



Research article

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Nine new species and new records of euryglossiform *Scapter* Lepeletier & Serville (Hymenoptera: Colletidae) from South Africa

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Abstract. Nine new species of the South African endemic group of euryglossiform bees of the genus *Scapter* Lepeletier & Serville, 1828 are described, thus bringing the total number of species to 29 in this species-group: *Scapter avontuurensis* Kuhlmann sp. nov. ♀, *S. bokkeveldensis* Kuhlmann sp. nov. ♀, *S. fynbosensis* Kuhlmann sp. nov. ♀, *S. hergi* Kuhlmann sp. nov. ♂, *S. keiskiensis* Kuhlmann sp. nov. ♀, *S. mellonholgeri* Kuhlmann sp. nov. ♀♂, *S. nitens* Kuhlmann sp. nov. ♀, *S. oubergensis* Kuhlmann sp. nov. ♀ and *S. willemstrydomi* Kuhlmann sp. nov. ♂. The new replacement name *S. punctulatus* nom. nov. is proposed for *S. punctatus* Kuhlmann, 2014 which is a junior primary homonym of *S. punctatus* Lepeletier & Audinet-Serville, 1825 (= *Allodape punctata* [Lepeletier & Audinet-Serville, 1825]). Moreover, new records for already described taxa are presented and an updated key to all species of euryglossiform *Scapter* is provided.

Key words. *Scapter*, bees, South Africa, new species, taxonomy.

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Introduction

The bee genus *Scapter* Lepeletier & Serville, 1828 currently comprises 59 described species (Eardley 1996; Davies *et al.* 2005; Davies & Brothers 2006; Kuhlmann 2014) and is largely endemic to southern Africa with its center of diversity in the Greater Cape Floristic Region (GCFR) (Kuhlmann 2005, 2009). A single species was recorded from Kenya (Davies *et al.* 2005). In sub-Saharan Africa, *Scapter* can easily be identified as it is the only abundantly hairy colletid bee genus with two submarginal cells in the forewing (Michener 2007).

Scapter is morphologically highly diverse (Davies & Brothers 2006) and based on this diversity Eardley (1996) defined a number of species-groups. The smallest species (ranging from 3.5 to 6.6 mm) resemble the Australian Euryglossinae in their body shape, sparse pilosity, surface sculpture and narrow groove-

like facial fovea. For them, Kuhlmann (2014) described a new species-group, namely the euryglossiform *Scrapper*. They possibly are the most basal species within *Scrapper* that as a genus is the sister-group of the Australian Euryglossinae (Almeida & Danforth 2009; Almeida *et al.* 2012; Kayaalp *et al.* 2017). The 20 species of this group are predominantly black, with some species having partly yellow legs. They are characterized by a) a sulcus-like facial fovea with an invisible bottom as in *Hylaeus* Fabricius, 1793, b) a basitibial plate of the female with simple marginal carinae, c) body small, without metasomal hair bands in females and most males, and d) membranous apicolateral lobes on male S7 (sometimes reduced) (Kuhlmann 2014).

In the last five years since the first revision of euryglossiform *Scrapper* (Kuhlmann 2014), several new species have been discovered in the GCFR. In the same period of time, the GCFR suffered from severe drought conditions culminating in the Cape Town water crisis in 2017–18. Due to significantly reduced flower availability, particularly in Namaqualand, drought can have detrimental effects on bee populations (Mayer & Kuhlmann 2004) including local extinction as one of us (MK) observed during regular fieldwork since 2014. Thus, this paper is also a contribution to documenting and making available taxonomic information on the unique and rich endemic bee fauna in a region particularly vulnerable to and affected by climate change (Kuhlmann *et al.* 2012).

This publication provides diagnoses and descriptions of nine new species of euryglossiform *Scrapper* collected in the GCFR in western South Africa, accompanied by illustrations and updated identification keys to all 29 species. For several species, new distributional records are given.

Material and methods

For morphology the terminology of Michener (2007) was used, whereas Harris (1979) was followed for the description of the surface sculpture. Puncture density is characterized by the relationship between puncture diameter (d) and the space between these punctures (i). Body length was measured from the vertex to the apex of the body. Images were taken with a Keyence VHX-5000 Digital Microscope.

Abbreviations used for morphological structures:

S = metasomal sternum
T = metasomal tergum

Institutional acronyms for collections:

RCMK = research collection of Michael Kuhlmann, Zoological Museum of Kiel University, Germany
RPSP = Colecao Entomologica Prof. J.M.F. Camargo, Departamento de Biologia, Universidade de São Paulo, Brazil

The following abbreviations for collectors:

EA = E. Almeida
MK = M. Kuhlmann
KT = K. Timmermann

Results

Descriptions of new species of euryglossiform Scrapper

The relationships of the new species are not known, so they are listed in alphabetical order.

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Apoidea Latreille, 1802
Epifamily Anthophila Latreille, 1804
Family Colletidae Lepeletier, 1841
Subfamily Scaptrinae Ascher & Engel, 2005
Genus *Scapter* Lepeletier & Serville, 1828

Scapter avontuurensis Kuhlmann sp. nov.

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Fig. 1

Diagnosis

The female of *S. avontuurensis* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: head distinctly broader than long; supraclypeal area and clypeus relatively sparsely and coarsely punctate, only partly superficially sculptured and slightly matt (Fig. 1B); scutum densely but relatively coarsely punctate (Fig. 1C); propodeum basally broadly and distinctly carinate (Fig. 1D); stigma brown; apical margins of metasomal terga broadly translucent dark reddish-brown; terga between punctures superficially sculptured and slightly matt (Fig. 1E). The male is unknown.

Etymology

Named after the Avontuur Nature Reserve where this species was discovered.

Material examined (1 specimen)

Holotype

SOUTH AFRICA • ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 25 Sep. 2014; MK leg.; RCMK.

Description

Female

BODY LENGTH. 5.3 mm.

HEAD. Head slightly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 1B). Clypeus strongly convex with coarse and medially relatively dense ($i = 1-2$ d) punctation and sparser ($i = 2-4$ d) punctation at margins; surface between punctures superficially sculptured and matt (Fig. 1B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula dark reddish-brown. Mesoscutal disc between punctures reticulate and matt; disc relatively densely ($i = 1-2$ d) but coarsely punctate (Fig. 1C). Metanotum slightly shorter than basal area of propodeum, apically with distinct narrow carinate depression (Fig. 1D). Propodeum basally finely but broadly carinate (Fig. 1D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 1A).

WINGS. Yellowish-brown; wing venation and stigma brown.

LEGS. Integument black; fore tibia basally with small yellow spot. Vestiture greyish-white; scopa greyish-white, dorsally brownish.

METASOMA. Integument black, apical margin of first terga narrowly, margins of following terga broadly translucent dark reddish-brown (Fig. 1E). Disc of T1 and T2 glabrous; following terga with very short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 1E). Prepygidial and pygidial fimbriae sparse, yellowish-brown. T1–T3 finely and densely ($i = d$) punctate, between punctures superficially sculptured and slightly matt; T4 matt; T2–T4 with polished to superficially sculptured, but shiny apical tergal depression (Fig. 1E).

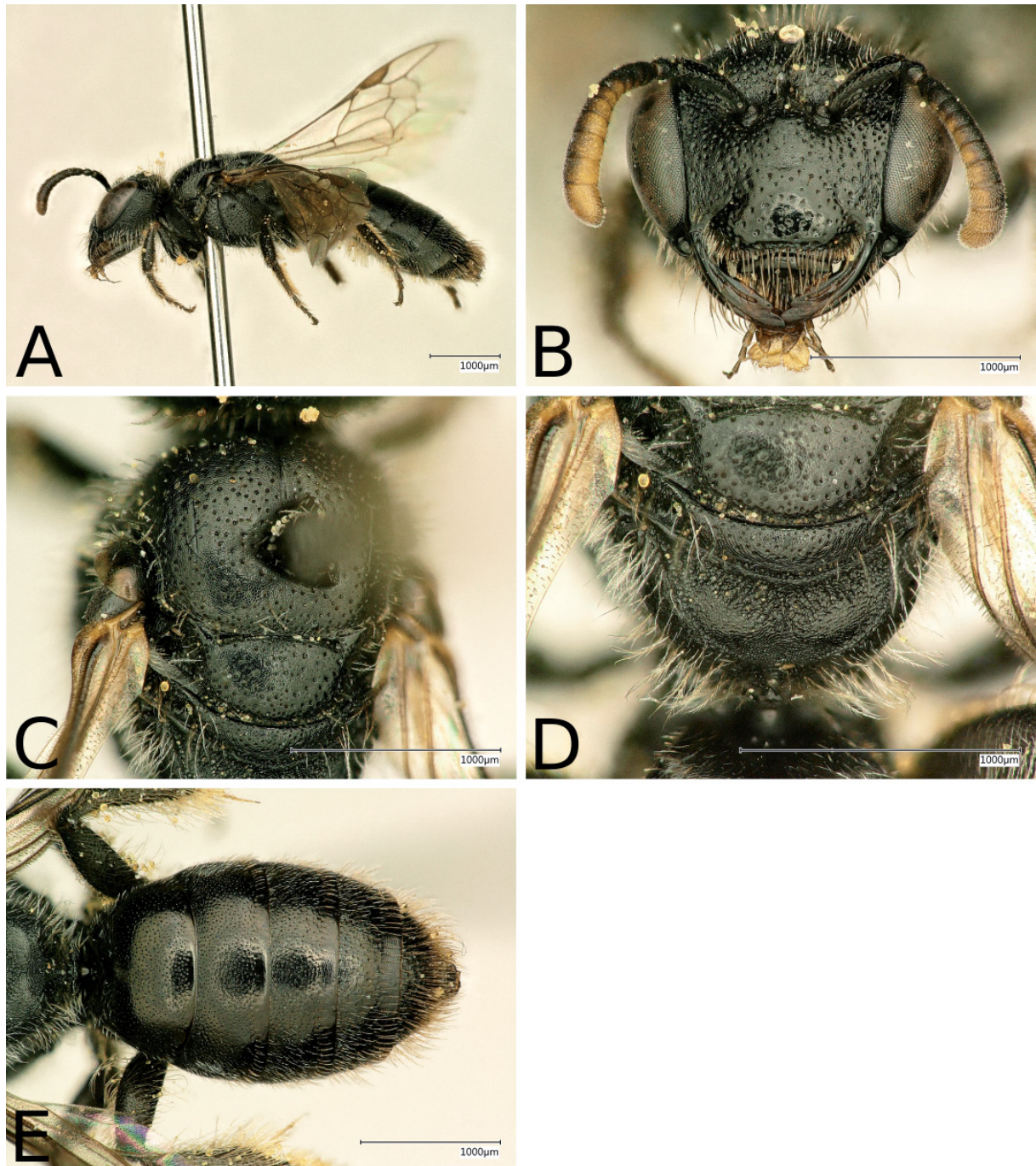


Fig. 1. *Scrapper avontuurensis* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

Male

Unknown.

Distribution

Only known from the type locality north of Nieuwoudtville.

Floral hosts

Brassicaceae: *Heliophila* spec.

Seasonal activity

September.

Scapter bokkeveldensis Kuhlmann sp. nov.

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Fig. 2

Diagnosis

The female of *S. bokkeveldensis* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: supraclypeal area and clypeus superficially sculptured but shiny, sparsely and coarsely punctate (Fig. 2B); scutum relatively densely and coarsely punctate (Fig. 2C); propodeum only laterally with distinct but fine carination (Fig. 2D); stigma brown; apical margins of metasomal terga black; terga finely and densely punctate (Fig. 2E). The male is unknown.

Etymology

Named after the Bokkeveld Plateau that stretches along the escarpment north and south of Nieuwoudtville.

Material examined (1 specimen)

Holotype

SOUTH AFRICA • ♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 9 Sep. 2018; MK leg; RCMK.

Description

Female

BODY LENGTH. 4.3 mm.

HEAD. Head slightly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 2B). Clypeus slightly convex with coarse and relatively sparse ($i = 1-3$ d) punctation; surface between punctures superficially sculptured but shiny (Fig. 2B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula dark reddish-brown. Mesoscutal disc between punctures superficially shagreened and slightly matt; disc relatively densely ($i = 1-2$ d) but relatively coarsely punctate (Fig. 2C). Metanotum about as long as basal area of propodeum, apically with distinct narrow carinate depression (Fig. 2D). Propodeum basally only laterally distinctly but relatively finely carinate (Fig. 2D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 2A).

