

# Three new species of *Paraethus* LIS, 1994, and transfer of *Aethus seyidiensis* JEANNEL, 1913, to this genus (Heteroptera, Cydnidae)\*

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## Abstract

Three new Geotomine species of the genus *Paraethus* LIS, 1994, have been discovered in the collection of the Muséum national d'Histoire Naturelle (Paris). Description of these species, *Paraethus riegeri* n. sp. and *P. raunoi* n. sp. from Africa and *P. lisi* n. sp. from Australia are given with illustration of male and female genitalia. The African species *Aethus seyidiensis* JEANNEL, 1913, is transferred to *Paraethus*. New localities are given for this species. Additional generic characters are given for *Paraethus* as well as a key to species of the genus.

## Kurzfassung

### Drei neue Arten von *Paraethus* LIS, 1944, und Transfer von *Aethus seyidiensis* JEANNEL, 1813, in diese Gattung (Heteroptera, Cydnidae)

Drei neue Geotomine-Arten der Gattung *Paraethus* LIS, 1994, wurden in der Sammlung des Muséum national d'Histoire Naturelle (Paris) festgestellt. Die Arten *Paraethus riegeri* n. sp. und *P. raunoi* n. sp. aus Afrika und *P. lisi* n. sp. von Australien werden beschrieben, und die männlichen und weiblichen Genitalien werden abgebildet. Die afrikanische Art *Aethus seyidiensis* JEANNEL, 1913, wird zu *Paraethus* gestellt. Für diese Art werden neue Fundorte mitgeteilt. Für *Paraethus* werden zusätzliche Gattungsmerkmale aufgeführt sowie ein Schlüssel für die Arten der Gattung aufgestellt.

## Résumé

### Trois nouvelles espèces de *Paraethus* LIS, 1994, et transfert de *Aethus seyidiensis* JEANNEL, 1913, dans ce genre (Heteroptera, Cydnidae)

Trois espèces nouvelles pour le genre *Paraethus* LIS, 1994, ont été découvertes dans les collections du Muséum national d'Histoire Naturelle. La description de ces espèces, *Paraethus riegeri* n. sp. et *P. raunoi* n. sp. provenant d'Afrique et *P. lisi* n. sp. provenant d'Australie est donnée, avec l'illustration des genitalia mâles et femelles. L'espèce africaine *Aethus seyidiensis* JEANNEL, 1913, est transférée dans le genre *Paraethus*. De nouvelles localités sont données pour cette espèce. Les caractères génériques de *Paraethus* sont réexaminés et une clé des espèces du genre est donnée.

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## Introduction

The genus *Paraethus* has been erected by LIS (1994) for a single Indian geotomine species, *P. ajmericus* LIS, 1994. According to him, *Paraethus* could be readily distinguished at once from all other geotomine genera by the posterior margin of the peritremal apex with a claw-like tooth, the hind tibia conspicuously compressed and the head bearing both peg-kile and hair-like setae in a submarginal row. Later (1995), he added a new species from Java, *Paraethus jani* LIS, 1995, and transferred four species from the genus *Aethus* DALLAS to *Paraethus*, *P. capicola* (WESTWOOD, 1837), *P. saprinoides* GERSTAECKER, 1873, *P. lucidus* LINNAVUORI, 1977, and *P. laevis* WAGNER, 1951. The transfer of this fourth species was based on the examination by LIS of specimens from the MNHN which were misidentified by LINNAVUORI (1977). Recognized later as an undescribed species it was then described under the name of *P. sigwalti* LIS, 1996. Eventually LIS (1996b) transferred a fifth African species from *Aethus*, *A. splendidus* LINNAVUORI, 1993. Nothing new has been added to the genus knowledge since; the catalog of LIS (1999) just summarizes this data. *Paraethus* does not appear in its supplement (LIS 2002).

During the study of an important unidentified material of African Cydnidae preserved in the Muséum d'histoire naturelle (Paris), some specimens have been identified as new species belonging to the genus *Paraethus*. This paper describes three new species, *P. riegeri* n. sp., *P. raunoi* n. sp. from Africa and *P. lisi* n. sp. from Australia. In addition, examination of the holotype and several specimens of *Aethus seyidiensis* JEANNEL, 1913, lead to propose the transfer of this species to the genus *Paraethus*.

