PHEGEA

driemaandelijks tijdschrift van de
VLAAMSE VERENIGING VOOR ENTOMOLOGIE

Afgiftekantoor 2170 Merksem 1 ISSN 0771-5277
Periode: april – mei – juni 2009 Erkenningsnr. P209674

Redactie: Dr. J.–P. Borie (Compiègne, France), Dr. L. De Bruyn (Antwerpen), T. C. Garrevoet (Antwerpen), B. Goater (Chandlers Ford, England), Dr. K. Maes (Tervuren), Dr. K. Martens (Brussel), H. van Oorschot (Amsterdam), W. O. De Prins (Leefdaal).
Redactie-adres: W. O. De Prins, Leefdaal 401B, B-3061 Leefdaal (Belgium).
e-mail: willy.de.prins@telenet.be.

Jaargang 37, nummer 2 1 juni 2009

A new *Feaella* species (Pseudoscorpiones: Feaellidae) from Kenya

Hans Henderickx[1, 2]

Abstract. *Feaella jocquei* sp. n., a new pseudoscorpion from Kenya is described.

Samenvatting. *Feaella jocquei* sp. n., een nieuwe pseudoschorpioen uit Kenya wordt beschreven.

Résumé. *Feaella jocquei* sp. n., une espèce nouvelle, provenante du Kénya, est décrite.

Key words. Pseudoscorpiones – *Feaella jocquei* – Tanzania – Kenya.

Henderickx, H.: [1]Department of Biology, Universiteit Antwerpen (UA), Groenenborgerlaan 171, 2020 Antwerpen, Belgium. [2]Royal Belgian Institute of Natural Sciences, Department Entomology, Vautierstraat 29, B-1000 Brussels, (Adress for correspondence: Hemelrijkstraat 4, B-2400 Mol; cavexplorer@gmail.com).

Introduction

Feaella belongs to the Feaelloidea, which is, based on molecular data, considered to represent the most basal pseudoscorpion clade (Murienne *et al*. 2008). Some *Feaella* occupy an isolated ecological pocket, f.i. *Feaella leleupi* Beier, 1959 under stones on Île Mboko, Lake Tanganyika (Leleup, personal communication). Several other *Feaella* sp. have been found on their locus typicus only and seem to be restricted to that area.

The present publication is about a *Feaella* species that is sieved from litter near the Taita Discovery Center in Tsavo, Kenya. The species bears an anterior row of 6 and a posterior row of 4 rounded protuberances on the carapace (cucullus) and can be placed in the subgenus *Feaella* Ellingsen, 1906. It is morphologically and geographically close to *Feaella* (*Feaella*) *mombasica* Beier, 1955 but it shows significant morphological differences with the latter and all other *Feaella* species and is therefore described here as a new species.

Material and methods

A male and tritonymph (Fig. 3) of this species were collected by Jocqué and Warui (Royal Museum for Central Africa, Tervuren) by sieving litter, then transferred to ethanol 70%. Examination and measurements have been carried out with a Leitz microscope, electron microscopy with the FEI Quanta-200. Special attention was given to non-destructive examination techniques, no parts were removed from the holotype and the ESEM scanning microscopy was performed in low pressure water vapour.

All measurements are in mm; (length=L × width=W), the ratio is the length/width index of an article.

Systematics

***Feaella* (*Feaella*) *jocquei* sp. n.**

(Figs. 1, 2)

Type material: Male holotype and 1 tritonymph paratype, sample 209.608, Royal Museum for Central Africa, Tervuren. Information on label: Kenya 28.III.2000, loc. Tsavo, Taita Discovery Center, Eco. Acacia-Commiphora forest, Maungu near entrance gate, sieving litter, rec. Jocqué R. & Warui, C., R.G. Mus. Afr. Centr. 209.608.

Etymology: Patronym in honour of Rudy Jocqué, who collected the specimens.

Diagnosis: A typical *Feaella* (*Feaella*) species with four equally sized, well developped eyes, the anterior part of the rear eye pair covered by carapacal cuticula (Fig. 2b). Second tergal plate completely split, pedipalpal trochanter with dorsal tubular projection. The new species is most closely related to *Feaella* (*Feaella*) *mombasica* but differs from it by the split second tergal plate and the four equally sized eyes.