WINGS. Brownish; wing venation and stigma brown.

LEGS. Integument black. Vestiture greyish to yellowish-brown; scopa greyish-white, dorsally brownish.

METASOMA. Integument black, apical margins of terga broadly black to translucent dark reddish-brown (Fig. 2E). Disc of T1–T2 without hair; following terga with very short but increasingly more and longer

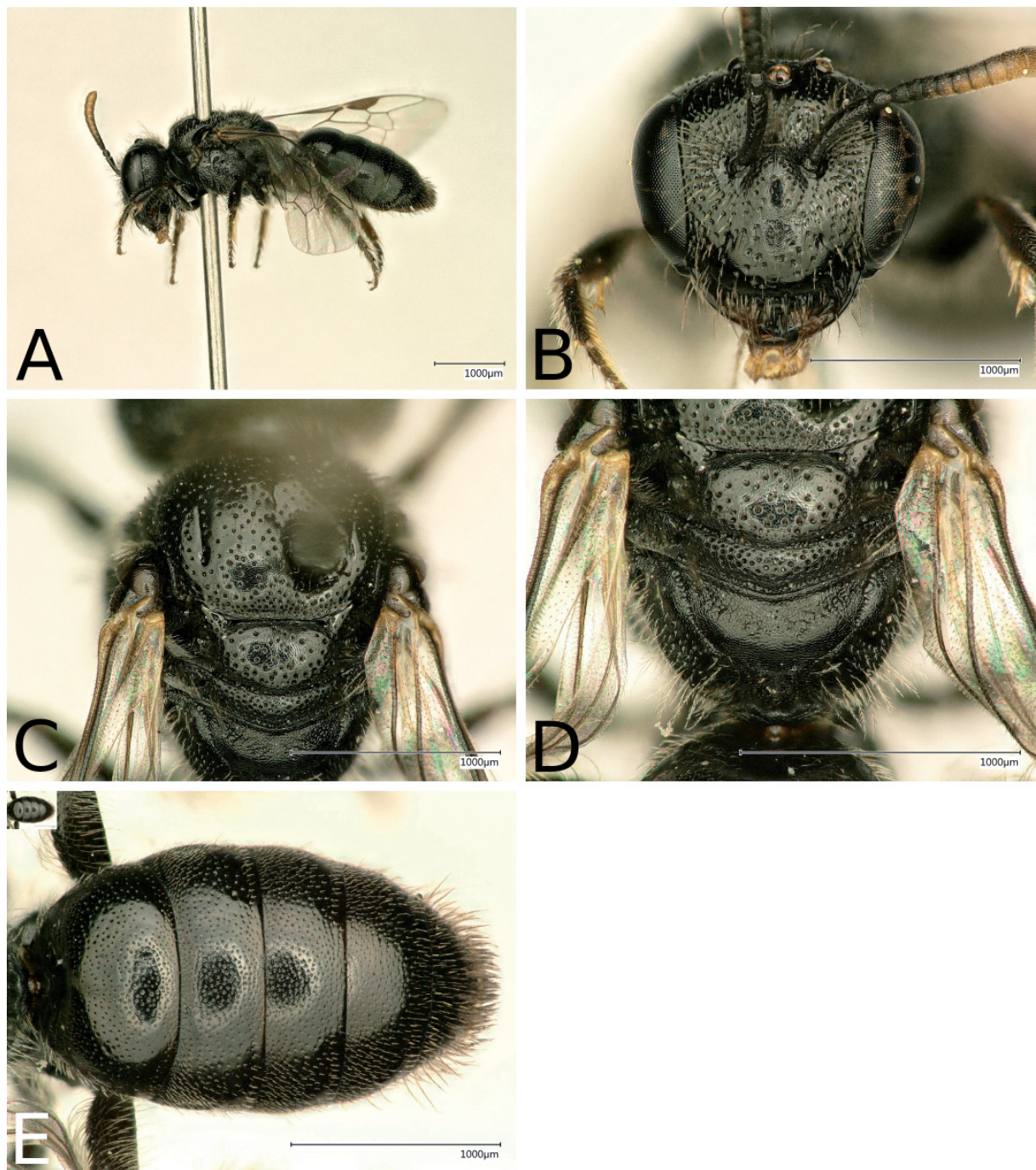


Fig. 2. *Scapter bokkeveldensis* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

hair; apical tergal hair bands missing on all terga (Fig. 2E). Prepygidial and pygidial fimbriae relatively short, brownish. T1–T4 densely ($i = 0.5\text{--}1$ d) and relatively coarsely punctate, T1–T2 between punctures smooth and shiny, T3–T4 between punctures superficially reticulate but shiny; T2–T4 with polished and shiny apical tergal depression (Fig. 2E).

Male

Unknown.

Distribution

Only known from the type locality north of Nieuwoudtville.

Floral hosts

Brassicaceae: blue *Heliophila* spec.

Seasonal activity

September.

Scrapter fynbosensis Kuhlmann sp. nov.

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Fig. 3

Diagnosis

The female of *S. fynbosensis* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: supraclypeal area and clypeus superficially sculptured but shiny (Fig. 3B); scutum between punctures reticulate and matt (Fig. 3C); foretibia dominantly blackish; stigma brown; apical margins of metasomal terga broadly translucent yellowish-brown; terga between punctures superficially sculptured and slightly matt (Fig. 3E). The male is unknown.

Etymology

Named after the Fynbos biome where this species was discovered.

Material examined (1 specimen)

Holotype

SOUTH AFRICA • ♀; N Cape, 15 km NW of Nieuwoudtville, Farm Engelsepunt, Fynbos, Pf E1; 31°14'31" S, 18°59'08" E; alt. 830 m a.s.l.; 23 Jul. 2003; KT leg; RCMK.

Description

Female

BODY LENGTH. 5.2 mm.

HEAD. Head slightly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 3B). Clypeus almost flat with relatively dense ($i = 1\text{--}2$ d) and shallow punctation; surface between punctures only partly sculptured and shiny (Fig. 3B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula dark reddish-brown. Mesoscutal disc between punctures reticulate and matt; disc relatively densely ($i = 1\text{--}2$ d) and coarsely punctate (Fig. 3C). Metanotum about as

long as basal area of propodeum, apically with broad carinate depression (Fig. 3D). Propodeum basally relatively finely carinate (Fig. 3D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 3A).

WINGS. Yellowish-brown; wing venation and stigma brown.

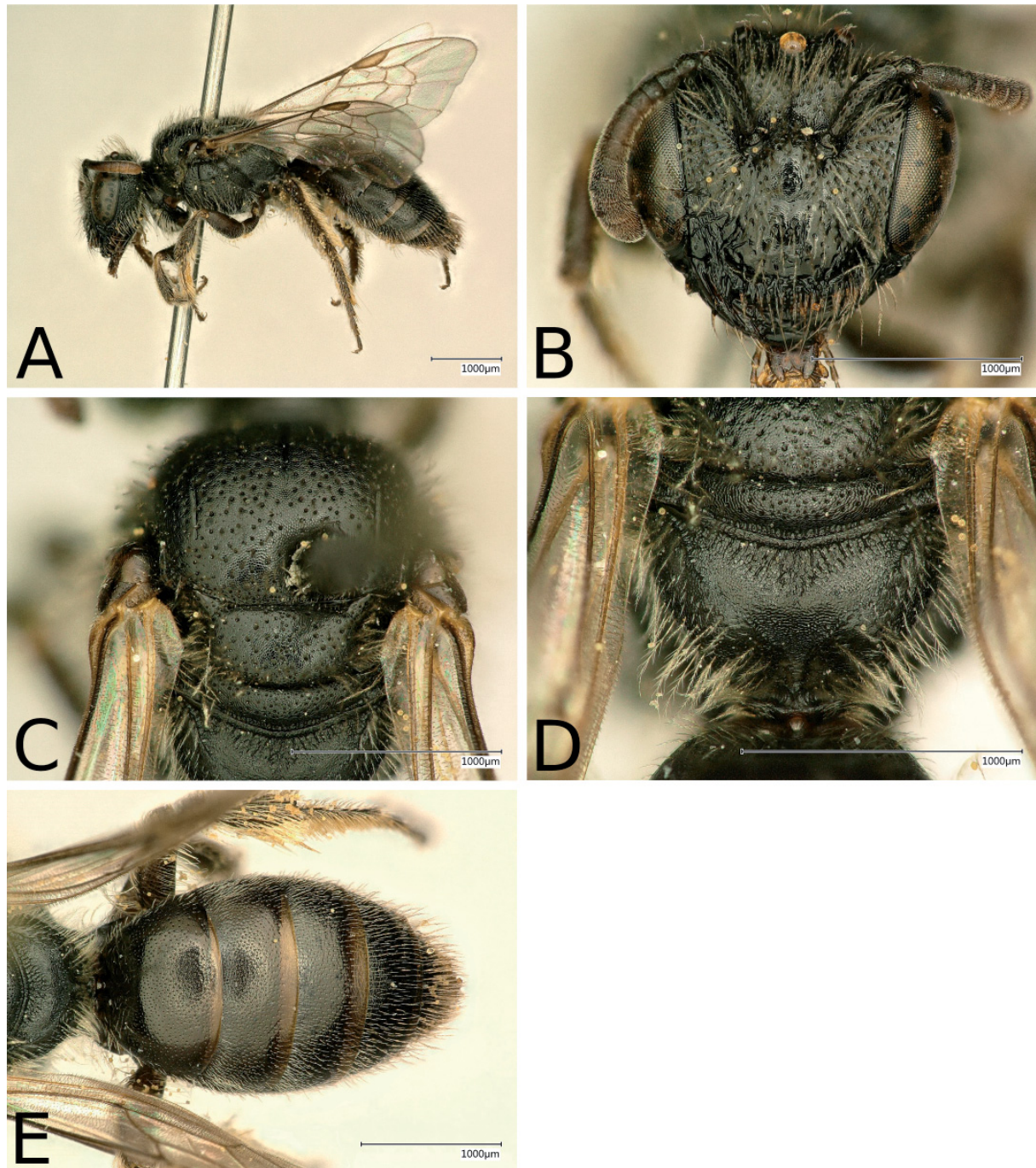


Fig. 3. *Scrapper fynbosensis* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

LEGS. Integument black; fore tibia anteriorly on basal half with small yellowish spot. Vestiture greyish-white; scopa greyish-white, dorsally brownish.

METASOMA. Integument black to dark reddish-brown, apical margins of terga broadly translucent yellowish to reddish-brown (Fig. 3E). Disc of T1 without hair; following terga with very short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 3E). Prepygidial and pygidial fimbriae yellowish-brown. Terga finely and densely ($i = d$) punctate, T1–T3 between punctures superficially sculptured and slightly matt; T4 matt; T2–T4 with polished to superficially sculptured, but shiny apical tergal depression (Fig. 3E).

Male

Unknown.

Distribution

Only known from the type locality north of Nieuwoudtville.

Floral hosts

Unknown.

Seasonal activity

July.

Scapter hergi Kuhlmann sp. nov.

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Fig. 4

Diagnosis

The male of *S. hergi* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: head distinctly longer than wide (Fig. 4E); antenna ventrally orange-brown (Fig. 4E); hind tibia apically broadened inside, forming a \pm right angle (Fig. 4G) and the shape of S7 (Fig. 4F). The female is unknown.

Etymology

The species is dedicated to Hergen ('Hergi') Erhardt, Edeweicht (Germany) who joined and supported me (MK) in a couple of collecting trips; noun in apposition.

Material examined (1 specimen)

Holotype

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

Description

Female

Unknown.

Male

BODY LENGTH. 5.8 mm.