\* It is my pleasure to dedicate this work to our colleague CHRISTIAN RIEGER, in recognition of his very important contribution to the knowledge of Heteroptera.

## Material and methods

Pygophore and female abdomen were dissected after clearing in cold 10 % potassium hydroxide for several hours. Examination of genitalia was conducted in glycerol using a semi-covered cavity slide as described in DOESBURG (2004).

The terminology used in LINNAVUORI (1993) has been kept to describe the male genitalia, the one used in PLUOT-SIGWALT & LIS (2008) for the female genitalia and that of KMENT & VILIMOVÁ (2010) for the thoracic scent efferent system.

Abbreviations: MNHN: Muséum National d'Histoire Naturelle (Paris); Coll. PhM: Collection PHILIPPE MAGNIEN.

## Systematic part

Genus *Paraethus* LIS, 1994

*Paraethus* LIS, 1994: 248

*Paraethus* LIS: LIS 1999: 213 (catalog)

*Paraethus* LIS: PLUOT-SIGWALT & LIS (2008): 293 (spermatheca)

## Diagnosis revised

The genus *Paraethus* is best diagnosed by the set of following characters: The antennae 5-segmented; the head bearing both peg-like and hair like setae in a submarginal row (figs. 1, 4, 7); the anterior margin of the pronotum angularly insinuated in the middle; the pronotum umbones not swollen; the apex of the vestibulum (peritrema<sup>1</sup> of several authors) of the metathoracic gland with a claw-like spur pointing laterally (figs. 3, 6, 9-10); the posterior tibiae conspicuously flattened. Intermediate part of the spermatheca swollen and flanges greatly developed, spermathecal opening in front of a triangular sclerotized fold of the dorsal wall of the vagina (figs. 26-31) ♂.

## Discussion

Save for the spermatheca, all those characters were already in the description of the genus made by LIS (1994). The setigerous punctures of the clypeus indicated in the original diagnosis appeared to be a character restricted to *P. ajmericus* LIS, 1994 and has consequently been withdrawn from the diagnosis.

The characters relative to the spermatheca were not in the original description. They have been