Male holotype, description: (measurements in mm, ratio is L/W): Carapace longer than wide (1.42 ×), carapace and opisthosoma with a coarse reticulated texture forming ridges (fig. 2b). Both pairs of eyes well developped, equal in size. The anterior part of the second pair covered by carapace cuticula. Chelicera large, galea simple without rami, pointed. Movable finger with round terminal dimple and one seta, hand with 4 macrosetae. 6 microsetae near the edge of the dorsal, reticulated zone of the cheliceral hand. The proximal and ventral part of the chelicera lacks reticulation, that part is smooth as a hinge joint. Serrula of movable finger with 17 lobes, first lobe pointed.

Tergal setae reduced, cannot be seen between the course reticulation. First tergite narrow, adapted to the flexible carapace-opisthosoma connection that is typical for *Feaella*. Tergites II to X distinct and completely split, XI th tergite ventrally joined with the terminal sternite, the circular anus is situated in this sclerite complex.

First and second sternites fused, third sternite a narrow undivided strip bording the genital opening, extending laterally under the fourth coxa. Sternites IV to X completely divided. Pedipalpal coxa (Fig. 2d) with lateral thorn, near the joint with the leg coxa narrowed and in this zone without coarse granulation. The smooth surface there shows only a flat or honeycomb pattern, that might facilitate movement of the special joint connection. A honeycomb pattern is also visible on the part of the leg trochanter that moves in the leg coxa. (Fig. 2e). Pleurites with two rows of 15 plates.

Pedipalp shape (Fig. 1a) typical *Feaella*, with a coarse reticulated structure. This reticulation lacks on the terminal part of the fingers and in the zone where the trichobothria are. Trochanter as long as broad, dorsally with a blunt 0.1 mm x 0.03 mm tubular projection. Femur 1.75× as long as broad, with a ridge that ends in a mediobasal thorn. Tibia 3× as long as broad, widening distally. Hand (without fingers) short, only slightly longer than broad (1.06×), complete chela (Fig. 1b) with pedicel 3,74× longer than broad. Both fingers internal with a large basal tooth (thorn). Several longitudinal rows of unequal teeth ending in a terminal teeth 'crown' of 5 teeth in both fingers. Fixed finger with an external row of 11 teeth, movable finger with a ventral row of 15 teeth.

Fixed finger with 8, movable with 4 trichobothriae, positions illustrated on Fig. 1b. The internal trichobothriae on this external view are outlined with dots.

Legs monotarate, a movable joint between telofemur and basifemur. Aroleum not longer than claws.

Measurements (mm): Body length with chelicera 2.36, without chelicera 2.20. Pedipalp: trochanter 0.16/0.16; femur 0.59/0.34; tibia 0.51/0.17; chela (with pedicel) 0.59/0.16; hand 0.17/0.16; movable finger L=0.42. Carapace 0.71/0.45. Anterior and posterior eyes equal in size (diameter is 0.067).

Leg I (Fig. 1c): trochanter 0.19/0.14; basifemur 0.24/0.08; telofemur 0.28/0.10; tibia 0.21/0.08; tarsus 0.38/0.04.

Leg IV (Fig. 1d): trochanter 0.37/0.17; basifemur 0.23/0.12; telofemur 0.45/0.16; tibia 0.53/0.09; tarsus 0.57/0.05.

Discussion

Eight species and one subspecies of *Feaella* are described from Africa. On base of the frontal carapacal lobes a further separation in three subgenera has been made: *Feaella* (Ellingsen , 1906), *Tetrafeaella* (Beier, 1955) and *Difeaella*. (Beier, 1966). *Feaella jocquei* **n. sp.** belongs to the subgenus *Feaella* (frontal edge of the carapace with 6 lobes) but differs clearly from the other species of this subgenus. The fixed finger bears no pronounced dorso-lateral projection as in *Feaella* (*Feaella*) *mirabilis* Ellingsen, 1906, the new species can also be separated from *F.* (*F.*) *mirabilis* by the long tubular structure on the dorsal side of the trochanter (Fig. 2c).

