

**SPIDERS OF THE FAMILY HAHNIIDAE
FROM SULAWESI, INDONESIA
WITH REMARKS ON SYNONYMY AND ZOOGEOGRAPHY
(ARACHNIDA : ARANEAE : HAHNIIDAE)**

by

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SUMMARY

The author describes a new *Hahnia* and a new *Alistra* (Araneae : Hahniidae), collected during the Alfred Russel Wallace Commemorative Expedition to the Dumoga-Bone National Park in Sulawesi Utara, Indonesia. The synonymy of *Scotussa* SIMON, 1898 and *Muizenbergia* HEWITT, 1915 with *Hahnia* C.L. KOCH, 1841 is confirmed.

Keywords : Hahniidae, systematics, zoogeography, Sulawesi Utara.

INTRODUCTION

«Project Wallace», a major expedition to Sulawesi Utara (North Celebes, Indonesia), was organised by the Royal Entomological Society of London to commemorate its 150th anniversary and the centenary of its Royal Charter. Alfred Russel WALLACE was a former fellow of the Royal Entomological Society and his famous work in the Indo-Australasian Region is immortalised in the use of the name "Wallacea" for the faunal transition zone between Australasia and Asia. The forests of this region are extremely rich in species and those of Sulawesi are of particular interest because of the high levels of endemism for which the island is famous.

The expedition occupied the whole of 1985; the author participated during October and November. The expedition's base camp was situated in the Dumoga-Bone National Park just west of Kotamobagu. This is a large region of unspoiled rain forest ranging in altitude from 200 to 1800 m.

Among the rich spider fauna in the forest, species of the family Hahniidae were common especially in the litter layer, as were the Zodariidae, treated in a previous paper (BOSMANS and HILLYARD, 1990).

MATERIAL AND METHODS

Spiders were collected by pitfall trapping, sieving litter, sweeping vegetation and hand collecting.

Descriptions of species are as in BOSMANS and THIJIS (1980). Holotypes are deposited in the « Koninklijk Belgisch Instituut voor Natuurwetenschappen » (K.B.I.N.) in Brussels ; paratypes in the same institute, in the « Muséum national d'Histoire naturelle de Paris » (M.N.H.N.P.), and in the authors private collection (C.R.B.).

Abbreviations used in the descriptions are : Fe, Pa, Ti, Mt, Ta : Femur, patella, tibia, metatarsus and tarsus. AM, AL, PM, PL : anterior median, anterior lateral, posterior median and posterior lateral eyes.

Measurements are in mm.

DESCRIPTION OF SPECIES

Hahnia barbata sp. n.

(Fig. 1, 1-6)

Diagnosis :

Males of *Hahnia barbata* are easily distinguished by the row of bristles of the bulbus on the palp ; females are less readily distinguished by details in the vulva : the secondary receptacula larger than the primary, and the presence of four loops in the chitinous part of the copulation ducts.

Etymology :

The name refers to the bristles on the bulbus of the male palp.

Type material :

Holotype male : Indonesia, Sulawesi Utara, Dumoga-Bone national Park, trail near river Toraut (« 1440 trail ») :

— 400 m, pitfall in natural lowland rainforest, 5.XI.1985 ; deposited in K.B.I.N.

Paratypes : 10 males 2 females, same locality and date (K.B.I.N.) ;

— 200 m, 2 males 2 females in forest litter near river Toraut, 24.X.1985 (M.N.H.N.P.) ;

— 300 m, 2 males 2 females in pitfalls in rain forest, 24.X.1985 (C.R.B.) ;

