A New Species of Afrarchaea (Araneae: Archaeidae) from South Africa

Author: Lotz, Leon N.

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A new species of *Afrarchaea* (Araneae: Archaeidae) from South Africa

Leon N. Lotz

Department of Arachnology, National Museum, Bloemfontein, P.O. Box 266, Bloemfontein, 9300 South Africa; arachnol@nasmus.co.za

ABSTRACT

The Archaeidae is a small family of very rare spiders represented by one genus and twelve species in southern Africa. A new species of *Afrarchaea* from KwaZulu-Natal, South Africa (*A. ansieae* sp. n.) is described here.

KEY WORDS: Afrotropical Region, KwaZulu-Natal, litter, spiders.

INTRODUCTION

The Archaeidae is a small family of very rare spiders represented by four genera and 70 extant species known only from southern Africa, Madagascar and Australia (World Spider Catalog 2014). Two genera are known from the Afrotropical Region, *Eriauchenius* O.P.-Cambridge, 1881 and *Afrarchaea* Forster & Platnick, 1984. The archaeids are very small, free-living cryptozoic hunters, easily recognised by the long raised cephalic region and elongated chelicerae (Figs 1–3). Forster (1956), Forster and Platnick (1984), Harvey (2002) and Rix and Harvey (2011, 2012*a*, *b*) described the Australian species; Legendre (1970), Millot (1948), O.P.-Cambridge (1881), Platnick (1991) and Wood (2008) described species from Madagascar; and Hewitt (1919) and Lotz (1996, 2003, 2006) described species from South Africa and Madagascar.

From South Africa 12 *Afrarchaea* species are presently recognised (World Spider Catalog 2014). Using morphological, molecular and behavioural data, Wood *et al*. (2015) found that the genus *Eriauchenius* is endemic to Madagascar and the genus *Afrarchaea* endemic to South Africa. In this study a new species of *Afrarchaea*, from the coastal parts of KwaZulu-Natal Province in South Africa, is described.

MATERIAL AND METHODS

The specimens studied are housed in the collection of the National Museum, Bloemfontein, South Africa (NMBA). An eyepiece micrometer was used for the measurements. The epigyne was removed and studied, drawn mounted in Heinze's modified PVA mounting medium (Meyer & Rodrigues 1966), and then returned to 70% alcohol. The specimens were studied, measured and drawn with a camera lucida in 70% alcohol with the aid of a Wild stereo-compound microscope. Drawings were redrawn with Coral Draw X4. Habitus photographs were taken through the same microscope with a Nikon Coolpix 5400 digital camera. All measurements are given in millimetres (mm). Terminology follows Lotz (1996).

Abbreviations: AME – anterior median eyes; CH – cephalothorax height; CL – cephalothorax length; CH/CL – ratio of carapace height to carapace length; CW – cephalothorax width; TL – total length.