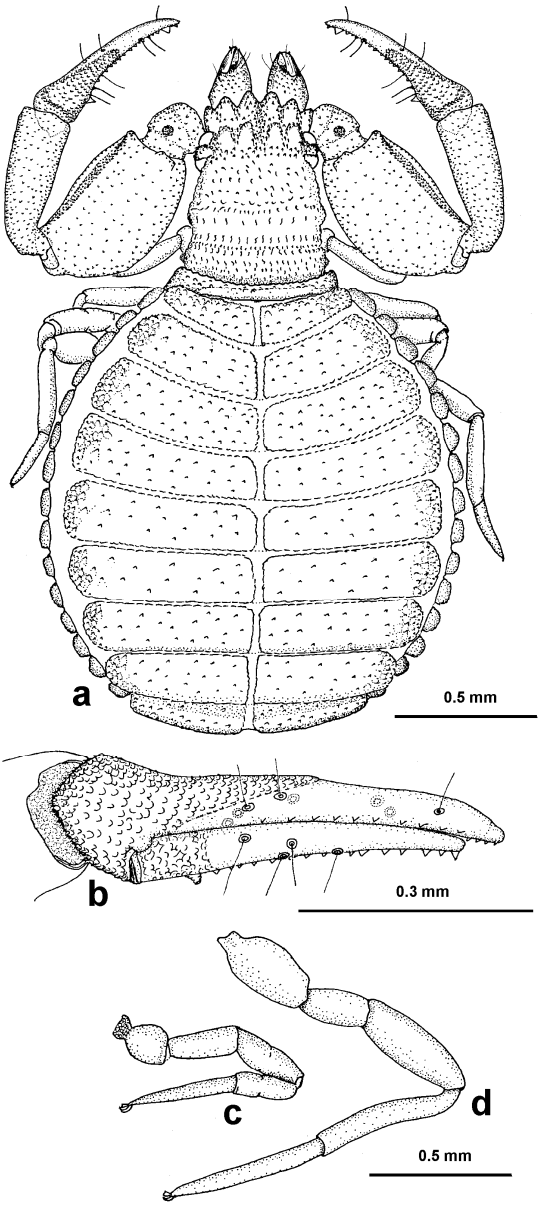

Fig. 1. *Feaella jocquei* **sp.n.**, holotypus: **a**.– habitus; **b**.– chela, antiaxal lateral view; **c**.– leg I; **d**.– leg IV.