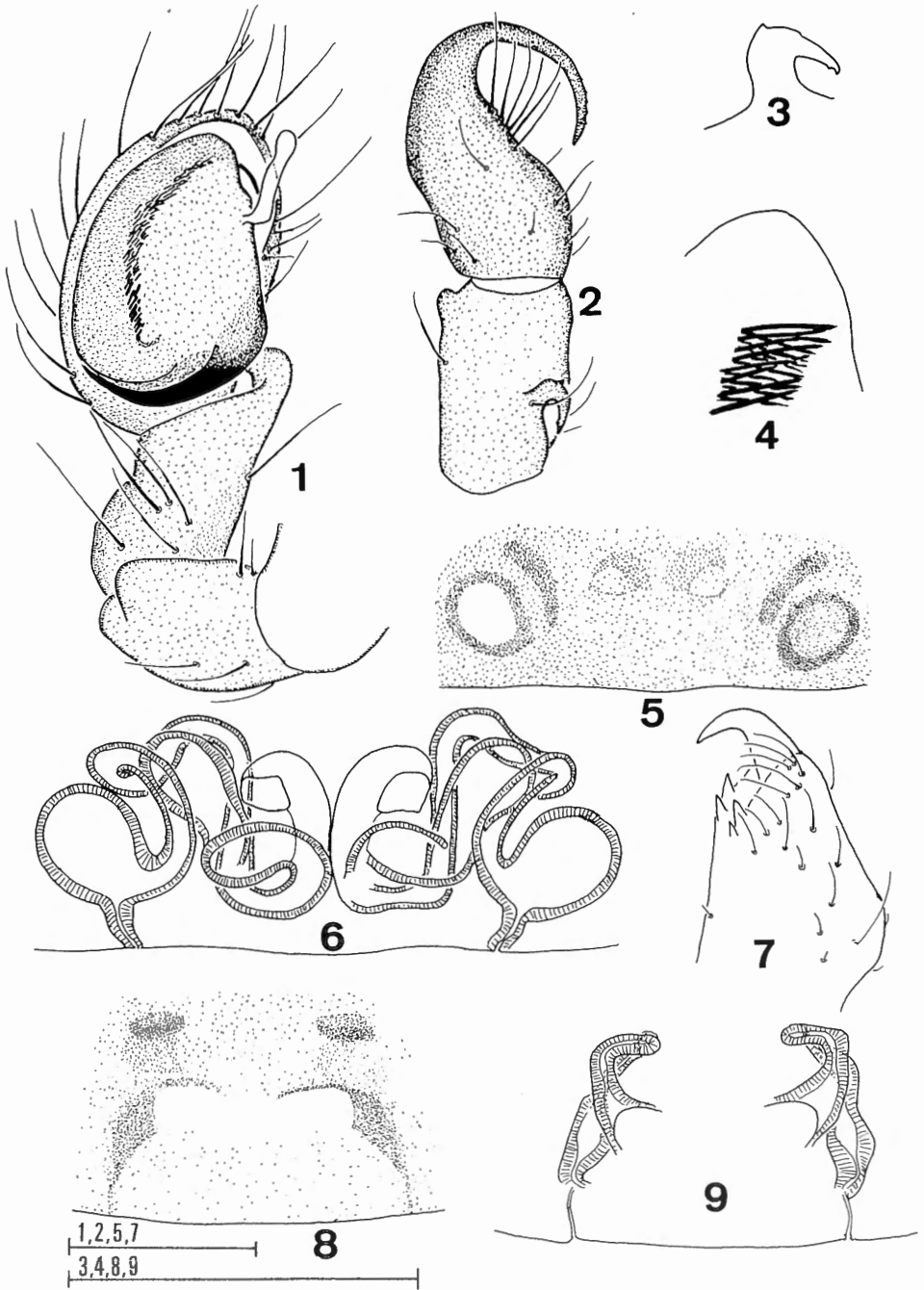


Fig. 1. — 1-6. *Hahnia barbata* sp. n. 1. Male palp, ventral view; 2. Femur and tibia of the male palp, lateral view; 3. Apophysis of male palpal femur, lateral view; 4. Detail of bristles on male palpal cymbium, dorso-lateral view. 5. Epigyne. 6. Vulva. Scale line : 0.2 mm. — 7-9. *Alistra sulawesensis* sp. n. 7. Right chelicera, frontal view; 8. Epigyne. 9. Vulva. Scale line : 0.2 mm.

- 660 m, 4 males 1 female in pitfall in rain forest, 24.X.1985 (C.R.B.);
 — 800 m, 4 males in pitfalls in rain forest, 24.X.1985 (C.R.B.).

Description :

Male holotype : Measurements : Total length 2.16 (1.96-2.32); prosoma 1.20 (0.96-1.20) long, 0.80 (0.96-1.20) wide; chelicerae 0.50 long; sternum 0.67 long, 0.64 wide.

Colour : Prosoma greyish to chocolate brown, with darkened striae, fovea and margin, and wide submarginal yellowish-brown stripe. Chelicerae yellowish brown suffused with grey. Sternum yellowish brown with darkened margin. Legs yellowish brown, Fe, Ti and Mt each with two greyish-brown annulations. Abdomen dorsally grey to dark grey, with 5 pairs of oblique chevrons, the posteriors generally interconnected; ventrally paler in the middle. Outer and intermediate spinnerets greyish brown with pale yellowish base and tip, inner spinnerets yellowish brown.

