; 17 Aug. 2007; KT leg.; RCMK • 2 ♀♀, 1 ♂; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 7 Sep. 2007; MK leg.; RCMK • 2 ♀♀, 3 ♂♂; same collection data as for preceding; 27 Aug. 2012; RCMK • 1 ♀; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 9 Aug. 2011; MK leg.; RCMK • 2 ♀♀, 3 ♂♂; same collection data as for preceding; 23 Aug. 2012; RCMK.

Description

Female

BODY LENGTH. 3.9–4.0 mm.

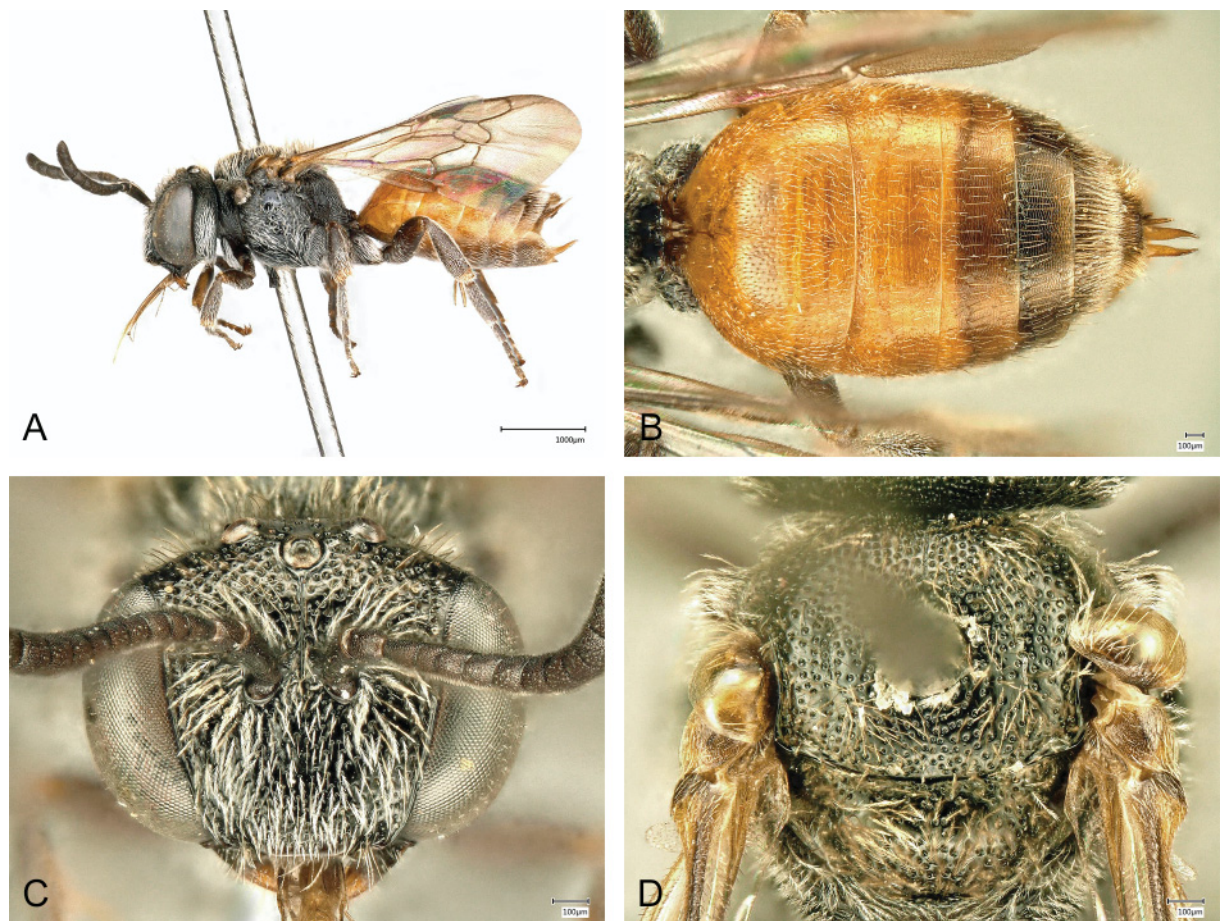


Fig. 75. *Sphecodopsis tenera* sp. nov., paratype, ♀ (Farm Avontuur, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, white and golden hair. Face with dense ($i=0.25\text{--}0.5\text{ d}$), coarse and deep punctation (Fig. 75C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula red. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5\text{ d}$), coarsely and deeply punctate (Fig. 75D). Propodeum with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow punctation, metapostnotum matt (Fig. 76A). Mesoscutum covered with short, golden hair. Mesoscutellum covered with long, golden hair (Fig. 75D). Metanotum and propodeum covered with short white hair, metapostnotum glabrous (Figs 75D, 76A). Mesepisternum covered with slightly long, white hair.

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 75A).

LEGS. Integument black, except femur and tibia apically light red. Coxa, trochanter, femur, tibia and tarsi covered with short, white hair (Fig. 75A).

METASOMA. Integument of T1–T2 red, T3–6 to a variable extent red, from T3–T4 completely black or entirely red, T5 and T6 black. T1 and T2 with few short, white and golden hairs, from T3 increasingly more and longer hair (Fig. 75B). T5 marginal zone densely covered with short, white hairs. T6 slightly

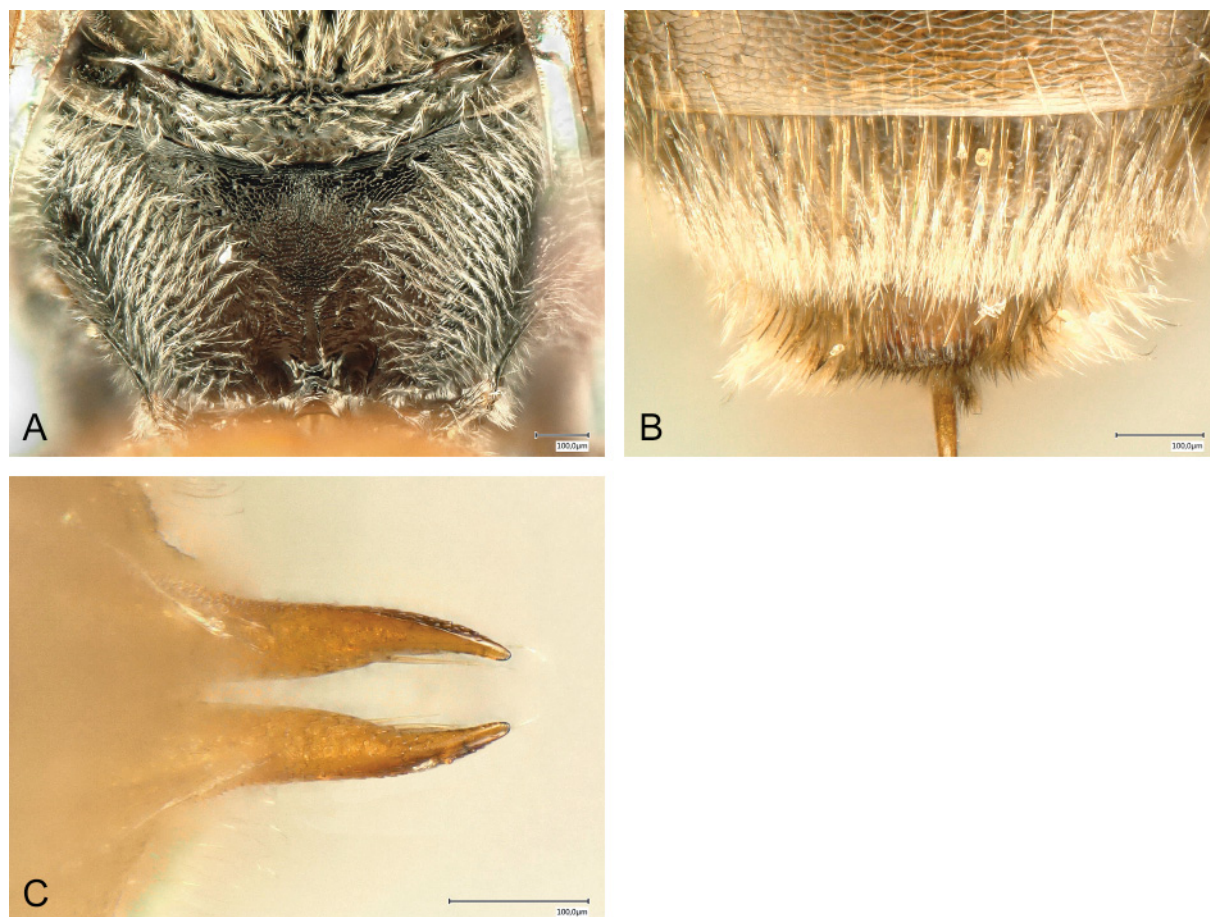


Fig. 76. *Sphecodopsis tenera* sp. nov., paratype, ♀ (Farm Avontuur, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

rounded apically with a hair fringe, densely covered with short, golden hair, (Fig. 76B). Shape of S6 (Fig. 76C) as illustrated.

Male

BODY LENGTH. 3.7–4.9 mm.



Fig. 77. *Sphecodopsis tenera* sp. nov., paratype, ♂ (Farm Avontuur, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with short, white hair. Face with dense ($i=0.5-1$ d), coarse and deep punctation (Fig. 77C). Surface between punctures matt. Antenna brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d) and finely but deeply punctate (Fig. 77D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum matt (Fig. 77E). Mesoscutum, metanotum, propodeum and mesepisternum sparsely covered with short, white hair, metapostnotum glabrous (Fig. 77D–E). Mesoscutellum covered with slightly long, white hair.

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 77A).

LEGS. Integument black. Coxa, trochanter, femur, tibia and tarsi sparsely covered with short, white hair (Fig. 77A).

METASOMA. Integument of T1 and T2 red, except base of T1 black. T3 variable, from completely black to entirely red. T1 and T2 with few short, white and golden hair, from T3 increasingly more and longer hair (Fig. 77B). T7 covered with short, golden hair (Fig. 77F).

TERMINALIA. Genitalia (Fig. 78C–D), S7 (Fig. 78A) and terminal plate of S8 (Fig. 78B) as illustrated.

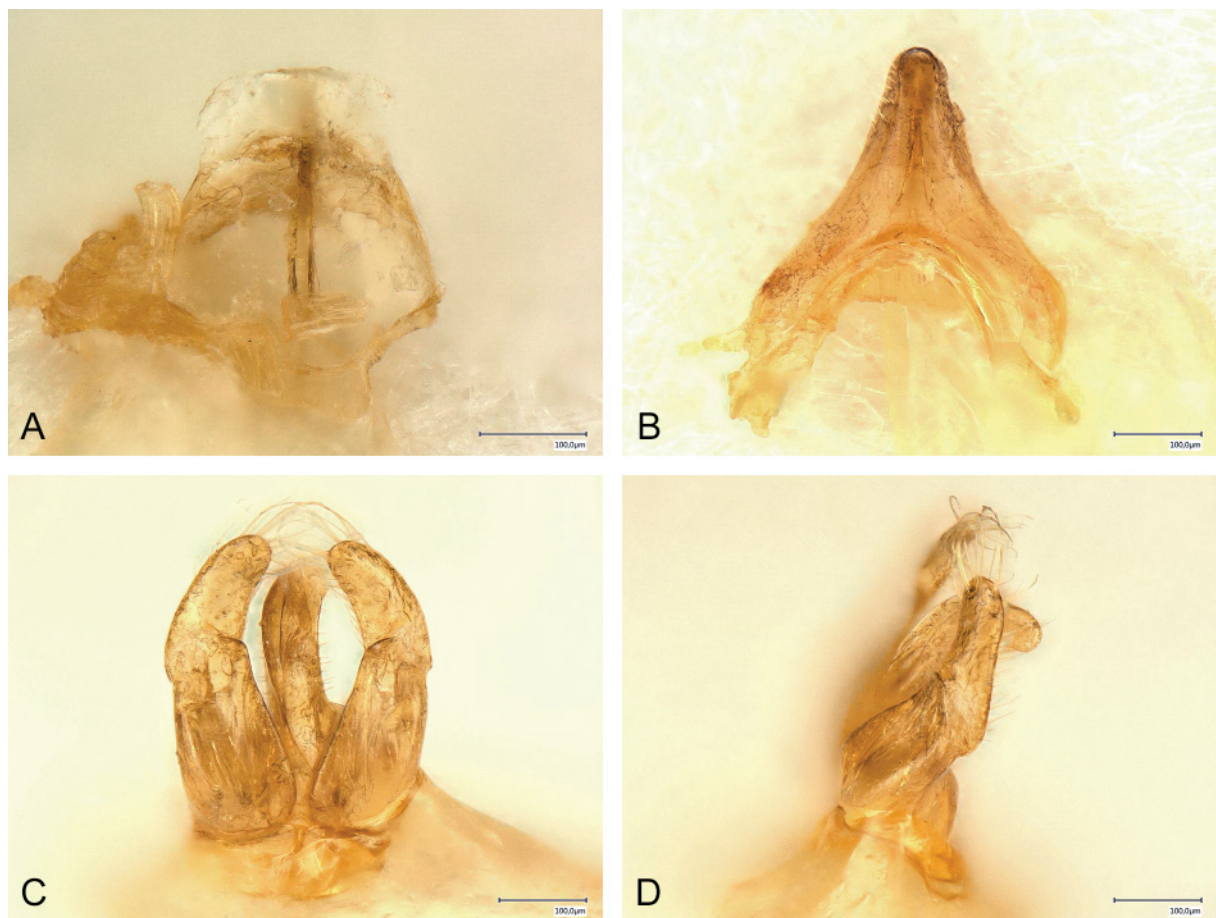


Fig. 78. *Sphecodopsis tenera* sp. nov., paratype, ♂ (Farm Avontuur, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Distribution

Recorded from the wider Nieuwoudtville area and the Kamiesberg Mts.

Host bees

Unknown.

Seasonal activity

August–October.

Comment

Five specimens display slight morphological differences: in *S. cf. 1 tenera* sp. nov. the marginal zone of T5 is covered less densely with fewer short, white hairs; T6 is broader, sparsely covered with short, golden hair and more truncate apically without a hair fringe. In *S. cf. 2 tenera* the marginal zone of T5 is much more densely covered with short, white hair and T6 densely covered with short, golden hair, slightly more truncate apically with a smaller, sparse hair fringe. In *S. cf. 3 tenera* T6 is narrower and more truncate apically.

At present, the taxonomic status of these specimens is unclear so we do not assign them to *S. tenera* sp. nov. but make their collection data available to enable further investigation:

Sphecodopsis cf. 1 tenera: SOUTH AFRICA • 1 ♀; 7 km NE of Steinkopf, roadside N7; 29°12'40" S, 17°47'11" E; 970 m a.s.l.; 13 Sep. 2017; MK leg.; RCMK.

Sphecodopsis cf. 2 tenera: • 1 ♀; 8 km NW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; RCMK.

Sphecodopsis cf. 3 tenera: • 1 ♀; 15 km NW of Nieuwoudtville, Farm Zoetfontein E, Fynbos; 31°14'05" S, 19°02'50" E; 775 m a.s.l.; 7 Oct. 2022; MK leg.; RCMK • 1 ♀; Knersvlakte, roadside, 23 km SE of Vanrhynsdorp; 31°44'06" S, 18°55'32" E; 200 m a.s.l.; 17 Aug. 2010; MK leg.; RCMK • 1 ♀; Ouberg Pass, roadside, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 8 Aug. 2012; MK leg.; RCMK.

Sphecodopsis semirufa species group

The group consists of the following six species: *S. keiskiensis* sp. nov., *S. kuhlmanni* Eardley, 2007, *S. leonis*, *S. rufipes* sp. nov., *S. semirufa* (Cockerell, 1933) and *S. villosa* (Friese, 1909). Characteristics of this group are the following: mesoscutum shiny, with sparse punctation (Figs 79D, 81D–E, 83D, 85D, 87D, 89D, 91D, 93D, 95D); fore tibia and tarsi usually completely or largely red (Figs 79D, 81D–E, 83D, 85D, 87D, 89D, 91D, 93D, 95D); female S6 bifid posteriorly, apical notch one to one and a half times as long as its apical width (Figs 80C, 82D, 88C, 92C); male gonostylus broader, rounded posteriorly and straight or slightly bent inward (Figs 84C–D, 86D, 90C–D, 94C–D, 96C–D).

Sphecodopsis keiskiensis sp. nov.

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Figs 79–80

Diagnosis

The female of *S. keiskiensis* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width (Fig. 80C); metasoma partially red (Fig. 79B); fore tibia and tarsi completely or largely red

(Fig. 79A); head wider than long, vertex flat (Fig. 79C); T5 apically without fringe (Fig. 80B); head and mesoscutum with black hair, interspersed with lighter hair (Fig. 79C–D); mesoscutum shiny, sparsely and shallowly punctate (Fig. 79D); no white hair above base of antenna (Fig. 79C); propodeum laterally and metapostnotum only with few white hairs in upper corners (Fig. 80A). The male is unknown.

Etymology

Named after the Keiskie Mts where the only known specimen was found.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♀; Keiskie Mts, 5 km S of Farm Nooiensrivier, dolerite hill; 31°45'54" S, 19°50'17" E; 1270 m a.s.l.; 22 Sep. 2014; MK leg.; SAMC.

Description

Female

BODY LENGTH. 7.4 mm.

HEAD. Head wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face and clypeus

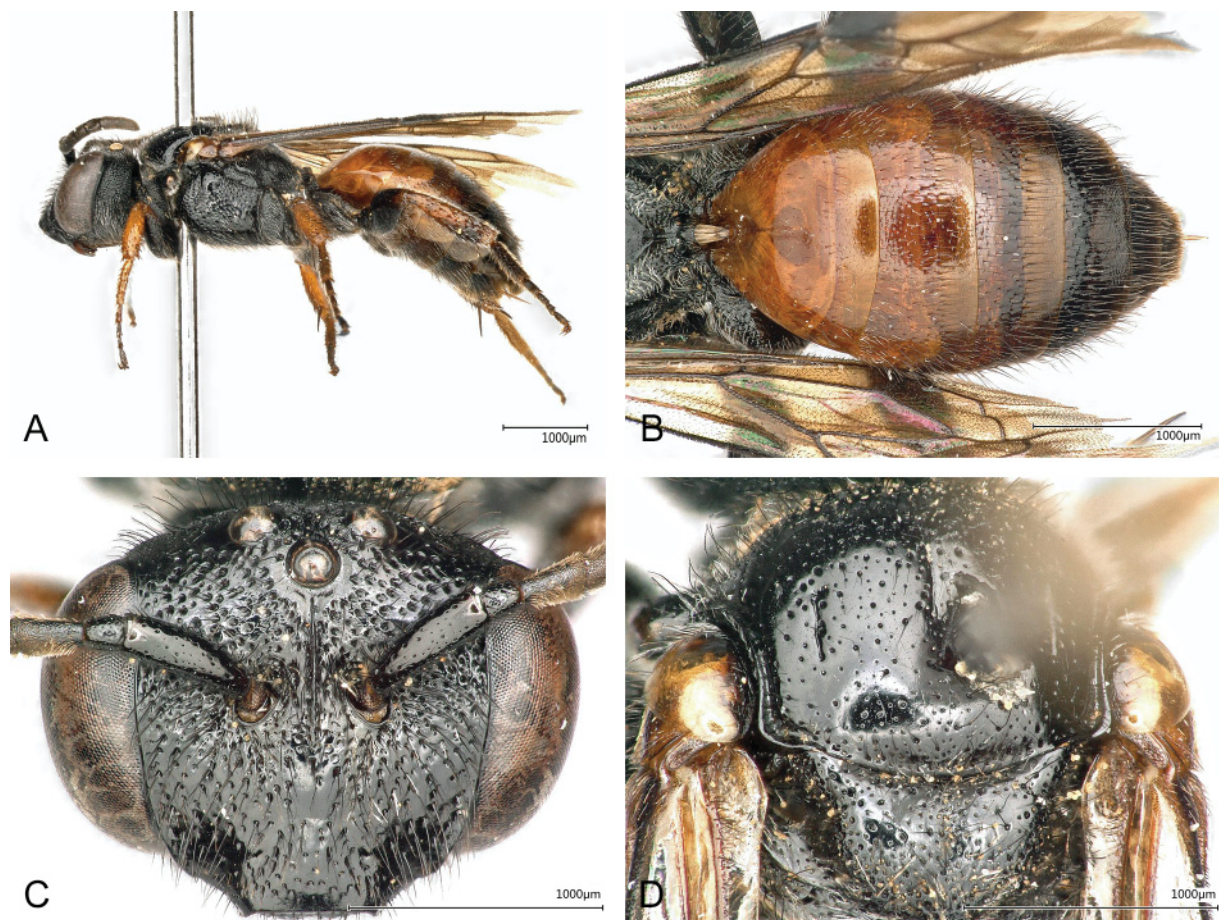


Fig. 79. *Sphecodopsis keiskiensis* sp. nov., holotype, ♀ (SAMC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

with sparse ($i=0.5-1$ d), fine and shallow punctation, supraclypeal area with more dispersed ($i=0.5-2.5$ d) punctation (Fig. 79C). Surface between punctures shiny. Antenna black.

MESOSOMA. Integument black, tegula orange, partially translucent. Mesoscutum shiny. Mesoscutum and mesoscutellum sparsely ($i=1-3$ d), finely and shallowly punctate (Fig. 79D). Propodeum densely ($i=0.5-1$ d), finely and shallowly punctate, metapostnotum matt (Fig. 80A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 79D). Metanotum and propodeum sparsely covered with short, yellowish-white hair, metapostnotum only with hair in upper corners (Figs 79D, 80A).

WINGS. Fuscous; wing venation brown and stigma brown to dark brown (Fig. 79A).

LEGS. Integument of coxa and trochanter black, trochanter apically red, tibia and tarsi completely red. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter, white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short, white hair (Fig. 79A).

METASOMA. Integument of T1–T3 red and T4–T6 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 79B). T6 with short, golden hair, narrow and almost straight apically, apical margin with very short, dense, golden hair (Fig. 80B). Shape of S6 (Fig. 80C) as illustrated.

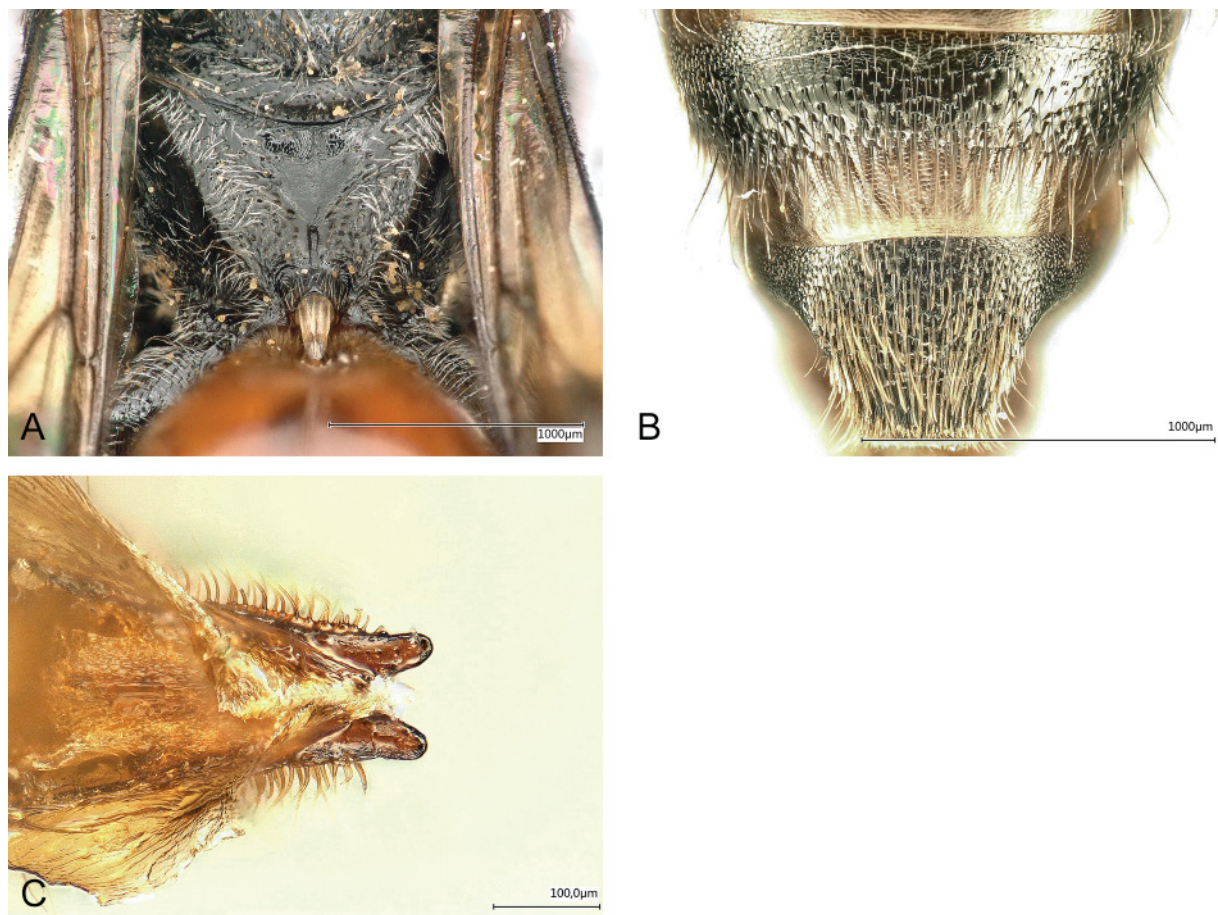


Fig. 80. *Sphecodopsis keiskiensis* sp. nov., holotype, ♀ (SAMC). A. Propodeum. B. T5 and T6. C. S6.