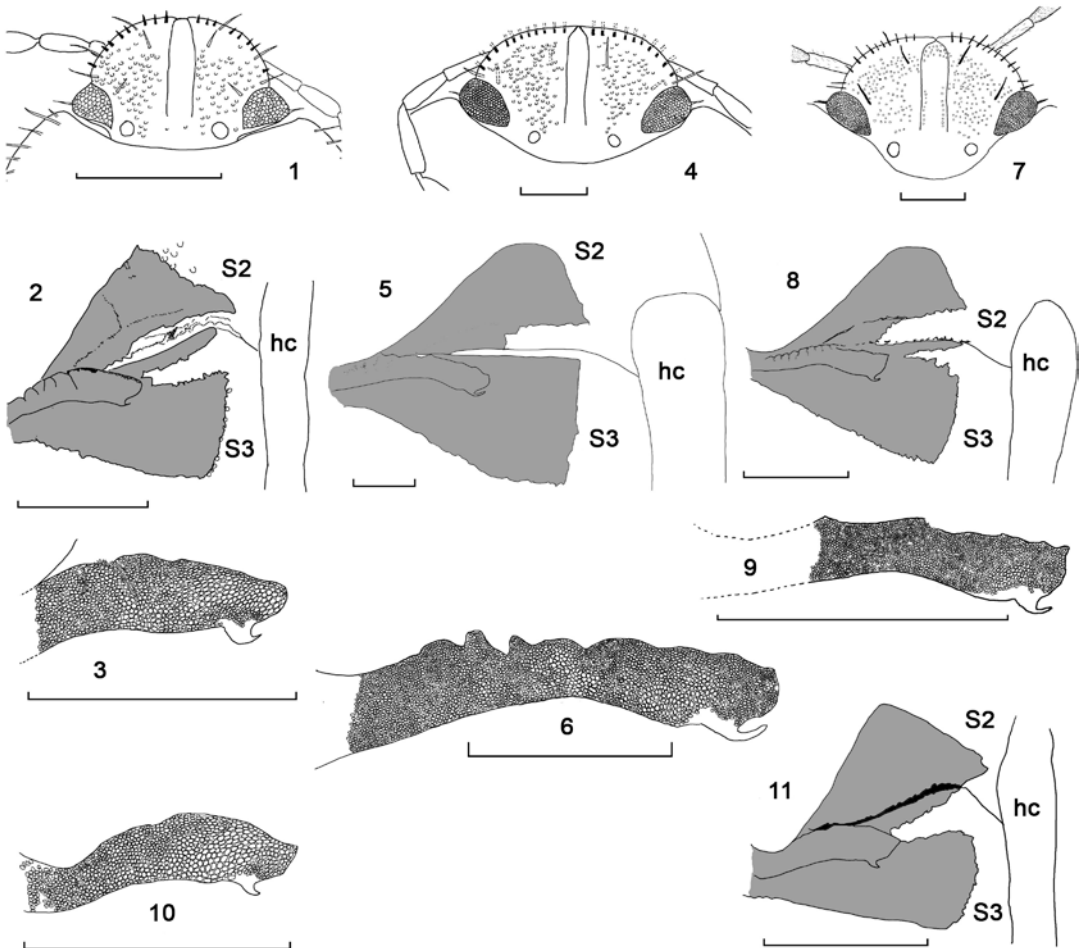
brought forward by PLUOT-SIGWALT & LIS (2008) in their paper relative to the spermatheca of Cydnidae and have been verified in the present work for all the African species of the genus, as well as in *P. lisi* n. sp. Precise examination of the dorsal wall of the vagina reveals that the sclerotized area quoted in their paper consists in a arrowhead-shaped fold of the dorsal wall, more or less sclerotized on both sides. Shared with the genus *Geocnethus* HORVÁTH, considered by LIS (1994) as possibly related to *Paraethus*, these spermathecal characters are clearly different from those seen in the genus *Aethus*.

The presence of spines on the head margin allow an easy separation from genus *Geocnethus*, the claw-like spur from *Aethus*. Furthermore, as indicated in LIS (1996b), it appears that the evaporatorium is bilobate in all the species of the genus, being interrupted by a shiny stripe between meso- and metapleuron, starting about the apex of vestibulum. On the contrary in the genus *Aethus* the evaporatoria are compact, interrupted. This fairly conspicuous feature gives an easy mean of separation between the two genera, whereas observation of the flattening of hind femur and worse of the shape of the apex of vestibulum is not always easy on collection specimens. However, this character has only a practical use, it cannot be considered as generic because this polished band is on the mesopleuron in some species, on the metapleuron in the other, and is therefore not homologous.

## Key to the species of *Paraethus*

- 1 Fore tibia presenting a short process surpassing tarsus insertion (figs. 13-14) . . . . . 2
  - Fore tibia without process (fig. 12) . . . . . 3
- 2 Clypeus free, each paraclypeus with 10-11 peg-like setae, from Java. . . . . *jani* LIS, 1995
  - Clypeus enclosed, each paraclypeus with 8 peg-like setae, from Australia . . . . . *lisi* n. sp.
- 3 Clypeus apically with two setigerous punctures. . . . . *ajmericus* LIS, 1994
  - Clypeus apically without setigerous punctures . 4
- 4 Costal margin of elytra elevated . . . . . 6
  - Costal margin elevated at most at base. . . . 5
- 5 Smaller species (5.5 mm) . . . . .
  - . . . . . *lucidus* (LINNAVUORI, 1977)
  - Larger species (6.7-7.7 mm) . . . . .
    - . . . . . *splendidus* (LINNAVUORI, 1993)

<sup>1</sup> According to KMENT & VILIMOVÁ (2010), the term 'peritrema' should be restricted to an area surrounding the ostiole, and the part of the Cydnidae thoracic scent efferent system previously designed by this term should be renamed 'vestibulum'