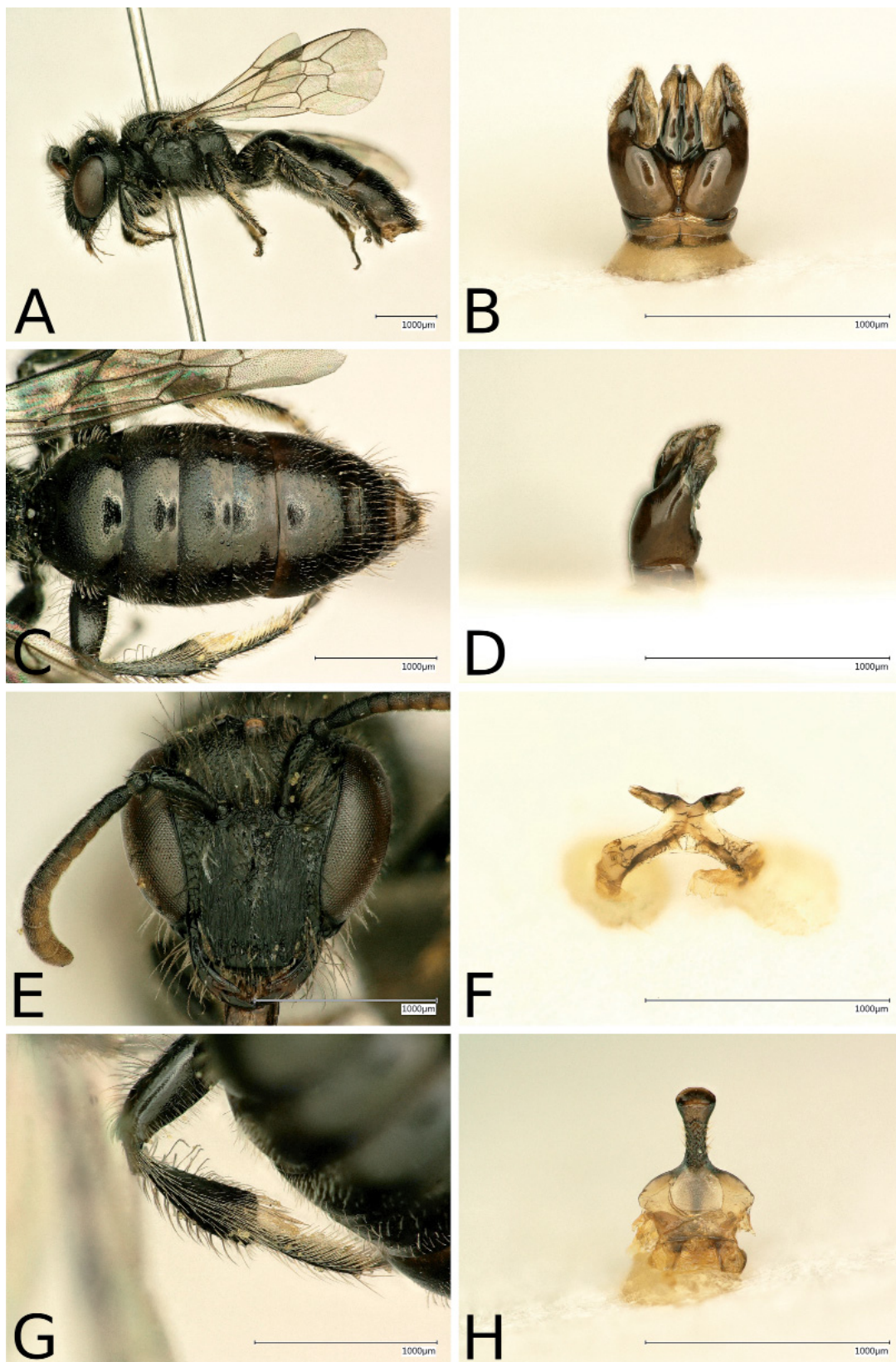


Fig. 4. *Scapter hergi* Kuhlmann sp. nov., ♂, holotype (RCMK). **A.** Lateral view. **B.** Genitalia (dorsal view). **C.** Metasoma (dorsal view). **D.** Genitalia (lateral view). **E.** Head. **F.** S7 (dorsal view). **G.** Hind tibia. **H.** S8, apical end.

HEAD. Head longer than wide. Integument black, except mandible partly dark reddish-brown. Face covered with long, greyish-white, erect hair. Malar area medially narrow, almost linear. Antenna dorsally dark brown, ventrally orange-brown (Fig. 4E).

MESOSOMA. Integument black. Mesoscutal disc between punctures strongly reticulate and matt; disc finely, very shallowly and almost invisible, very sparsely ($i = 3-5$ d) punctate. Mesoscutum, scutellum, metanotum, mesepisternum and propodeum covered with long, greyish, erect hair (Fig. 4A).

WINGS. Slightly yellowish-brown; wing venation and stigma brown.

LEGS. Integument black to dark reddish-brown. Hind tibia inside apically broadened, forming a \pm right angle (Fig. 4G). Vestiture greyish-white.

METASOMA. Integument black, apical margins of terga partly narrowly translucent dark reddish-brown (Fig. 4C). Discs of T1–T2 without hair, following terga with sparse and short but successively more and longer hair; apical tergal hair bands missing on all terga (Fig. 4C). T1–T3 densely ($i = 0.5-1$ d) but finely punctate, T4 and following terga almost invisible very finely and superficially punctate; between punctures superficially sculptured and shiny to slightly matt; T2–T4 with narrow, superficially sculptured but shiny apical tergal depression (Fig. 4C). S3 and particularly S4–S5 with sparse, long apical hair fringes.

TERMINALIA. Genitalia (Fig. 4B, D), S7 (Fig. 4F) and terminal plate of S8 (Fig. 4H) as illustrated.

Distribution

Only known from the type locality in the northern part of the Roggeveld Mts south of Calvinia.

Floral hosts

Unknown.

Seasonal activity

September.

Scapter keiskiensis Kuhlmann sp. nov.

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Fig. 5

Diagnosis

The female of *S. keiskiensis* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: head distinctly broader than long; supraclypeal area and clypeus sculptured and matt, densely and distinctly punctate (Fig. 5B); scutum densely and relatively coarsely punctate (Fig. 5C); propodeum indistinctly and shallowly carinate (Fig. 5D); stigma brown; apical margins of metasomal terga black or only slightly translucent dark reddish-brown; terga between punctures superficially sculptured and slightly matt (Fig. 5E). The male is unknown.

Etymology

Named after the Keiski Mts south of Calvinia where this species was first collected.

Material examined (2 specimens)

Holotype

SOUTH AFRICA • ♀; Roggeveld Mts, 1,5 km S of Farm Allemansdam, Renosterveld; 31°49'25" S, 19°59'38" E; alt. 1285 m a.s.l.; 11 Sep. 2018; MK leg; RCMK.

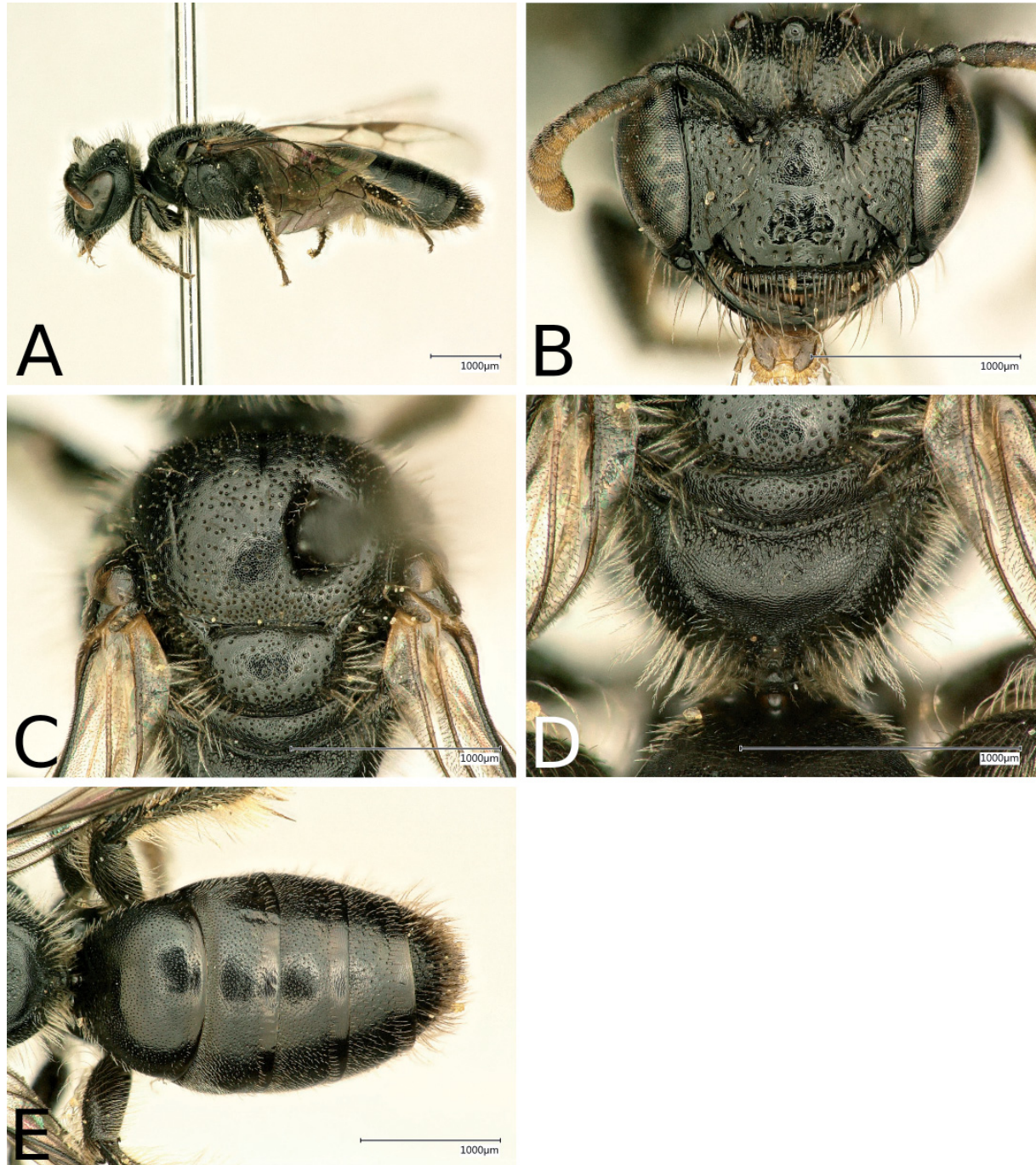


Fig. 5. *Scrapper keiskiensis* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

Paratype

SOUTH AFRICA • 1 ♀; Keiski Mts, 3 km E of Farm M'Vera, shale; 31°45'29" S, 19°54'13" E; alt. 1190 m a.s.l.; 13 Sep. 2016; MK leg; RCMK.

Description

Female

BODY LENGTH. 5.4 mm.

HEAD. Head distinctly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 5B). Clypeus slightly convex with dense ($i = d$) punctation, apically finer, basally coarser; surface between punctures sculptured and matt (Fig. 5B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black. Mesoscutal disc between punctures reticulate and matt; disc densely ($i = 0.5-1 d$) and relatively finely punctate (Fig. 5C). Metanotum slightly shorter than basal area of propodeum, apically with narrow carinate depression (Fig. 5D). Propodeum basally distinct but very finely carinate (Fig. 5D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 5A).

WINGS. Brownish; wing venation and stigma brown.

LEGS. Integument black. Vestiture greyish to yellowish; scopa greyish-white, dorsally brownish.

METASOMA. Integument black, apical margins on first terga narrow, on other terga broadly black to translucent dark reddish-brown (Fig. 5E). Disc of T1–T2 without hair; following terga with very short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 5E). Prepygidial and pygidial fimbriae relatively short, yellowish-brown. T1–T4 finely and densely ($i = 0.5-1 d$) punctate, between punctures superficially sculptured and slightly matt; T2–T4 with superficially reticulate but shiny apical tergal depression (Fig. 5E).

Male

Unknown.

Distribution

Only known from the northern extension of the Roggeveld Mts and the adjacent Keiski Mts.

Floral hosts

Aizoaceae: *Galenia sarcophylla*.

Seasonal activity

September.

Scapter mellonholgeri Kuhlmann sp. nov.