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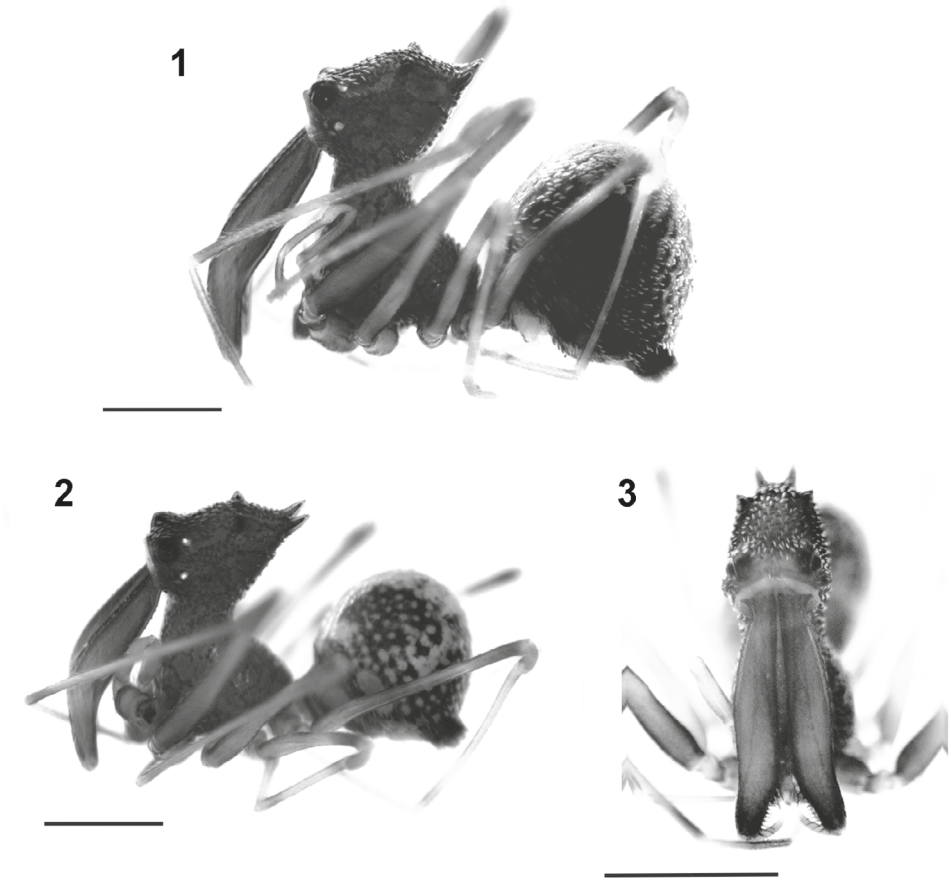


Figs 1–3. *Afrarchaea ansieae* sp. n.: (1) female, lateral view; (2–3) male, lateral and frontal view. Scale bars = 1 mm.

TAXONOMY

Afrarchaea Forster & Platnick, 1984

Diagnosis: South African *Afrarchaea* was separated from *Eriauchenius* by Wood *et al*. (2015) on the basis of a molecular phylogeny. Forster and Platnick (1984) distinguished *Afrarchaea* from *Archaea* Koch & Berendt, 1854 (including *Eriauchenius*, which they treated as a synonym) by the absence of a narrow "neck" between the cephalic region and the pars cephalica and the different form of the female genitalia (see also Wood 2008), and from *Eoarchaea* Platnick & Forster, 1984 by the more pronounced elevation of the pars cephalica.

Description: In *Afrarchaea*, the CH/CL ratio ranges from 1.17 to 1.92. Cephalothorax reddish-brown with rows of granular tubercles; each tubercle with one white recumbent flattened ciliate hair. Eyes in two rows; AME largest; ALE and PLE contiguous; MOQ wider than long, narrower posteriorly than anteriorly; clypeus about diameter

of AME. Chelicerae long, curved posteriorly near apex, medially thickened; base of chelicerae constricted before entering cheliceral foramen; promargin with numerous peg teeth; retromargin of fang furrow with or without true teeth; long, strong hair arises anteromedially on each chelicera near base. Stridulatory ridges on chelicerae and on dorsal side of sclerotised petiolus. Endites with weak serrula in all species; sternum long and linked to carapace by sclerotised strips between coxae. Legs brown, long, thin, evenly covered in adpressed hairs; metatarsus III with a brush of serrated bristles. Similar brush of serrated bristles present prolaterally on female palpal tarsi and male cymbia. Leg formula 1:4:2:3. Abdomen with long club-like hairs; lower than pars cephalic region, cuticle relatively thick. Six spinnerets, medians very small; anterior and posterior spinnerets short, blunt, with two segments each; spinnerets encircled by sclerotised ring.

Afrarchaea ansieae sp. n.

Figs 1–7

Etymology: The species is named in honour of Dr Ansie Dippenaar-Schoeman, for her dedication to the study of South African spiders.