Figures 1-11. Heads and evaporatoria. 1-3: *Paraethus lisi* n. sp.; 4-6: *P. raunoi* n. sp.; 7-9: *P. riegeri* n. sp.; 10-11: *P. seyidiensis* (JEANNEL, 1913). 1, 4, 7: Head; 2, 5, 8, 11: Evaporatoria (mat fields in gray); 3, 6, 9-10: Vestibulum; S2: Mesosternum, S3: Metasternum, hc: Hemelytral costa. All scales 0.5 mm

6 Pale reddish brown species, punctation of upper surface very fine . . . *sigwalti* LIS, 1996  
 – Black or dark brown species, upper surface distinctly punctured . . . . . 7

7 Small elongate species, less than 5.5 mm . . . . . *seyidiensis* (JEANNEL, 1913)  
 – Ovate, larger species, more than 6.0 mm . . . . . 8

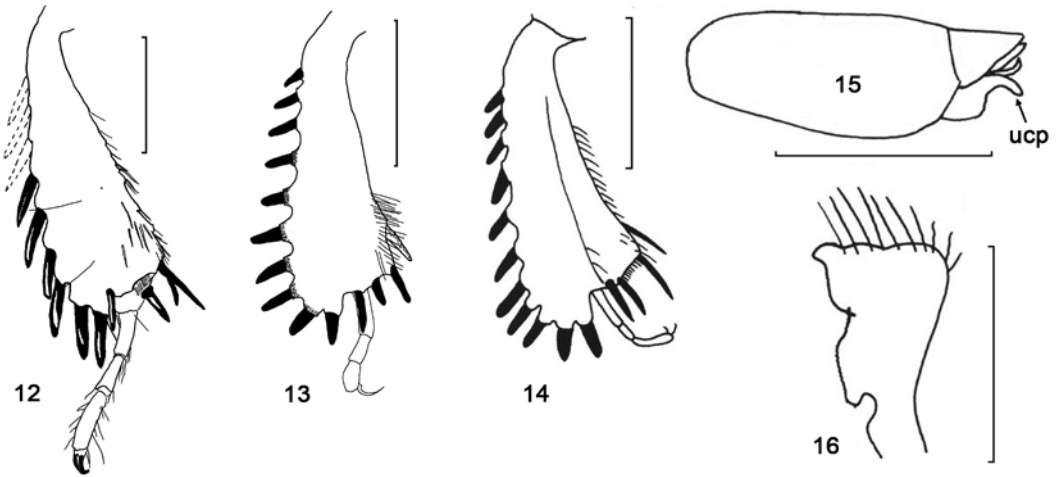
8 Moderately large species 6-10 mm . . . . . 9  
 – Very large species, more than 10.5 mm . . . . . 10

9\* Very shiny, polished, punctation sparse and coarse . . . . . *capicola* (WESTWOOD, 1837)

– Less shiny, shagreened, punctation lighter, more evenly distributed . . . . .  
 . . . . . *saprinoides* (GERSTAECKER, 1873)

10 Ocular index less than 2.5 (2.40-2.45), larger (12.5-14.0 mm) . . . . . *raunoi* n. sp.  
 – Ocular index more than 2.7 (2.7-3.1), smaller (10.7-12.3 mm) . . . . . *riegeri* n. sp.

\* These criteria work very well when comparing clean specimens. They may be difficult to use when studying a unique specimen. In that case, dissection and examination of the genitalia, male as well as female, allow a clear distinction between the species.



Figures 12-16. Fore tibia and male genitalia. 12: *Paraethus saprinooides* (GERSTAECKER, 1873); 13: *Paraethus lisi* n. sp.; 14-16: *P. jani* LIS, 1995; 12-14: Right fore tibia (front view); 15: Penis (lateral view); 16: Left paramere (dorsal view) [figs. 14-16 from LIS (1995)]. ucp: Upper conjunctival process. All scales: 0,5 mm.