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Figs 6–7

Diagnosis

The female of *S. mellonholgeri* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: head distinctly broader than long; supraclypeal area and clypeus superficially sculptured and slightly matt, coarsely and densely to sparsely punctate (Fig. 6B); scutum mostly relatively sparse and slightly coarsely punctate (Fig. 6C–D); propodeum basally just slightly (Fig. 6E–F); stigma brown; apical margins of metasomal terga slightly translucent dark reddish-brown; terga densely and finely punctate (Fig. 6G). The male is characterized by an unmodified antenna; coarsely and densely punctate scutum; finely and densely punctate metasomal terga (Fig. 7C); hind tibia apically broadened inside, forming a spine (Fig. 7E); third hind tarsus unmodified (Fig. 7G) and the shape of S7 (Fig. 7F).

Etymology

This species is dedicated to my (MK) friend (High Elvish [Sindarin]: mellon; noun in apposition) Holger Heinrich Dathe, expert in bees of the genus *Hylaeus* and former director of the Senckenberg German Entomological Institute, Müncheberg, in recognition of his ground breaking contributions to Afrotropical taxonomy of *Hylaeus*.

Material examined (44 specimens)

Holotype

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

Paratypes

SOUTH AFRICA • 2 ♀♀; Kamiesberg Mts, 5 km SE of Leliefontein, road side; alt. 30°20'09" S, 18°06'24" E; 1400 m a.s.l.; 7 Sep. 2016; MK leg.; RCMK • 7 ♀♀; same collection data as for preceding; 11 Sep. 2016; MK leg.; RCMK • 13 ♀♀, 6 ♂♂; same collection data as for preceding; 10 Sep. 2017; MK leg.; RCMK • 4 ♂♂; same collection data as for holotype; MK leg.; RCMK • 1 ♂; same collection data as for holotype; 24 Aug. 2018; MK leg.; RCMK • 1 ♂; same collection data as for holotype; 29 Aug. 2018; MK leg.; RCMK • 1 ♀; 8 km WNW of Leliefontein, Fynbos, road side; 30°15'58" S, 18°03'17" E; alt. 1190 m a.s.l.; 10 Sep. 2017; MK leg.; RCMK • 8 ♀♀; same collection data as for preceding; 14 Sep. 2017; MK leg.; RCMK.

Description

Female

BODY LENGTH. 4.4–5.3 mm.

HEAD. Head slightly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 6B). Clypeus convex with relatively coarse but dense ($i = 0.5\text{--}1$ d) punctation; surface between punctures superficially reticulate and slightly matt (Fig. 6B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutal disc between punctures to a variable degree reticulate and slightly matt; disc relatively sparsely ($i = 2\text{--}3$ d) and relatively finely to slightly coarsely punctate (Fig. 6D); sometimes disc shinier and with denser ($i = 1$ d) punctation (Fig. 6C). Metanotum about as long as basal area of propodeum, apically with narrow carinate depression (Fig. 6E–F). Propodeum basally indistinctly and very finely carinate (Fig. 6F), sometimes only laterally

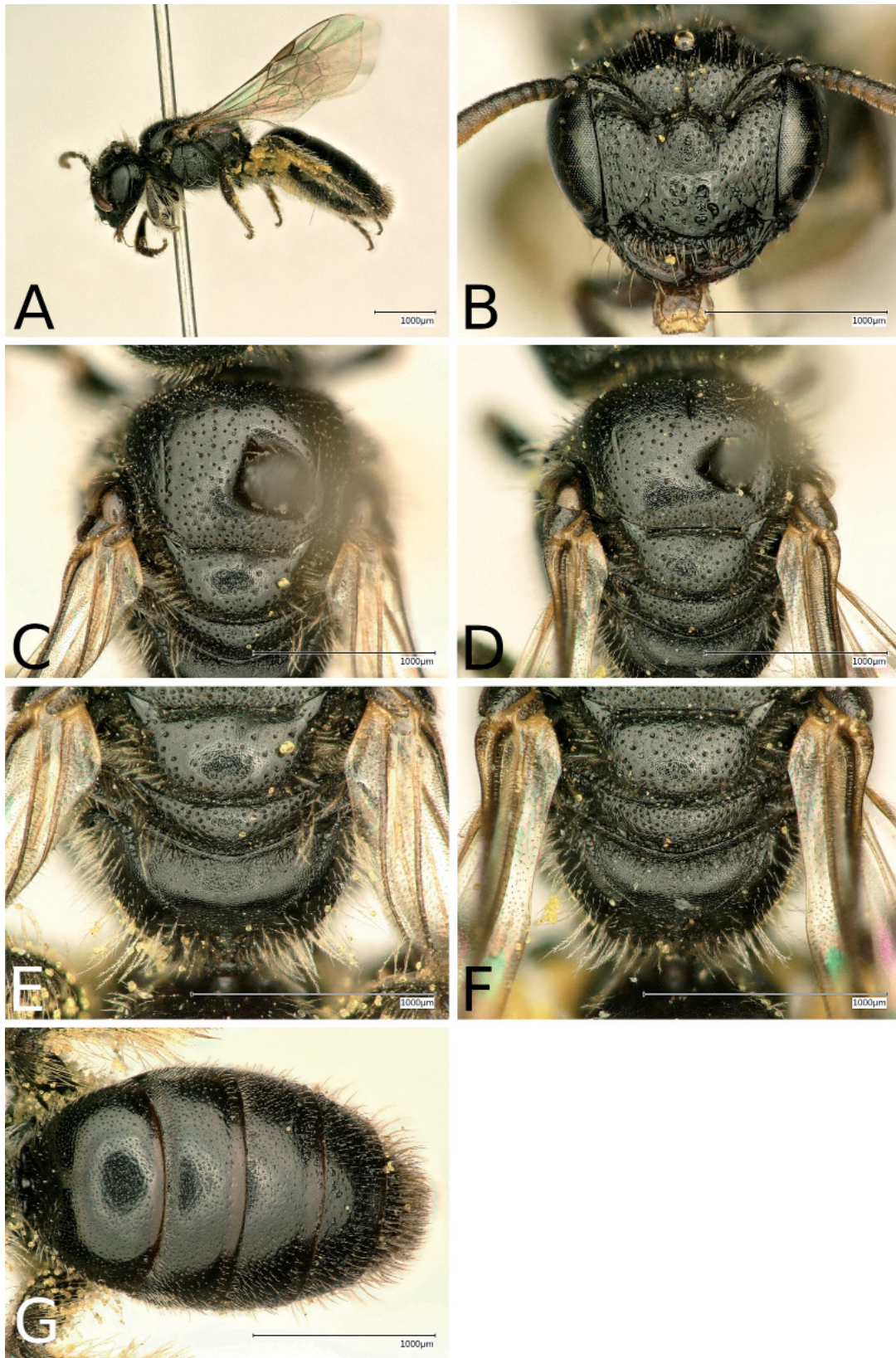


Fig. 6. *Scapter mellonholgeri* Kuhlmann sp. nov., ♀, paratype (RCMK). **A.** Lateral view. **B.** Head. **C–D.** Scutum and scutellum (dorsal view). Variation of sculpture. **E–F.** Metanotum and propodeum (dorsal view). Variation of sculpture. **G.** Metasoma (dorsal view).

carinate (Fig. 6E). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 6A).

WINGS. Brownish; wing venation and stigma brown.

LEGS. Integument black. Vestiture greyish-white; scopa greyish-white, dorsally brownish.

METASOMA. Integument black, apical margins of terga narrowly black to translucent dark reddish-brown (Fig. 6G). Disc of T1–T2 glabrous; following terga with very short but increasingly more and longer hair; T3 basally with a very narrow and sparse band of very fine, short, erect hair; apical tergal hair bands missing on all terga (Fig. 6G). Prepygidial and pygidial fimbriae relatively short, greyish-brown. T1 finely and relatively densely ($i = 1-1.5$ d) punctate, between punctures superficially sculptured and slightly matt; following terga more matt; T2–T4 with superficially sculptured and slightly matt apical tergal depression (Fig. 6G).

Male

BODY LENGTH. 4.6–5.5 mm.

HEAD. Head slightly wider than long. Integument black, except mandible partly dark reddish-brown. Face densely covered with long, greyish-white, erect hair. Malar area medially narrow, almost linear. Antenna dorsally dark brown, ventrally yellowish-brown except last three flagellar segments completely or largely brown.

MESOSOMA. Integument black. Mesoscutal disc between punctures reticulate and slightly matt to matt; disc sparsely ($i = 1.5-3$ d) and coarsely punctate. Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with long, greyish, erect hair (Fig. 7A).

WINGS. Slightly yellowish-brown; wing venation and stigma brown.

LEGS. Integument black, fore tibia anteriorly dominantly yellowish-brown. Hind tibia inside apically broadened, with a spine (Fig. 7E). Hind basitarsus medially slightly broadened (Fig. 7G). Vestiture greyish-white.

METASOMA. Integument black to dark reddish-brown, apical margins of terga partly narrowly translucent dark reddish-brown (Fig. 7C). Discs of T1–T2 without hair, following terga with short but increasingly more and longer hair; T3 and T4 basally with a very narrow and sparse band of short greyish, erect hair; apical tergal hair bands missing on all terga (Fig. 7C). T1 finely, following terga relatively coarsely but densely ($i = 0.5-1$ d) punctate; superficially reticulate and slightly matt; T2–T4 with narrow, superficially sculptured but shiny apical tergal depression (Fig. 7C). S3 and particularly S4–S5 with sparse, long apical hair fringes.

TERMINALIA. Genitalia (Fig. 7B, D), S7 (Fig. 7F) and terminal plate of S8 (Fig. 7H) as illustrated.

Distribution

Recorded from the northern part of the Roggeveld Mts and the Kamisberg Mts.

Floral hosts

Brassicaceae: white *Heliophila* spec.

Seasonal activity

August–September.

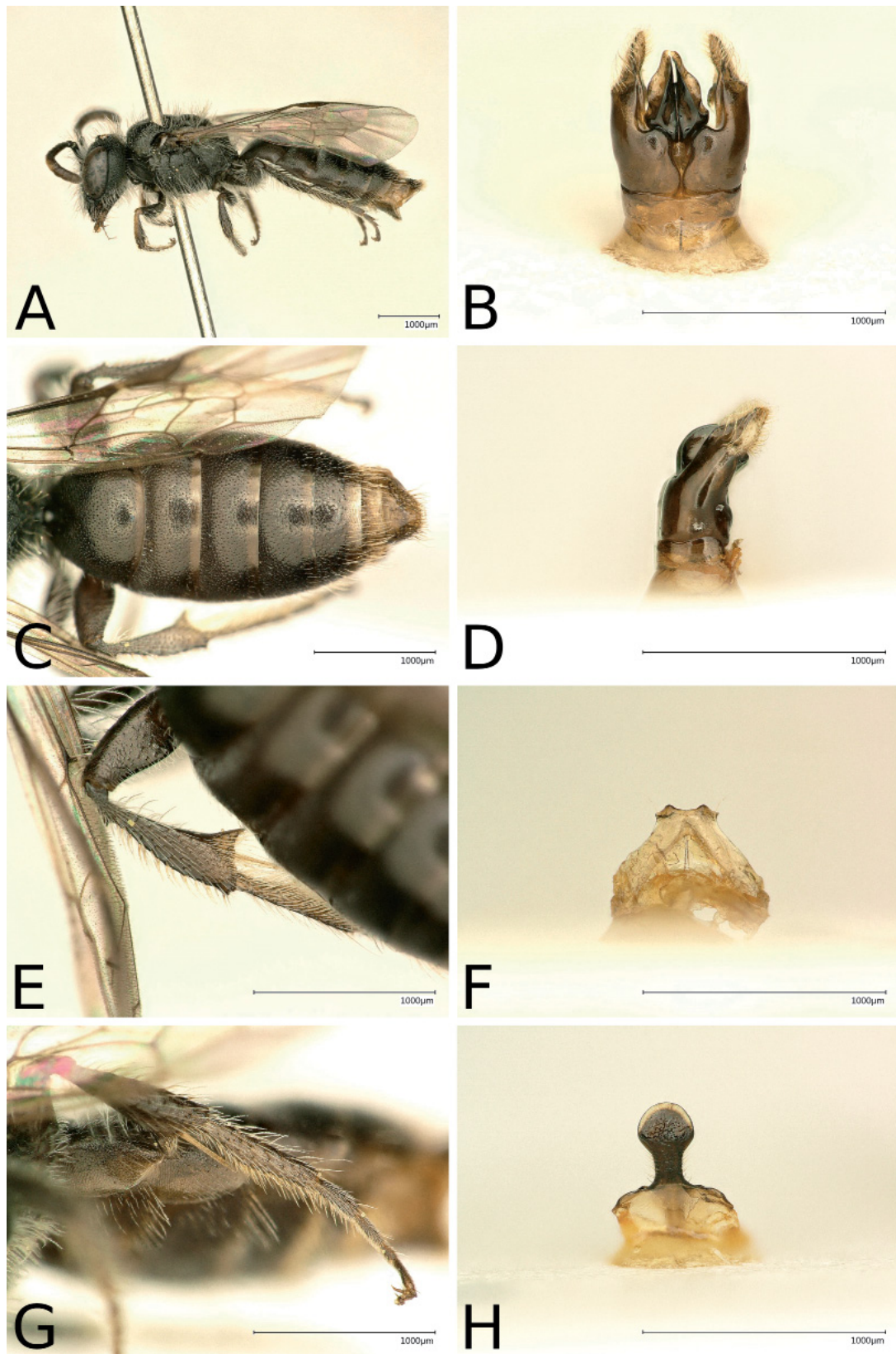


Fig. 7. *Scapter mellonholgeri* Kuhlmann sp. nov., ♂, holotype (RCMK). **A.** Lateral view. **B.** Genitalia (dorsal view). **C.** Metasoma (dorsal view). **D.** Genitalia (lateral view). **E.** Hind tibia. **F.** S7 (dorsal view). **G.** Hind basitarsus. **H.** S8, apical end.