Male

Unknown.

Distribution

Only known from the type locality in the Keiskie Mts south of Calvinia.

Host bees

Unknown.

Seasonal activity

September.

Sphecodopsis kuhlmanni Eardley, 2007

Figs 81–84

Sphecodopsis kuhlmanni Eardley, 2007: 194–196, holotype ♂ (type locality: Nieuwoudtville, Flower Reserve East, South Africa) (SANC), examined.

Diagnosis

The female of *S. kuhlmanni* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width and without a small tip distally, notch narrow, shape as shown in Fig. 82D; metasoma partially red (Fig. 81B); fore tibia and tarsi completely or largely red to largely black with only small reddish spots (Fig. 81A); head wider than long, vertex flat (Fig. 81C); T5 apically without fringe (Fig. 82C); T6 almost truncate apically, covered with black hair (Fig. 81C–E); head and mesoscutum with short black hair, interspersed with lighter hair (Fig. 81C–E); mesoscutum shiny, sparsely and shallowly punctate (Fig. 81D–E); Thin patch of white hair above base of antenna (Fig. 81C); propodeum laterally and metapostnotum with abundant white hair in upper corners (Fig. 82A–B). The male can be separated from that of all other species by the combination of the following characters: metasoma at least partially red (Fig. 83B); fore tibia and tarsi completely red or light red to largely black with small reddish spots (Fig. 83A); head and mesosoma with black hair, sometimes mixed with lighter hair (Fig. 83C–D); mesoscutum sparsely (i=1–3 d), finely and shallowly punctate, very shiny (Fig. 83D); metapostnotum slightly wider than high, with more abundant hair in upper corners and matt (Fig. 83E); gonostylus straight, broad, rounded posteriorly (Fig. 84C–D).

Additional material examined (160 specimens)

SOUTH AFRICA • 1 ♀; 10 km SSE of Steinkopf, roadside; 29°19'56" S, 17°46'28" E; 970 m a.s.l.; 12 Sep. 2017; MK leg.; RCMK • 1 ♂; Remhoogte, plain; 30°14' S, 18°09' E; 7 Sep. 2003; CM leg.; RCMK • 1 ♂; Leliefontein, slope, white trap; 30°14' S, 18°09' E; 7 Sep. 2003; CM leg.; SANC • 1 ♀; Leliefontein, slope, yellow + white trap; 30°14' S, 18°09' E; 23 Sep. 2003; CM leg.; SANC • 1 ♂; Remhoogte, slope; 30°14' S, 18°10' E; 15 Sep. 2003; CM leg.; RCMK • 3 ♀♀; 12 km NW of Nieuwoudtville, Farm Avontuur, dolerite hill; 31°16'02" S, 19°04'05" E; 830 m a.s.l.; 27 Aug. 2008; HE leg.; RCMK • 1 ♀; N Cape Prov., Vanrhynsdorp, Water Fall; 31°17' S, 18°53' E; 19 Sep. 2007; CE leg.; SANC • 1 ♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'55" S, 19°08'52" E; 735 m a.s.l.; 10 Aug. 2004; MK leg.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 3 Sep. 2003; MK leg.; on *Oxalis* sp.; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 7 Sep. 2003; RCMK • 9 ♀♀, 8 ♂♂; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 11 Sep. 2003; MK leg.; RCMK • 16 ♀♀, 10 ♂♂; same collection data as for preceding;

12 Aug. 2004; RCMK • 10 ♀♀, 24 ♂♂; same collection data as for preceding; 13 Aug. 2004; RCMK • 6 ♀♀, 5 ♂♂; same collection data as for preceding; 19 Aug. 2004; RCMK • 3 ♀♀; same collection data as for preceding; 21 Aug. 2004; RCMK • 1 ♀; Nieuwoudtville, Wild Flower Reserve, dolerite flats; 31°22'01" S, 19°08'32" E; 740 m a.s.l.; 29 Aug. 2008; MK leg.; on *Alonsoa unilabiata*; RCMK • 3 ♀♀; Nieuwoudtville, Wild Flower Reserve, dolerite hills; 31°22'10" S, 19°08'50" E; 770 m a.s.l.; 19



Fig. 81. *Sphecodopsis kuhlmanni* Eardley, 2007, ♀ (Nieuwoudtville Flower Reserve, RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Mesoscutum and mesoscutellum variation (dorsal view).

Aug. 2007; KT leg.; RCMK • 1 ♀, 4 ♂♂; Nieuwoudtville, path to Farm Glen Lyon, slope; 31°23'25" S, 19°08'28" E; 737 m a.s.l.; 3 Sep. 2007; KT leg.; RCMK • 1 ♂; Nieuwoudtville, Farm Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 10 Sep. 2003; MK leg.; RCMK • 1 ♀, 3 ♂♂; N Cape, Nieuwoudtville, Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 11 Sep. 2003; MK leg.; 1 ind. on *Eriocephalus ericoides*; RCMK • 3 ♀♀; Nieuwoudtville, Hantam Bot. Gard., Kamel Koppie; 31°24'48" S, 19°09'23" E; 760 m a.s.l.; 12 Sep. 2008; MK leg.; RCMK • 1 ♀; N Cape, Oorlogskloof farm, Wide gate 1 Site (8.06 km 158° SSE of Nieuwoudtville), wheat; 31°25'52" S, 19°10'12" E; 12–19 Oct. 2000; SvN and HGR leg.; SANC • 1 ♀; N Cape, Oorlogskloof farm, Wide gate 2 Site (8.24 km 158° SSE of Nieuwoudtville), wheat; 31°25'58" S, 19°10'13" E; 12–19 Oct. 2000; SvN and HGR leg.; SANC • 1 ♀; 18 km S of Calvinia on R355, 200 m S of Farm Boskloof; 31°38'36" S, 19°44'36" E; 1000 m a.s.l.; 22 Sep. 2022; MK leg.; RCMK • 1 ♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; 1190 m a.s.l.; 30 Aug. 2016; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 28 Sep. 2022; RCMK • 1 ♀; Keiski Mts, 5 km S of Farm Nooiensrivier, dolerite hill; 31°45'54" S, 19°50'17" E; 1270 m a.s.l.; 4 Sep. 2010; MK leg.; RCMK • 5 ♀♀; same collection data as for preceding; 29 Aug. 2011; RCMK • 1 ♀, 1 ♂; Roggeveld Mts, 2 km S of Farm Perdekloof, rivier, dolerite; 31°47'35" S, 19°58'16" E; 1220 m a.s.l.; 1 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 2 Sep. 2017; RCMK • 1 ♂; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; 380 m a.s.l.; 23 Aug. 2012; MK leg.; RCMK • 1 ♀; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; 1290 m a.s.l.; 2 Sep. 2017; MK

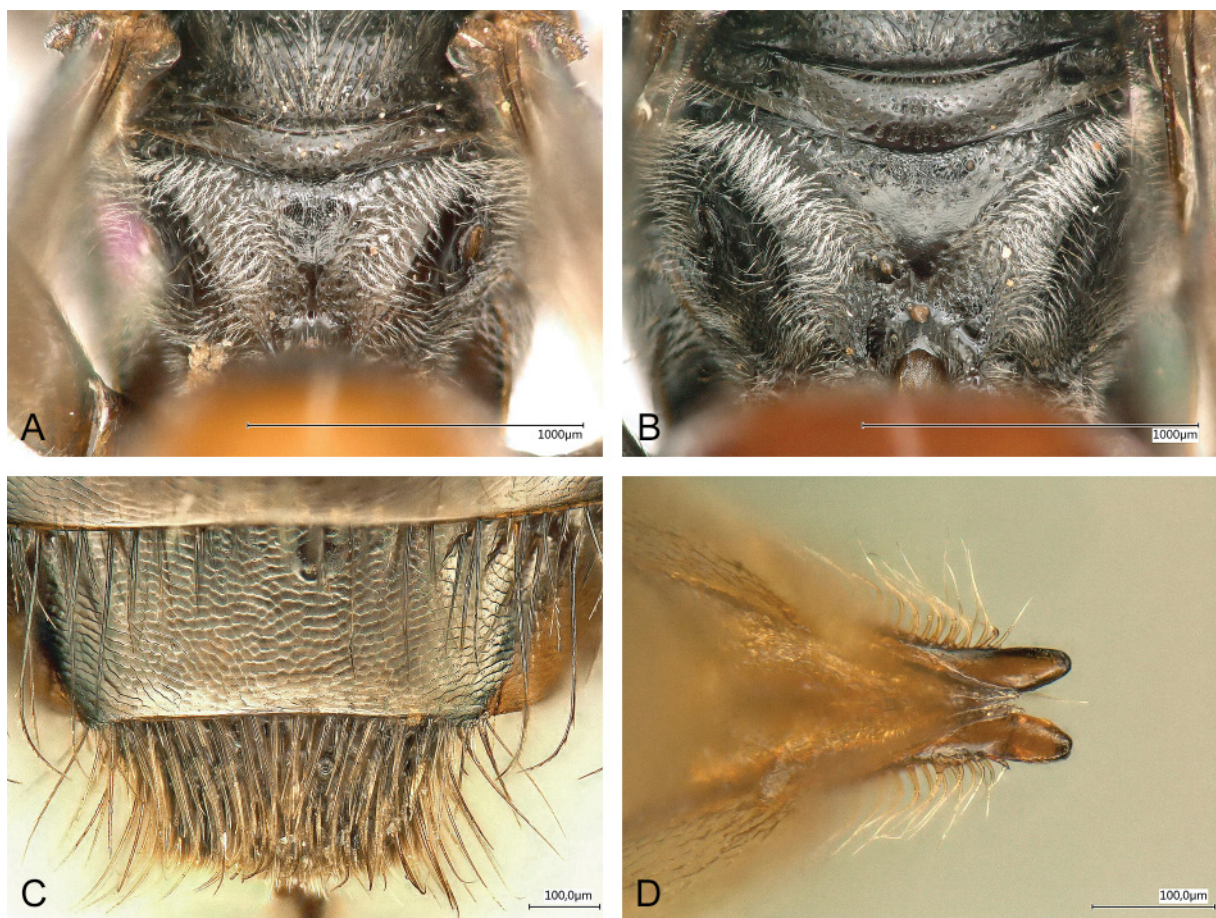


Fig. 82. *Sphecodopsis kuhlmanni* Eardley, 2007, ♀ (Nieuwoudtville Flower Reserve, RCMK). A. Propodeum. B. Propodeum variation. C. T5 and T6. D. S6.

leg.; RCMK • 2 ♀♀; same collection data as for preceding; 24 Aug. 2018; RCMK • 4 ♀♀, 7 ♂♂; same collection data as for preceding; 29 Aug. 2018; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 10 Sep. 2018; RCMK • 1 ♀; same collection data as for preceding; 20 Sep. 2022; RCMK • 1 ♂; Roggeveld Mts, 1.5 km S of Farm Allemansdam, Renosterveld; 31°49'25" S, 19°59'38" E; 1285 m a.s.l.; 11 Sep. 2018; MK leg.; RCMK • 1 ♀; C. P., Lamberts Bay; 32°04' S, 18°20' E; 4 Oct. 1974; RW leg.; SANC •

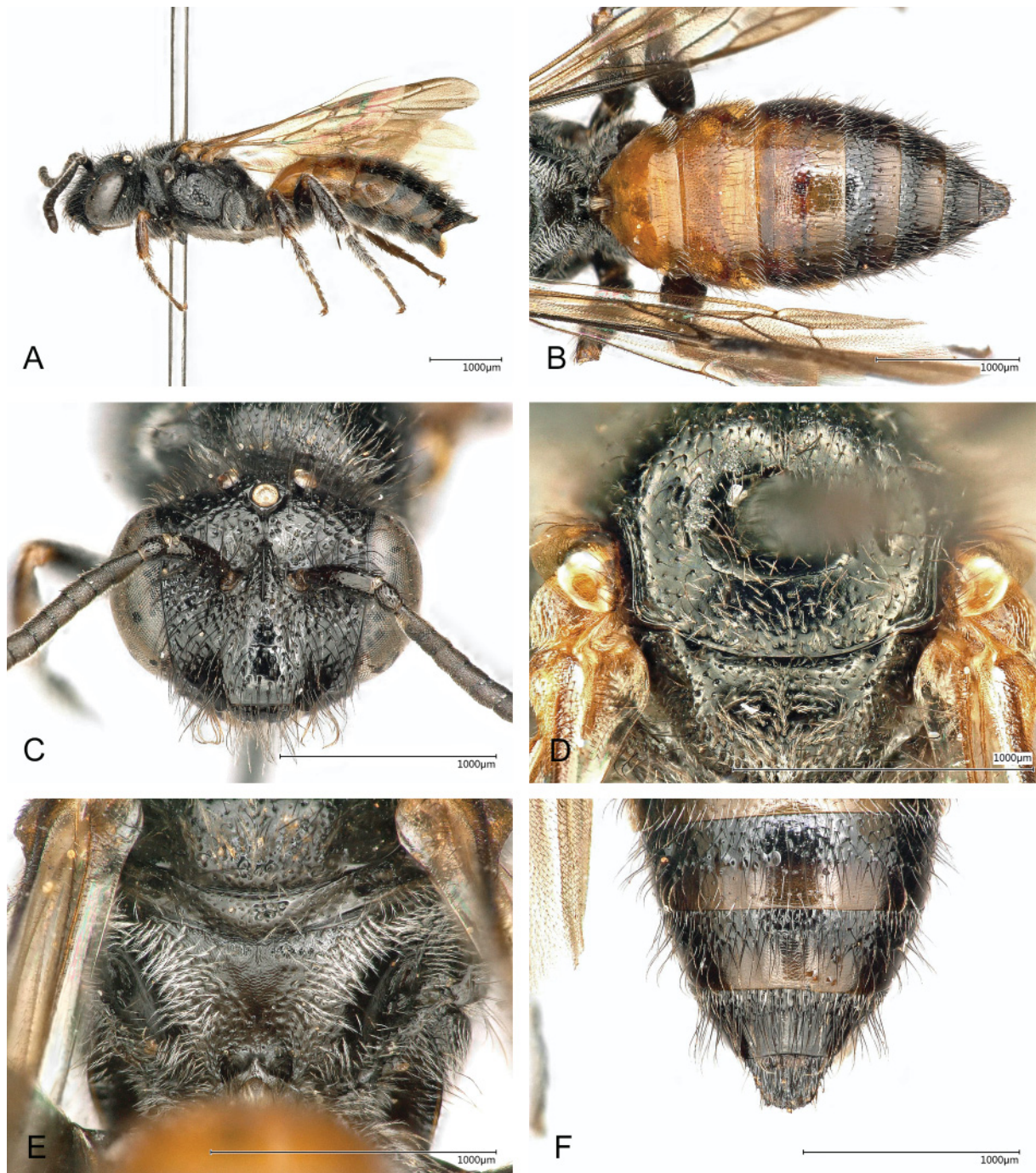


Fig. 83. *Sphecodopsis kuhlmanni* Eardley, 2007, ♂ (Nieuwoudtville Flower Reserve, RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. F. T4–T7 (dorsal view).

2 ♂♂; Roggeveld Mts, 2 km S of Farm Houdenbek, roadside; 32°18'03" S, 20°23'16" E; 1280 m a.s.l.; 16 Sep. 2018; MK leg.; RCMK • 1 ♀, 1 ♂; Farm Kanolfontein, 20 km W of Sutherland, roadside; 32°24'43" S, 20°27'28" E; 1385 m a.s.l.; 7 Sep. 2012; MK leg.; RCMK • 1 ♀; Willowmore, Capland; [33°18' S, 23°30' E]; 19 May. 1903; DrB leg.; SANC.

Description

Female

BODY LENGTH. 4.2–7.2 mm.

HEAD. Head wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair and patch of white, long hair above base of antenna. Face with dense ($i=0.5\text{--}1\text{ d}$), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5\text{--}2.5\text{ d}$) punctation (Fig. 81C). Surface between punctures shiny. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum shiny. Mesoscutum and mesoscutellum sparsely ($i=1\text{--}3\text{ d}$), finely and shallowly punctate (Fig. 81D–E). Propodeum densely ($i=0.25\text{--}0.5\text{ d}$), finely and shallowly punctate, metapostnotum matt (Fig. 82A–B). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 81D–

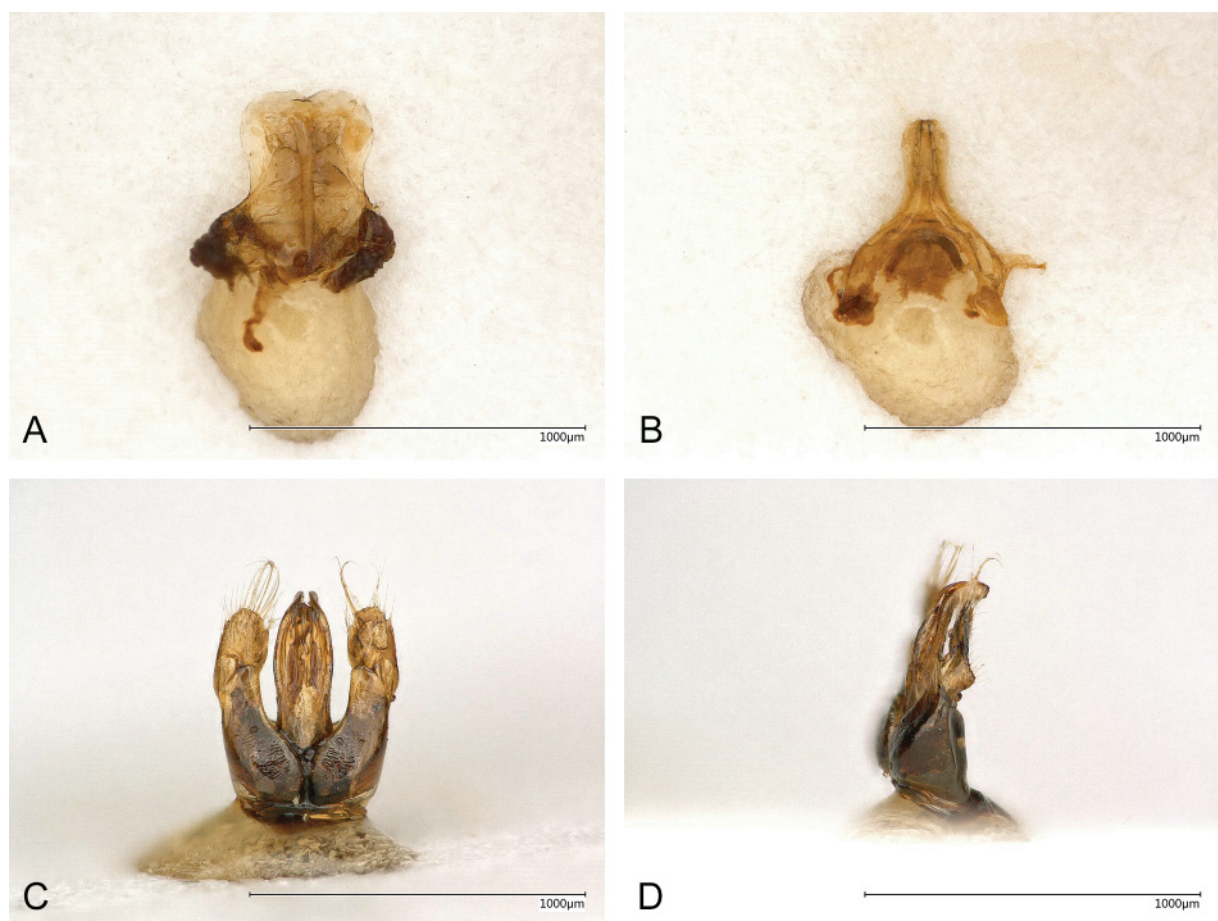


Fig. 84. *Sphecodopsis kuhlmanni* Eardley, 2007, ♂ (Nieuwoudtville Flower Reserve, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

E). Metanotum and propodeum sparsely covered with short, yellowish-white hair, metapostnotum only with hair in upper corners (Fig. 82A–B).

WINGS. Fuscous; wing venation brown and stigma brown to dark brown (Fig. 81A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically red, tibia and tarsi to a variable extent red, from completely red to entirely dark-brown or black. Coxa, trochanter and femur covered with long, black hair mixed with shorter, white hair. Tibia and tarsi very sparsely covered with long, black hair and covered with shorter white hair; very loose patches of white pubescence apically on the tibia, less on anterior leg (Fig. 81A).

METASOMA. Integument of T1–T3 to a variable extent red, from T1 only marginal zone red to T3 completely red; T4–T6 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 81B). T6 narrow and almost straight apically, with short, golden hair mixed with few long, black hairs, apical margin with very short, dense, golden hair (Fig. 82C). Shape of S6 (Fig. 82D) as illustrated.

Male

BODY LENGTH. 4.2–7.1 mm.

HEAD. Head wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair and patch of white long hair above base of antenna. Face with dense ($i=0.5-1$ d), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5-2.5$ d) punctation (Fig. 83C). Surface between punctures shiny. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum shiny. Mesoscutum and mesoscutellum sparsely ($i=1-3$ d), finely and shallowly punctate (Fig. 83D). Propodeum densely ($i=0.25-0.5$ d), finely and shallowly punctate, metapostnotum matt (Fig. 83E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 83D). Metanotum and propodeum sparsely covered with short, yellowish-white hair, metapostnotum with hair only in upper corners (Fig. 83D–E).

WINGS. Fuscous; wing venation brown and stigma dark brown to black (Fig. 83A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically red, tibia and tarsi to a variable extent red, from completely red to completely dark-brown or black. Coxa, trochanter and femur covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with long, black hair and with shorter white hair; very loose patches of white pubescence apically on the tibia, less so on anterior leg (Fig. 83A).

METASOMA. Integument of T1–T3 to a variable extent red, from only T2 basal half red to T1 and T2 completely red and T3 basal quarter red; T4–T7 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 83B). T7 covered with short, white hair and longer, black hair (Fig. 83F).

TERMINALIA. Genitalia (Fig. 84C–D), S7 (Fig. 84A) and terminal plate of S8 (Fig. 84B) as illustrated.

Distribution

Found throughout Namaqualand to the southern Roggeveld Mts with an isolated record from Willowmore (Eardley 2007).

Host bees

Unknown.

Seasonal activity

May, August–October (Eardley 2007).

Comment

Sphecodopsis kuhlmanni is variable in size, punctuation of the mesoscutum and hair on the propodeum (Figs 81D–E, 82A–B).

Sphecodopsis leonis (Cockerell, 1933) sp. rev. Figs 85–86

Morgania (Sphecodopsis) leonis Cockerell, 1933a: 382, holotype ♂ (type locality: Lion's Head, Cape Town, South Africa) (NHML), examined.