### *Paraethus lisi* n. sp.

Type material: Holotype, ♂ [Australie], Collection NOUALHIER (MNHN); Paratype, 1 ♂, same data as holotype (MNHN) (both dissected, genitalia in microvials on the same pin as the specimens).

### Description

Body elongate, shiny, coloration black and brown. Head (fig. 1): Genae punctate, clypeus and middle part of frons less punctate; in addition to the two primary setae, three setae and eight peg-like setae on the margin of juga; clypeus inclosed in the paraclypei, subapically without setigerous punctures; eyes yellowish to brownish, each with an apical spine; ocelli large, light yellowish-brown; antennae light brown, 2<sup>nd</sup> and 3<sup>rd</sup> segments subequal, smaller than 4<sup>th</sup> by about 20 %, last longer (0.39, 0.38, 0.47 and 0.55 mm, respectively); rostrum pale brown, long, reaching hind coxae, second segment strongly curved ventrad.

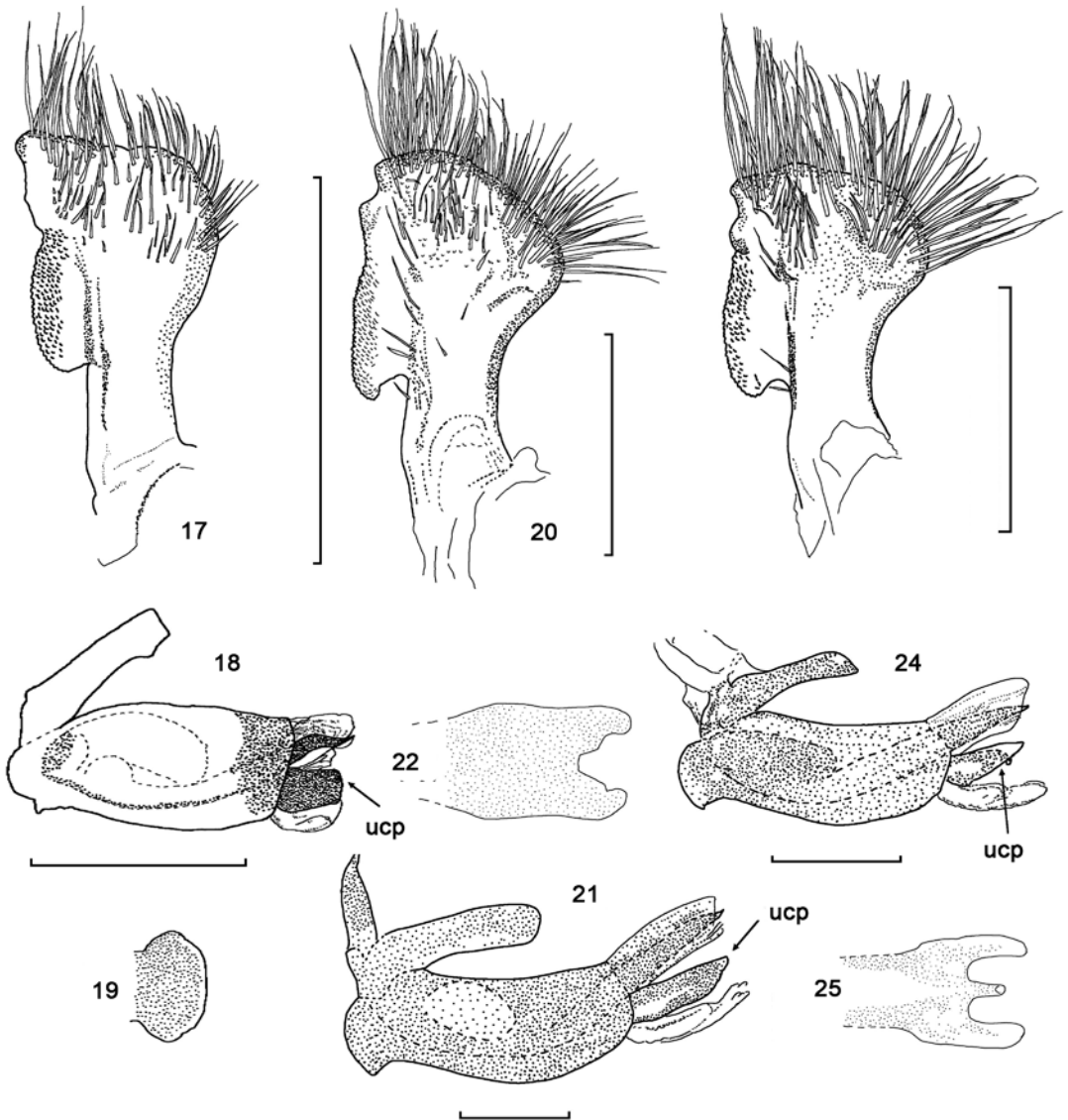
Thorax: Pronotum about 1.8 times broader than long, black, umbones not swollen; pronotal disc densely, almost evenly punctured (except callal areas); each lateral margin with about 12 submarginal setigerous punctures bearing hair-like setae. Scutellum black, its disc densely and evenly punctured, punctures of same size as those on pronotum. Hemelytra yellowish-brown, clavus with one complete and two partial rows of punctures; mesocorium with two rows of punctures, parallel to clavo-corial suture, mesocorial disc