Scapter nitens Kuhlmann sp. nov.

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Fig. 8

Diagnosis

The female of *S. nitens* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: clypeus almost flat (Fig. 8B); scutum sparsely and coarsely punctate (Fig. 8C); foretibia dominantly dark blackish-brown; stigma brown; apical margins of metasomal terga broadly yellowish-brown; metasomal terga between punctures smooth and shiny (Fig. 8E). The male is unknown.

Etymology

The name comes from the Latin ‘*nitens*’, meaning ‘glossy’, and referring to the shiny appearance of the species.

Material examined (1 specimen)

Holotype

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

Description

Female

BODY LENGTH. 6.6 mm.

HEAD. Head slightly wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 8B). Clypeus almost flat with relatively coarse and dense ($i = 0.5\text{--}1.5$ d) punctation, apically with slightly sparser punctation ($i = 1.5\text{--}2.5$ d); surface between punctures smooth and shiny (Fig. 8B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula reddish-brown. Mesoscutal disc between punctures smooth and shiny; disc sparsely ($i = 1.5\text{--}3$ d) and coarsely punctate (Fig. 8C). Metanotum slightly shorter than basal area of propodeum, apically with indistinct narrow carinate depression (Fig. 8D). Propodeum basally only laterally broad and coarsely carinate (Fig. 8D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 8A).

WINGS. Brownish; wing venation and stigma brown.

LEGS. Integument black to dark reddish-brown. Vestiture greyish-white; scopa greyish-white.

METASOMA. Integument black, apical margins of terga narrowly translucent yellowish to reddish-brown (Fig. 8E). Disc of T1–T2 without hair; following terga with very short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 8E). Prepygidial and pygidial fimbriae yellowish-brown. T1 almost impunctate, T2–T4 very sparsely ($i = 3\text{--}5$ d) and finely (almost invisible) punctate; between punctures smooth and shiny; T2–T4 with polished and shiny apical tergal depression (Fig. 8E).

Male

Unknown.

Distribution

Only known from the type locality NE of Steinkopf.

Floral hosts

Aizoaceae: *Galenia sarcophylla*.

Seasonal activity

September.

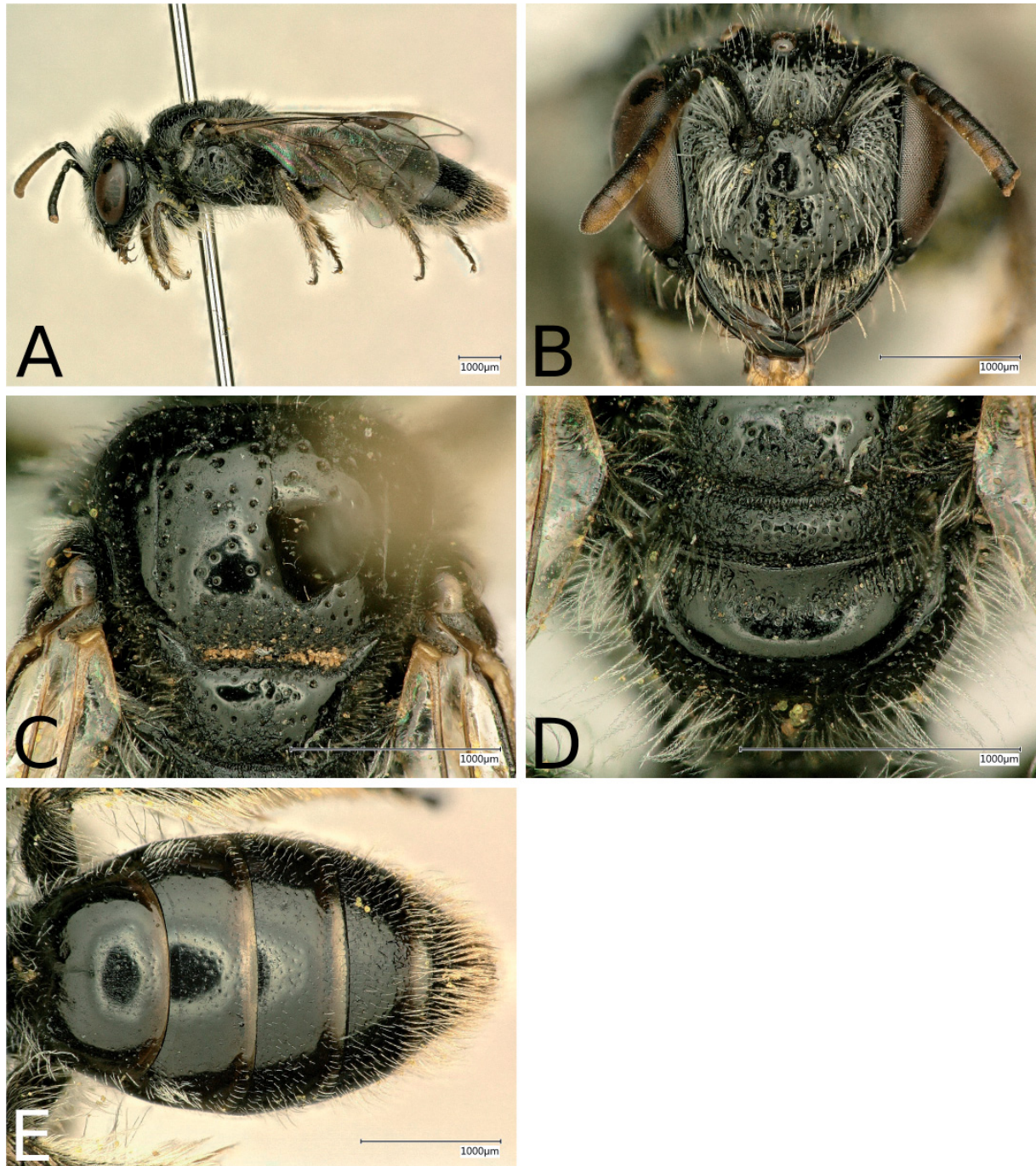


Fig. 8. *Scapter nitens* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

Scapter oubergensis Kuhlmann sp. nov.

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Fig. 9

Diagnosis

The female of *S. oubergensis* Kuhlmann sp. nov. can be separated from all other species of this group by the combination of the following characters: supraclypeal area and clypeus coarsely and densely punctate and shiny, only partly superficially sculptured and slightly matt (Fig. 9B); scutum coarsely but relatively densely punctate (Fig. 9C); basal area of propodeum medially about as long as metanotum (Fig. 9D); stigma brown; apical margins of metasomal terga black; terga densely and finely punctate (Fig. 9E). The male is unknown.

Etymology

Named after the Ouberg Pass southeast of Vanrhynsdorp.

Material examined (2 specimens)

Holotype

SOUTH AFRICA • ♀; Ouberg Pass, 27 km SE of Vanrhynsdorp, Fynbos; 31°48'07" S, 18°55'00" E; alt. 380 m a.s.l.; 24 Sep. 2014; MK leg.; RCMK.

Paratype

SOUTH AFRICA • 1 ♀; same collections data as for holotype; MK leg.; RCMK.

Description

Female

BODY LENGTH. 5.4 mm.

HEAD. Head wider than long. Integument black, except part of mandibles dark reddish-brown. Face sparsely covered with long, greyish, erect hair (Fig. 9B). Clypeus slightly convex with coarse and relatively dense ($i = 1-2$ d) punctation; surface between punctures superficially sculptured but shiny (Fig. 9B). Malar area medially narrow, almost linear. Antenna dorsally blackish-brown, ventrally yellowish-brown.

MESOSOMA. Integument black, tegula dark reddish-brown. Mesoscutal disc between punctures reticulate and slightly matt; disc sparsely ($i = 1.5-2.5$ d) and coarsely punctate (Fig. 9C). Metanotum slightly shorter than basal area of propodeum, apically with distinct narrow carinate depression (Fig. 9D). Propodeum basally broadly and coarsely carinate (Fig. 9D). Mesoscutum, scutellum, metanotum, mesepisternum and propodeum sparsely covered with short, greyish, erect hair (Fig. 9A).

WINGS. Yellowish-brown; wing venation and stigma brown.

LEGS. Integument black. Vestiture greyish-brown; scopa greyish-white, dorsally brownish.

METASOMA. Integument black, apical margins of terga narrowly black to translucent dark reddish-brown (Fig. 9E). Disc of T1 without hair; following terga with very short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 9E); prepygidial and pygidial fimbriae relatively short, blackish-brown. T1 finely and densely ($i = d$) punctate, between punctures smooth and shiny; T2–T4 slightly coarser punctate; T2 between punctures basally superficially reticulate but shiny, apically smooth; T3–T4 between punctures superficially reticulate and slightly matt; T2–T4 with polished to superficially sculptured, but shiny apical tergal depression (Fig. 9E).

Male

Unknown.

Distribution

Only known from the type locality, a mountain pass in the southern Knersvlakte SE of Vanrhynsdorp.