Diagnosis

The male can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 85B); fore legs black with small reddish spots (Fig. 85A);

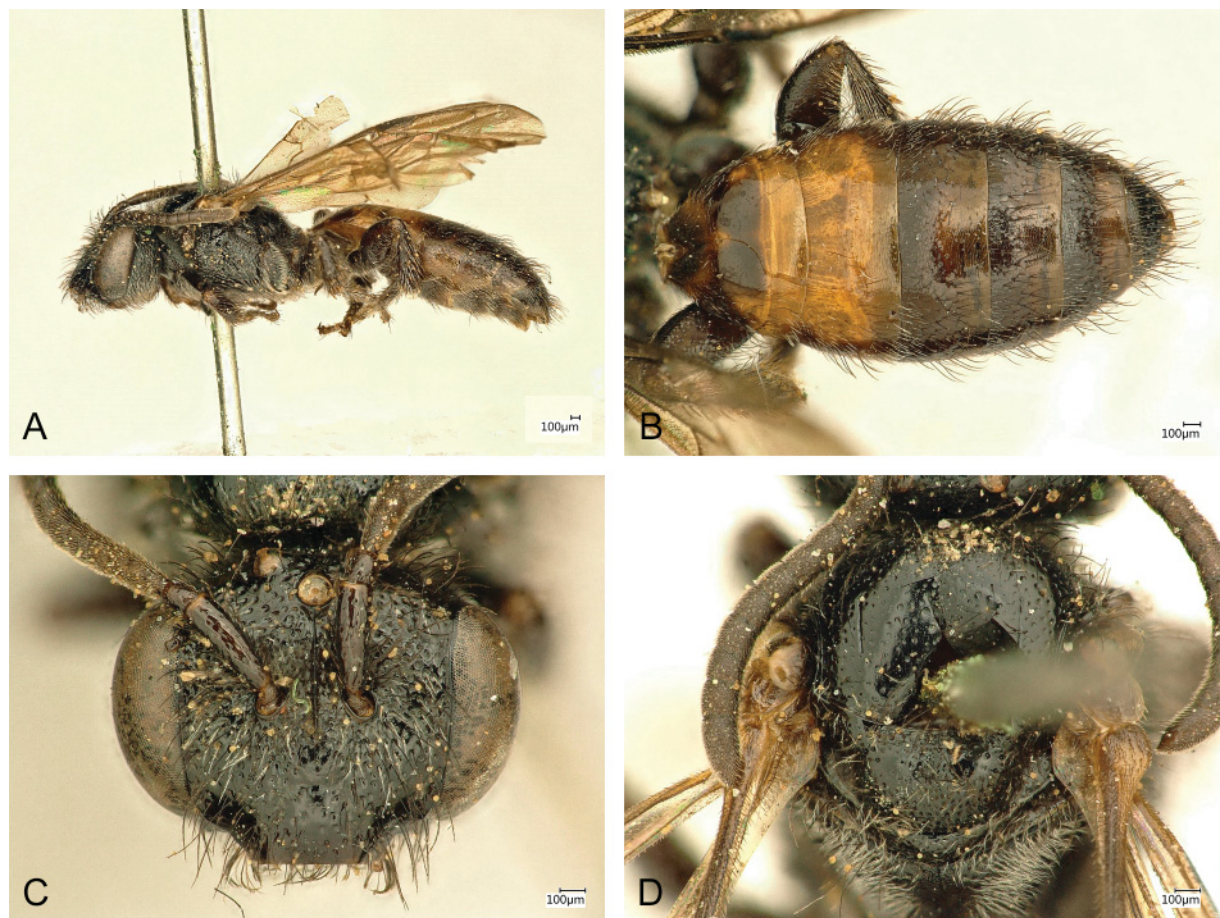


Fig. 85. *Sphecodopsis leonis* (Cockerell, 1933), holotype, ♂ (NHML). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

head and mesosoma with black hair mixed with lighter hair (Fig. 85C–D); mesoscutum sparsely, finely and shallowly punctate, very shiny (Fig. 85D); gonostylus shorter than gonocoxa, narrow, pointed posteriorly and extremely bent inward, penis valves distinctly longer than gonostylus (Fig. 86D). The female of *S. leonis* was only briefly mentioned by Cockerell (1933a) but could not be located and, thus, was unavailable for study.

Eardley & Brothers (1997) synonymised *S. leonis* with *S. semirufa* but the morphological differences, in particular genitalia, clearly show that both are distinct taxa. Thus, the species status of *S. leonis* is restored.

Since only photos of the holotype were available, a formal description is not given here. However, the photos (Figs 85–86) together with the diagnosis are sufficient for an identification of the species.

Additional material examined

None.

Distribution

Only known from the type locality in Cape Town.



Fig. 86. *Sphecodopsis leonis* (Cockerell, 1933), holotype, ♂ (NHML). **A.** Propodeum. **B.** S7 (dorsal view). **C.** S8 (dorsal view). **D.** Genital (dorsal view).

Host bees

Unknown.

Seasonal activity

August (Cockerell 1933a).

Sphecodopsis rufipes sp. nov.

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Figs 87–90

Diagnosis

The female of *S. rufipes* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about one and a half times as long as its apical width (Fig. 88C); metasoma partially red (Fig. 87B); fore tibia and tarsi completely or largely red (Fig. 87A); head wider than long, vertex flat (Fig. 87C); T5 apically without fringe (Fig. 88B); head and mesoscutum with black hair, interspersed with lighter hair (Fig. 87C–D); mesoscutum shiny, sparsely and shallowly punctate (Fig. 87D); 2nd antennal segment 1.5 times as long as 3rd segment (Fig. 87C); metapostnotum wider than high, distinctly shagreened and matt (Fig. 88A). The male can

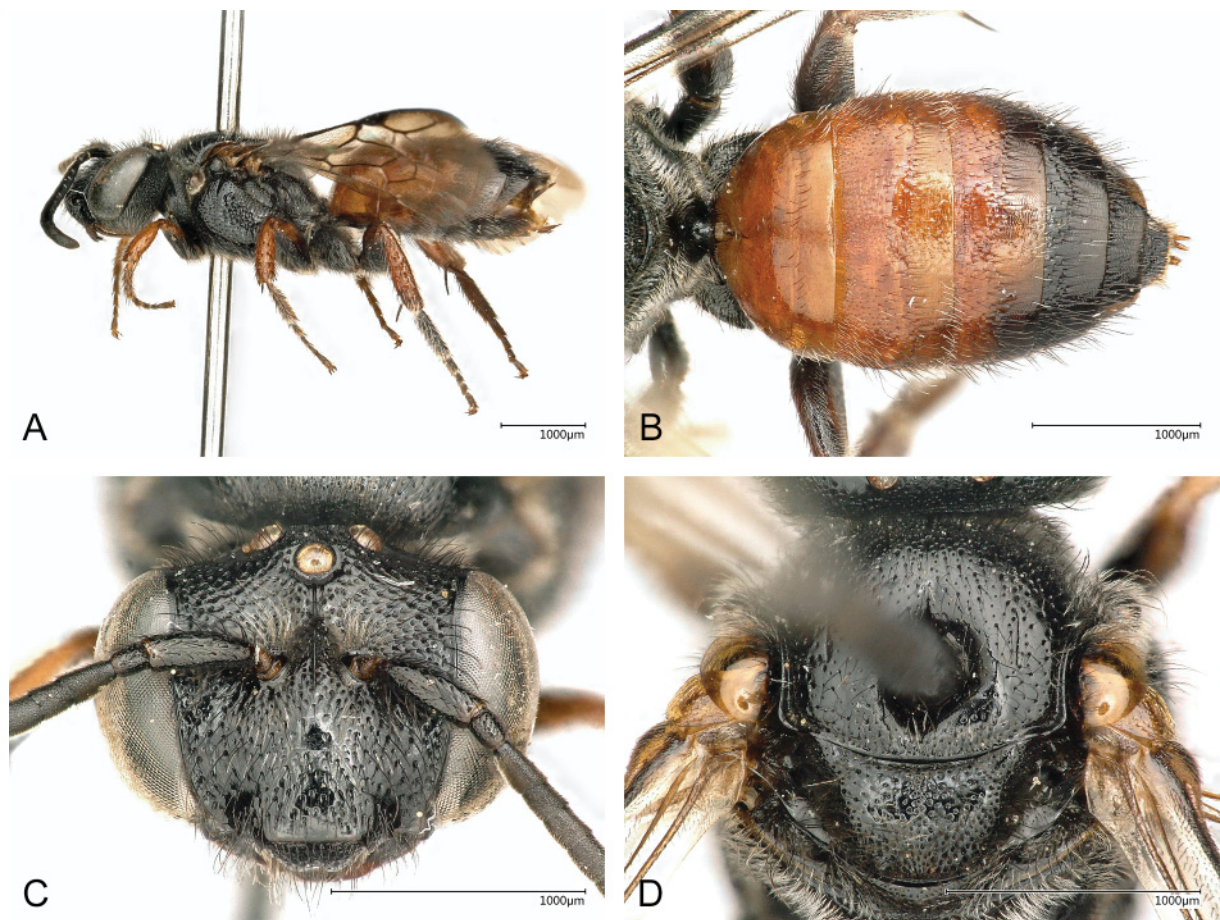


Fig. 87. *Sphecodopsis rufipes* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

be separated from that of all other species of this genus by the combination of the following characters: metasoma at least partially red (Fig. 89B); fore tibia and tarsi completely red or light red (Fig. 89A); mesoscutum sparsely ($i=1-2$ d) punctate, shiny (Fig. 89D); metapostnotum with few hairs in upper corners and matt (Fig. 89E).

Etymology

The species is named for its red Legs.

Type material (7 specimens)

Holotype

SOUTH AFRICA • ♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2012; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 4 ♀♀, 2 ♂♂; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; 680 m a.s.l.; 27 Aug. 2012; MK leg.; RCMK.

Description

Female

BODY LENGTH. 6.1–7.4 mm.

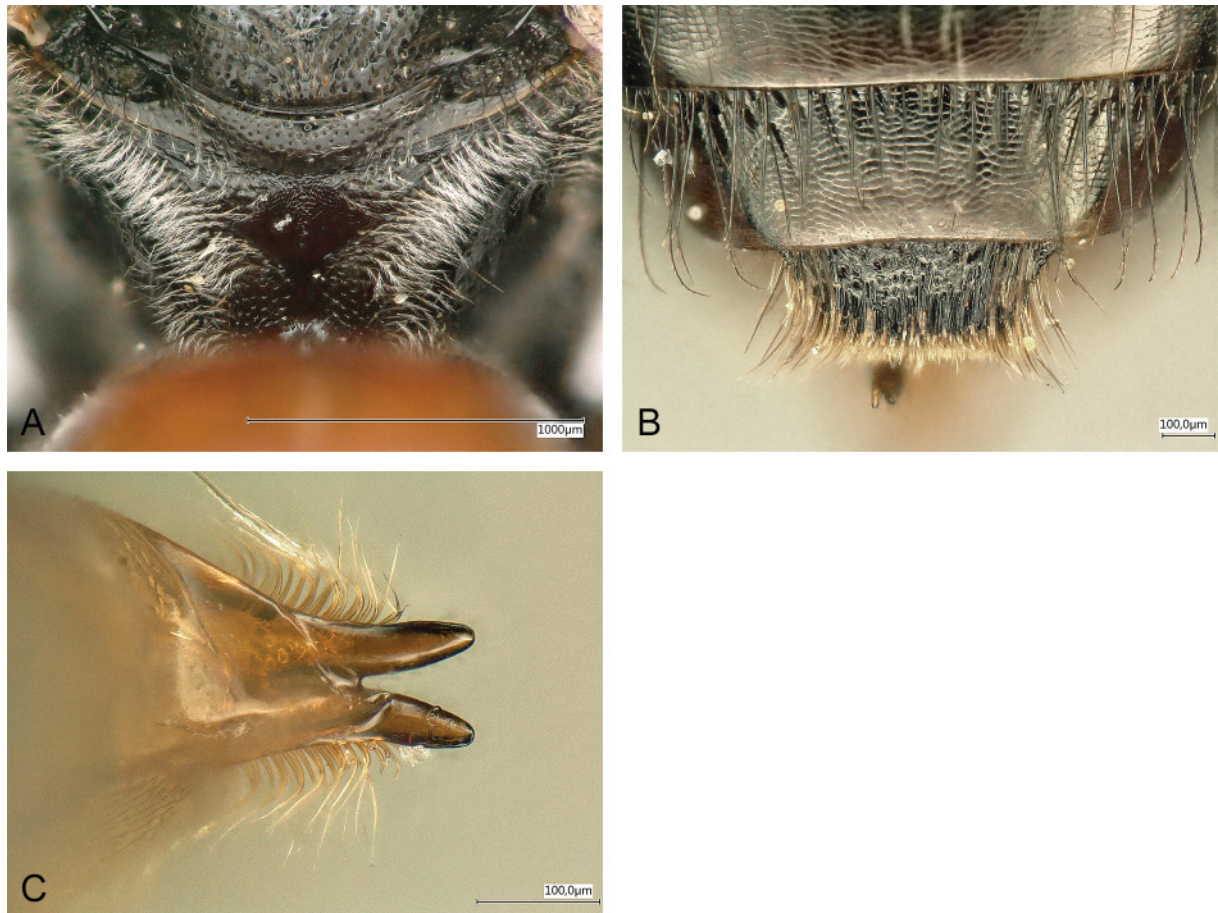


Fig. 88. *Sphecodopsis rufipes* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

HEAD. Head wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair and patches of long white hair above base of antenna. Face and clypeus with dense ($i=0.5-1$ d), fine and shallow punctation, supraclypeal area with more dispersed ($i=0.5-2$ d) punctation (Fig. 87C). Surface between punctures slightly shiny. Antenna black.

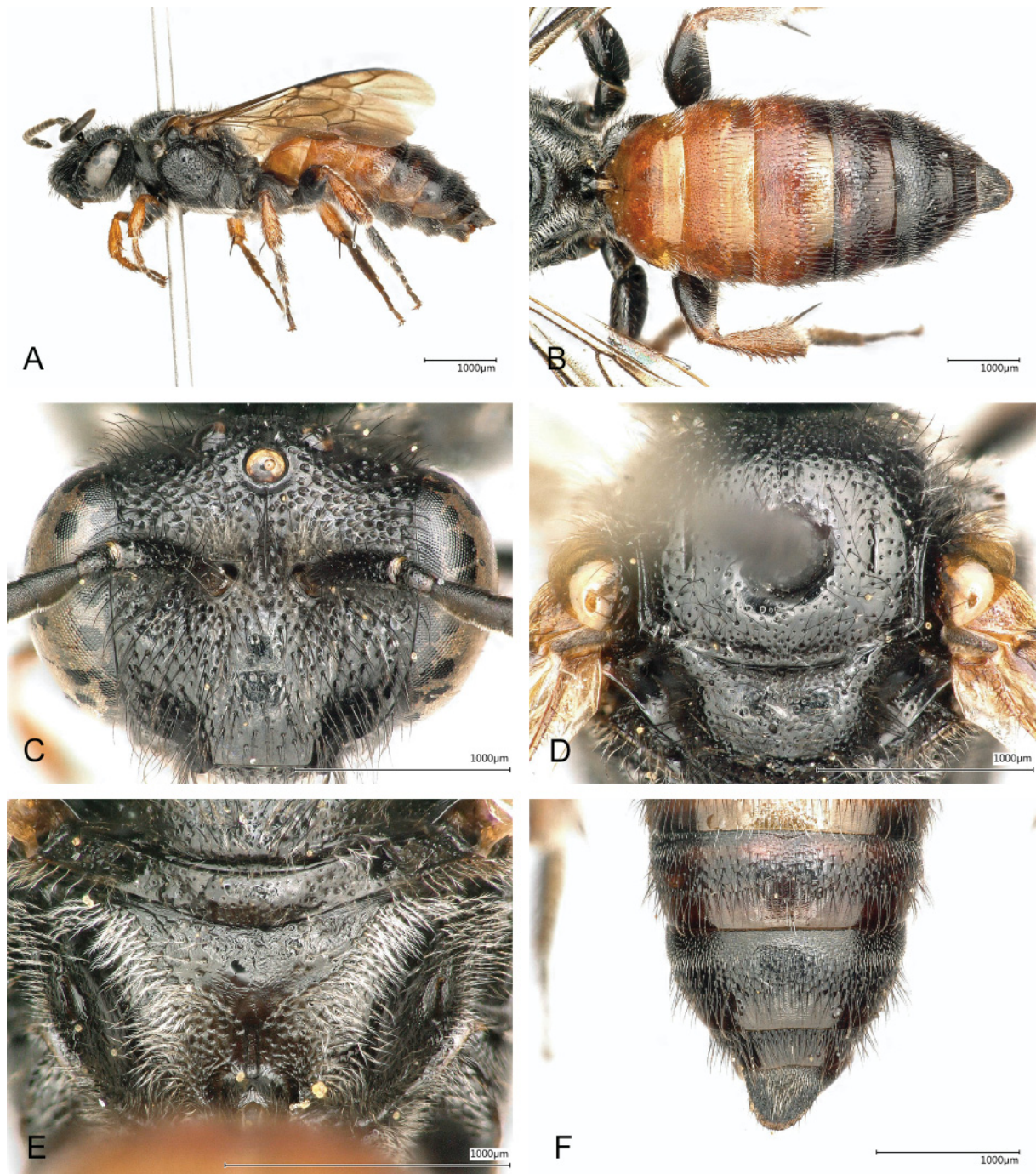


Fig. 89. *Sphecodopsis rufipes* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

MESOSOMA. Integument black, tegula orange. Mesoscutum matt. Mesoscutum and mesoscutellum sparsely ($i=1-2$ d), finely and shallow punctate (Fig. 87D). Propodeum densely ($i=0.5-1$ d), finely and shallow punctate, metapostnotum matt (Fig. 88A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 87D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum only with few hairs in upper corners (Figs 87D, 88A).

WINGS. Fuscous; wing venation brown and stigma dark brown to black (Fig. 87A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically red, tibia and tarsi red. Coxa, trochanter and femur covered with long, black hair mixed with shorter white hair. Tibia and tarsus very sparsely covered with long, black hair and covered with shorter white hair; very loose patches with white pubescence apically on the tibia on hind legs (Fig. 87A).

METASOMA. Integument of T1 and T2 red, T3 to a variable extent red, from basal quarter red to only marginal zone black; T4–T6 black. T1 and T2 sparsely covered with short white and black hair, from T3 increasingly more and longer, black hair (Fig. 87B). T6 narrow and almost straight apically, with short, white hair mixed with short, brown hair and a few long, black hairs, apical margin with very short, dense, golden hair (Fig. 88B). Shape of S6 (Fig. 88C) as illustrated.



Fig. 90. *Sphecodopsis rufipes* sp. nov., paratype, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Male

BODY LENGTH. 6.1–7.2 mm.

HEAD. Head wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair and patches of long white hair above base of antenna. Face and clypeus with dense ($i=0.5-1$ d), fine and shallow punctation, supraclypeal area with more dispersed ($i=0.5-2$ d) punctation (Fig. 89C). Surface between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum sparsely ($i=1-2$ d), finely and shallowly punctate (Fig. 89D). Propodeum densely ($i=1-2$ d), finely and shallowly punctate, metapostnotum matt (Fig. 89E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 89D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum only with few hairs in upper corners (Fig. 89E).

WINGS. Fuscous; wing venation brown and stigma dark brown to black (Fig. 89A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically red, tibia and tarsi red. Coxa, trochanter and femur covered with long, black hair mixed with shorter, white hair. Tibia and tarsi very sparsely covered with long, black hair and with shorter, white hair; very loose patches of white pubescence apically on the tibia, except on anterior legs (Fig. 89A).

METASOMA. Integument of T1 and T2 red, T3 marginal zone black and T4–T7 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 89B). T7 covered with short, yellowish-white hair and longer, black hair (Fig. 89F).

TERMINALIA. Genitalia (Fig. 90C–D), S7 (Fig. 90A) and terminal plate of S8 (Fig. 90B) as illustrated.

Distribution

Only known from the type locality on the farm Papkuilsfontein south of Nieuwoudtville.

Host bees

Unknown.

Seasonal activity

August.

Sphecodopsis semirufa (Cockerell, 1933) Figs 91–94

Morgania semirufa Cockerell, 1933a: 380–381, holotype ♀ (type locality: Worcester, South Africa) (NHML), examined.

Diagnosis

The female of *S. semirufa* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about one and a half times as long as its apical width (Fig. 92C); metasoma partially red (Fig. 91B); fore tibia and tarsi completely or largely red (Fig. 91A); head wider than long, vertex flat (Fig. 91C); T5 apically without fringe (Fig. 92B); head and mesoscutum with black hair, interspersed with lighter hair (Fig. 91C–D); mesoscutum shiny,

sparsely and shallowly punctate (Fig. 91D); 2nd antennal segment approx. twice as long as 3rd segment (Fig. 91C); metapostnotum approx. as high as wide, superficially shagreened and more shiny (Fig. 92A). The male can be separated from that of all other species by the combination of the following characters: metasoma at least partially red (Fig. 93B); fore tibia and tarsi completely red or light red (Fig. 93A); metapostnotum glabrous and shiny (Fig. 93E); head and mesosoma with long, black hair mixed with short, white hair (Fig. 93C–D); wings fuscous (Fig. 93A).

Additional material examined (56 specimens)

SOUTH AFRICA • 1 ♀; W Cape, Kamiesberg; 30°10'31" S, 18°00'53" E; 15 Sep. 2012; CE leg.; SANC • 1 ♀; Remhoogte, slope, white trap; 30°14' S, 18°10' E; 11 Sep. 2003; CM leg.; SANC • 1 ♀; N Cape Prov., Studer's Pass near Garies; 30°26' S, 17°03' E; 16 Sep. 2007; CE leg.; SANC • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 6 Sep. 2002; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 11 Sep. 2002; RCMK • 1 ♀; same collection data as for preceding; 7 Sep. 2003; MK leg.; RCMK; on *Oxalis* sp.; RCMK • 1 ♀; N Cape, Nieuwoudtville, Flower Reserve East; 31°21'56" S, 19°08'52" E; 735 m a.s.l.; 11 Sep. 2003; MK leg.; RCMK • 6 ♀♀, 1 ♂; same collection data as for preceding; 12 Aug. 2004; RCMK • 4 ♂♂; same collection data as for preceding; 13 Aug. 2004; RCMK • 2 ♀♀, 1 ♂; same collection data as for preceding; 19 Aug. 2004; RCMK • 10 ♀♀; N Cape, Nieuwoudtville, Flower Reserve, Rondell, Car Park East; 31°22'18" S, 19°08'58" E; 730 m a.s.l.; 4 Oct. 2006; MK leg.; RCMK • 7 ♀♀; Nieuwoudtville, Wild Flower Reserve,

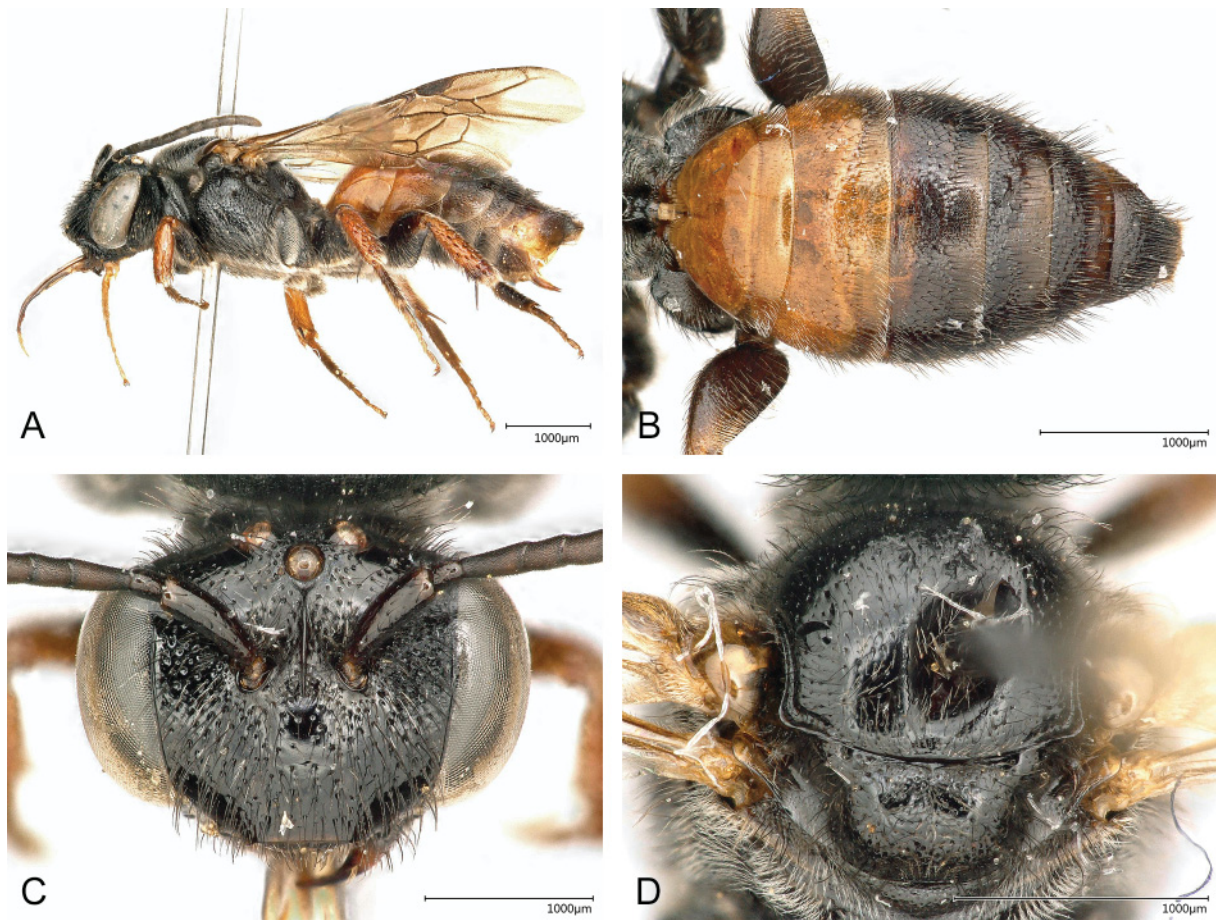


Fig. 91. *Sphecodopsis semirufa* (Cockerell, 1933), ♀ (Nieuwoudtville Flower Reserve, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Car Park East; 31°22'18" S, 19°08'58" E; 730 m a.s.l.; 20 Aug. 2007; KT leg.; RCMK • 1 ♀, 1 ♂; same collection data as for preceding; 14 Aug. 2010; MK leg.; RCMK • 3 ♀♀, 10 ♂♂; Nieuwoudtville, pad to Farm Glen Lyon, slope; 31°23'25" S, 19°08'28" E; 737 m a.s.l.; 19 Aug. 2007; KT leg.; RCMK • 2 ♀♀; Nieuwoudtville, Hantam Bot. Gard., Kamel Koppie; 31°24'48" S, 19°09'23" E; 760 m a.s.l.; 12 Sep. 2008; MK leg.; RCMK • 1 ♀; 18 km S of Calvinia, Nooiensrivier Pad, dolerite; 31°37'16" S, 19°46'20" E; 1100 m a.s.l.; 31 Aug. 2016; MK leg.; RCMK.