Prosoma : With shallow medio-dorsal concavity in lateral view. Clypeus as wide as the diameter of the AM. Eyes closely set, all separated by less than their radius. Median ocular quadrangle 0.75 × wider posteriorly than anteriorly, and 0.9 × as wide as long.

Chelicerae : With three anterior and 6 posterior teeth in fang groove; stridulating file indistinct.

Legs : Fe with 1 dorsal spine, Fe I with an additional prolateral spine. Ti I-II with 2 dorsal and 1 prolateral spine, Ti III-IV with two additional ventral spines. Measurements (holotype) :

	Fe	Pa	Ti	Mt	Ta
I	0.84	0.36	0.71	0.69	0.50
IV	0.93	0.34	0.72	0.81	0.58

Abdomen : Spiraculum closer to the epigastric furrow than to the spinnerets (ratio : distance epigastric furrow — spiraculum to distance epigastric furrow — spinnerets equals 0.31). Spinnerets on a slightly curved row, distal segment of outer spinnerets slightly shorter than basal one.

Palp (Fig. 1, 1-4) : Femur with hooked baso-lateral apophysis, provided with two denticles, and lobed antero-mesal apophysis. Tibia elongate, longer than wide, with long, semi-circular spur, gradually narrowing and with minute denticles. Cymbium rounded anteriorly, not much longer than bulbus. Bulbus oval, with a distinct curved row of bristles; embolus encircling the bulbus, reaching slightly further than the membranous conductor.

Female : Measurements : Total length 2.36-2.76; carapace 1.10-1.29 long, 0.88-0.94 wide.

Colour and general appearance as in the male.

Epigyne (Fig. 1, 5) : Without outer chitinous structures. Generally rather dark, with ducts or spermathecae hardly shining through; in paler specimens the secondary spermathecae and one oblique duct are visible.

Vulva (Fig. 1, 6) : Copulation openings situated in the antero-median part of the epigyne. Non-chitinous entrance duct short, consisting of only one loop; bifurcation point connected by one loop of the chitinous copulation duct to the oval primary receptacula, and by four loops to the rounded and larger secondary receptacula.

Distribution and ecology :

Only known from Sulawesi Utara, where it is common in litter of lowland forests. It occurred up to 800 meters, and was absent from samples taken at higher altitudes.

Remarks :

The row of bristles on the male bulbus is very peculiar. Besides in this species, it is only known to occur in the European *H. ononidum* SIMON, but in this species it is much shorter and even difficult to perceive. A male *Hahnia* from Sumatra sent to me by C. Deeleman-Reinhold shows however a similar row of even longer bristles than in *H. barbata* sp. n.

Alistra sulawesensis sp. n.

(Fig. 1, 7-9)

Diagnosis :

This species differs from other *Alistra* species by the contrasting colour pattern of the abdomen and by the vulva with reduced primary receptacula and elongate secondary receptacula.

Etymology :

The species is named after the type locality.

Type material :

Holotype female : Indonesia, Sulawesi Utara, Dumoga-Bone National Park, Lake Mooat, 1100 m, plantation, 28.X.1985; deposited in K.B.I.N.

Description :

Female : Measurements : Total length 2.38; prosoma 0.98 long, 0.76 wide.

Colour : Prosoma reddish brown, margin and striae greyish ; chelicerae yellowish brown with grey spots ; sternum yellowish brown suffused with grey ; legs yellowish brown, tibiae with two greyish annulations, femora with traces of annulations ; abdomen grey, a broad lateral band, dorsally encircling spinnerets and pedicel, is dark grey speckled with pale grey. Spinnerets yellowish white, except for the greyish-black distal segments of the outer spinnerets.

Prosoma : Pear-shaped. Clypeus slightly wider than the diameter of the AM. Eyes equal, AM separated by $\frac{2}{3}$ their diameter, from the AL by their radius ; PM separated by 1.5 their diameter, from the PL by 0.95 their diameter.

Chelicerae (Fig. 1, 7) : With anterior boss, and with 2 anterior and 2 posterior teeth in fang groove. No stridulating file observed.

Legs : With very long hairs, often difficult to distinguish from spines. Fe I with one prolateral spine ; Ti with 1 dorsal spine. Measurements :

	Fe	Pa	Ti	Mt	Ta
I	0.88	0.30	0.70	0.57	0.48
IV	0.96	0.28	0.90	0.54	0.52

Abdomen : Spiraculum situated closer to the spinnerets than to the epigastric furrow (ratio : distance epigastric furrow — spiraculum to distance epigastric furrow — spinnerets equals 0.66). Spinnerets on a slightly curved row, very long ; measurements : outer spinneret : 0.74, with segments respectively 0.35, 0.19 and 0.24 long ; intermediate : 0.36 ; inner : 0.30.