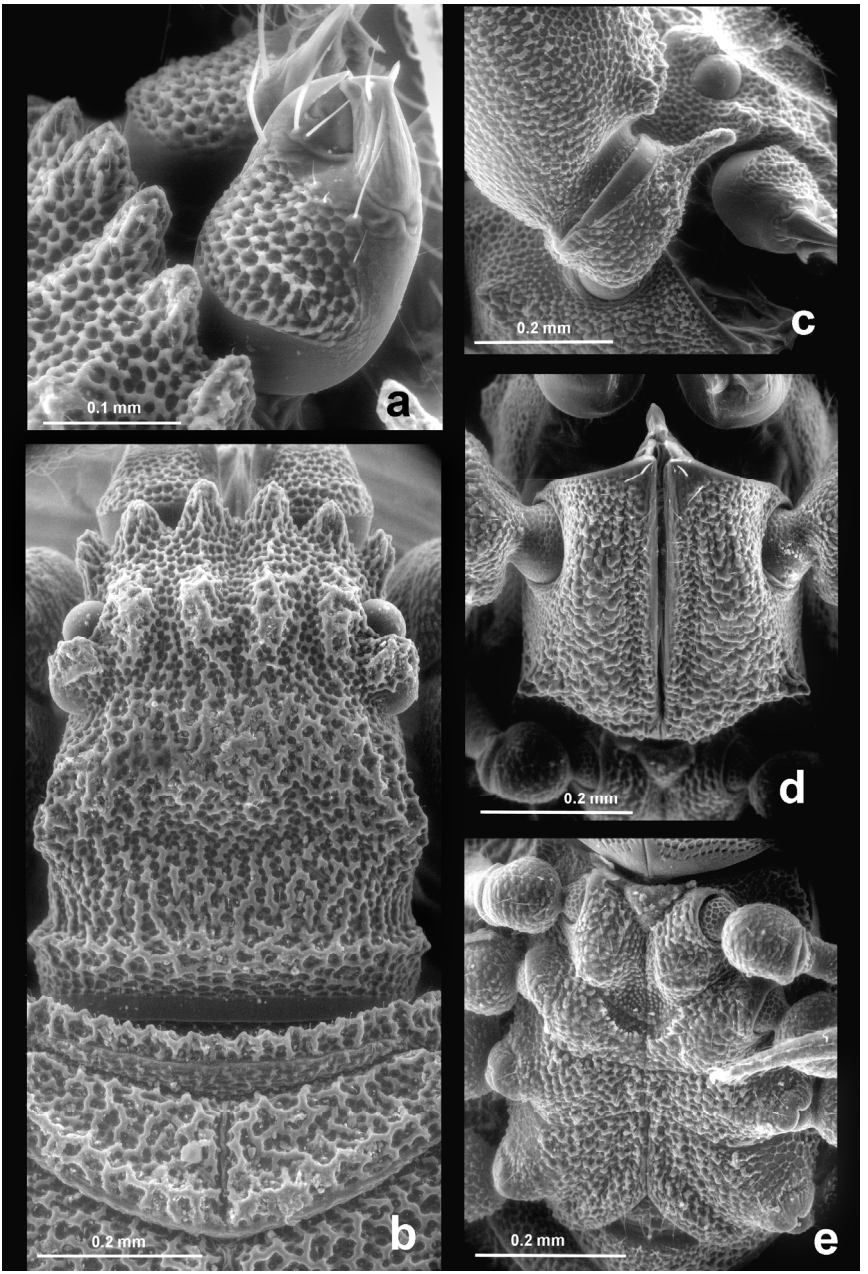

Fig. 2. *Feaella jocquei* **sp.n.**, holotypus, ESEM microscopy: **a**.– right celicera; **b**.– carapace, first and second tergite; **c**.– trochanter, lateral; **d**.– coxa of pedipalp; **e**.– coxa of legs.

