Description of a new interesting species from South Africa, *Evylaeus (Sellalictus) fynbosensis* n.sp. (Hymenoptera Apoidea Halictidae)

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ABSTRACT

PAULY, A., TIMMERMANN, K. & KUHLMANN, M. 2008. Description of a new interesting species from South Africa, *Evylaeus* (*Sellalictus*) *fynbosensis* n.sp. (Hymenoptera Apoidea Halictidae). *J. Afrotrop. Zool.* 4: 85-91.
This paper provides the description of a new interesting species from South Africa, *Evylaeus* (*Sellalictus*) *fynbosensis* n.sp., forming a separate species-group within the subgenus *Sellalictus* Pauly 1984. Plants visited by the new species are listed. *E. fynbosensis* shows a clear preference for Asteraceae. The discovery of a species that seems intermediate between the subgenera *Sellalictus* and *Afrodialictus* Pauly 1984 in the winter rainfall area of the Cape suggests that this region is the centre of origin of these two subgenera in Africa and that these two African subgenera have close affinities.

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Keywords: bees, Anthophila, Halictidae, systematics, visited plants, Asteraceae, Fynboss

INTRODUCTION

The new species reported herein has the general appearance of species of *Chaetalictus* Michener 1978 but belongs to the subtribe Gastrohalictina by its weak distal venation (2-rsm and 2m-cu) (the group of genera of *Halictini* with weak venation sensu Michener 1978). The 1r-m vein (*sensu* Michener 1944) of the new species is weak (Figs 15, 16), indicating that it belongs to the *Hemihalictus* series (*sensu* Michener 2000) and to the genus *Evylaeus* Robertson 1902, considered here as a valid genus distinct from *Lasioglossum* Curtis 1833 (see also the classification of Pesenko *et al.* 2000, and Pesenko 2007). The genus *Evylaeus* is represented in sub-Saharan Africa by the subgenera *Afrodialictus* Pauly 1984, *Sellalictus* Pauly 1984, *Mediocralictus* Pauly 1984 and some unclassified species of the *schubotzi* group (Pauly 1999).
The species we reported is interesting because it seems to have an intermediate position between *Afrodialictus* and *Sellalictus* as they are currently defined. From *Afrodialictus*, the new species differs by the lack of microtessellate texture on the body (present especially on the head, mesoscutum and propodeum of most *Afrodialictus*), the lower part of the paraoccular area shining and distinctly punctate (with *Afrodialictus* the lower parts of the paraoccular area has a distinct mat and impunctate area) and the propodeum with a very weak carina in the female (carina entirely absent in *Afrodialictus*).
Instead, the new species better approximates the subgenus *Sellalictus* but therein appears to constitute a new group (see Pauly 1999 for the definition of three species groups in *Sellalictus*). From the *E. latesellatus* and *E. deceptus* groups it differs by the lack of tomentose spots on the baso-lateral parts of metasomal terga of females. From the *E. latesellatus* group it differs by the lack of the characteristic large patch of tomentum on the base of tergum II in the male. From the *E. tenuivenis* group it differs by the weak propodeal carina, which is strong in the last group.
Descriptive abbreviations are as follows: AOD, antennocular distance; CL, clypeal length; HL, head length; HW, head width; IAD, interantennal distance; IOD, interocellar distance; LID, lower interorbital distance; OAD, ocellantennal distance; OOD, ocellocular distance; SCL, supraclypeal length measured from ventral margin of antennal sockets to epistomal sulcus; SL, scape length; UID, upper interorbital distance.

SYSTEMATICS

Evylaeus (Sellalictus) fynbosensis Pauly, Timmermann & Kuhlmann n.sp.

Description Female. Body length 7 mm; forewing length 5 mm.
Black with terga I-III largely red (Fig. 1). Legs black. Pubescence poor. Ventral side of mesosoma with dull white long plumose setae. Terga without bands or baso-lateral spots of tomentum. Leg hairs yellowish white.