Epigyne (Fig 1, 8) : Without external chitinisations, representing a median transverse pale spot, flanked by two darkened oblique stripes, widened in the middle.

Vulva (Fig. 1, 9) : Copulation openings situated in the medio-lateral part of the epigyne, connected by a short, anteriorly directed chitinised duct to the hardly thickened primary receptacula, then by a posteriorly directed duct to the elongate secondary receptacula.

Distribution :

Only known from the type locality.

DISCUSSION

The Hahniidae collected in the Dumoga Bone National Park belong to the genera *Hahnia* and *Alistra*.

Species from all over the world have been placed in the genus *Hahnia*. As many of the exotic species were placed in the genus only according to the relative size of

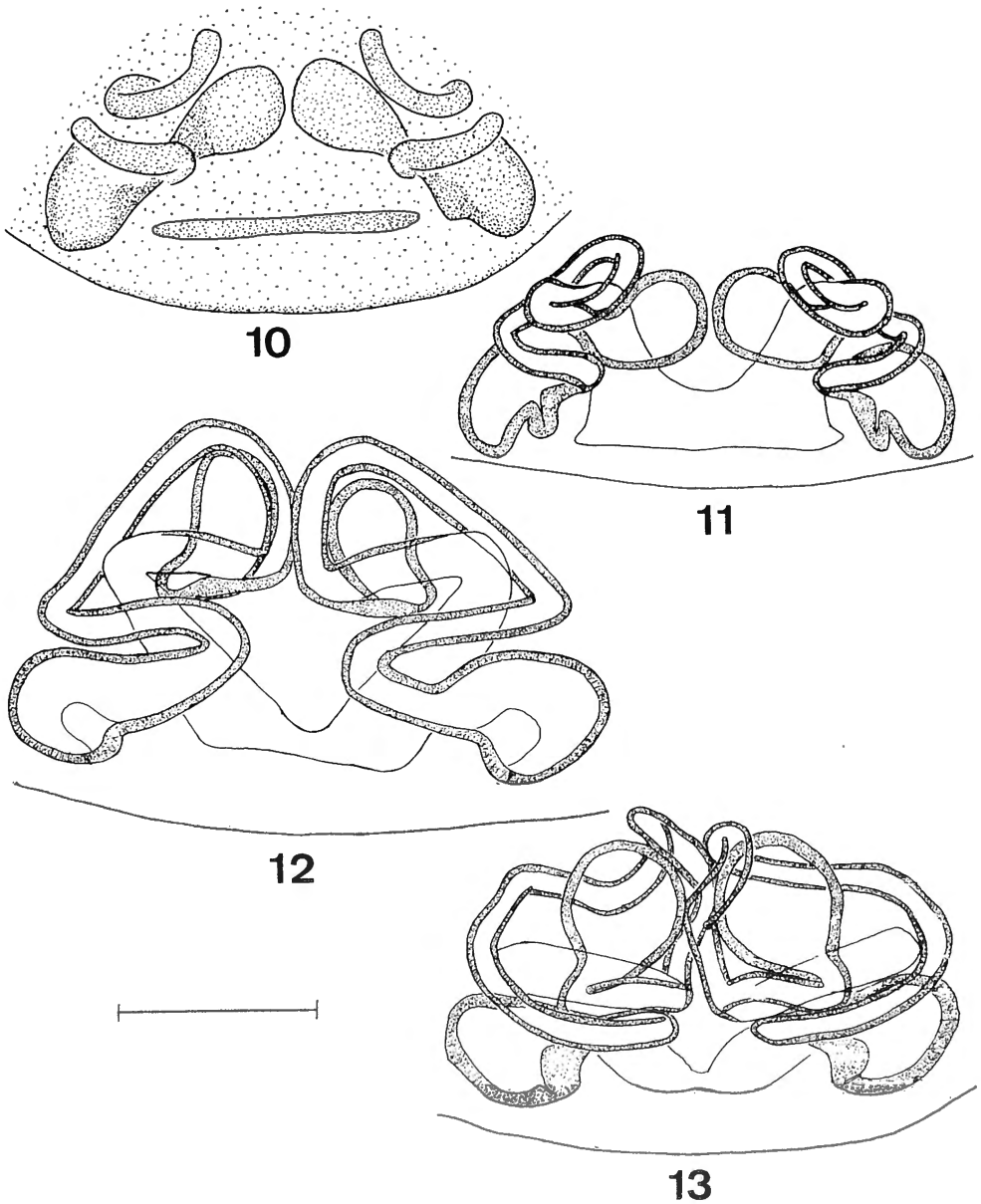


Fig. 2. — 10-11. *Hahnia zodarioides* (SIMON). 10. Epigyne, ventral view ; 11. Vulva, ventral view. — 12. *Hahnia abrahami* (HEWITT) : vulva, ventral view. — 13. *Hahnia eidmanni* (ROEWER) : vulva, ventral view. Scale line : 0.1 mm.