Description

Female

BODY LENGTH. 6.0–8.0 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face with sparse ($i=0.5-1$ d), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5-2.5$ d) punctation (Fig. 91C). Surface between punctures shiny. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula orange. Mesoscutum shiny. Mesoscutum and mesoscutellum sparsely ($i=1-3$ d), finely and shallowly punctate (Fig. 91D). Propodeum densely ($i=0.25-0.5$ d), finely and deeply punctate, metapostnotum shiny (Fig. 92A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 91D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Figs 91D, 92A).

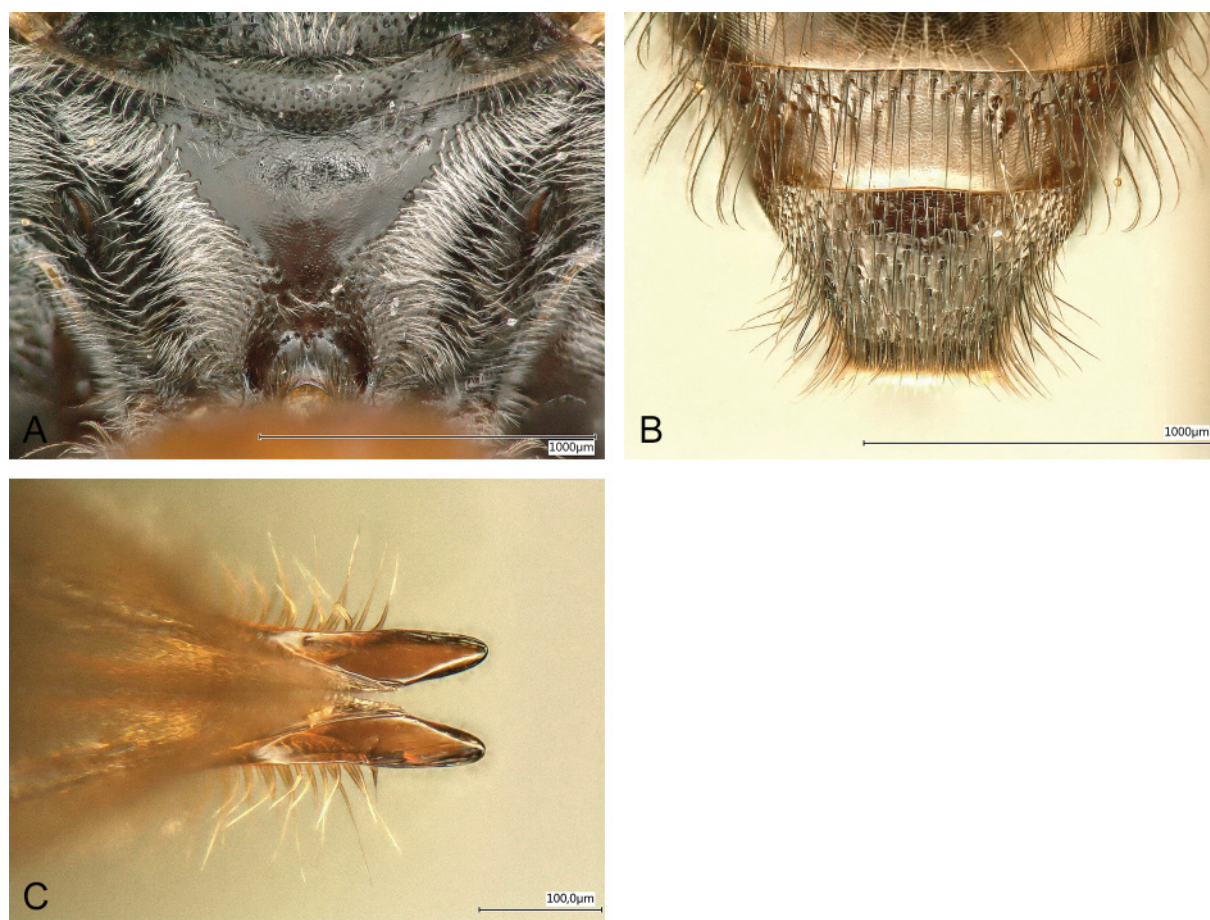


Fig. 92. *Sphecodopsis semirufa* (Cockerell, 1933), ♀ (Nieuwoudtville Flower Reserve, RCMK). A. Propodeum. B. T5 and T6. C. S6.

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 91A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically, tibia and tarsi entirely red. Coxa, trochanter and femur covered with long, black hair mixed with shorter, white hair. Tibia and tarsus very sparsely covered with long, black hair and covered with shorter, white hair; very loose patches of white pubescence apically on the tibia, except anterior leg (Fig. 91A).

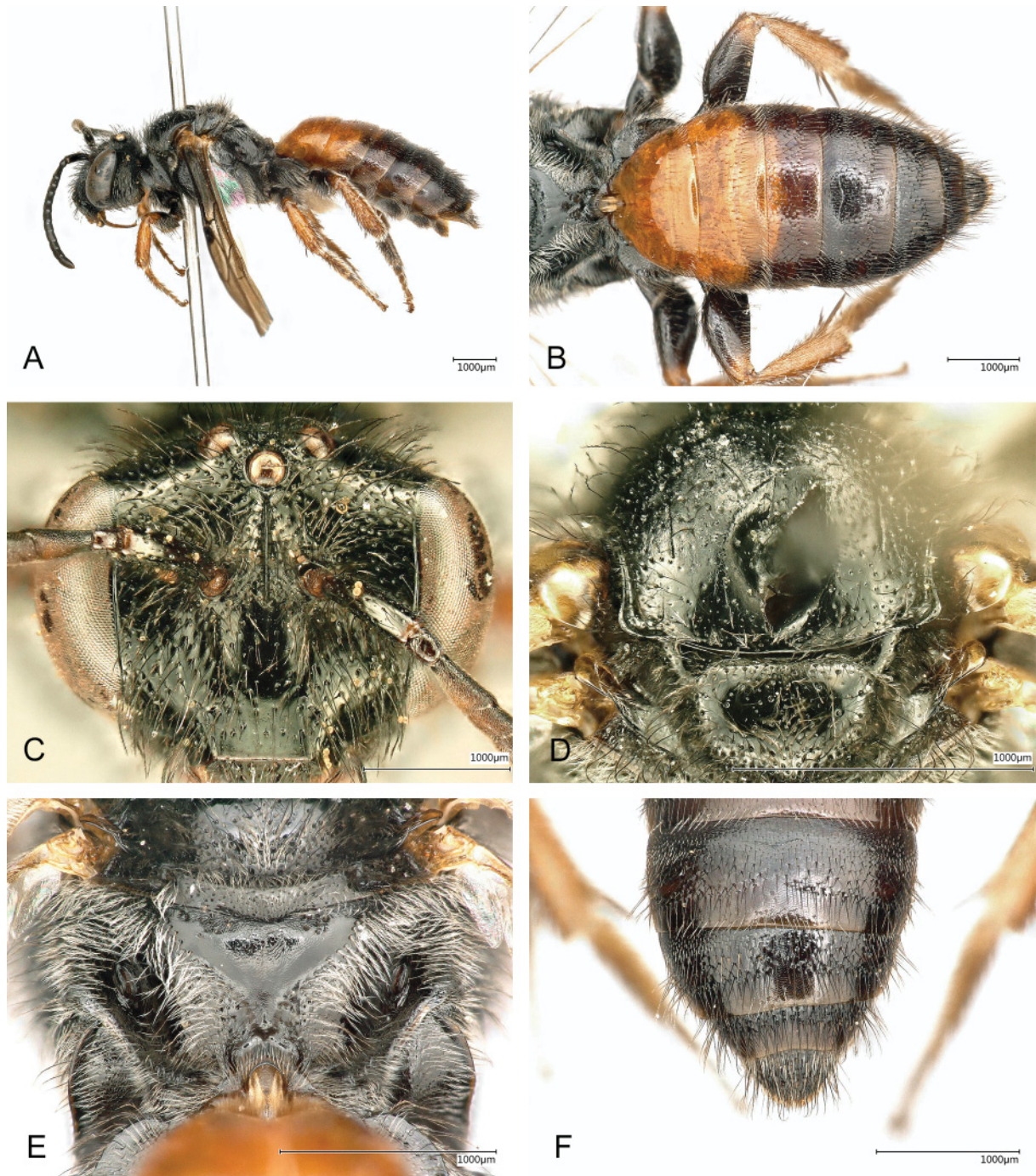


Fig. 93. *Sphecodopsis semirufa* (Cockerell, 1933), ♂ (Nieuwoudtville Flower Reserve, RCMK). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. F. T4–T7 (dorsal view).

METASOMA. Integument of T1 red, T2 and T3 to a variable extent red, from T2 basal half red to T3 basal quarter red; T4–T6 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 91B). T6 narrow and almost straight apically, with long, black hair. Apical margin with fairly short, dense, golden hair (Fig. 92B). Shape of S6 (Fig. 92C) as illustrated.

Male

BODY LENGTH. 6.5–8.0 mm.

HEAD. Head distinctly wider than long. Vertex almost straight and flat, except for the ocelli. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair. Face with sparse ($i=0.5-1$ d), fine and shallow punctation, clypeus and supraclypeal area with more dispersed ($i=0.5-2.5$ d) punctation (Fig. 93C). Surface between punctures shiny. Antenna reddish-brown to dark brown.

MESOSOMA. Integument black, tegula orange, partially translucent. Mesoscutum shiny. Mesoscutum and mesoscutellum sparsely ($i=1-3$ d), finely and shallowly punctate (Fig. 93D). Propodeum densely ($i=1-3$ d), finely and deeply punctate, metapostnotum shiny (Fig. 93E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, yellowish-white hair (Fig. 93D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Fig. 93D–E).

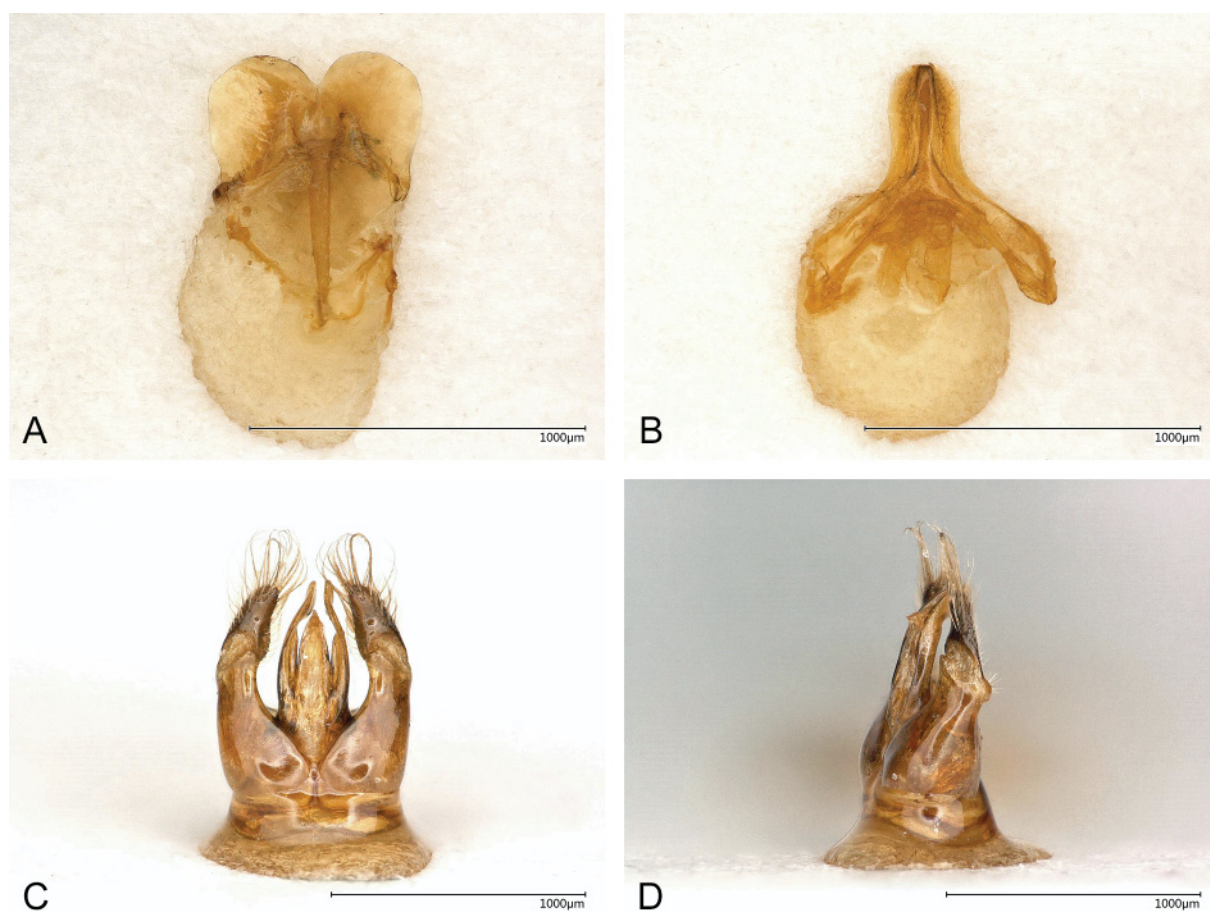


Fig. 94. *Sphecodopsis semirufa* (Cockerell, 1933), ♂ (Nieuwoudtville Flower Reserve, RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

WINGS. Yellowish-brown; wing venation brown and stigma dark brown to black (Fig. 93A).

LEGS. Integument of coxa and trochanter reddish-brown to black, trochanter apically, tibia and tarsi entirely red. Coxa, trochanter and femur covered with long, black hair mixed with shorter, white hair. Tibia and tarsus very sparsely covered with long, black hair and covered with shorter, white hair; very loose patches of white pubescence apically on the tibia, except anterior leg (Fig. 93A).

METASOMA. Integument of T1 red, T2 and T3 to a variable extent red, from T2 basal half red to T3 basal quarter red; T4–T7 black. T1 and T2 sparsely covered with short, white and black hair, from T3 increasingly more and longer black hair (Fig. 93B). T7 covered with long, black hair and shorter, white hair underneath (Fig. 93F).

TERMINALIA. Genitalia (Fig. 94C–D), S7 (Fig. 94A) and terminal plate of S8 (Fig. 94B) as illustrated.

Distribution

Found throughout western South Africa. Specimens from the easternmost localities (Willowmore, Grahamstown) mentioned by Eardley & Brothers (1997) could not be examined.

Host bees

Confirmed host is *Patellapis doleritica* Timmermann in Timmermann & Kuhlmann, 2009 add to references (= sp. 1) (Timmermann & Kuhlmann 2008).

Seasonal activity

August–September.

Sphecodopsis villosa (Fries, 1909)

Figs 95–96

Pasites villosus Fries, 1909: 438–439, holotype ♂ (type locality: Zeerust, South Africa) (ZMHB), examined.

Diagnosis

The female of *S. villosa* is unknown. The male can be separated from that of all other species by the combination of the following characters: metasoma at least partially red (Fig. 95B); fore legs usually black, with small reddish spots (Fig. 95A); head and mesosoma with black hair, sometimes mixed with lighter hair (Fig. 95C–D); mesoscutum sparsely, finely and shallowly punctate, very shiny (Fig. 95D); metapostnotum almost twice as wide as high (Fig. 95E); gonostylus, broad, rounded posteriorly and slightly bent inward (Fig. 96C–D).

This characteristic species was described in detail by Eardley & Brothers (1997). Thus, to facilitate the identification only images are provided (Figs 95–96) without repeating the description.

Additional material examined

None.

Distribution

Only known from the type locality Zeerust in NE South Africa. The specimen collected in Vanrhynsdorp, Namaqualand (Eardley & Brothers 1997: 404), could not be checked but it is unlikely that it represents the same species as it was collected in the Succulent Karoo biome in the winter rainfall region that is climatically completely different from the Savanna biome with summer rainfall around Zeerust.

Host bees

Unknown.

Seasonal activity

Unknown.

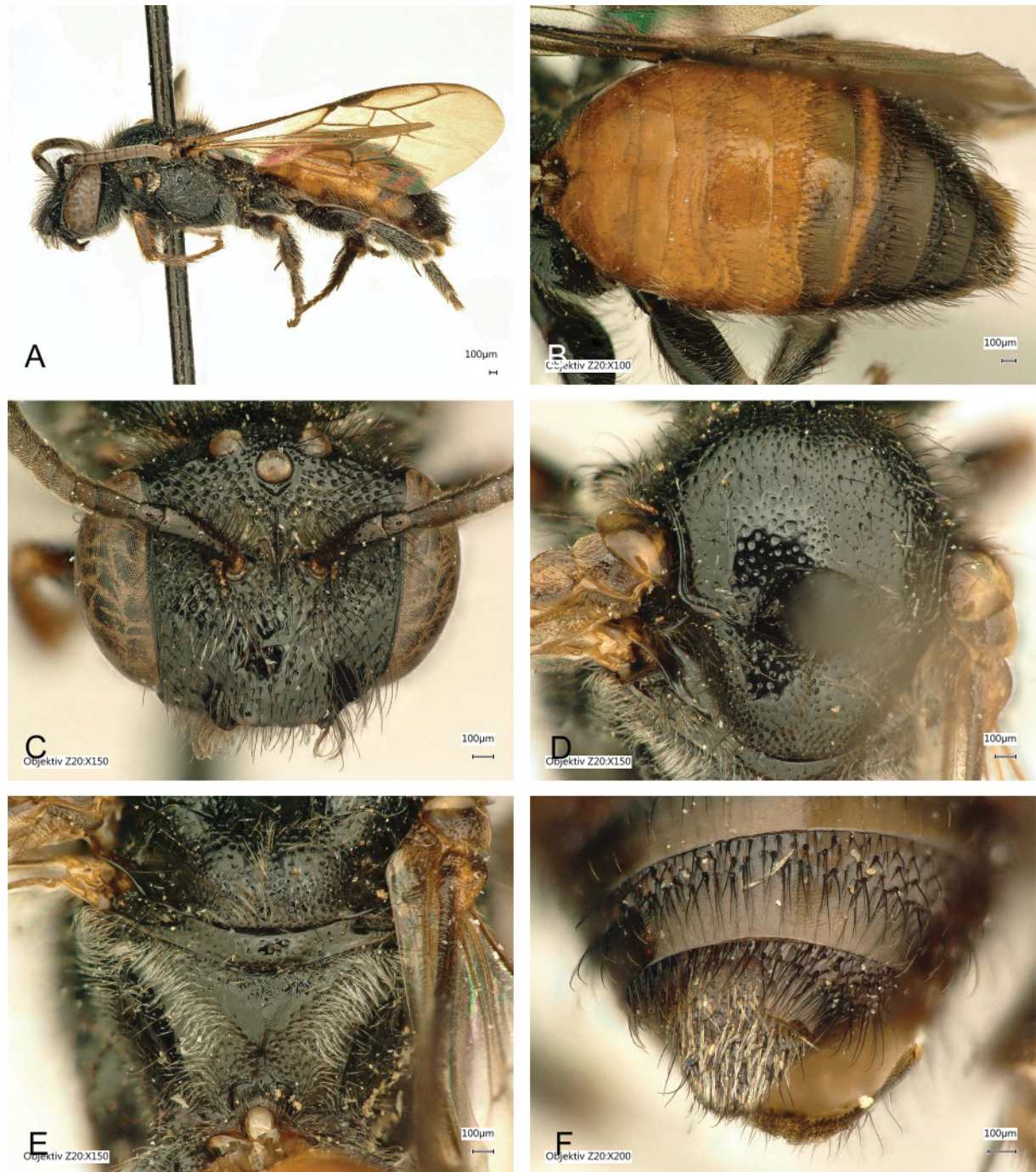


Fig. 95. *Sphecodopsis villosa* (Fries, 1909), holotype, ♂ (ZMHB). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).



Fig. 96. *Sphecodopsis villosa* (Friese, 1909), holotype, ♂ (ZMHB). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Isolated species

Sphecodopsis bifida sp. nov.

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Figs 97–98

Diagnosis

The female of *S. bifida* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch without a small tip distally; shape as shown in Fig. 98C; body length > 6 mm; metasoma partially red (Fig. 97B); fore tibia and tarsi usually black, sometimes with small reddish spots (Fig. 97A); head and mesoscutum with black hair, mixed with shorter white hair (Fig. 97C–D); T6 rounded apically, covered with black and shorter white hair (Fig. 98B). The male is unknown.

Etymology

The name refers to the apically bifid S6 on the female specimens.

Type material (5 specimens)

Holotype

SOUTH AFRICA • ♀; 6 km NNW of Farm Kanariesfontein, 30 km W of Sutherland, roadside; 32°22'17" S, 20°22'50" E; 1310 m a.s.l.; 16 Sep. 2017; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; 1190 m a.s.l.; 14 Sep. 2017; MK leg.; RCMK • 3 ♀♀; 6 km NNW of Farm Kanariesfontein, 30 km W of Sutherland, roadside; 32°22'17" S, 20°22'50" E; 1310 m a.s.l.; 16 Sep. 2017; MK leg.; RCMK.

Description

Female

BODY LENGTH. 5.4–5.8 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair. Face with dense ($i=0.25\text{--}0.5$ d), coarse and deep punctation, clypeus and supraclypeal area with more dispersed ($i=0.5\text{--}1$ d) punctation (Fig. 97C). Surface between punctures slightly shiny. Antenna reddish-brown to dark brown.

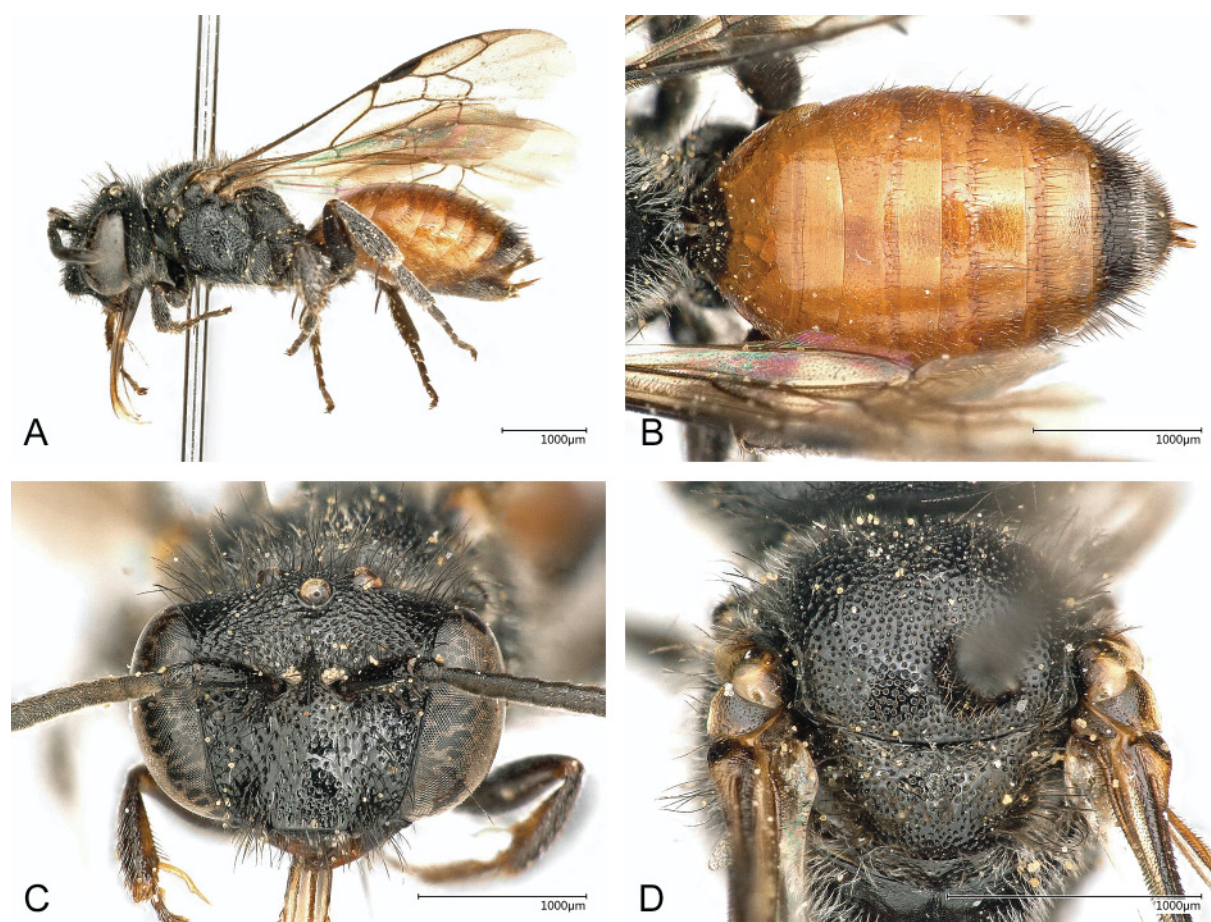


Fig. 97. *Sphecodopsis bifida* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

MESOSOMA. Integument black, tegula orange. Mesoscutum slightly matt. Mesoscutum and mesoscutellum densely ($i=0.5-1$ d) and finely but deeply punctate (Fig. 97D). Propodeum with dense ($i=0.5-1$ d) and fine but shallow punctation, metapostnotum matt (Fig. 98A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with long, black hair mixed with shorter, white hair (Fig. 97D). Metanotum and propodeum very sparsely covered with short, white hair, metapostnotum glabrous (Figs 97D, 98A).