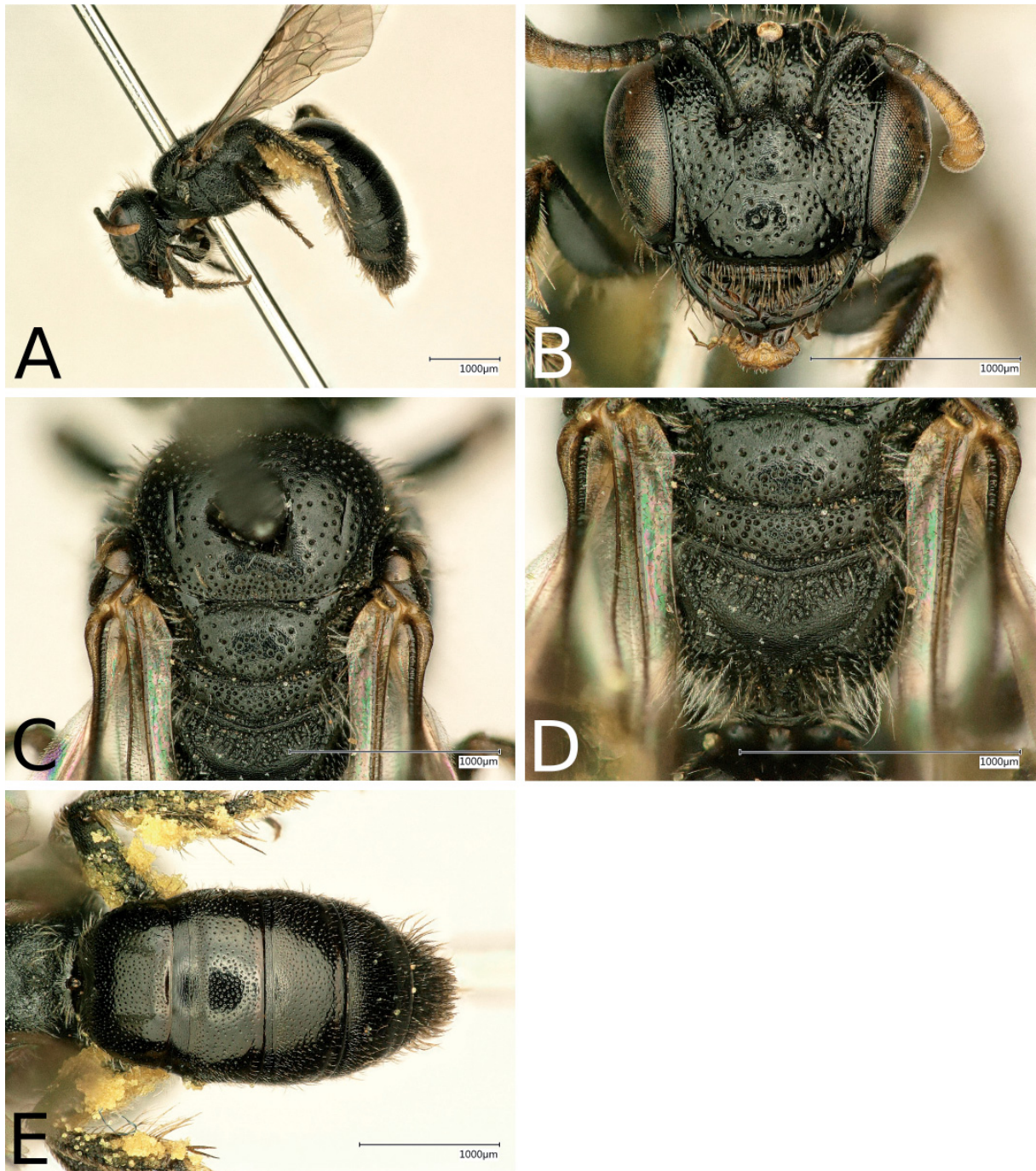


Fig. 9. *Scapter oubergensis* Kuhlmann sp. nov., ♀, holotype (RCMK). **A.** Lateral view. **B.** Head. **C.** Scutum and scutellum (dorsal view). **D.** Metanotum and propodeum (dorsal view). **E.** Metasoma (dorsal view).

Floral hosts

Brassicaceae: blue *Heliophila* spec.

Seasonal activity

September.

Scapter willemstrydomi Kuhlmann sp. nov.

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Fig. 10

Diagnosis

The male of *S. willemstrydomi* Kuhlmann sp. nov. can be separated from all other species of this group by its hind tibia with a long, broadened spine, the apically swollen hind basitarsus and the triangular broadened third hind tarsus (Fig. 10E). The female is unknown.

Etymology

This species is dedicated to the sculptor and painter Willem Strydom (° 30 June 1954 – † 2 June 2019) from Matjiesfontein south of Nieuwoudtville. The bee is as unique as he was. Willem encouraged me (MK) to explore remote mountainous regions, especially between Calvinia and Sutherland, and he generously shared his passion and knowledge about this area, which over the years has led to the discovery of numerous new species.

Material examined (1 specimen)

Holotype

SOUTH AFRICA • ♂; Kamiesberg Mts, 5 km SE of Leliefontein, roadside; 30°20'09" S, 18°06'24" E; alt. 1400 m a.s.l.; 11 Sep. 2016; MK leg.; RCMK.

Description

Female

Unknown.

Male

BODY LENGTH. 5.9 mm.

HEAD. Head slightly wider than long. Integument black, except mandible partly dark

reddish-brown. Face covered with long, greyish-white, erect hair. Malar area medially narrow, almost linear. Antenna dorsally dark brown, ventrally yellowish-brown (Fig. 10A).

MESOSOMA. Integument black. Mesoscutal disc between punctures superficially reticulate and slightly matt; disc relatively densely ($i = 1-1.5$ d) but coarsely punctate. Mesoscutum, scutellum, metanotum, mesepisternum and propodeum covered with long, greyish, erect hair (Fig. 10A).

WINGS. Slightly yellowish-brown; wing venation and stigma brown.

LEGS. Integument black, fore tibia in basal half anteriorly yellow. Hind tibia inside apically broadened, with a long, broadened spine (Fig. 10E). Hind basitarsus medially broadened, third hind tarsus apically triangular broadened (Fig. 10E). Vestiture greyish-white.

METASOMA. Integument black, apical margins of terga partly narrowly translucent reddish-brown (Fig. 10C). Disc of T1 without hair, following terga with sparse and short but increasingly more and longer hair; apical tergal hair bands missing on all terga (Fig. 10C). T1 densely ($i = 0.5-1$ d) but relatively finely, following terga slightly coarser punctate; between punctures polished to superficially sculptured and shiny to slightly matt; T2-T4 with narrow, polished to superficially sculptured but shiny apical tergal depression (Fig. 10C). S3 and particularly S4-S5 with sparse, long apical hair fringes.

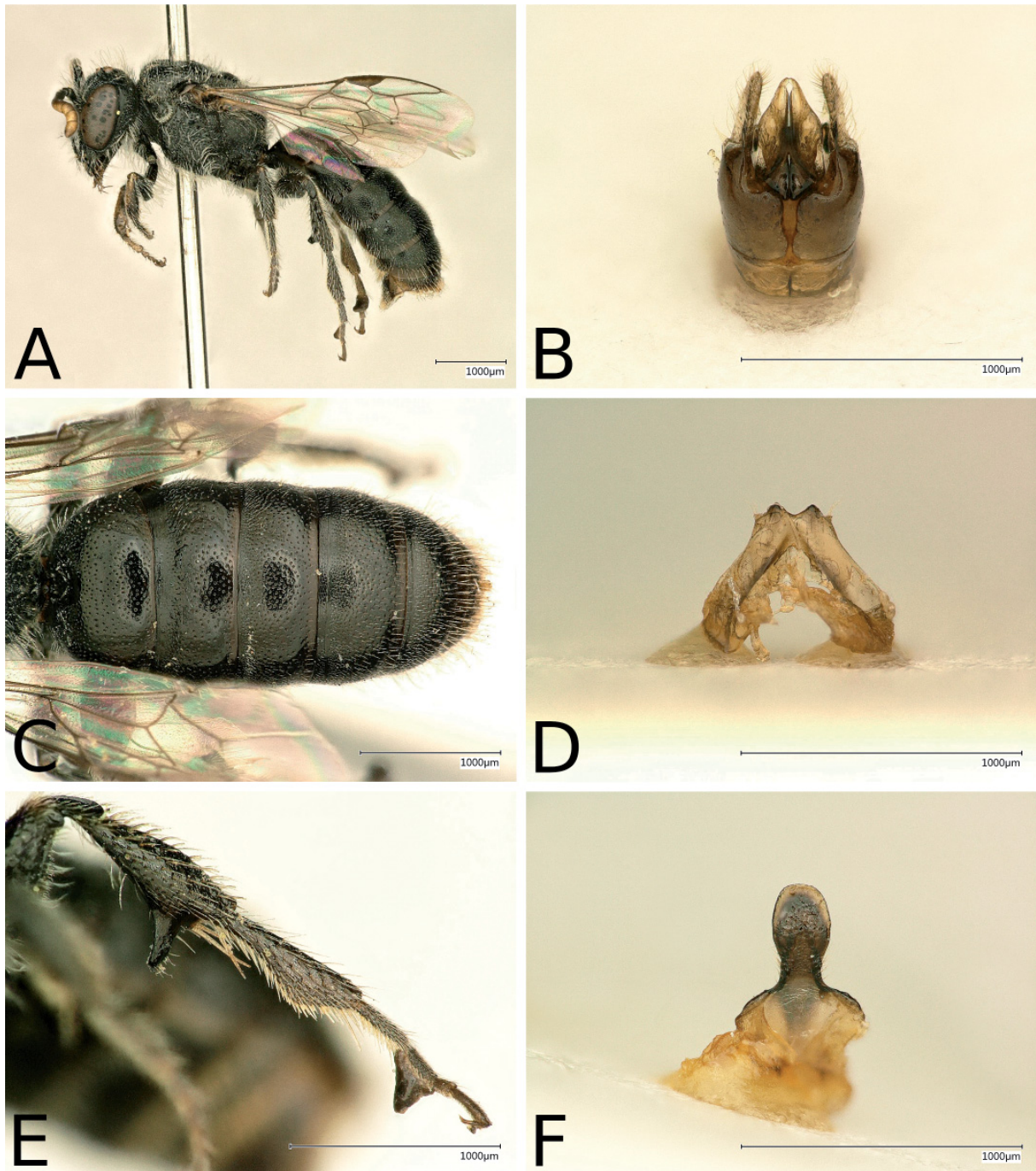


Fig. 10. *Scapter willemstrydomi* Kuhlmann sp. nov., ♂, holotype (RCMK). **A.** Lateral view. **B.** Genitalia (dorsal view). **C.** Metasoma (dorsal view). **D.** S7 (dorsal view). **E.** Hind leg. **F.** S8, apical end.

TERMINALIA. Genitalia (Fig. 10B), S7 (Fig. 10D) and terminal plate of S8 (Fig. 10F) as illustrated.

Distribution

Only known from the type locality in the Kamiesberg Mts.

Floral hosts

Unknown.

Seasonal activity

September.

New records of described species of euryglossiform Scapter

New records of the known species of euryglossiform *Scapter*, described in Kuhlmann (2014), are listed below.

***Scapter acanthophorus* Davies, 2005**

Scapter acanthophorus Davies, 2005: 153–155, figs 4–8.

Material examined (2 specimens)

SOUTH AFRICA • 2 ♀♀; 8 km WNW of Leliefontein, Fynbos, roadside; 30°15'58" S, 18°03'17" E; alt. 1190 m a.s.l.; 14 Sep. 2017; MK leg.; RCMK.

Distribution

This is the first record outside the semi-desert plane of the Knersvlakte and a significant range extension to the north into the Kamiesberg Mts.

***Scapter albitarsis* (Friese, 1909)**

Polyglossa albitarsis Friese, 1909: 87, 124.

Material examined (133 specimens)

SOUTH AFRICA • 3 ♀♀, 1 ♂; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 6 Sep. 2016; EA leg.; RPSP • 4 ♂♂; Farm Kanolfontein, 20 km W of Sutherland, road side; 32°24'43" S, 20°27'28" E; alt. 1385 m a.s.l.; 15 Sep. 2018; MK leg.; RCMK • 5 ♀♀, 1 ♂; Gembokrivier-Pad, 4.5 km NE of Grootdrif, road side; 31°25'54" S, 18°55'16" E; alt. 170 m a.s.l.; 4 Sep. 2016; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 6 Sep. 2016; MK leg.; RCMK • 64 ♀♀, 20 ♂♂; same collection data as for preceding; 28 Aug. 2018; MK leg.; RCMK • 15 ♀♀, 6 ♂♂; Roggeveld Mts, 2 km S of Farm Houdenbek, road side; 32°18'03" S, 20°23'16" E; alt. 1280 m a.s.l.; 16 Sep. 2018; MK leg.; RCMK • 1 ♂; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; alt. 1290 m a.s.l.; 29 Aug. 2018; MK leg.; RCMK • 12 ♂♂; same collection data as for preceding; 10 Sep. 2018; MK leg.; RCMK.

Distribution

The species is widespread in the winter rainfall region of western South Africa.

***Scapter exiguus* Kuhlmann, 2014**

Scapter exiguus Kuhlmann, 2014: 12–16, figs 6–7.