Head broader than long (L/l = 0.77) (Fig. 4). Clypeus, supraclypeal area and lower part of paraoccular area polished and sparsely punctured. Front strigose punctate, mat. Genae shagreened and punctured. Glossa short.
Scutum polished with spaced punctation (interspaces = 2-4 puncture diameter) (Fig. 5). Propodeal area with distinct radiating striae, surrounded by a shining area (Fig. 6) (dull with some tessellations in five paratypes, Fig. 7). Posterior vertical surface of propodeum with a very weak carina, interrupted at lateral margins. The vestigial carina and polished scutum suggests more affinity with *Sellalictus* than with *Afrodialictus*. The microtessellate surface of the propodeum in five paratypes suggests some affinity with *Afrodialictus*.
Tergum I polished and nearly without punctures, without apical depression. Terga II-III with some spaced punctures on the middle and the base (Fig. 8). Inner hind tibial spur with about six short oblique teeth. Basitibial plate of hind legs completely carinate.
Relative dimensions HL = 17; HW = 22; IOD = 4; OOD = 3,5; UID = 13; LID = 12; SCL = 3,5; IAD = 2; CL = 4; AOD = 4,5; OAD = 5; SL = 9.

Male. Body length 7 mm; forewing length 5 mm. Body black with brown on apical margins of terga I-II in most paratypes (Fig. 2). Ventral side of flagellum brown. Legs black except foretarsi yellow. Clypeus and mandibles black.
Pubescence dull white, moderately abundant, long and plumose on mesosoma, genae, front and vertex. Metasomal terga without patch of tomentum but with relatively rich white laterally directed pubescence (Fig. 12). Sterna with few setae, sternum VI with 2-3 longer curved setae on sides. The general appearance is as in *Chaetalictus* but it differs by the lack of bristles on sternum IV (Fig. 3) and weakened wing venation. The relatively rich laterally directed pubescence of metasoma suggests affinity with *Sellalictus*.
Head short, rounded: L/l = 0,86 (Fig. 9). Eyes large. Face very closely and finely punctate. First flagellar segment as long as broad, others longer than broad (second twice as long as broad).
Mesoscutum shining, moderately punctate, in middle interspaces = 2 puncture diameters (Fig. 10).
Propodeum not carinate. Propodeal area not shortened as in *E. latesellatus* group, with distinct ridges, the limits with lateral and posterior surfaces shining and punctate (Fig. 11).
Legs long, especially tarsi of fore legs (Fig. 9). Basitibial plate of hind legs not defined.
Tergum I densely punctate (Fig. 12) as in the Palaearctic *Evylaeus malachurus* (Kirby 1802).
Genitalia with gonostyli but without ventral membranes (Figs 13, 14).
Relative dimensions: HL = 19; HW = 22; UID = 12; LID = 7; IOD = 4; OOD = 3; AOD = 2; SL = 4,5; IAD = 2,5.
Material *Holotype*: ♀: SOUTH AFRICA, 15 km NW Nieuwoudtville, Farm Engelsepunt, Fynbos, Pf E1, S31°14'31"E18°59'08", 830 m, 28.VIII.2003, leg. K. Timmermann. (National Collection of Insects, Pretoria).
Paratypes: 31 ♀ 34 ♂: together with holotype; different dates at same locality: 2 ♀: 23-26.VII.2003 (yellow pan trap); 3 ♀: 26.VII.2003 (1 ♀ in yellow pan trap); 11 ♀, 1 ♂: 6.VIII.2003; 18 ♀, 9 ♂: 7.VIII.2003 (1 ♀ in white and 7 ♀, 1 ♂ in yellow pan trap); 8 ♀, 2 ♂: 27.VIII.2003; 4 ♀, 2 ♂: 27-29.VIII.2003 (in white and yellow pan traps); 8 ♀, 8 ♂: 24.IX.2003; 7 ♀, 4 ♂: 6.X.2003; 10 ♀, 1 ♂: 7.X.2003; 1 ♀, 6 ♂: SOUTH AFRICA, 15 km NW Nieuwoudtville, near Farm Engelsepunt, Fynbos, Pf E2, S31°14'08"E18°58'23", 843 m, 30.VIII.2003, leg. Timmermann; different dates at same locality: 1 ♀, 10 ♂: 13.IX.2003; 11 ♀, 6 ♂: 23.IX.2003; 45 ♀: 23-25.IX.2003 (in white and yellow pan traps).
Paratypes specimens are deposited in collections Kuhlmann, Pauly, National Collection of Insects, Pretoria and Africa Museum in Tervuren.