WINGS. Yellowish-brown; wing venation dark brown and stigma dark brown to black (Fig. 97A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with long, black hair mixed with shorter white hair. Tibia and tarsi very sparsely covered with short, black hair mixed with short white hair (Fig. 97A).

METASOMA. Integument of T1–T3 red, T4 to a variable extent red, from basal half to completely red, T5 and T6 black. T1 and T2 with few short, white and black hair, from T3 increasingly more and longer, black hair (Fig. 97B). T5 marginal zone with few white, short hairs. T6 broad and rounded apically, covered with long, black hair and short, white hair underneath (Fig. 98B). Shape of S6 (Fig. 98C) as illustrated.

Male

Unknown.

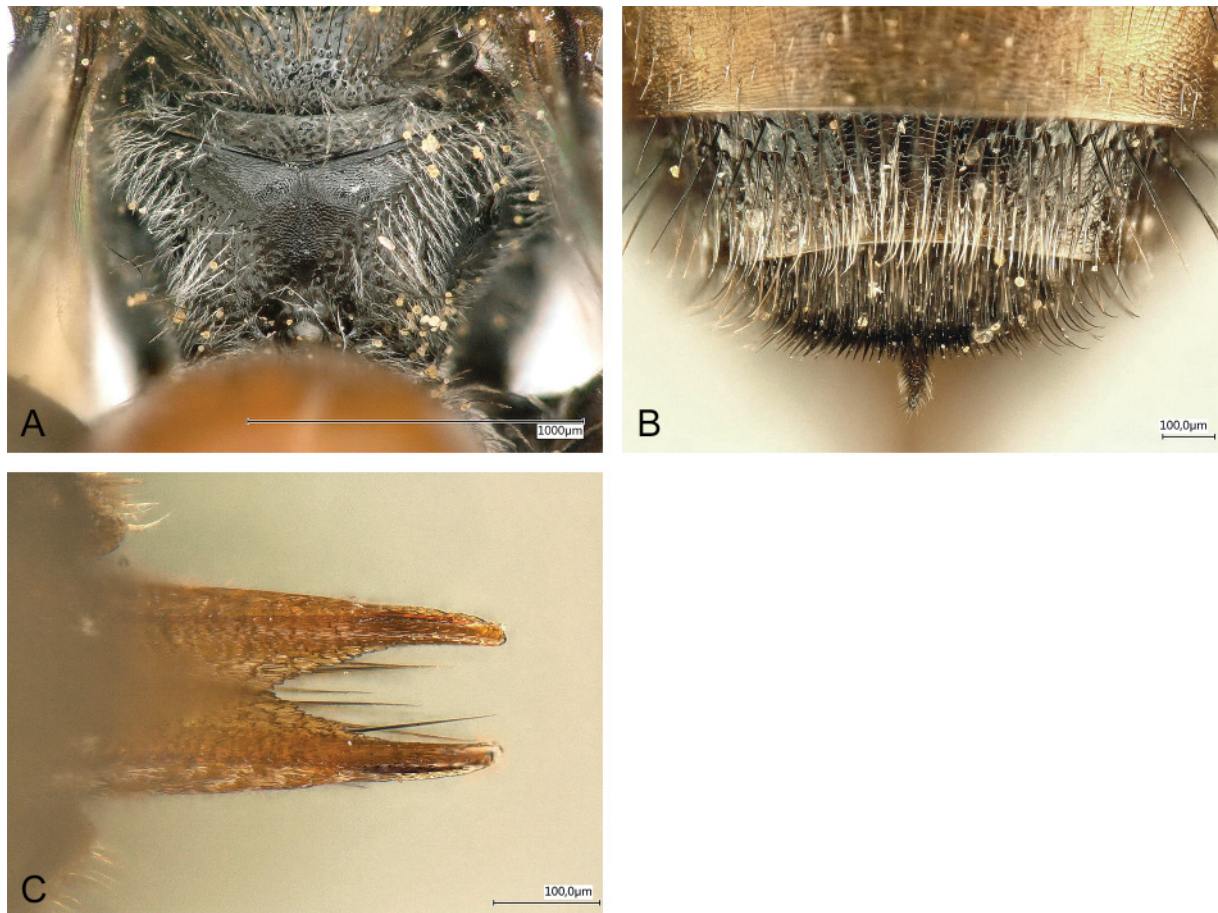


Fig. 98. *Sphecodopsis bifida* sp. nov., paratype, ♀ (RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Distribution

The species was only found in the Kamiesberg Mts and the southern Roggeveld Mts.

Host bees

Unknown.

Seasonal activity

September.

Sphecodopsis carolinae Eardley, 2007

Figs 99–100

Sphecodopsis carolinae Eardley, 2007: 195–196, holotype ♂ (type locality: near Grasberg [N of Nieuwoudtville], South Africa) (SANC), examined.

Diagnosis

The female paratype of *S. carolinae* was not available for study but was described by Eardley (2007: 196). The male of *S. carolinae* can be separated from that of all other species of the genus by the combination of the following characters: metasoma at least partially red (Fig. 99B); fore legs usually black (Fig. 99A); head and mesosoma with short white hair (Fig. 99C–D); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 99D); propodeum shagreened and matt, just like the metapostnotum, covered only with white hair (Figs 99E, 100B); genitalia elongated and narrow (Fig. 100C).

Additional material examined (2 specimens)

SOUTH AFRICA • 2 ♂♂; N Cape, Fynbos, 2 km W of Nieuwoudtville, near Grasberg; 31°21'05" S, 19°05'49" E; 742 m a.s.l.; 23 Aug. 2003; KT leg.; RCMK.

Description

Female

See Eardley (2007: 196).

Male

BODY LENGTH. 6.5 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, white hair, mixed with short, black hair. Face with dense ($i=0.25\text{--}0.5$ d) and fairly fine, but deep punctation (Fig. 99C). Surface between punctures matt. Antenna black.

MESOSOMA. Integument black, tegula yellow. Mesoscutum matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and fairly finely but deeply punctate (Fig. 99D). Propodeum and metapostnotum matt (Fig. 99E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with short, yellowish-white hair (Fig. 99D). Metanotum and propodeum sparsely covered with short, white hair, metapostnotum glabrous (Fig. 99D–E).

WINGS. Yellowish; wing venation brown and stigma brown to dark brown (Fig. 99A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsi covered with short, white hair (Fig. 99A).

METASOMA. Integument of T1 basally black, T2 red, T3–T7 to a variable extent red, from completely red to completely black. T1–T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 99B). T5 and T6 disc covered with long, golden hair. T7 covered with short, yellowish-white hair and longer golden hair (Fig. 99F).

TERMINALIA. Genitalia (Fig. 100C–D), S7 (Fig. 100A) and terminal plate of S8 (Fig. 100B) as illustrated.

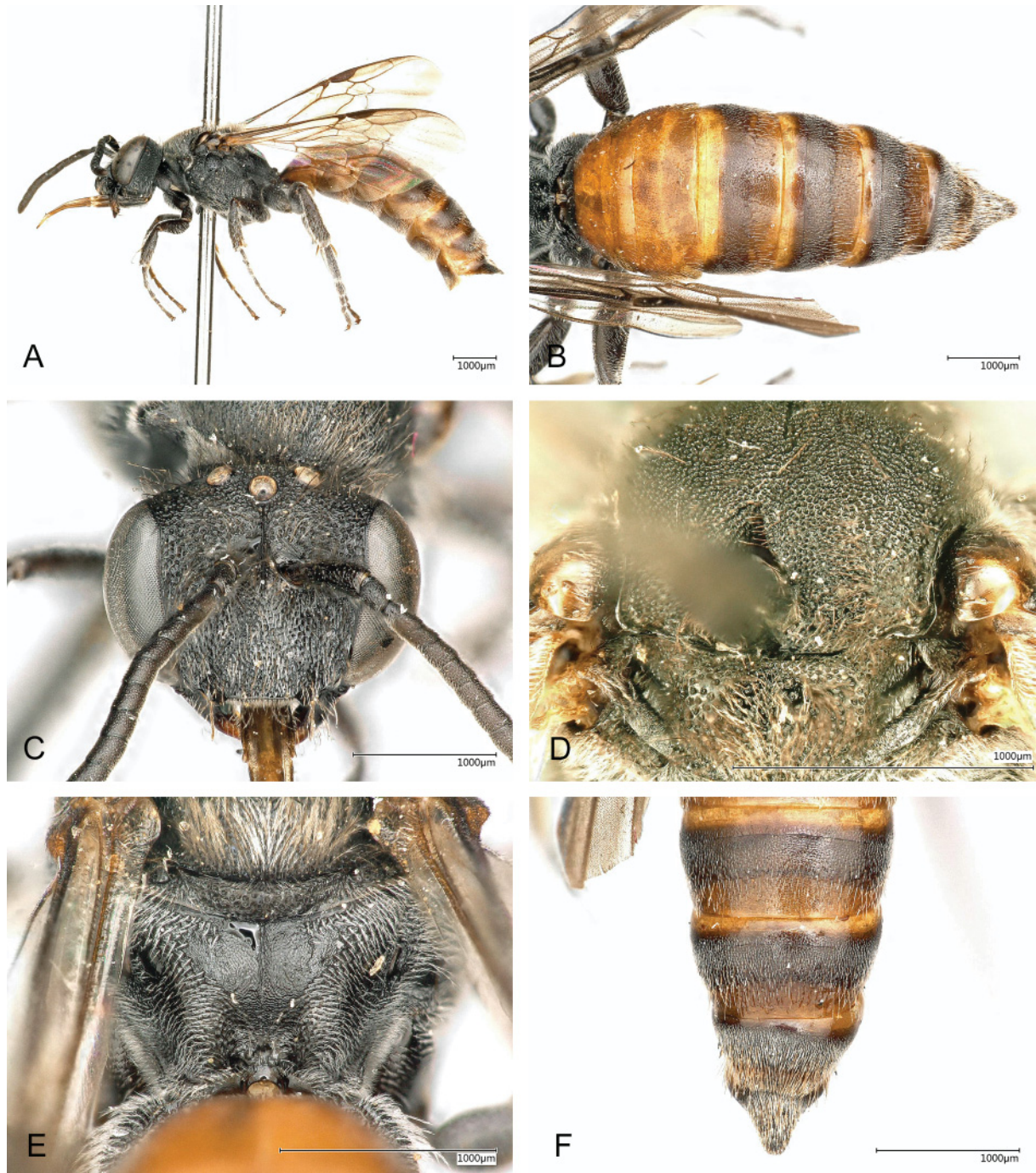


Fig. 99. *Sphecodopsis carolinae* Eardley, 2007, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

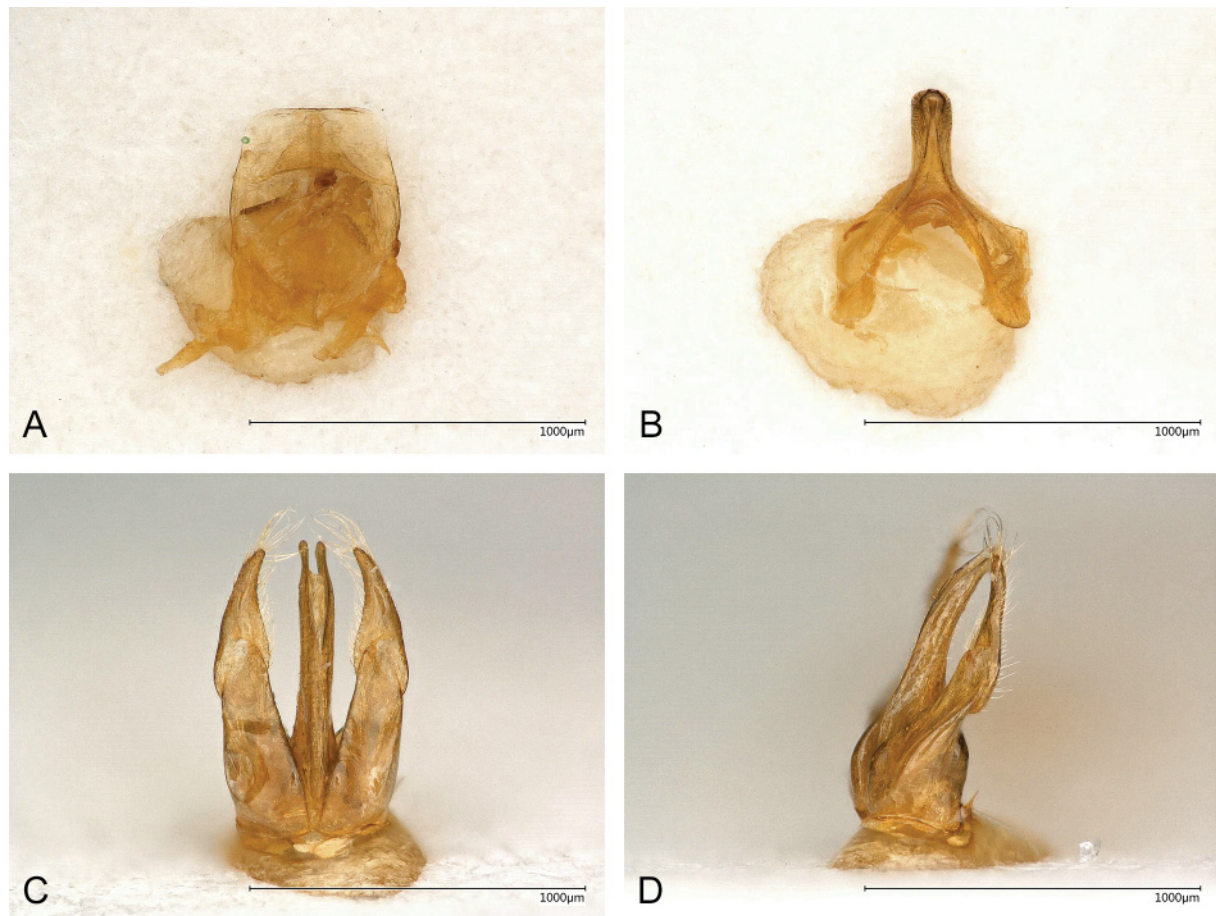


Fig. 100. *Sphecodopsis carolinae* Eardley, 2007, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

Distribution

Only known from the Kamiesberg Mts and the vicinity of Nieuwoudtville (Eardley 2007).

Host bees

Unknown.

Seasonal activity

August–September (Eardley 2007).

Sphecodopsis chrysea sp. nov.

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Figs 101–102

Diagnosis

The female of *S. chrysea* sp. nov. is unknown. The male can be separated from that of all other species by the combination of the following characters: metasoma at least partially red (Fig. 101B); fore legs

usually black (Fig. 101A); head and mesosoma with short white hair (Fig. 101C–D); mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Fig. 101D); propodeum smooth and shiny, except for the metapostnotum, covered only with white hair (Fig. 101E); genitalia elongated and narrow (Fig. 102B–C).



Fig. 101. *Sphecodopsis chrysea* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

Etymology

The name refers to the shiny golden hair on the mesoscutum and scutellum.

Type material (2 specimens)

Holotype

SOUTH AFRICA • ♂; Nieuwoudtville, Farm Glen Lyon, Renosterveld; 31°24'03" S, 19°08'34" E; 700 m a.s.l.; 31 May 2004; MK leg.; SAMC.

Paratype

SOUTH AFRICA • 1 ♂; Gembokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 28 May 2013; MK leg.; RCMK.

Description

Female

Unknown.

Male

BODY LENGTH. 6.0 mm.

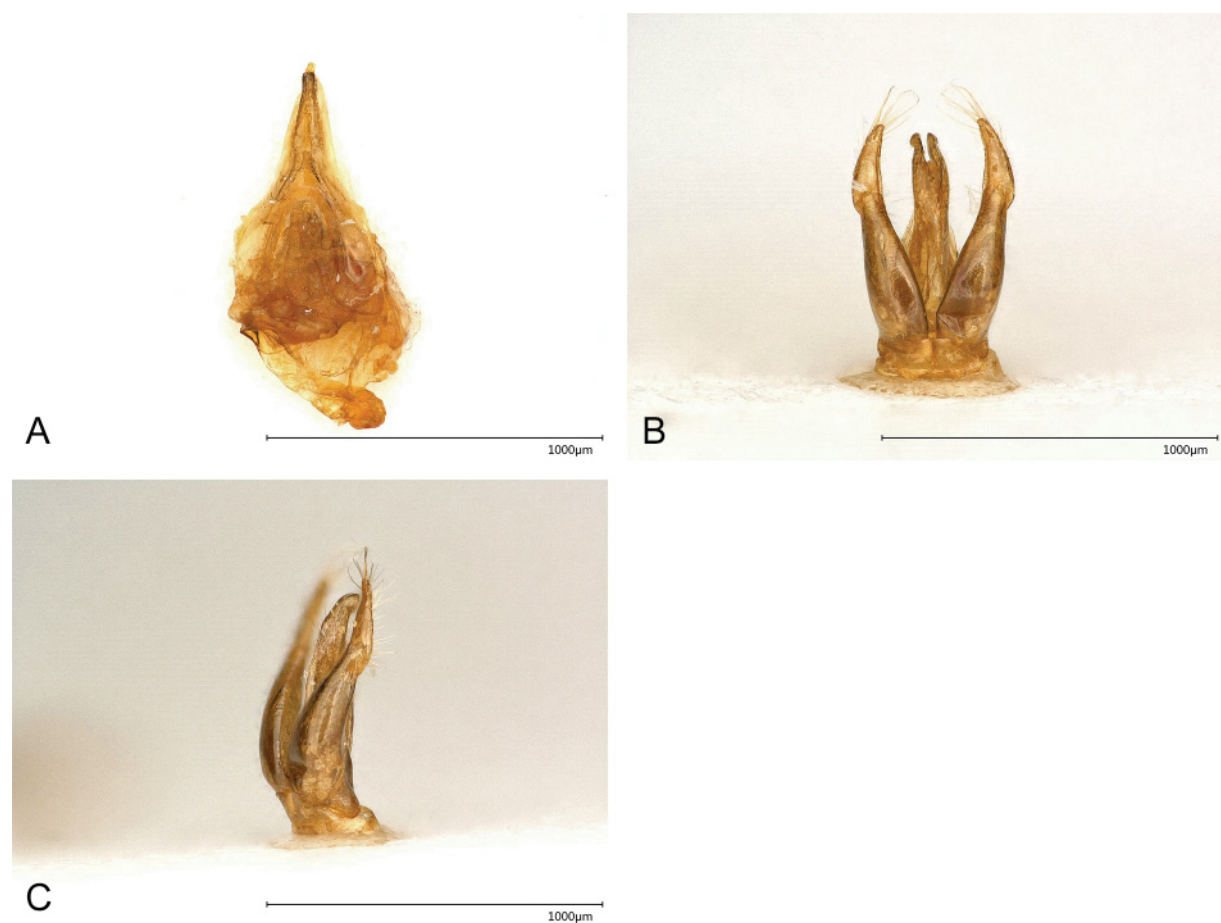


Fig. 102. *Sphecodopsis chrysea* sp. nov., paratype, ♂ (RCMK). **A.** S8 (dorsal view). **B.** Genital (dorsal view). **C.** Genital (lateral view).

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with long, black hair mixed with short, white hair, with patch of white hair above base of the antenna. Face with dense ($i=0.25-0.5$ d) and fine but deep punctation, supraclypeal area with fine and more dispersed ($i=0.5-1$ d) punctation (Fig. 101C), between punctures slightly shiny. Antenna black.

MESOSOMA. Integument black, tegula brown. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-1$ d) and finely but deeply punctate (Fig. 101D). Propodeum with sparse ($i=0.5-1.5$ d), fine and shallow punctation, metapostnotum matt (Fig. 101E). Mesoscutum, mesoscutellum and mesepisternum covered with long, golden hair (Fig. 101D). Metanotum and propodeum covered with short, golden hair, metapostnotum glabrous (Fig. 101D-E).

WINGS. Yellowish; wing venation brown and stigma brown to dark brown (Fig. 101A).

LEGS. Integument black. Coxa, trochanter and femur sparsely covered with fairly long, black hair mixed with short, white hair. Tibia and tarsi covered with short, white hair mixed with short, black hair (Fig. 101A).

METASOMA. Integument of T1-T5 red, T6 apical quarter black, T7 black. T1 and T2 with few short, white hair mixed with short, black hair, from T3 increasingly more and longer hair (Fig. 101B). T7 covered with short, golden hair (Fig. 101F).

TERMINALIA. Genitalia (Fig. 102B-C) and terminal plate of S8 (Fig. 102A) as illustrated. Unfortunately, S7 of the specimen was lost during dissection.

Distribution

Only known from the wider Nieuwoudtville area.

Host bees

Unknown.

Seasonal activity

May.

Comment

This species possibly represents the unknown male of *S. papilla* as both were collected in autumn in the same area.

***Sphecodopsis directa* sp. nov.**

urn:lsid:zoobank.org:act:4ADDC4FF-2ABC-4B9B-A3A6-3B661F722B36

Figs 103-104

Diagnosis

The female of *S. directa* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about three times as long as its apical width, shape as shown in Fig. 104C; metasoma partially red (Fig. 103B); front legs with red dots on femur and tibia (Fig. 103A); T6 densely covered with golden hair (Fig. 104B). The male is unknown.

Etymology

The name refers to the long straight tips of the female S6.

Type material (2 specimens)

Holotype

SOUTH AFRICA • ♀; Leliefontein, plain; 31°14' S, 18°09' E; 31 Aug. 2003; CM leg.; SANC.

Paratype

SOUTH AFRICA • 1 ♀; Leliefontein, plain; 31°14' S, 18°09' E; 21 Sep. 2004; CM leg.; RCMK.

Description

Female

BODY LENGTH. 5.6 mm.

HEAD. Head wider than long. Vertex rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, white hair mixed with short black hair. Face with dense ($i=0.5-1$ d) and fairly fine but deep punctation (Fig. 103C), between punctures slightly matt. Antenna black.

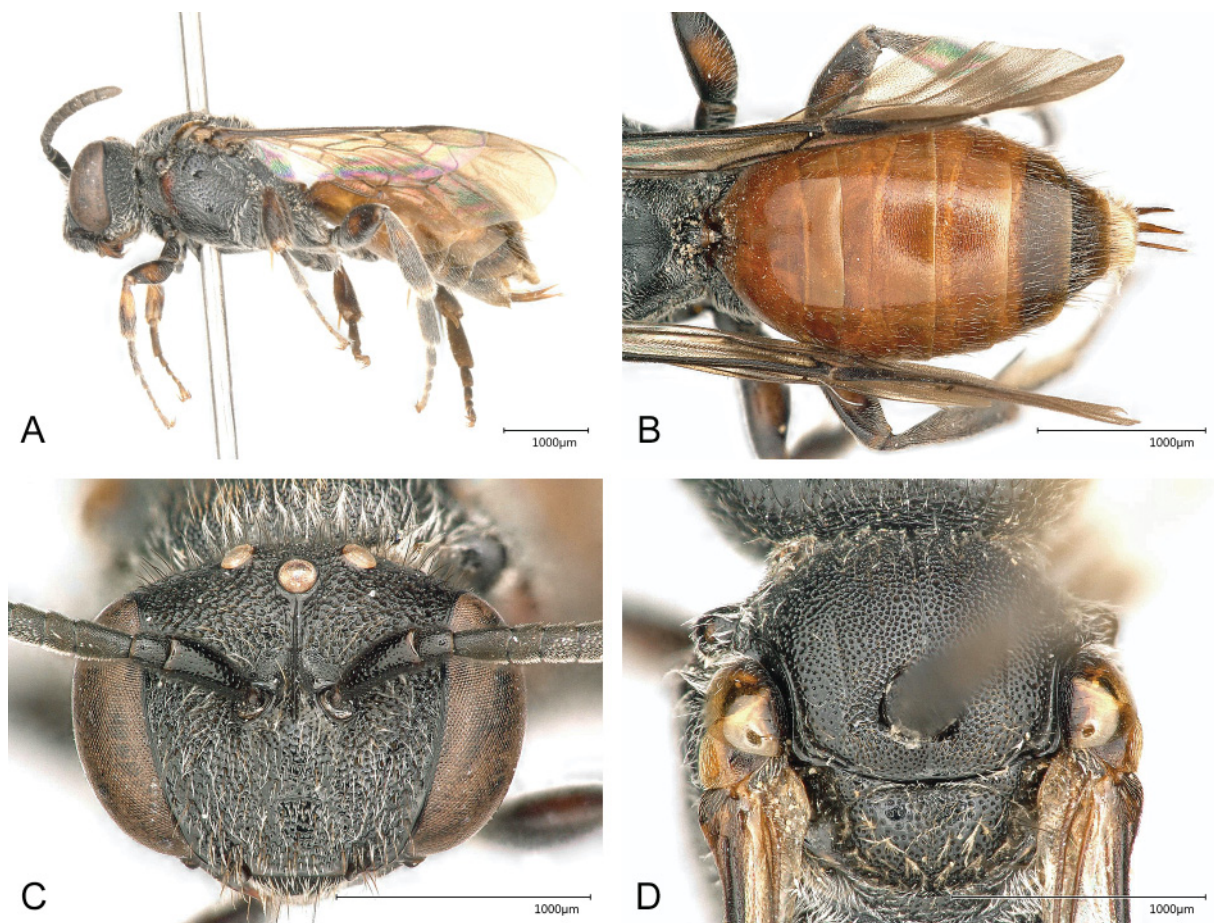


Fig. 103. *Sphecodopsis directa* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

MESOSOMA. Integument black, except red under the pronotal lobe, tegulae red. Mesoscutum slightly matt. Mesoscutum and mesoscutellum densely ($i=0.25\text{--}0.5$ d) and fairly finely but deeply punctate (Fig. 103D). Propodeum with dense ($i=1\text{--}1.5$ d), fairly fine but shallow punctation, metapostnotum matt (Fig. 104A). Mesoscutum and mesoscutellum with short, white hair mixed with very short, golden hair (Fig. 103D). Metanotum, propodeum and mesepisternum sparsely covered with short, white hair, metapostnotum glabrous (Figs 103D, 104A).