Material examined (24 specimens)

SOUTH AFRICA • 1 ♀; 10 km SSE of Steinkopf, road side N7; 29°19'56" S, 17°46'28" E; alt. 880 m a.s.l.; 12 Sep. 2017; MK leg.; RCMK • 1 ♀; 5 km SE of Lekkersing, road side; 29°03'28" S, 17°07'16" E; alt. 300 m a.s.l.; 10 Sep. 2016; MK and EA leg.; RCMK • 1 ♀; same collection data as for preceding; RPSP • 4 ♀♀, 8 ♂♂; 7 km NE of Steinkopf, road side N7; 29°12'40" S, 17°47'11" E; alt. 970 m a.s.l.; 12 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 13 Sep. 2017; MK leg.; RCMK • 2 ♀♀; Kamiesberg Mts, 18 km ENE of Kamieskroon, road side; 30°09'11" S, 18°06'15" E; alt. 950 m a.s.l.; 6 Oct. 2014; MK leg.; RCMK • 1 ♂; Keiski Mts, 3 km E of Farm M'Veera, shale; 31°45'29" S, 19°54'13" E; alt. 1190 m a.s.l.; 13 Sep. 2016; MK leg.; RCMK • 1 ♀, 4 ♂♂; same collection data as for preceding; 15 Sep. 2016; MK leg.; RCMK.

Distribution

Scapter exiguus is apparently widely distributed in Namaqualand.

Scapter luteistigma Kuhlmann, 2014

Scapter luteistigma Kuhlmann, 2014: 22–25, figs 11–12.

Material examined (10 specimens)

SOUTH AFRICA • 10 ♀♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, roadside; 31°25'54" S, 18°55'16" E; alt. 170 m a.s.l.; 28 Aug. 2018; MK leg.; RCMK.

Distribution

Scapter luteistigma is only known from the semi-desert plane of the Knersvlakte.

Scapter nanus Kuhlmann, 2014

Scapter nanus Kuhlmann, 2014: 32–35, figs 16–17.

Material examined (47 specimens)

SOUTH AFRICA • 3 ♀♀; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 3 Sep. 2016; MK leg.; RCMK • 4 ♀♀; same collection data as for preceding; 6 Sep. 2016; MK leg.; RCMK • 2 ♂♂; same collection data as for preceding; 23 Aug. 2017; MK leg.; RCMK • 8 ♂♂; same collection data as for preceding; 25 Aug. 2017; MK leg.; RCMK • 4 ♀♀, 11 ♂♂; same collection data as for preceding; 30 Aug. 2018; MK leg.; RCMK • 7 ♀♀, 4 ♂♂; same collection data as for preceding; 9 Sep. 2018; MK leg.; RCMK • 3 ♀♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; alt. 680 m a.s.l.; 20 Sep. 2014; MK leg.; RCMK • 1 ♂; Cederberg Mts, road to Algeria, Olifants River bridge; 32°21'55" S, 18°57'06" E; alt. 150 m a.s.l.; 8 Sep. 2017; MK leg.; RCMK.

Distribution

The species was previously only known from the wider Nieuwoudtville area so the record from the Cederberg Mts is a significant range extension to the south.

Scapter papkuilsi Kuhlmann, 2014

Scapter papkuilsi Kuhlmann, 2014: 41–44, figs 21–22.

Material examined (9 specimens)

SOUTH AFRICA • 4 ♀♀; 20 km S of Nieuwoudtville, Farm Papkuilsfontein, Fynbos; 31°33'16" S, 19°08'31" E; alt. 680 m a.s.l.; 20 Sep. 2014; MK leg.; RCMK • 2 ♀♀, 2 ♂♂; same collection data as for preceding; 26 Aug. 2016; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 30 Aug. 2018; MK leg.; RCMK.

Distribution

Scapter papkuilsi is only known from the Bokkeveld Plateau north and south of Nieuwoudtville.

Scapter punctulatus Kuhlmann nom. nov.

First, Willem Coetzer, South African Institute for Aquatic Biodiversity, Grahamstown (South Africa), and later independently Vladimir G. Radchenko, Institute of Evolutionary Ecology of the National Academy of Sciences of Ukraine, Kiev (Ukraine), pointed out to me (MK) that *Scapter punctatus* Kuhlmann, 2014 is a primary junior homonym of *S. punctatus* Lepeletier & Audinet-Serville, 1825 (= *Allodape punctata* [Lepeletier & Audinet-Serville, 1825]) (Eardley & Urban 2010). There is no known synonym of the junior homonym so following article 60.3 ICZN the new substitute name *S. punctulatus* nom. nov. is here proposed for *S. punctatus* Kuhlmann, 2014.

Material examined (1 specimen)

SOUTH AFRICA • 1 ♀; Kamiesberg Mts, 5 km SE of Leliefontein, roadside; 30°20'09" S, 18°06'24" E; alt. 1400 m a.s.l.; 7 Sep. 2016; MK leg.; RCMK.

Distribution

The species is only known from the Kamiesberg Mts.

Scapter sittybon Davies, 2005

Scapter sittybon Davies, 2005: 171–173, figs 36–39.

Material examined (49 specimens)

SOUTH AFRICA • 1 ♀, 1 ♂; 10 km SSE of Steinkopf, road side N7; 29°19'56" S, 17°46'28" E; alt. 880 m a.s.l.; 12 Sep. 2017; MK leg.; RCMK • 21 ♀♀; 5 km SE of Lekkersing, road side; 29°03'28" S, 17°07'16" E; alt. 300 m a.s.l.; 10 Sep. 2016; MK and EA leg.; RCMK • 17 ♀♀, 1 ♂; same collection data as for preceding; RPSP • 3 ♀♀, 3 ♂♂; 7 km NE of Steinkopf, road side N7; 29°12'40" S, 17°47'11" E; alt. 970 m a.s.l.; 12 Sep. 2017; MK leg.; RCMK • 2 ♂♂; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, road side; 31°25'54" S, 18°55'16" E; alt. 170 m a.s.l.; 28 Aug. 2018; MK leg.; RCMK.

Distribution

The records from the Steinkopf vicinity are a significant northward range extension of *S. sittybon*.

Scapter spinipes Kuhlmann, 2014

Scapter spinipes Kuhlmann, 2014: 58–61, figs 30–31.

Material examined (68 specimens)

SOUTH AFRICA • 3 ♀♀, 3 ♂♂; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 3 Sep. 2016; MK leg.; RCMK • 6 ♀♀; same collection data as for preceding; 6 Sep. 2016; MK and EA leg.; RCMK • 2 ♀♀; same collection data as for preceding; RPSP •

13 ♂♂; same collection data as for preceding; 25 Aug. 2017; MK leg.; RCMK • 1 ♀, 17 ♂♂; same collection data as for preceding; 30 Aug. 2018; MK leg.; RCMK • 4 ♀♀, 16 ♂♂; same collection data as for preceding; 9 Sep. 2018; MK leg.; RCMK • 1 ♀; Gemsbokrivier-Pad, 4.5 km NE of Grootdrif, road side; 31°25'54" S, 18°55'16" E; alt. 170 m a.s.l.; 6 Sep. 2016; EA leg.; RCMK • 2 ♂♂; Kamiesberg Mts, 5 km SE of Leliefontein, road side; 30°20'09" S, 18°06'24" E; alt. 1400 m a.s.l.; 10 Sep. 2017; MK leg.; RCMK.

Distribution

Scapter spinipes was collected for the first time in the semi-desert plain of the Knersvlakte and the Kamiesberg Mts. The latter is a significant northward range extension.

Scapter ulrikae Kuhlmann, 2014

Scapter ulrikae Kuhlmann, 2014: 61–65, figs 32–33.

Material examined (32 specimens)

SOUTH AFRICA • 2 ♀♀, 1 ♂; 12 km NW of Nieuwoudtville, Farm Avontuur, Fynbos; 31°16'18" S, 19°02'55" E; alt. 770 m a.s.l.; 3 Sep. 2016; MK leg.; RCMK • 2 ♀♀; same collection data as for preceding; 6 Sep. 2016; MK and EA leg.; RCMK • 1 ♀; same collection data as for preceding; RPSP • 1 ♀; same collection data as for preceding; 25 Aug. 2017; MK leg.; RCMK • 2 ♀♀; 8 km WNW of Leliefontein, Fynbos, road side; 30°15'58" S, 18°03'17" E; alt. 1190 m a.s.l.; 10 Sep. 2017; MK leg.; RCMK • 1 ♀; same collection data as for preceding; 14 Sep. 2017; MK leg.; RCMK • 1 ♀♀; Kamiesberg Mts, 5 km SE of Leliefontein, road side; 30°20'09" S, 18°06'24" E; alt. 1400 m a.s.l.; 7 Sep. 2016; MK and EA leg.; RCMK • 3 ♀♀; same collection data as for preceding; RPSP • 9 ♀♀; same collection data as for preceding; 11 Sep. 2016; MK and EA leg.; RCMK • 5 ♀♀; same collection data as for preceding; RPSP • 1 ♀, 2 ♂♂; same collection data as for preceding; 10 Sep. 2017; MK leg.; RCMK • 1 ♀; Plateau Hantam Mts, near antenna, 9 km N of Calvinia; 31°22'29" S, 19°47'03" E; alt. 1570 m a.s.l.; 14 Oct. 2014; MK leg.; RCMK • 1 ♂; Roggeveld Mts, 2 km SE of Farm Allemansdam, burnt area; 31°49'32" S, 19°59'55" E; alt. 1290 m a.s.l.; 2 Sep. 2017; MK leg.; RCMK.

Distribution

The records of *S. ulrikae* from the Kamiesberg Mts are a significant range extension to the north.

Key to species of euryglossiform *Scapter*

Here, we provide an updated key for the identification of euryglossiform *Scapter*, by Kuhlmann (2014), including the newly described species.

Females

The females of *S. glareus*, *S. hergi* Kuhlmann sp. nov., *S. minutissimus* and *S. willemstrydomi* Kuhlmann sp. nov. are unknown.

1. Stigma bright yellow (Kuhlmann 2014: Fig. 11a) *S. luteistigma* Kuhlmann, 2014
- Stigma light to dark brown.....2
2. Apical tergal margins broadly brownish to yellowish translucent (Figs 3E, 8E; Kuhlmann 2014: figs 1b, 28b, 32e); body length 4.9–6.6 mm.....3
- Apical tergal margins black or very narrowly brownish translucent; body length 4.3–5.6 mm.....7

3. Punctuation on basal part of clypeus much finer than apically (Kuhlmann 2014: fig. 28c–d); foretibia entirely or predominantly yellowish to reddish brown (Kuhlmann 2014: fig. 28a).....
.....*S. sittybon* Davies, 2005
– Punctuation on clypeus more evenly sized (Figs 3B, 8B; Kuhlmann 2014: figs 1c–d, 32b); foretibia dominantly dark blackish-brown.....4
4. Metasomal terga between punctures smooth and shiny (Fig. 8E; Kuhlmann 2014: fig. 1b).....5
– Metasomal terga between punctures at least finely sculptured and slightly matt (Fig. 3E; Kuhlmann 2014: fig. 32e).....6
5. Clypeus distinctly convex (Kuhlmann 2014: fig. 1c–d); scutum with dense punctuation (Kuhlmann 2014: fig. 1e–f).....*S. acanthophorus* Davies, 2005
– Clypeus almost flat (Fig. 8B); scutum with sparse punctuation (Fig. 8C)... *S. nitens* Kuhlmann sp. nov.
6. Clypeus between punctures smooth and shiny (Kuhlmann 2014: fig. 32b); scutum superficially reticulate but shiny (Kuhlmann 2014: fig. 32c–d).....*S. ulrikae* Kuhlmann, 2014
– Clypeus between punctures superficially sculptured and slightly matt (Fig. 3B); scutum reticulate and matt (Fig. 3C).....*S. fynbosensis* Kuhlmann sp. nov.
7. Scutum sparsely and finely punctured, looking almost impunctate and shiny (Kuhlmann 2014: figs 6e–f, 8e–f).....8
– Scutum more densely and coarsely punctured.....10
8. Supraclypeal area, clypeus (Kuhlmann 2014: fig. 6c–d) and mesepisternum only partially and superficially reticulate, more shiny.....*S. exiguus* Kuhlmann, 2014
– Supraclypeal area apically, clypeus basally (Kuhlmann 2014: fig. 8c–d) and mesepisternum extensively and strongly reticulate, matt.....9
9. Facial fovea slightly shorter than in *S. gessorum* (Kuhlmann 2014: fig. 4a–b); a variable species with respect to surface sculpture and punctuation (Kuhlmann 2014: figs 3c–f, 4a–d).....
.....*S. albitarsis* (Friese, 1909)
– Facial fovea slightly longer than in *S. albitarsis* (Kuhlmann 2014: fig. 8d)
..... *S. gessorum* Kuhlmann, 2014
10. Clypeus and supraclypeal area matt, strongly reticulate, very sparsely, finely and shallowly punctate (Kuhlmann 2014: fig. 10c–d).....*S. inexpectatus* Kuhlmann, 2014
– Clypeus and supraclypeal area more shiny or just slightly matt, only partly or superficially sculptured, punctuation usually stronger and denser.....11
11. Metasomal terga finely and densely punctate, between punctures smooth and shiny (Fig. 2E; Kuhlmann 2014: fig. 18b).....12
– Metasomal terga either impunctate or with more dispersed/coarser punctuation; if punctuation is similar (some specimens of *S. punctatus*), then terga at least basally with superficial sculpture and slightly matt13
12. Scutum very densely ($i = 0,5-1$ d) punctate (Kuhlmann 2014: fig. 18e–f), propodeum basally shallowly but broadly carinate (Kuhlmann 2014: fig. 18f).....*S. nigerrimus* Kuhlmann, 2014
– Scutum coarser ($i = 1-2,5$ d) punctate (Fig. 2C), propodeum basally only laterally with distinct but fine carination (Fig. 2D).....*S. bokkeveldensis* Kuhlmann sp. nov.
13. Metasomal terga impunctate; scutum distinctly reticulate and shallowly punctate.....14
– Metasomal terga punctate, sometimes punctures minute.....15