the anterior median eyes, and drawings of the genital organs of these exotic species were never published, this has to be completely reconsidered. LEHTINEN (1967)

already transferred some species to other genera, and limited the distribution area of *Hahnia* to the holarctic-neotropical region. But to my knowledge, not one of the neotropical species is adequately illustrated to prove its generic position, and the presence in this region of *Hahnia* remains to be confirmed.

LEHTINEN (1967) claimed the afrotropical genus *Muizenbergia* HEWITT, 1915 to be a distinct genus and considered *Scotussa* SIMON 1898 and *Hahniops* ROEWER, 1947 as junior synonyms. Apart from the fact that *Scotussa* SIMON, 1898 is the senior synonym and should have priority over *Muizenbergia* HEWITT, 1915, we disagree with LEHTINEN'S point of view. The following (type) specimens were examined :

- 1 male 1 female of *Hahnia pusilla* C. L. KOCH, Houthulst, Belgium (type species of *Hahnia* ; C.R.B.) ;
- Holotype female of *Scotussa zodarioides* SIMON, Cape of Good Hope, (M.N.H.N.P. 18560) ;
- One female of *Muizenbergia abrahami* HEWITT (Natal Museum, Pietermaritzburg) ;
- Holotype female of *Hahniops eidmanni* ROEWER, Fernando Poo, Pic Isabel (Forschungsinstitut Senckenberg, Frankfurt am Main).

Fig. 2 (10-13) shows epigyne and/or vulva of *Scotussa zodarioides* (illustrated for the first time here), *Muizenbergia abrahami* and *Hahniops eidmanni*. All show the typical copulatory openings, entrance ducts, connecting ducts, primary and secondary receptacula, all present in the type species of *Hahnia* as well. We consider them all as valid *Hahnia* species, and the three genera are therefore considered synonyms of *Hahnia*. This was already confirmed by me for the genus *Hahniops* (BOSMANS 1980), but not yet for *Muizenbergia* and *Scotussa*. Subsequently, we described several new species from tropical Africa in the genus *Hahnia* (BOSMANS and THUIS 1980, BOSMANS 1981, 1982a-b, 1986, 1987, JOCQUÉ and BOSMANS 1982). A part of this point of view was recently and independently confirmed by LEDOUX (1991). After having studied the species *Hahnia crozetensis* HICKMANN from the Island Crozet, LEDOUX synonymised *Muizenbergia* with *Hahnia*. In this paper we further confirm the synonymy of *Scotussa* with *Hahnia*.

The genus *Hahnia* thus has most probably a holarctic-afrotropical distribution, and *Hahnia barbata* sp. n. represents a palaeotropical element of the fauna of Sulawesi.

The genus *Alistra*, THORELL 1894 on the other hand has according to LEHTINEN (1967) an oriental-australian distribution. He considered *Aviola* SIMON, 1898, *Bigois* SIMON, 1898 and *Nanonymphaea* RAINBOW, 1920 as junior synonyms. The genus is mainly diagnosed by the simple genital organs : short patellar and tibial apophyses in the male palp ; short entrance and connecting ducts and reduced primary receptacula in the female vulva. *Alistra sulawesensis* sp. n. represents an indo-australian element of the fauna of Sulawesi.

So far, two Hahniidae are known to occur in Sulawesi Utara : *Hahnia barbata* sp. n., a palaeartic-afrotropical element, and *Alistra sulawesensis* sp. n., an indo-

australian element. Once more, the diversity of the fauna of Sulawesi and the mixture of elements from different zoogeographical regions is proved.

Whereas *Hahnia* species inhabit the litter layer of forests and bushes, *Alistra* species seem to live on leaves and branches of trees. This was indicated by BRIGNOLI (1986) in his description of *Alistra mendanai* from the Solomon islands, in the present paper for *Alistra sulawesensis* sp. n., and by Dr. DEELEMEN-REINHOLD *in litteris*.

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