WINGS. Yellowish-brown; wing venation brown and stigma brown to dark brown (Fig. 103A).

LEGS. Integument mostly black with few red patches. Coxa, trochanter and femur sparsely covered with fairly long, white hair mixed with short, white hair. Tibia and tarsi covered with short, white hair (Fig. 103A).

METASOMA. Integument of T1–T3 red, T4 basal quarter red, the rest, T5 and T6 black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 103B). T6 broad and rounded apically, covered with long, white hair (Fig. 104B). Shape of S6 (Fig. 104C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality in the Kamiesberg Mts.

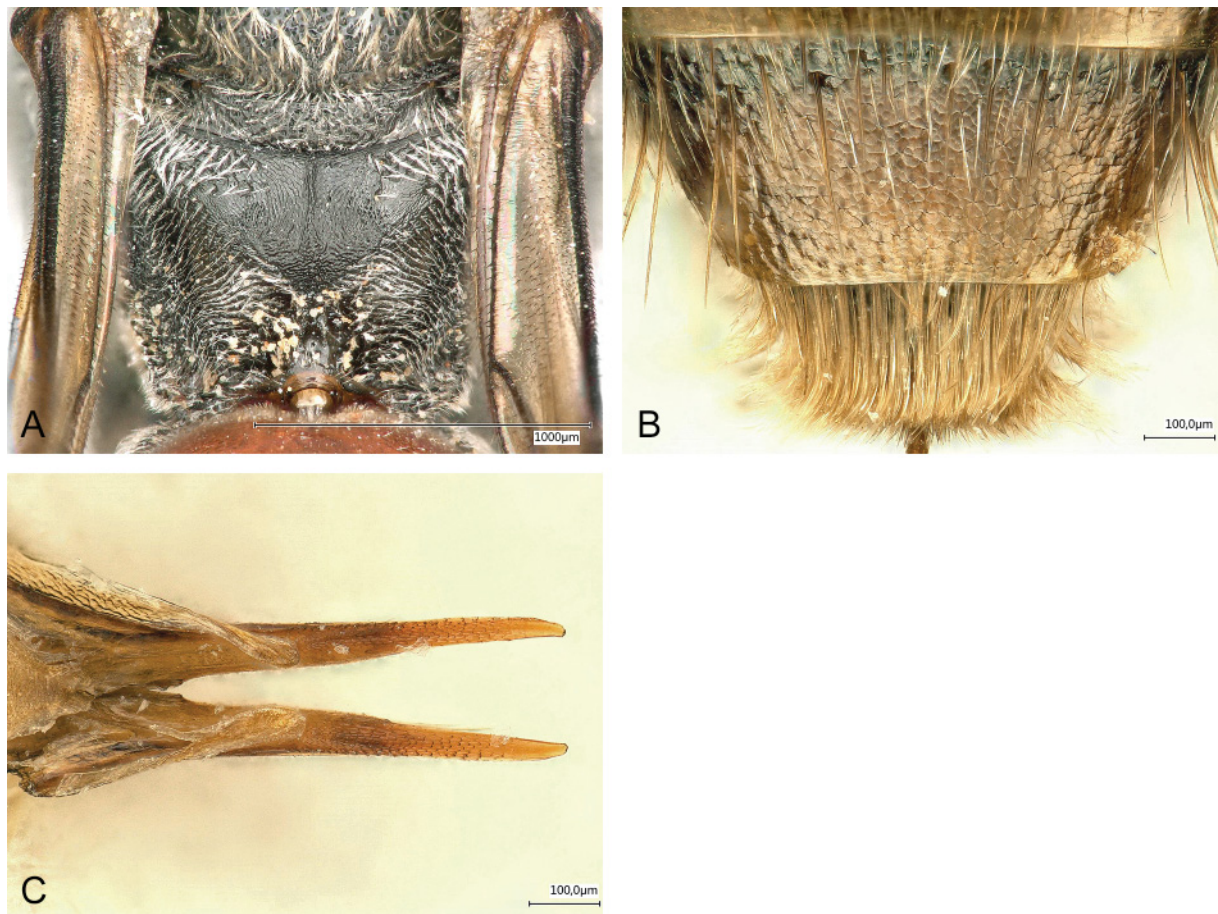


Fig. 104. *Sphecodopsis directa* sp. nov., paratype, ♀ (RCMK). A. Propodeum. B. T5 and T6. C. S6.

Host bees

Unknown.

Seasonal activity

August–September.

Sphecodopsis fimbriata sp. nov.

urn:lsid:zoobank.org:act:7DDC25CB-D651-474F-ABF8-5A15380EEA33

Figs 105–106

Diagnosis

The female of *S. fimbriata* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch shorter and narrower, about as long as its apical width (Fig. 106C); metasoma partially red (Fig. 105B); fore tibia and tarsi completely or largely red (Fig. 105A); head wider than long, vertex slightly rounded (Fig. 105C); T5 apically with conspicuously long fringe of bright white, strongly branched hair, laterally distinctly longer forming a small medial gap (Fig. 106B). The male is unknown.

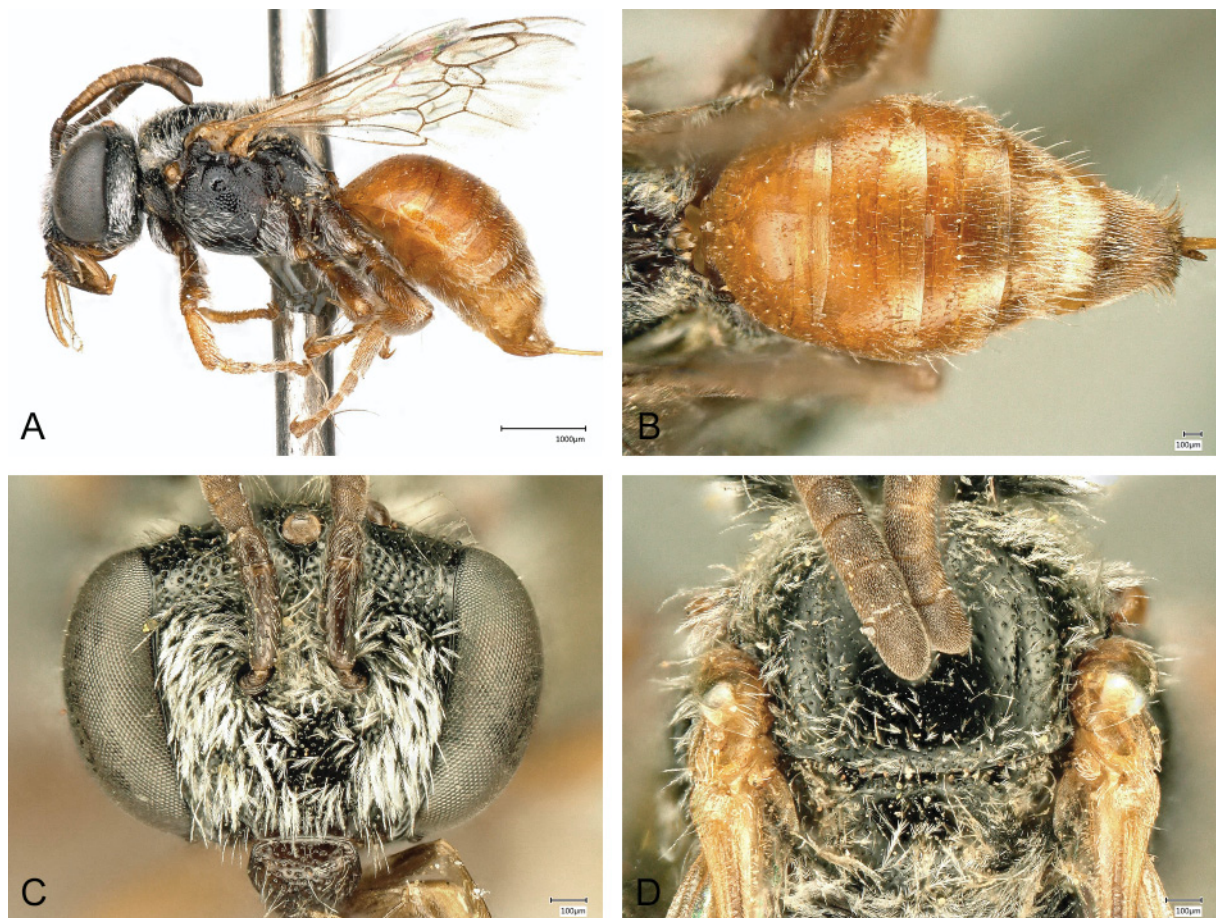


Fig. 105. *Sphecodopsis fimbriata* sp. nov., holotype, ♀ (SANC). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

Etymology

The species is named for the conspicuous white fimbria of the female T5.

Type material (1 specimen)

Holotype

SOUTH AFRICA • ♀; C.P., 6 km N of Kamieskroon, Farm Arkoep; 30°19' S, 17°56' E; 1–2 Oct. 1990; CE leg.; SANC.

Description

Female

BODY LENGTH. 5.0 mm.

HEAD. Head wider than long. Vertex slightly rounded, ocelli highest point. Integument black, except part of mandibles red. Face covered with bright white hair. Face with dense ($i=0.25\text{--}0.5$ d), fine and shallow punctation (Fig. 105C). Surface between punctures slightly shiny. Antenna red to reddish-brown.

MESOSOMA. Integument black, tegula yellow. Mesoscutum fairly smooth and shiny. Mesoscutum, mesoscutellum and metanotum sparsely ($i=1\text{--}2.5$ d), finely and shallowly punctate (Fig. 105C). Propodeum with dense ($i=0\text{--}0.25$ d), fine and shallow punctation, metapostnotum fairly shiny (Fig. 106A). Mesoscutum, mesoscutellum, metanotum and mesepisternum covered with short yellowish-white to bright white hair (Fig. 105C). Propodeum covered with short, bright white hair, metapostnotum glabrous (Fig. 106A).



Fig. 106. *Sphecodopsis fimbriata* sp. nov., holotype, ♀ (SANC). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 105A).

LEGS. Integument of coxa and trochanter red. Femur, tibia and tarsi light red. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsus covered with short, white hair (Fig. 105A).

METASOMA. Integument of T1–T6 light red, T6 in the middle dark. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair. T4 marginal zone with dense short, white hair (Fig. 105B). T5 with long, white hair and apical margin with two bright white fringes of hair. T6 broad and rounded apically, covered with short, white hair and golden hair apically (Fig. 106B). Shape of S6 (Fig. 106C) as illustrated.

Male

Unknown.

Distribution

Only known from the type locality.

Host bees

Unknown.

Seasonal activity

October.

Sphecodopsis longipygidium Eardley, 1997 Fig. 107

Sphecodopsis longipygidium Eardley, 1997: 403–404, holotype ♀ (type locality: Niewerust [= Nuwerus], South Africa) (SAMC) examined.

Diagnosis

The female of *S. longipygidium* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly; metasoma partially red (Fig. 107B); fore tibia and tarsi completely or largely red (Fig. 107A); head wider than long, vertex slightly rounded (Fig. 107C); mesoscutum matt, densely and deeply punctate (Fig. 107D); T5 apically without hair fringe (Fig. 107B); head and mesoscutum with black hair (Fig. 107C–D); T6 narrow and almost truncate apically, with long black hair (Fig. 107B). The male is unknown.

This characteristic species was described in detail by Eardley & Brothers (1997). Thus, to facilitate the identification only images are provided (Fig. 107) without repeating the description.

Additional material examined

None.

Distribution

Only known from the type locality Nuwerus (Eardley & Brothers 1997).

Host bees

Unknown.

Seasonal activity

September (Eardley & Brothers 1997).

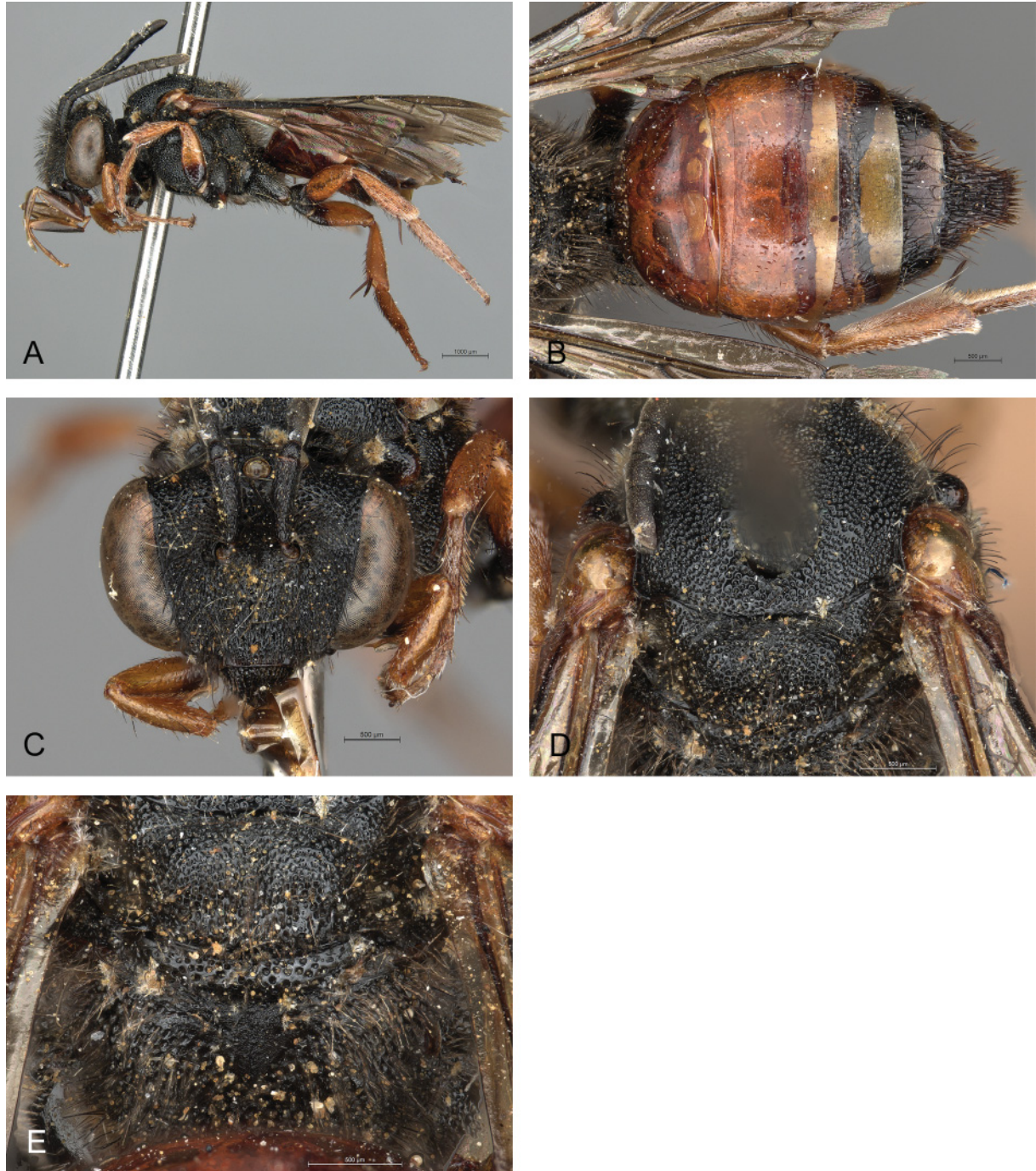


Fig. 107. *Sphecodopsis longipygidium* Eardley, 1997, holotype, ♀ (SAMC). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. Photographs © Simon van Noort (Iziko Museums of South Africa).

Sphecodopsis minutissima (Cockerell, 1933)

Fig. 108

Morgania (Omachthes) minutissima Cockerell, 1933a: 379, holotype ♀ (type locality: Aliwal North, South Africa) (NHML) examined.

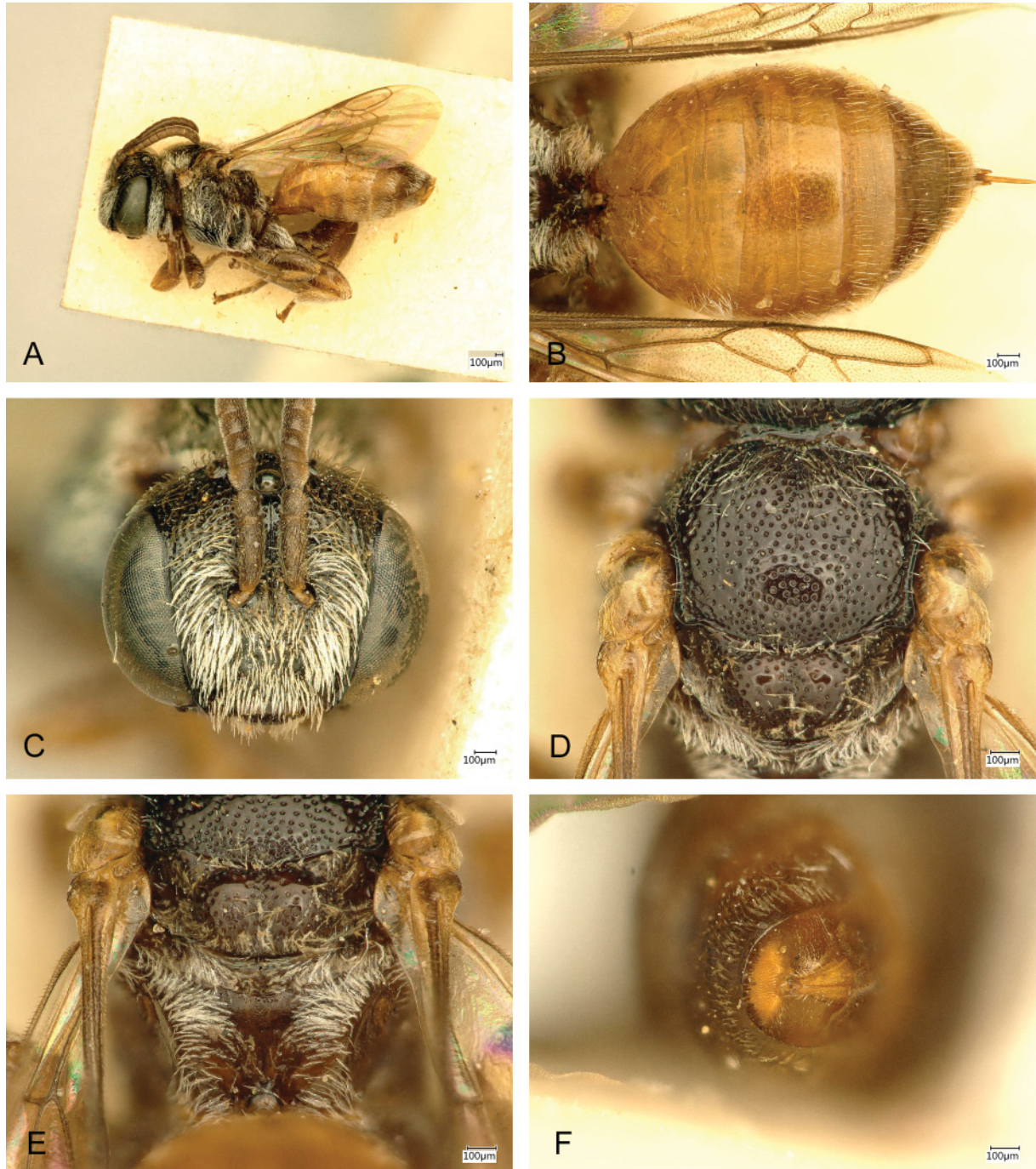


Fig. 108. *Sphecodopsis minutissima* (Cockerell, 1933), holotype, ♀ (NHML). A. Habitus (lateral view). B. Metasoma (dorsal view). C. Head. D. Mesoscutum and mesoscutellum (dorsal view). E. Propodeum. F. S6.

Morgania (*Pseudopasites*) *rufula* Cockerell, 1933a: 382–383, holotype ♀ (type locality: 38 miles E of Ceres, South Africa) (NHML) examined.

Diagnosis

The female of *S. minutissima* can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width (Fig. 108E); Metasoma partially red (Fig. 108B); fore tibia and tarsi completely or largely red (Fig. 108A); Head only slightly wider than long, vertex conspicuously raised and rounded (Fig. 108C). Males were not available for study (see Eardley & Brothers 1997).

This characteristic species was described in detail by Eardley & Brothers (1997). Thus, to facilitate the identification only images are provided (Fig. 108) without repeating the description.

Additional material examined

None.

Distribution

Only known from the type localities in central South Africa (Eardley & Brothers 1997).

Host bees

Unknown.

Seasonal activity

November–January (Eardley & Brothers 1997).

Comment

The additional specimens mentioned by Eardley & Brothers (1997) are misidentifications and represent other species.

Sphecodopsis regina sp. nov.

urn:lsid:zoobank.org:act:217A8B44-1ADC-40E3-ADA5-15F62C11CA25

Figs 109–112

Diagnosis

The female of *S. regina* sp. nov. can be separated from that of all other species by the combination of the following characters: S6 bifid posteriorly, apical notch about as long as its apical width (Fig. 110C); metasoma partially red (Fig. 109B); fore tibia and tarsi completely or largely red (Fig. 109A); head wider than long, vertex flat (Fig. 109C); T5 apically without hair fringe (Fig. 110B); head and mesoscutum with short golden hair (Fig. 109C–D); propodeum sparsely covered with golden hair (Fig. 110A). The male can be separated from that of all other species by the combination of the following characters: body length 4.9 mm; metasoma at least partially red (Fig. 111B); fore tibia and tarsi completely red (Fig. 111A); metapostnotum glabrous and shiny (Fig. 111E); Head and mesosoma with relatively short golden and white hair (Fig. 111C–D); wings slightly yellowish, almost clear (Fig. 111A).

Etymology

The species looks like a queen (Latin: ‘*regina*’) because of the golden ‘crown’ hairs on the female vertex. Noun in apposition.

Type material (9 specimens)

Holotype

SOUTH AFRICA • ♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; 170 m a.s.l.; 17 Aug. 2010; MK leg.; SAMC.

Paratypes

SOUTH AFRICA • 1 ♀; Leliefontein, plain; 30°14' S, 18°09' E; 23 Sep. 2003; CM leg.; RCMK • 1 ♂; Remhoogte, slope; 30°14' S, 18°10' E; 14 Sep. 2003; CM leg.; RCMK • 1 ♀, 1 ♂; Hantam Mts, river bank, 32 km N of Calvinia, S of Klipwerf Farm; 31°12'09" S, 19°50'04" E; 870 m a.s.l.; 30 Aug. 2010; MK leg.; RCMK • 2 ♀♀, 1 ♂; W Cape, Knersvlakte, Sukkulent Karoo, 30 km N of Vanrhynsdorp; 31°22'23" S, 18°42'37" E; 146 m a.s.l.; 5–6 Sep. 2003; KT leg.; RCMK • 1 ♀; W Cape, Knersvlakte, Farm Kaapse Drif; 31°26'01" S, 18°47'34" E; 22 Sep. 1999; MK leg.; RCMK.

Description

Female

BODY LENGTH. 4.0–5.2 mm.