14. Basal area of propodeum distinctly and largely carinate (Kuhlmann 2014: fig. 19b).....
*S. nigratarsis* Kuhlmann, 2014
 – Basal area of propodeum along anterior margin indistinctly carinate (Kuhlmann 2014: fig. 25c–d)...
*S. pygmaeus* Kuhlmann, 2014
15. Scutum very coarsely punctate (Fig. 9C; Kuhlmann 2014: figs 23c–d, 30c–d).....16
 – Scutum finer punctate (Figs 1C, 6C–D, 5C; Kuhlmann 2014: figs 14e–f, 15c–d, 16e–f, 21c–f, 26c–
 d).....18
16. Propodeum basally broadly and distinctly carinate (Fig. 9D; Kuhlmann 2014: fig. 30c–d).....17
 – Propodeum with few, short and indistinct carinae (Kuhlmann 2014: fig. 23c–d).....
*S. punctulatus* Kuhlmann nom. nov.
17. Basal area of propodeum shorter, medially only slightly longer than metanotum (Fig. 9D).....
*S. oubergensis* Kuhlmann sp. nov.
 – Basal area of propodeum longer, medially about 1.5 times as long as metanotum (Kuhlmann 2014:
 fig. 30c–d).....*S. spinipes* Kuhlmann, 2014
18. Punctuation of metasomal terga minute, almost invisible (Kuhlmann 2014: fig. 26e).....
*S. roggeveldi* Kuhlmann, 2014
 – Punctuation of metasomal terga much coarser and clearly visible (Figs 1C, 6C–D, 5C; Kuhlmann
 2014: figs 14b, 15e, 16b, 21g–h).....19
19. Head distinctly broader than long (Figs 1C, 6C–D, 5C; Kuhlmann 2014: figs 14c–d, 16c–d).....20
 – Head about as long as broad (Kuhlmann 2014: figs 15b, 21b).....24
20. Clypeus, supraclypeal area and T1 mostly polished and shiny, only partially very finely and superficially
 sculptured, slightly matt (Kuhlmann 2014: fig. 14b–d).....*S. minutuloides* Kuhlmann, 2014
 – Clypeus, supraclypeal area and T1 (particularly anteriorly) mostly finely sculptured and matt
 (Figs 1C, 6C–D, 5C; Kuhlmann 2014: fig. 16b–d).....21
21. Scutum densely ($i = 0,5-1,5$ d) punctate (Figs 1C, 5C).....22
 – Scutum sparsely ($i > 1,5$ d) punctate (Fig. 6C–D; Kuhlmann 2014: fig. 16e–f).....23
22. Propodeum basally distinctly and broadly carinate (Fig. 1D)... *S. avontuuensis* Kuhlmann sp. nov.
 – Propodeum basally only indistinctly and shallowly carinate (Fig. 5D).....
*S. keiskiensis* Kuhlmann sp. nov.
23. Propodeum basally distinctly and broadly carinate (Kuhlmann 2014: fig. 16e–f).....
*S. nanus* Kuhlmann, 2014
 – Propodeum basally finer and just very shallowly carinate, sometimes just laterally visible (Fig. 6E–
 F).....*S. mellonholgeri* Kuhlmann sp. nov.
24. Metanotum apically more evenly rounded, without distinct carinate depression (Kuhlmann
 2014: fig. 15d); fore tibia anteriorly largely yellowish-brown.....*S. minutus* Kuhlmann, 2014
 – Metanotum apically with a carinate depression (Kuhlmann 2014: fig. 21d, f); fore tibia anteriorly
 blackish, only at the base with a small yellowish spot.....*S. papkuilsi* Kuhlmann, 2014

Males

The males of *S. avontuuensis* Kuhlmann sp. nov., *S. bokkeveldensis* Kuhlmann sp. nov., *S. fynbosensis* Kuhlmann sp. nov., *S. gessorum*, *S. inexpectatus*, *S. keiskiensis* Kuhlmann sp. nov., *S. minutuloides*,

S. minutus, *S. nigerrimus*, *S. nitens* Kuhlmann sp. nov., *S. oubergensis* Kuhlmann sp. nov. and *S. pygmaeus* are unknown.

1. Antennal flagellum medially broadened, entirely orange (Kuhlmann 2014: fig. 12b); stigma bright yellow (Kuhlmann 2014: Fig. 12a); S7 and S8 as in Kuhlmann (2014: fig. 12d, f).....
 *S. luteistigma* Kuhlmann, 2014
 – Antennal flagellum not broadened, only partly yellowish; stigma darker.....2
2. Third hind tarsus triangular broadened (Fig. 10E).....*S. willemstrydomi* Kuhlmann sp. nov.
 – Third hind tarsus unmodified.....3
3. Antenna long, last flagellar segment about twice as long as wide (Kuhlmann 2014: fig. 24e); S7 and S8 as in Kuhlmann (2014: fig. 24d, f).....*S. punctulatus* Kuhlmann nom. nov.
 – Antenna shorter, last flagellar segment at most 1.5 times as long as wide.....4
4. Hind tibia inside apically broadened, pointed (Kuhlmann 2014: fig. 22e) or forming either a spine (Fig. 7E; Kuhlmann 2014: figs 2e, 31e) or a \pm right angle (Fig. 4G; Kuhlmann 2014: fig. 27g).....5
 – Hind tibia unmodified, if apically broadened then without spine or \pm sharp edge.....10
5. Hind tibia inside apically forming a \pm right angle (Fig. 4G; Kuhlmann 2014: fig. 27g).....6
 – Hind tibia inside apically pointed (Kuhlmann 2014: Fig. 22e) or forming a spine (Fig. 7E; Kuhlmann 2014: figs 2e, 31e).....7
6. Body about 5 mm long; hind tibia forming a distinct right angle (Kuhlmann 2014: fig. 27g); S7 and S8 as in Kuhlmann (2014: fig. 27d, f).....*S. roggeveldi* Kuhlmann, 2014
 – Body longer; hind tibia forming a shallow right angle (Fig. 4G); S7 and S8 as in Fig. 4F, H.....
*S. hergi* Kuhlmann sp. nov.
7. Hind tibia inside apically pointed (Kuhlmann 2014: fig. 22e); scutum and metasomal terga finely punctate (Kuhlmann 2014: fig. 22c); S7 and S8 as in Kuhlmann (2014: fig. 22d, f).....*S. papkuilsi* Kuhlmann, 2014
 – Hind tibia inside apically with spine (Fig. 7E; Kuhlmann 2014: figs 2e, 31e).....8
8. Scutum and metasomal terga coarsely punctate (Kuhlmann 2014: figs 2c, 31c).....9
 – Scutum coarsely and metasomal terga finely punctate (Fig. 7C)....*S. mellonholgeri* Kuhlmann sp. nov.
9. Hind tibia apically with longer spine (Kuhlmann 2014: fig. 31e); metasomal terga densely punctate (Kuhlmann 2014: Fig. 31c); S7 and S8 as in Kuhlmann (2014: fig. 31d, f) ...*S. spinipes* Kuhlmann, 2014
 – Hind tibia apically with shorter spine (Kuhlmann 2014: fig. 2e); metasomal terga sparsely punctate (Kuhlmann 2014: fig. 2c); S7 and S8 as in Kuhlmann (2014: fig. 2d, f) ...*S. acanthophorus* Davies, 2005
10. Hind basitarsus brown to blackish.....11
 – Hind basitarsus yellowish.....14
11. Hind tibia apically slightly swollen and curved (Kuhlmann 2014: fig. 29e); scutum between punctures smooth and shiny; S7 and S8 as in Kuhlmann (2014: fig. 29d, f) ...*S. sittybon* Davies, 2005
 – Hind tibia unmodified; scutum between punctures sculptured and matt.....12
12. Basal half of T2–T4 densely covered with short, silverish hair (Kuhlmann 2014: fig. 33c); S7 and S8 as in Kuhlmann (2014: fig. 33d–e).....*S. ulrikae* Kuhlmann, 2014
 – Basal half of T2–T4 almost hairless (Kuhlmann 2014: figs 17c, e, 20c).....13

13. Discs of metasomal terga impunctate, very finely and regularly sculptured (Kuhlmann 2014: fig. 20c); S7 and S8 as in Kuhlmann (2014: fig. 20d–e).....*S. nigritarsis* Kuhlmann, 2014
 – Discs of metasomal terga partly punctate, strongly to heavily and irregularly sculptured (Kuhlmann 2014: fig. 17c, e); S7 and S8 as in Kuhlmann (2014: fig. 17d, f).....*S. nanus* Kuhlmann, 2014
14. Hind tibia yellow with a brown spot on the back side (Kuhlmann 2014: fig. 9a, c); S7 and S8 as in Kuhlmann (2014: fig. 9d–e).....*S. glareus* Davies, 2005
 – Hind tibia mostly black (Kuhlmann 2014: figs 5a, 7a, 13a)..... 15
- The males of the following three species are very similar and can be best separated by S7 and S8.
15. S7 without membraneous apicolateral lobes (Kuhlmann 2014: fig. 13d); S8 as in Kuhlmann (2014: fig. 13e).....*S. minutissimus* Kuhlmann, 2014
 – S7 with membraneous apicolateral lobes (Kuhlmann 2014: figs 5d, 7d)..... 16
16. S7 apically with emargination slightly broader and shallower (Kuhlmann 2014: fig. 5d).....
*S. albitarsis* (Friese, 1909)
 – S7 apically with emargination slightly narrower and deeper (Kuhlmann 2014: fig. 7d).....
*S. exiguus* Kuhlmann, 2014

Discussion

In the present study, nine new species of the bee genus *Scapter* are described, bringing the total number to 68 and increasing the number of euryglossiform *Scapter* by 45% to 29. In addition, new records are presented for ten species, partly resulting in a significant extension of the known ranges for some of them. We decided to describe eight of the new species based on one or two specimens only because they showed unique traits not present in related species and the range of variation in all related species is such that there is no overlap of traits. Naming these species is also meant to point out the urgent need for a better documentation of a unique and rich endemic bee fauna in the Greater Cape Floristic Region, which is particularly vulnerable to and affected by climate change (Kuhlmann *et al.* 2012).

Almost all of the new species were collected in South Africa over the last five years, despite the unfavourable drought conditions, indicating that the new species described in this paper probably represent only part of the true diversity of the group. The discovery of numerous new species, many of them represented only by a single specimen, over a short period of time in a relatively small region highlights the need for more collecting effort even in relatively well sampled regions of the GCFR. This is also supported by the fact that 17 of the 29 species of euryglossiform *Scapter* are only known from females and four only from the male sex.

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