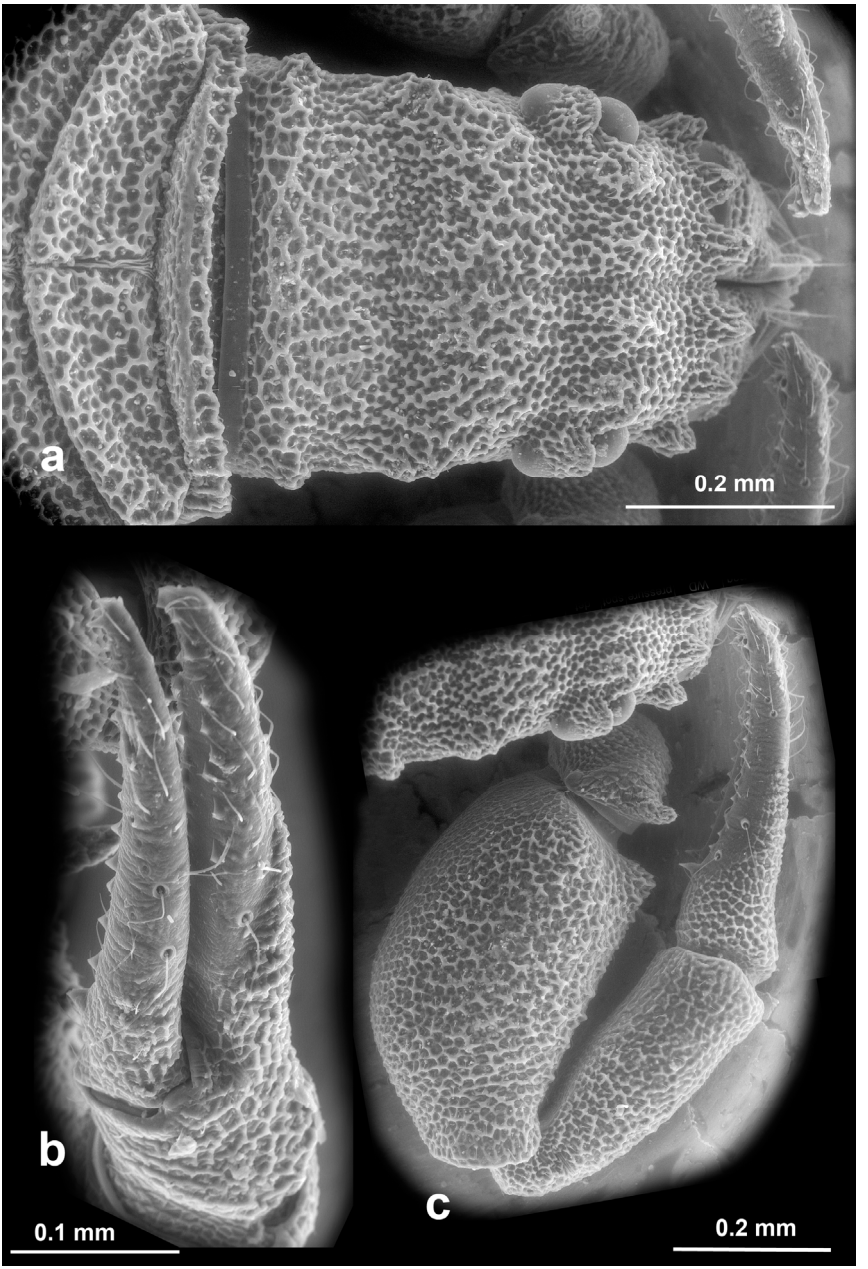

Fig. 3. *Feaella jocquei* **sp. n.**, tritonymph, ESEM microscopy: **a**.– carapace and first tergites; **b**.– chela, antiaxal lateral view; **c**.– right pedipalp, dorsal view

Feaella (*Feaella*) *mombasica* has such a tubular structure on the trochanter, but unlike *F. mombasica* the new species has a completely split second tergite pair. The frontal eyes of *F. mombasica* are significant smaller compared to the second pair while both pairs of eyes of *F. jocquei* **sp. n.** are the same size. *F. jocquei* **sp. n.** is larger than *F. mombasica* and the chelae are less slender. The tritonymph in sample 209.608 from the same location and date has analogue characteristics and will be subject to future examination.

Biology

F. jocquei **sp. n.** was sieved from litter in an *Acacia-Commiphora* forest, *F. mirabilis* is exclusively corticole (under bark) (Heurtault-Rossi & Jézéquel 1965) and *F. mombasica* occurs in litter under bushes near the sea (Beier 1955). The ability to occupy different ecological niches can contribute to the formation of new species.

Distribution

Found on the type locality (Tsavo, Kenya) only. The presence of a new *Feaella* species in Tsavo that is taxonomically and geographically close (190 km) to *Feaella mombasica* from Bamburi Beach, Mombasa, confirms that *Feaella* populations in Africa can present high endemism.

Acknowledgements

The author is grateful to Dr Rudy Jocque (Royal Museum for Central Africa) who offered valuable help and access to the arachnid collections, to Dr Herman Goethals and Julien Cillis (Royal Belgian Institute of Natural Sciences, Brussel) for support with the FEI Quanta-200 electron microscope.

References

Beier, M. 1955. Pseudoscorpionidea, gesammelt während der schwedischen Expeditionen nach Ostafrika 1937-38 und 1948. — *Arkiv för Zoologi* (2)**7**: 527–558.

Beier, M. 1966. Ergänzungen zur Pseudoscorpioniden-Fauna des südlichen Afrika. — *Annals of the Natal Museum* **18**: 455–470.

Ellingsen, E. 1906. Report on the pseudoscorpions of the Guinea Coast (Africa) collected by Leonardo Fea. — *Annali del Museo Civico di Storia Naturale di Genova* (3)**2**: 243–265.

Heurtault-Rossi, J. and Jézéquel, J. F. 1965. Observations sur *Feaella mirabilis* Ell. (Arachnide, Pseudoscorpion). Les chélicères et les pattes-mâchoires des nymphes et des adultes. Description de l'appareil reproducteur. — *Bulletin du Muséum National d'Histoire Naturelle*, Paris (2) **37**: 450–461.

Murienne, J., Harvey, M. S., Giribet, G. 2008. First molecular phylogeny of the major clades of Pseudoscorpiones (Arthropoda: Chelicerata). — *Molecular Phylogenetics and Evolution* **49**: 170–184.