HEAD. Head wider than long. Vertex rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, white hair, mixed with short, gold hair. Face with dense ($i=0.25\text{--}0.5$ d), fairly fine and shallow punctation, supraclypeal area with more dispersed

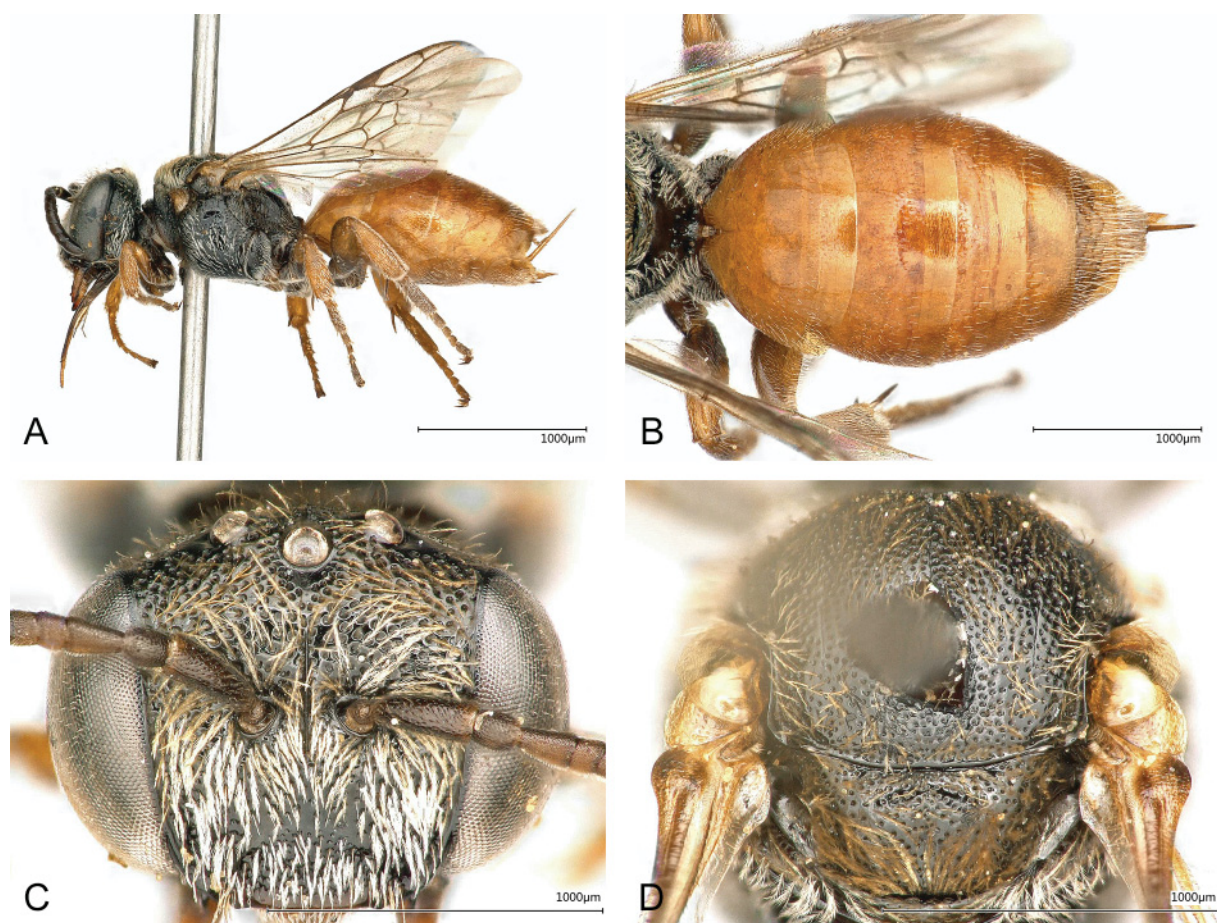


Fig. 109. *Sphecodopsis regina* sp. nov., paratype, ♀ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

($i=0.5-1$ d) punctation (Fig. 109C). Surface between punctures slightly shiny. Antenna reddish-brown to brown.

MESOSOMA. Integument black, tegula yellow. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-0.5$ d), finely and shallowly punctate (Fig. 109D). Propodeum with sparse ($i=1-2$ d), fine and shallow punctation, metapostnotum shiny (Fig. 110A). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with short, white hair mixed with short, gold hair (Fig. 109D). Metanotum and propodeum sparsely covered short, white hair mixed with short, gold hair, metapostnotum glabrous (Figs 109D, 110A).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 109A).

LEGS. Integument of coxa and trochanter dark reddish-brown to black, femur tibia and tarsus of variable color. Femur basal half black and femur apical half, tibia and tarsi light red, red or dark reddish-brown. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsi covered with short, white hair (Fig. 109A).

METASOMA. Integument of T1–T3 red, T4–T6 to a variable extent red, from completely red to completely black. T1 and T2 with few short, white hairs, from T3 increasingly more and longer hair (Fig. 109B). T6 covered with short, white hair, narrow and rounded apically (Fig. 110B). Shape of S6 (Fig. 110C) as illustrated.

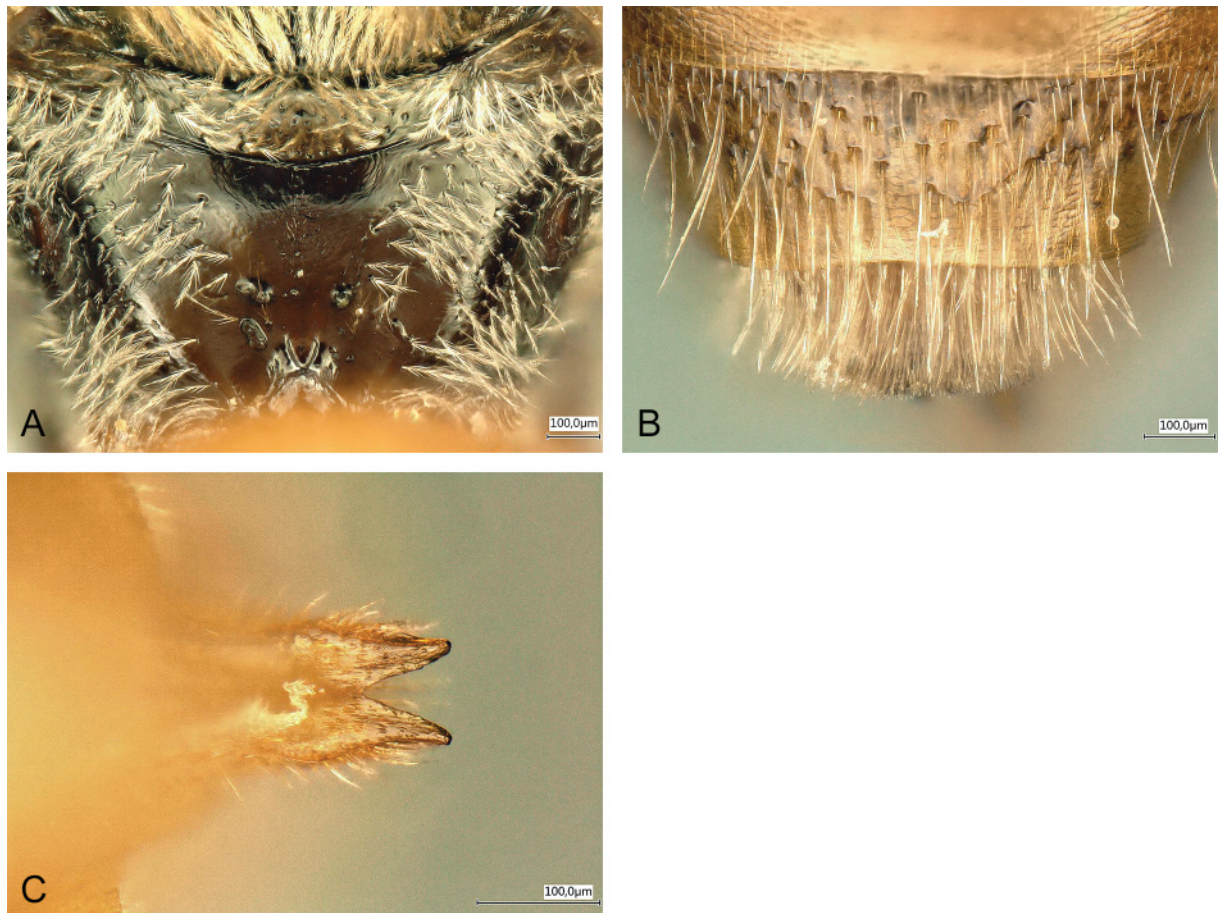


Fig. 110. *Sphecodopsis regina* sp. nov., paratype, ♀ (RCMK). A. Propodeum. B. T5 and T6. C. S6.

Male

BODY LENGTH. 4.9 mm.

HEAD. Head wider than long. Vertex rounded, ocelli highest point. Integument black, except part of mandibles red or reddish-brown. Face covered with short, white hair, mixed with short, gold hair. Face with dense ($i=0.25\text{--}0.5$ d), fairly fine and shallow punctation, supraclypeal area with more dispersed

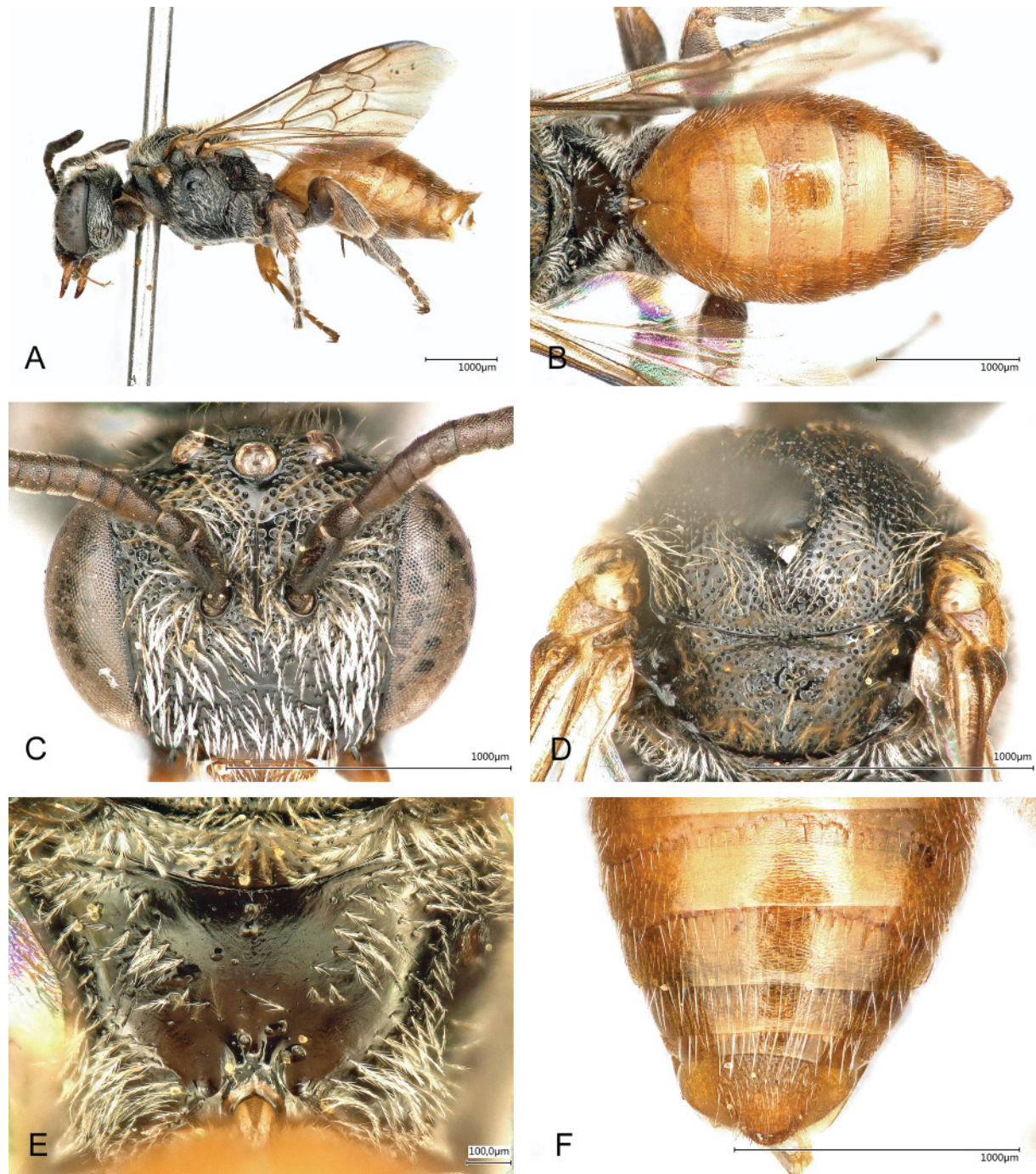


Fig. 111. *Sphecodopsis regina* sp. nov., paratype, ♂ (RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view). **E.** Propodeum. **F.** T4–T7 (dorsal view).

($i=0.5-1$ d) punctation (Fig. 111C). Surface between punctures slightly shiny. Antenna reddish-brown to brown.

MESOSOMA. Integument black, tegula yellow. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum densely ($i=0.25-0.5$ d), finely and shallowly punctate (Fig. 111D). Propodeum with sparse ($i=1-2$ d), fine and shallow punctation, metapostnotum shiny (Fig. 111E). Mesoscutum, mesoscutellum and mesepisternum sparsely covered with short, white hair mixed with short, gold hair (Fig. 111D). Metanotum and propodeum sparsely covered with short, white hair mixed with short, gold hair, metapostnotum glabrous (Fig. 111D–E).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 111A).

LEGS. Integument of coxa and trochanter dark reddish-brown to black, femur tibia and tarsus of variable color. Femur basal half black and femur apical half, tibia and tarsi light red, red or dark reddish-brown. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsi covered with short, white hair (Fig. 111A).

METASOMA. Integument of T1–T3 red, T4–T7 to a variable extent red, from completely red to completely black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 111B). T7 narrow and rounded apically, covered with short, white hair (Fig. 111F).

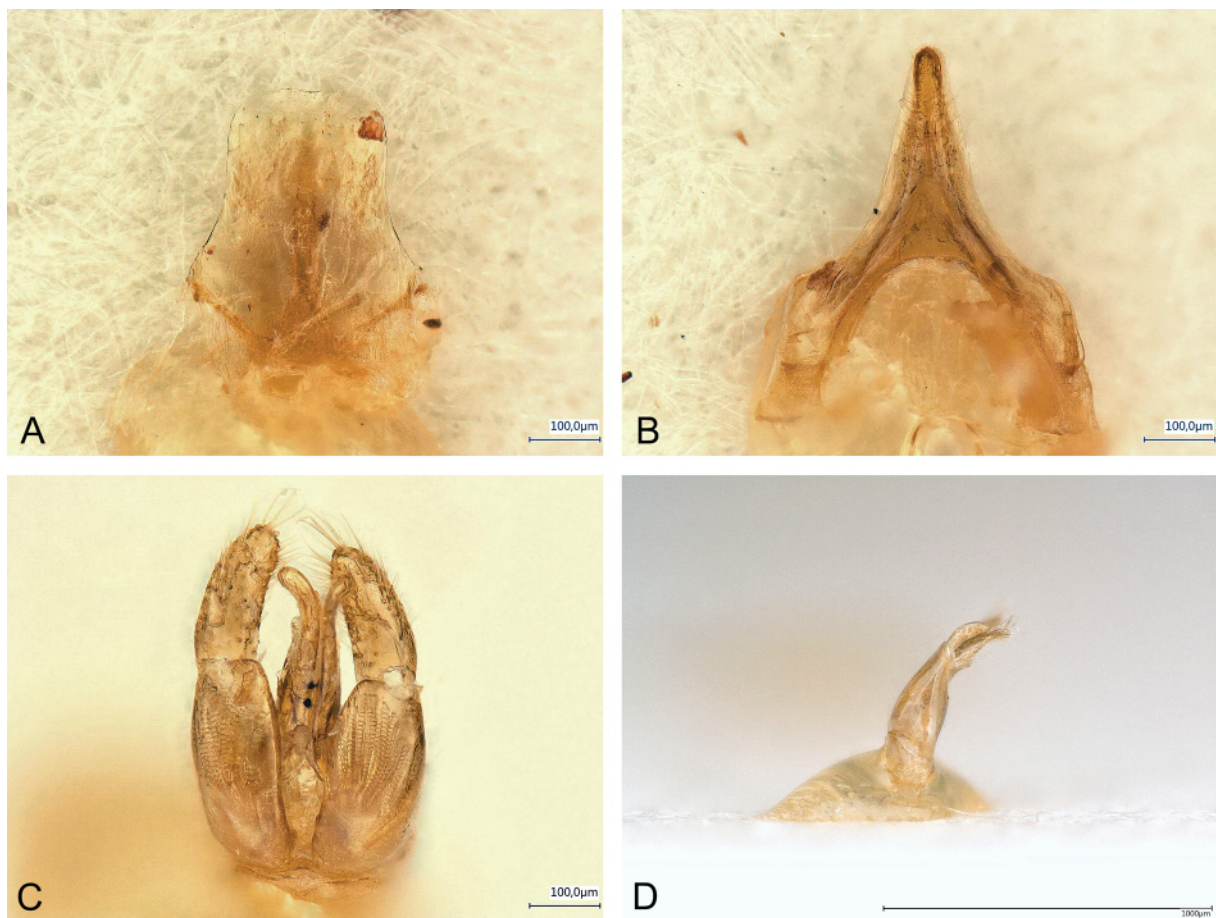


Fig. 112. *Sphecodopsis regina* sp. nov., paratype, ♂ (RCMK). **A.** S7 (dorsal view). **B.** S8 (dorsal view). **C.** Genital (dorsal view). **D.** Genital (lateral view).

TERMINALIA. Genitalia (Fig. 112C), S7 (Fig. 112A) and terminal plate of S8 (Fig. 112B) as illustrated.

Distribution

Found in different parts of Namaqualand.

Host bees

Unknown.

Seasonal activity

August–September.

Sphecodopsis vicfalls sp. nov.

urn:lsid:zoobank.org:act:1D21ECB3-6A01-462F-9C54-797D000C98E6

Figs 113–114

Diagnosis

The female of *S. vicfalls* sp. nov. can be separated from that of all other species of the genus by the combination of the following characters: S6 bifid posteriorly, apical notch about twice as long as its apical width (Fig. 114C); metasoma partially red (Fig. 113B); fore tibia and tarsi completely or largely



Fig. 113. *Sphecodopsis vicfalls* sp. nov., paratype, ♀ (Rundu, RCMK). **A.** Habitus (lateral view). **B.** Metasoma (dorsal view). **C.** Head. **D.** Mesoscutum and mesoscutellum (dorsal view).

red (Fig. 113A); head wider than long, vertex flat (Fig. 113C); T5 apically with short fringe of hair of \pm even length (Fig. 114B); head and mesoscutum with short white or golden hair (Fig. 113C–D); propodeum densely covered with bright white hair (Fig. 114A). The male is unknown.

Etymology

The name is the abbreviation for Victoria Falls, the place where the species was first collected. Noun in apposition.

Type material (11 specimens)

Holotype

ZIMBABWE • ♀; Victoria Falls; [17°56' S, 25°50' E]; 3 Jan. 1920; SANC.

Paratypes

NAMIBIA • 1 ♀; Caprivi Zipfel, Katima Mulilo; [17°30' S, 24°15' E]; 15–24 Jan. 1995; MSn leg.; RCMS • 1 ♀; Rundu; [17°55' S, 19°45' E]; 17 Jan. 1993; JG leg.; RCMS • 3 ♀♀; 30 km E of Rundu; [17°55' S, 20°00' E]; 23 Jan. 1993; JG leg.; RCMS • 3 ♀♀; same collection data as for preceding; RCMK • 1 ♀; 30 km E of Rundu; [17°55' S, 20°00' E]; 23 Jan. 1993; MS leg.; RCMS • 1 ♀; same collection data as for preceding; RCMK.



Fig. 114. *Sphecodopsis vicfalls* sp. nov., paratype, ♀ (Rundu, RCMK). **A.** Propodeum. **B.** T5 and T6. **C.** S6.

Description

Female

BODY LENGTH. 5.0 mm.

HEAD. Head wider than long. Vertex rounded, ocelli highest point. Integument black, except part of mandibles red and reddish-brown. Face covered with short, bright white hair. Face with dense ($i=0.25-0.5$ d) and fine but deep punctation, supraclypeal area with more dispersed ($i=0.5-1$ d) punctation (Fig. 113C). Surface between punctures slightly shiny. Antenna reddish-brown to brown.

MESOSOMA. Integument black, some reddish-brown, to orange, tegula yellow. Mesoscutum slightly shiny. Mesoscutum and mesoscutellum sparsely ($i=1-2.5$ d), coarsely and shallowly punctate (Fig. 113D). Propodeum with dense ($i=0.5-1$ d), fine and shallow punctation, metapostnotum shiny (Fig. 114A). Mesoscutum, mesoscutellum, metanotum covered with yellowish-white hair. Mesepisternum and propodeum densely covered with short, bright white hair, metapostnotum glabrous (Figs 113D, 114A).

WINGS. Yellowish; wing venation brown and stigma brown (Fig. 113A).

LEGS. Integument of coxa, trochanter, femur, tibia and tarsi of variable color light red over red to reddish-brown. Coxa, trochanter and femur sparsely covered with short, white hair. Tibia and tarsus covered with short, white hair (Fig. 113A).

METASOMA. Integument of T1–T5 red, T6 to a variable extent red, from almost completely red (just apical margin dark) to completely black. T1 and T2 with few short, white hair, from T3 increasingly more and longer hair (Fig. 113B). T5 marginal zone with dense short, white hair. T6 broad and almost straight apically, covered with short, white hair (Fig. 114B). Shape of S6 (Fig. 114C) as illustrated.

Male

Unknown.

Distribution

Found in northern Namibia and western Zimbabwe.

Host bees

Unknown.

Seasonal activity

January.

Comment

The holotype specimen from Victoria Falls was misidentified as *S. minutissima* by Eardley & Brothers (1997).

Nomen dubium

Sphecodopsis argyrura (Cockerell, 1933)

Morgania argyrura Cockerell, 1933b: 108–109, holotype ♀ (type locality: Stellenbosch, South Africa) (NHML), examined.

As already mentioned by Eardley & Brothers (1997), only the mesosoma and part of the legs of the holotype still exist. This and the unspecific description do not allow for an identification, so the species is here treated as a nomen dubium.

Key for the identification of species of *Sphecodopsis*

Females

The preparation of S6 is essential for a reliable determination.

The females of the following species are unknown: *S. albomaculata* sp. nov., *S. leonis*, *S. minuta* sp. nov., *S. nana* sp. nov., *S. nigra* sp. nov., and *S. villosa*. The females of *S. carolinae* and *S. capicola* were not available for study, so they are not included in the key either.