Diagnosis: *Afrarchaea ansieae* sp. n. is similar to *A. cornutus* (Lotz, 2003) in the relatively long neck (CH/CL ratio > 1.55; < 1.4 in most other *Afrarchaea* species), and by the two pairs of distinct horns on the pars cephalica (in most other *Afrarchaea* species represented by stout setae or stout setae on slight mounds), but can be distinguished by the more triangular keel of the female genitalia, and the smaller apophysis of the male palp (Figs 4–7). The males can also be distinguished by the absence of an indentation in the distal part of the chelicerae (Fig. 3).

Description: *Female*: Size: TL = 2.5; CW = 0.8; CH = 1.8; CL = 1.1.
Cephalothorax (Fig. 1): Two pairs of distinct horns on pars cephalica and a large tubercle next to each AME; neck between pars cephalica and pars thoracica with a CH/CL ratio of 1.64. Chelicerae with 28 peg teeth.

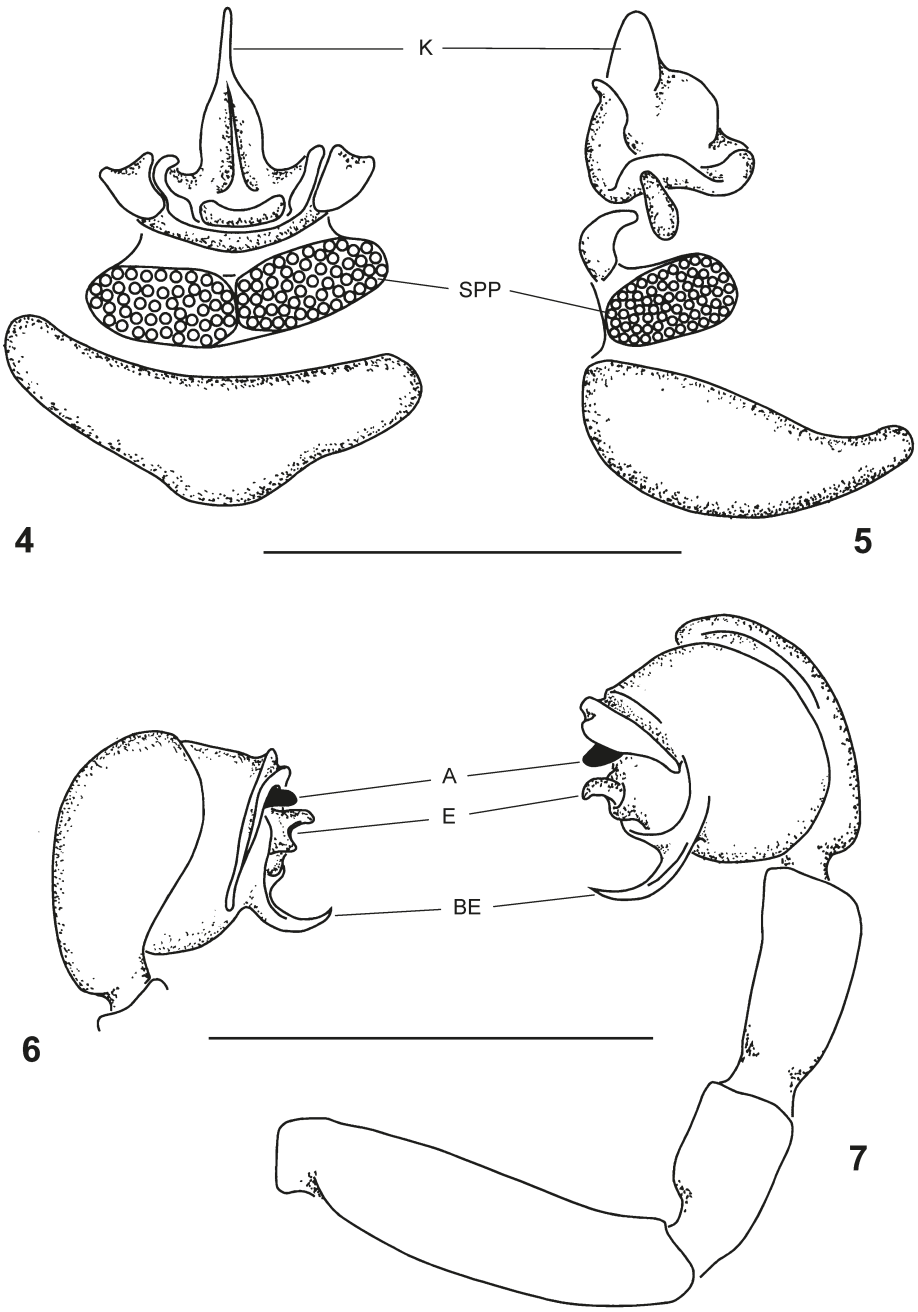
Length of leg segments:

	I	II	III	IV	Palp
Femur	2.1	1.6	1.1	1.7	0.5
Patella	0.6	0.3	0.3	0.3	0.2
Tibia	1.9	1.4	0.8	1.3	0.4
Metatarsus	1.0	0.7	0.5	0.7	-
Tarsus	0.5	0.4	0.4	0.4	0.3
Total length	6.1	4.4	3.1	4.4	1.4

Abdomen (Fig. 1): round, lower than pars cephalic region; yellowish brown with mottled black markings.

Epigynum (Figs 4–5): triangular rounded; internal structure with two oblong secretary pore pouches meeting in the middle; keel-like structure, dorsal of secretary plate, triangular, broadly inverted T-shaped.

Male: Size: TL = 2.5; CW = 0.7; CH = 1.7; CL = 1.1.



Figs 4–7. *Afrarchaea ansieae* sp. n.: (4–5) female internal genitalia, (4) dorsal view, (5) lateral view; (6–7) male palp, (6) lateral view, (7) ventral view. Abbreviations: A = apophysis; BE = bulb extension; E = embolus; K = keel; SPP = secretary pore pouches. Scale bars: (4–5) = 0.3 mm; (6–7) = 0.5 mm.

Cephalothorax: as in female (Figs 2–3); CH/CL ratio = 1.55. Chelicerae with 28 peg teeth.

Length of leg segments:

	I	II	III	IV	Palp
Femur	2.0	1.6	1.2	1.7	0.5
Patella	0.6	0.3	0.3	0.3	0.2
Tibia	1.6	1.5	1.0	1.3	0.2
Metatarsus	1.1	0.6	0.5	0.7	-
Tarsus	0.5	0.5	0.3	0.4	0.3
Total length	5.8	4.5	3.3	4.4	1.2

Abdomen (Fig. 2): as in female.

Palps (Figs 6–7): Femur slightly longer than patella plus tibia; cymbium rounded, longer than wide; bulb large, rounded; embolus short, with short, rounded, sclerotised apophysis (referred to by Wood (2008) as the bulb dorsal sclerite, BDS); her bulb lateral sclerite (BLS) hidden under rim of bulb. Side of bulb with long, hooked, sharp extension (referred to by Wood (2008) as bulb proapical process, BPAP).

Holotype ♀ and Allotype ♂: SOUTH AFRICA: *KwaZulu-Natal*: Hlabisa, Greater St. Lucia Wetland Park, Eastern Shores Nature Reserve, 28°21'S 32°25'E, 3.vii.2007, leg. C.R. Haddad (NMBA 10466).

Distribution: Known only from the type locality in KwaZulu-Natal Province.

Habitat: Collected from grassland, in litter at the base of grass.

Phylogenetic relationships: Wood *et al.* (2015) included sequences from the holotype female (as *Afrarchaea* sp. 4, extraction hw0027) in their molecular phylogeny of predominantly Afrotropical Archaeidae. Their dated phylogeny and the total evidence phylogeny based on Bayesian analysis indicates with strong branch support that *A. ansieae* sp. n. is basal in a clade including all other *Afrarchaea* species, which were shown to be endemic to South Africa.

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