All specimens were collected in largely undisturbed Fynbos near the northern limit of its distribution. In that part of the Bokkeveld Mountains Fynbos vegetation is restricted to a narrow strip a few kilometres wide along the Great Escarpment.

Visited flowers (N = 51 pollen loads):
Asteraceae: 77.3 % of all pollen (ranging from 3-100 % per load), in 98 % of all loads.
Molluginaceae: 12.9 % of all pollen (ranging from 1-96 % per load), in 26 % of all loads.
Aizoazeae: 6.6 % of all pollen (ranging from 26-84 % per load), in 12 % of all loads.
Proteaceae: 1.7 % of all pollen (ranging from 1-43 % per load), in 12 % of all loads.
(Unknown family): 0.8 % of all pollen (ranging from 1-28 % per load), in 12 % of all loads.
Brassicaceae: 0.5 % of all pollen (26 % in one load), in 2 % of all loads.
Oxalidaceae: 0.2 % of all pollen (12 % in one load), in 2 % of all loads.

CONCLUSIONS

South Africa, and especially the winter rainfall area in the west of the country, is a hot spot of biodiversity and a centre of endemism for bees and plants

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Figures 1-4. *Evylaeus fynbosensis*. (1, 4: female; 2, 3: male).
1-2, total dorsal view; 3, total ventral view; 4, head.

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Figures 5-8. *Evylaeus fynbosensis*. Male.
5, mesoscutum; 6, propodeum shining; 7, propodeum microtessellate; 8, metasoma, dorsal view.

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Figures 9-12. *Evylaeus fynbosensis*. Female.
9, head and forelegs; 10, scutum; 11, propodeum; 12, metasoma, dorsal view.

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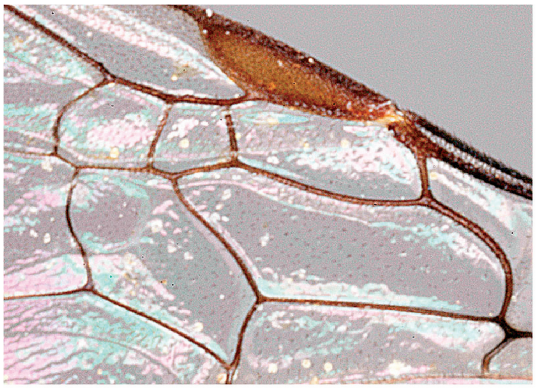

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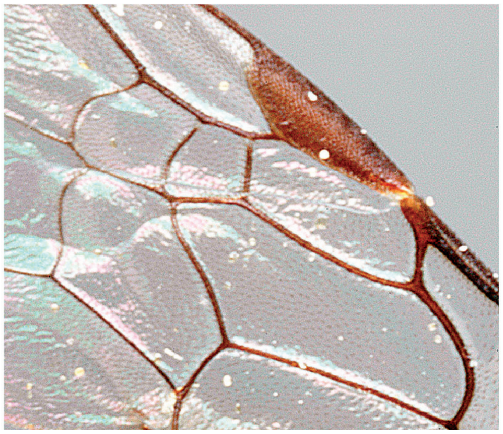

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Figures 13-16. *Evylaeus fynbosensis*. (15: female; 13, 14, 16: male).
13, genitalia, dorsal view; 14, genitalia and T7, lateral view; 15-16, forewing anterior part with submarginal cells.

(Kuhlmann 2005). The discovery of a species that seems intermediate between the subgenera *Sellalictus* and *Afrodialictus* in the winter rainfall area of the Cape suggests that this region is the centre of origin of these two subgenera in Africa. These subgenera extend their range of distribution far north to East Africa and the mountains of West Africa. However, only a phylogenetic framework can ascertain centres of origin of these two afromontane taxa. The apparent pattern of characters suggests that the two subgenera are not as distinct as perceived and may, with the discovery of additional intermediate species, intergrade.

As in all *E.* (*Sellalictus*) and *E.* (*Afrodialictus*) species, *E. fynbosensis* has a clear preference for Asteraceae but is obviously polylectic with respect to some pollen loads that mainly consisted of pollen collected on flowers of other plant families. However, Asteraceae is by far the most abundant plant family during the time of year when the individuals were collected. Thus the preference for Asteraceae might be biased and only reflect the amount of available flowers.

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