1. S6 pointed posteriorly (Figs 4D, 6D, 10D) 2
 - S6 bifid posteriorly (e.g. Figs 12C, 26C, 34C, 52C, 56C, 92C, 104C) 4
2. T6 narrow and almost truncate apically (Fig. 10B) *S. fumipennis* (Bischoff, 1923)
 - T6 broad and rounded apically (Figs 4C, 6C) 3
3. Punctuation on mesoscutum denser ($i=0.25-0.5$ d) and finer, individual punctures not always clearly separated (Fig. 3D); S6 shiny on surface and more pointed apically (Fig. 4D) *S. aquifolia* sp. nov.
 - Punctuation on mesoscutum slightly more dispersed ($i=0.25-1$ d) and coarser, individual punctures clearly separated (Fig. 5D); S6 matt on surface and rounded apically (Fig. 6D) *S. capensis* (Friese, 1915)
4. Metasoma completely black (Figs 15B, 25B, 55B, 57B) 5
 - T1 and T2 at least partially red, but metasoma usually with more extensive red colouration (e.g. Figs 11B, 33B, 59B, 81B) 8
5. Apical notch of S6 at least five times as long as its apical width (Figs 56C, 58C) 6
 - Apical notch of S6 at most three times as long as its apical width (Figs 16C, 26C) 7
6. Punctuation of mesoscutum more dispersed ($i=0.5-1$ d) and coarser (Fig. 55D); apical notch of S6 five times as long as its apical width (Fig. 56C) *S. atra* sp. nov.
 - Punctuation of mesoscutum denser ($i=0.25-0.5$ d) and finer (Fig. 57D); apical notch of S6 nine times as long as its apical width (Fig. 58C) *S. catastropha* sp. nov.
7. T6 sparsely covered with short white hair (Fig. 16B); apical notch of S6 two times as long as its apical width (Fig. 16C) *S. chaotica* sp. nov.
 - T6 covered with long black hair (Fig. 26B); apical notch of S6 three times as long as its apical width (Fig. 26C) *S. obscura* sp. nov.
8. Fore tibia and tarsi completely or largely red (Figs 47A, 53A, 91A, 105A) 9
 - Fore tibia and tarsi usually black, sometimes with small reddish spots (Figs 11A, 21A, 39A, 59A, 103A) 20
9. Head only slightly wider than long, vertex conspicuously raised and rounded (Fig. 108C)..... *S. minutissima* (Cockerell, 1933)
 - Head wider than long, vertex flat, almost flat or just slightly rounded (Figs 47C, 93C, 105C, 107C) 10
10. T5 apically with conspicuously long fringe, hair laterally distinctly longer forming a small medial gap (Figs 48B, 106B) 11
 - T5 apically either without or with short fringe of hair of \pm even length (Figs 54B, 88B, 110B, 114B) 12

11. Apical notch of S6 shorter and narrower, about as long as its apical width (Fig. 106C); T5 with bright white fringe of strongly branched hair (Fig. 106B) *S. fimbriata* sp. nov.
 – Apical notch of S6 longer and broader, about one and a half times as long as its apical width (Fig. 48C); T5 with brown fringe of slightly branched hair (Fig. 48B)
 *S. vespericena* Eardley, 1997
12. Head and mesoscutum with short white or golden hair (Figs 109C, 109D, 113C, 113D) 13
 – Head and mesoscutum with black hair, sometimes interspersed with lighter hair (Figs 51C–D, 91C–D, 107C–D) 14
13. Propodeum sparsely covered with golden hair (Fig. 110A); apical notch of S6 about as long as its apical width (Fig. 110C) *S. regina* sp. nov.
 – Propodeum densely covered with bright white hair (Fig. 114A); apical notch of S6 about twice as long as its apical width (Fig. 114C) *S. vicfalls* sp. nov.
14. Mesoscutum matt, densely and deeply punctate (Figs 51D, 53D, 107D) 15
 – Mesoscutum shiny, sparsely and shallowly punctate (Figs 79D, 81D–E, 87D, 91D) 17
15. T6 narrow and almost truncate apically, with long black hair (Fig. 107B)
 *S. longipygidium* Eardley, 1997
 – T6 broad and rounded apically, with short golden hair (Figs 52B, 54B) 16
16. Apical notch of S6 about seven times as long as its apical width (Fig. 52C); T6 laterally slightly rounded (Fig. 52B) *S. crassipunctata* sp. nov.
 – Apical notch of S6 about twice as long as its apical width (Fig. 54C); T6 laterally almost straight (Fig. 54B) *S. namaquensis* Eardley, 1997
17. Apical notch of S6 about as long as its apical width (Figs 80C, 82D) 18
 – Apical notch of S6 about one and a half times as long as its apical width (Figs 88C, 92C) 19
18. Thin patches of white hair above each antennae (Fig. 81C); propodeum laterally and metapostnotum with abundant white hair in upper corners (Fig. 82A, 82B) *S. kuhlmanni* Eardley, 2007
 – No white hair above each antennae (Fig. 79C); propodeum laterally and metapostnotum only with few white hairs in upper corners (Fig. 80A) *S. keiskiensis* sp. nov.
19. 2nd antennal segment approx. twice as long as 3rd segment (Fig. 91C); metapostnotum approx. as high as wide, superficially shagreened and more shiny (Fig. 92A) *S. semirufa* (Cockerell, 1933)
 – 2nd antennal segment 1.5 times longer than 3rd segment (Fig. 87C); metapostnotum wider than high, more distinctly shagreened and matt (Fig. 88A) *S. rufipes* sp. nov.
20. Apical notch of S6 about three as long as its apical width, shape as shown in Fig. 104C; T6 densely covered with golden hair (Fig. 104B); front legs only with dots of red on the femur and the tibia (Fig. 103A) *S. directa* sp. nov.
 – S6 of different shape (Figs 12C, 30C, 34C, 60C); T6 either covered with black or white hair or with only thin golden hair (Figs 12B, 18B, 40B, 72B); front legs completely black or, if with red maculation, position and form different (Figs 11A, 21A, 45A, 73A) 21
21. Head and mesosoma with conspicuously dense, long, black hair (Figs 33C–D, 43C–D); apical notch of S6 about as long as its apical width, shape as shown in (Figs 34C, 40C, 44C, 46C) 22
 – Head and mesosoma with light hair, if black then shorter or more dispersed (Figs 19C–D, 75C–D); shape of S6 different (Figs 12C, 18C, 60C) 25

22. T5 only with long black hair (Fig. 44B) *S. liefontaineensis* sp. nov.
 – T5 with black hair on the disc and bright white hair on the apical margin (Figs 34B, 40B, 46B) . 23
23. T6 apically truncate (Fig. 40B) *S. felix* sp. nov.
 – T6 apically slightly rounded (Figs 34B, 46B) 24
24. Mesoscutum very densely punctate ($i=0-0.25$ d) surface appears rugged (Fig. 33D); body length around 7–9 mm (Fig. 33A) *S. atricapillata* sp. nov.
 – Mesoscutum with more dispersed punctation ($i=0.25-0.5$ d) surface smooth (Fig. 45D); body length around 5 mm (Fig. 45A) *S. roggeveldensis* sp. nov.
25. Smaller, body length 3.5–5.8 mm (Figs 59A, 63A, 71A, 73A, 75A); apical notch of S6 three to six times as long as its apical width, more or less spatulate (Figs 60C, 64C, 72C, 74C, 76C) 26
 – Larger, body length > 6 mm (Figs 11A, 19A, 81A, 97A), or if smaller shape of S6 different (Figs 12C, 20C, 82D, 98C) 30
26. Head and mesoscutum with black hair, partially mixed with white hair (Fig. 71C–D)
 *S. papilla* Eardley, 2007
 – Head and mesoscutum with purely white, yellowish-white or golden hair (Figs 73C–D, 75–D) .. 27
27. Propodeum densely covered with short white or yellowish-white hair (Figs 60A, 76A) 28
 – Propodeum very sparsely covered with short white hair (Figs 64A, 74A) 29
28. T5 apically densely covered with short white hair (Fig. 76B); T6 rounded apically, covered with short golden hair forming a fringe (Fig. 76B) *S. tenera* sp. nov.
 – T5 apically sparsely covered with short white hair (Fig. 60B); T6 almost truncate apically, covered with short golden hair but not forming a fringe (Fig. 60B) *S. corona* sp. nov.
29. T6 rounded apically with an inconspicuous fringe, hair laterally about as long as medially (Fig. 74B) *S. parvula* sp. nov.
 – T6 almost straight apically with a distinct fringe, hair laterally much longer than medially (Fig. 64B) *S. microscopica* sp. nov.
30. Apical notch of S6 with a small tip distally (Figs 18C, 20C, 22C, 30C) 31
 – Apical notch of S6 without a small tip distally (Figs 12C, 20C, 82D, 98C) 33
31. Propodeum densely covered with relatively long, yellowish-white hair mixed with long, black hair (Fig. 22A); larger, body length approx. 5.8–6.6 mm (Fig. 21A) *S. magna* sp. nov.
 – Propodeum covered with short, yellowish-white or white hair only (Figs 18A, 20A, 30A); smaller, body length max. 5.3 mm (Figs 17A, 19A, 29A) 32
32. Mesoscutum slightly coarser and more dispersed ($i=0.25-1$ d) punctate (Fig. 29D); tips of S6 slightly more curved inward (Fig. 30C) *S. subtilis* sp. nov.
 – Mesoscutum more finely and densely ($i=0.25-0.5$ d) punctate (Fig. 17D); tips of S6 barely curved inward (Fig. 18C) *S. acuta* sp. nov.
33. T6 almost truncate apically (Figs 20B, 82C) 34
 – T6 rounded apically (Figs 12B, 98B) 35
34. Apical notch of S6 as long as its apical width, notch narrower (Fig. 82D)
 *S. kuhlmanni* Eardley, 2007
 – Apical notch of S6 one and a half times as long as its apical width, notch wider (Fig. 20C)
 *S. angulata* sp. nov.

35. Head with black hair (Fig. 97C) *S. bifida* sp. nov.
 – Head with white hair (Fig. 11C) *S. aculeata* (Friese, 1922)

Males

The extraction of the genitalia, S7 and S8 is indispensable for a reliable determination.

The males of the following species are unknown: *S. acuta* sp. nov., *S. angulata* sp. nov., *S. aquifolia* sp. nov., *S. atra* sp. nov., *S. bifida* sp. nov., *S. catastropha* sp. nov., *S. chaotica* sp. nov., *S. crassipunctata* sp. nov., *S. directa* sp. nov., *S. fimbriata* sp. nov., *S. fumipennis*, *S. keiskiensis* sp. nov., *S. leliefonteinensis* sp. nov., *S. longipygidium*, *S. microscopica* sp. nov., *S. namaquensis*, *S. papilla*, *S. parvula* sp. nov., *S. roggeveldensis* sp. nov. and *S. vicfalls* sp. nov. The male of *S. minutissima* was not available for study, so it is not included in the key.

1. Metasoma completely black (Figs 25B, 69B) 2
 – T1 and T2 at least partially red, but metasoma usually with more extensive red colouration (e.g. Figs 13B, 65B, 93B, 111B) 3
2. Head and mesosoma with white hair (Fig. 69C–D) *S. nigra* sp. nov.
 – Head and mesosoma with black hair (Fig. 27C–D) *S. obscura* sp. nov.
3. Fore tibia and tarsi completely red or light red (Figs 49A, 89A, 93A) 4
 – Fore legs usually black, sometimes with small reddish spots (Figs 7A, 41A, 61A, 67A) 8
4. Metapostnotum glabrous and shiny (Figs 93E, 111E) 5
 – Metapostnotum with hair in upper corners and matt (Figs 49E, 83E, 89E) 6
5. Head and mesosoma with relatively short golden and white hair (Fig. 111C–D); wings slightly yellowish, almost clear (Fig. 111A); smaller: body length 4.9 mm (Fig. 111A) *S. regina* sp. nov.
 – Head and mesosoma with long, black hair mixed with short, white hair (Fig. 93C–D); wings fuscous (Fig. 93A); larger: body length 6.5–8.0 mm (Fig. 93A) *S. semirufa* (Cockerell, 1933)
6. Mesoscutum densely punctate, matt (Fig. 49D) *S. vespericena* Eardley, 1997
 – Mesoscutum sparsely punctate, shiny (Figs 83D, 89D) 7
7. Metapostnotum with few hair in upper corners (Fig. 89E); mesoscutum slightly more densely (i=1–2 d) punctate (Fig. 89D) *S. rufipes* sp. nov.
 – Metapostnotum with more abundant hair in upper corners (Fig. 83E); mesoscutum slightly more sparsely (i=1–3 d) punctate (Fig. 83D) *S. kuhlmanni* Eardley, 2007
8. Head and mesosoma with white or golden hair (Figs 13C–D, 61C–D, 67C–D) 9
 – Head and mesosoma with black hair, sometimes mixed with lighter hair (Figs 23C–D, 37C–D, 85C–D) 13
9. Head and mesosoma with white hair (Fig. 13C–D); gonostylus not inclined inward and slightly tapered, penis valves broader, about as long as gonostylus (Fig. 14C) *S. aculeata* (Friese, 1922)
 – Head and mesosoma with golden or white hair (Figs 65C–D, 67C–D); gonostylus inclined inward, penis valves narrower, slightly shorter than gonostylus (Figs 66C–D, 68C–D) 10
10. Propodeum very sparsely covered with short white hair (Fig. 67E); S8 narrow and almost truncate apically (Fig. 68B) *S. nana* sp. nov.
 – Propodeum covered with white or golden hair (Figs 61E, 65E, 77E); S8 broader, apically rounded or notched (Figs 62B, 66B, 7B) 11

11. S8 apically notched (Fig. 66B) *S. minuta* sp. nov.
 – S8 apically rounded (Figs 62B, 78B) 12
12. Head and mesosoma with golden hair (Fig. 61C–D); T7 more densely covered with short golden hair (Fig. 61F); S8 narrowly rounded apically (Fig. 62B) *S. corona* sp. nov.
 – Head and mesosoma with white hair (Fig. 77C–D); T7 very sparsely covered with short golden hair (Fig. 77F); S8 broadly rounded apically (Fig. 78B) *S. tenera* sp. nov.
13. Head and mesosoma with conspicuously dense, long, black hair (Figs 35C–D, 37C–D, 41C–D) 14
 – Head and mesosoma with white or golden hair, if with black hair, not as long and dense or mixed with lighter hair (Figs 1C–D, 95C–D, 99C–D) 16
14. Gonostylus slightly longer than gonocoxa (Fig. 38C–D) *S. capicola* (Strand, 1911)
 – Gonostylus shorter than gonocoxa (Figs 36C–D, 42C–D) 15
15. Gonostylus apically narrower, penis valves strongly curved downward (Fig. 42C–D); mesoscutum more sparsely punctate (Fig. 41D) *S. felix* sp. nov.
 – Gonostylus apically broader, penis valves less distinctly curved downward (Fig. 36C–D); mesoscutum more finely punctate (Fig. 35D) *S. atricapillata* sp. nov.
16. Mesoscutum sparsely, finely and shallowly punctate, very shiny (Figs 83D, 85D, 95D) 17
 – Mesoscutum densely, coarsely and deeply punctate, matt or slightly shiny (Figs 7D, 31D, 101D) 19
17. Gonostylus shorter than gonocoxa, narrow, pointed posteriorly and extremely bent inward, penis valves distinctly longer than gonostylus (Fig. 86D) *S. leonis* Cockerell, 1933
 – Gonostylus, broader, rounded posteriorly and straight or not so extremely bent inward (Figs 84C–D, 96C–D) 18
18. Metapostnotum almost twice as wide as high (Fig. 95E); gonostylus slightly bent inward (Fig. 96C–D) *S. villosa* (Fries, 1909)
 – Metapostnotum slightly wider than high (Fig. 83E); gonostylus straight (Fig. 84C–D)
 *S. kuhlmanni* Eardley, 2007
19. Propodeum covered with white hair mixed with at least a few black hairs (Figs 1E, 7E, 23E) 20
 – Propodeum covered only with white or golden hair (Figs 31E, 99E, 101E) 22
20. Gonostylus shorter than gonocoxa (Fig. 24C–D) *S. magna* sp. nov.
 – Gonostylus approximately the same length or longer than gonocoxa (Figs 2C–D, 8C–D) 21
21. Metapostnotum twice as wide as high (Fig. 7E); gonostylus straight dorsally (Fig. 8D)
 *S. capensis* (Fries, 1915)
 – Metapostnotum twice as high as wide (Fig. 1E); gonostylus with a bump dorsally (Fig. 2D)
 *S. albomaculata* sp. nov.
22. Genitalia shortened and broad (Fig. 32C) *S. subtilis* sp. nov.
 – Genitalia elongated and narrow (Figs 100C–D, 102C) 23
23. Surface of the propodeum is smooth and shiny, except for the metapostnotum (Fig. 101E)
 *S. chrysea* sp. nov.
 – Surface of the propodeum is shagreened and matt, just like the metapostnotum (Fig. 100B)
 *S. carolinae* Eardley, 2007

Discussion

In this publication 30 new species of the bee genus *Sphecodopsis* are described and the species status of *S. leonis* is restored bringing the total number of taxa from 13 to 44. In addition, the previously unknown males of *S. capensis* and *S. vespericena* are described for the first time and *S. argyrura* is treated as a nomen dubium. To facilitate their identification, that is often based on subtle characters, all available species are redescribed in a standardized way accompanied by comprehensive illustrations and a key for identification. Based on the rich new material collected in recent years, seven species groups are now defined. However, a phylogenetic study is required to rigorously test the validity of these groups and the systematic position of another nine taxa that at present form monotypic groups.

The record of *S. vicfalls* sp. nov. from northern Namibia is a significant range extension because *Sphecodopsis* has its centre of distribution and diversity in western South Africa and has not been found in Namibia before.

Six of the newly described species are only known from a single specimen each (*S. acuta* sp. nov., *S. albomaculata* sp. nov., *S. catastropha* sp. nov., *S. fimbriata* sp. nov., *S. keiskiensiensis* sp. nov., *S. leliefonteinensis* sp. nov.) and the majority of the other *Sphecodopsis* species are only known by one sex. The reason for this is that cuckoo bees are significantly rarer and more difficult to collect than their (mostly unknown) hosts and are also predominantly found in the area of the host nests, which are difficult to detect. The trend towards rarity is particularly pronounced in the Greater Cape Floristic Region (GCFR), where the abundance of bees is generally low but species diversity is very high (Kuhlmann 2009; Melin *et al.* 2024). The phenomenon is also visible in other cuckoo bees, such as *Pasites* Jurine, 1807, *Ammobates* Latreille, 1809 (Eardley & Brothers 1997; Kuhlmann 2021), *Epeolus* Latreille, 1802 (Eardley 1991b), *Nomada* Scopola, 1770 (Kuhlmann 2023) or Melectini (Eardley 1991a). It is responsible for most of the pending taxonomic problems, especially sex association and the understanding of intraspecific and geographical variation. Although we are confident that sex association should be largely reliable based on usually subtle but existing hair and sculpturing characteristics shared between males and females, molecular data is required to test its validity. In addition, further field work is necessary to obtain additional specimens and, if possible, collect both sexes together.

As already mentioned in the introduction, the discovery of many more *Sphecodopsis* species can be expected in the future, as the previously known host bee genera, *Scrapper* and *Patellapis*, are both very species-rich, especially in the GCFR. We also hope that further field work will shed light on details of host-parasite relationships, which have so far only been known in a few cases (Rozen & Michener 1968; Timmermann & Kuhlmann 2008). But preliminary observations suggest that many *Sphecodopsis* species might be quite specific and only utilise a small host range (M. Kuhlmann pers. obs).

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References

- Bischoff H. 1923. Zur Kenntnis afrikanischer Schmarotzerbienen. *Deutsche entomologische Zeitschrift* 1923: 585–603.
Available from https://www.zobodat.at/pdf/Deutsche-Ent-Zeitschrift_1923_0585-0603.pdf [accessed 28 Jan. 2025].
- Born J., Linder H.P. & Desmet P. 2007. The Greater Cape Floristic Region. *Journal of Biogeography* 34 (1): 147–162. <https://doi.org/10.1111/j.1365-2699.2006.01595.x>
- Cockerell T.D.A. 1932. Descriptions and records of bees.—CXXXII. *Annals and Magazine of Natural History* (Ser. 10) 9: 447–458. <https://doi.org/10.1080/00222933208673517>
- Cockerell T.D.A. 1933a. Descriptions and records of bees.—CXLII. *Annals and Magazine of Natural History* (Ser. 10) 11: 372–384. <https://doi.org/10.1080/00222933308673668>
- Cockerell T.D.A. 1933b. Some African bees of the genus *Morgania*. *Revue de Zoologie et de Botanique africaines* 24: 106–110.
- Davies G.B.P. & Brothers D.J. 2006. Morphology of *Scapter* (Hymenoptera: Anthophila: Colletidae), with description of three new species and taxonomic status of five Cockerell taxa. *African Invertebrates* 47: 135–183.
- Davies G.B.P., Eardley C.D. & Brothers D.J. 2005. Eight new species of *Scapter* (Hymenoptera: Apoidea: Colletidae), with descriptions of *S. albifumus* and *S. amplispinatus* females and a major range extension of the genus. *African Invertebrates* 46: 141–179.
Available from <https://journals.co.za/doi/10.10520/EJC84544> [accessed 28 Jan. 2025].
- Eardley C.D. 1991a. The Melectini in subsaharan Africa (Hymenoptera: Anthophoridae). *Entomology Memoir, Department of Agricultural Development, Republic of South Africa* 82: 1–49.
- Eardley C.D. 1991b. The genus *Epeolus* Latreille from subsaharan Africa (Hymenoptera: Anthophoridae). *Journal of Natural History* 25: 711–731. <https://doi.org/10.1080/00222939100770471>
- Eardley C.D. 1996. The genus *Scapter* Lepeletier & Serville (Hymenoptera: Colletidae). *African Entomology* 4 (1): 37–92. Available from https://journals.co.za/doi/epdf/10.10520/AJA10213589_181 [accessed 28 Jan. 2025].
- Eardley C.D. 2007. Three new species of *Sphecodopsis* Bischoff (Hymenoptera: Apidae: Nomadinae). *African Entomology* 15: 193–196. <https://doi.org/10.4001/1021-3589-15.1.193>
- Eardley C.D. & Brothers D.J. 1997. Phylogeny of the Ammobatini and revision of the Afrotropical genera (Hymenoptera: Apidae: Nomadinae). *Journal of Hymenoptera Research* 6 (2): 353–418. Available from <https://www.biodiversitylibrary.org/page/4491805> [accessed 28 Jan. 2025].
- Friese H. 1909. Die Bienen Afrikas nach dem Stande unserer heutigen Kenntnisse. In: Schultze L. (ed.) *Zoologische und Anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Südafrika ausgeführt in den Jahren 1903–1905. Band 2. Denkschriften der Medizinisch-naturwissenschaftlichen Gesellschaft zu Jena* 14: 83–476.
Available from <https://www.biodiversitylibrary.org/bibliography/10343> [accessed 28 Jan. 2025].
- Friese H. 1912. Neue und wenig bekannte Bienen Süd-Afrikas (Hym.). *Archiv für Naturgeschichte* 78A: 181–189. Available from <https://www.biodiversitylibrary.org/page/13216167> [accessed 26 Feb. 2025].
- Friese H. 1915. Zur Bienenfauna von Abessinien. (Hym.). *Deutsche Entomologische Zeitschrift* 1915: 265–298. Available from <https://www.biodiversitylibrary.org/page/35625178> [accessed 28 Jan. 2025].
- Friese H. 1922. III. Nachtrag zu “Bienen Afrikas”. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 46: 1–42.

- Friese H. 1925. Die Urbienengattung *Polyglossa* Fr. in Südafrika. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 49: 513–519.
- Kuhlmann M. 2009. Patterns of diversity, endemism and distribution of bees (Insecta: Hymenoptera: Anthophila) in southern Africa. *South African Journal of Botany* 75 (4): 726–738.
<https://doi.org/10.1016/j.sajb.2009.06.016>
- Kuhlmann M. 2014. Revision of the “euryglossiform” species of the Afrotropical bee genus *Scrapper* Lepeletier & Serville, 1828 (Hymenoptera: Apoidea: Colletidae). *European Journal of Taxonomy* 95: 1–69. <https://doi.org/10.5852/ejt.2014.95>
- Kuhlmann M. 2021. A new species of the bee genus *Ammobates* Latreille, 1809 from sub-Saharan Africa (Hymenoptera: Apidae). *Osmia* 9: 45–50. <https://doi.org/10.47446/OSMIA9.6>
- Kuhlmann M. 2023. The South African species of the bee genus *Nomada* Scopoli, 1770 (Hymenoptera, Apidae). *Linzer biologische Beiträge* 55 (1): 155–186.
Available from https://www.zobodat.at/pdf/LBB_0055_1_0155-0186.pdf [accessed 28 Jan. 2025].
- Kuhlmann M. & Friehs T. 2020. Nine new species and new records of euryglossiform *Scrapper* Lepeletier & Serville (Hymenoptera: Colletidae) from South Africa. *European Journal of Taxonomy* 647: 1–33. <https://doi.org/10.5852/ejt.2020.647>
- Lepeletier de Saint-Fargeau A. & Serville A. 1825. Dictionnaire des insectes. In: *Encyclopédie méthodique* 10: 1–344.
- Lepeletier de Saint-Fargeau A. & Serville A. 1828. Dictionnaire des insectes. In: *Encyclopédie méthodique* 10: 345–832.
- Mack A. & Kuhlmann M. 2023. Revision of the *nitidus* species-group of the bee genus *Scrapper* Lepeletier & Serville, 1828 (Hymenoptera: Apoidea). *European Journal of Taxonomy* 912: 1–119. <https://doi.org/10.5852/ejt.2023.912.2373>
- Melin A., Beale C.M., Manning J.C. & Colville J.F. 2024. Fine-scale bee species distribution models: Hotspots of richness and endemism in South Africa with species-area comparisons. *Insect Conservation and Diversity* 2024: 1–14. <https://doi.org/10.1111/icad.12715>
- Michener C.D. 2007. *The Bees of the World. Vol. 1*. The Johns Hopkins University Press, Baltimore.
- Rozen J.G. 1968. Review of the South African cuckoo-bee genus *Pseudodichroa* (Hymenoptera: Apoidea). *American Museum Novitates* 2347: 1–10.
Available from <https://www.biodiversitylibrary.org/bibliography/90858> [accessed 28 Jan. 2025].
- Rozen J.G. & Michener C.D. 1968. The biology of *Scrapper* and its cuckoo bee *Pseudodichroa* (Hymenoptera: Colletidae and Anthophoridae). *American Museum Novitates* 2335: 1–13. Available from <https://www.biodiversitylibrary.org/bibliography/90846> [accessed 28 Jan. 2025].
- Sless T.J.L., Branstetter M.G., Gillung J.P., Krichilsky E.A., Tobin K.B., Straka J., Rozen J.G., Freitas F.V., Martins A.C., Bossert S., Searle J.B. & Danforth B.N. 2022. Phylogenetic relationships and the evolution of host preferences in the largest clade of brood parasitic bees (Apidae: Nomadinae). *Molecular Phylogenetics and Evolution* 166: e107326: 1–13. <https://doi.org/10.1016/j.ympev.2021.107326>
- Strand E. 1911. Zwei neue afrikanische Bienen der Gattungen *Nomia* und *Omachthes*. *Wiener Entomologische Zeitung* 30: 223–225.
Available from <https://www.biodiversitylibrary.org/page/11975752> [accessed 28 Jan. 2025].
- Timmermann K. & Kuhlmann M. 2008. The biology of *Patellapis* (s. str.) species (Hymenoptera: Apoidea: Halictidae): sociality described for the first time in this bee genus. *Apidologie* 39: 189–197. <https://doi.org/10.1051/apido:2008003>

Timmermann K. & Kuhlmann M. 2009. Taxonomic revision of the African bee subgenera *Patellapis*, *Chaetalictus* and *Lomatalictus* (Hymenoptera: Halictidae, genus *Patellapis* Friese 1909). *Zootaxa* 2099: 1–188. <https://doi.org/10.11646/zootaxa.2099.1.1>

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