with dense punctation, punctures smaller than those on scutellum; exocorium weakly punctured; costa with 1 (♀) or 5 (♂) setigerous punctures; membrane semihyaline, light yellowish, distinctly surpassing tip of abdomen. Propleuron with a few punctures in depression; evaporative areas (fig. 2) large, on metapleuron with wedge-shaped polished band running to apex of vestibulum, which is fitted with a claw-like tooth posteriorly (fig. 3). Legs light brown; fore tibia (fig. 13) apically broadened and compressed, its apex slightly prolonged forming a short process similar to that found in the subgenus *Eolactistes* LINNAVUORI of the genus *Lactistes* SCHIÖDTE, dorsal margin of fore tibia with 11 short stout spines, tarsus yellowish-brown, not inserted at the apex; middle tibia slightly flattened; posterior tibia conspicuously compressed and somewhat broadened, margins with many long spines.

Abdomen: Sternites brown or dark brown, lateral fourths with many distinct punctures, especially along hind margin.

Male genitalia: Paramere (fig. 17), penis nearly straight (fig. 18), upper conjunctival process spatulate (fig. 19).

Female genitalia: Spermatheca (fig. 26), receptacle and translucent dilation of the duct of about the same size; intermediate part slightly swollen; triangular fold of the vaginal wall of about the same width as the posterior part of the duct, very lightly sclerotized on the outside.



Figures 17-25. Male genitalia. 17-19: *Paraethus lisi* n. sp.; 20-22: *P. raunoi* n. sp.; 23-25: *P. riegeri* n. sp.; 17, 20, 23: Left paramere (dorsal view); 18, 21, 24: Penis (lateral view); 19, 22, 25: Upper conjunctival process (at a bigger scale than the penis). ucp: Upper conjunctival process. All scales: 0,5 mm.

Measurements: Total length ♂ 6.4 mm – ♀ 7.0 mm, width ♂ 3.4 mm – ♀ 3.6 mm, ocular index 3.1, interocular index 3.0-4.1.

Derivation nominis: It is a pleasure for me to dedicate this species to my colleague JERZY LIS, in recognition of his great contribution to the knowledge of Cydhiidae.

Distribution: Australia (without precise locality).

Discussion

Due to its peculiar fore tibiae, *P. lisi* can be compared only to *P. jani* LIS, 1995. The two species are very similar, but can be easily distinguished by a set of characters (table 1).

Table 1. Comparison between *P. lisi* n. sp. and *P. jani* Lis, 1995

Characters	<i>P. lisi</i> n. sp.	<i>P. jani</i> Lis, 1995
Body length (mm)	6.4-7.0	7.25-7.55
Clypeus	inclosed in the juga	free
Peg-like setae on paraclypeus	8	10-11
Interocellar index	3.0-4.1	5.5-8.0
Propleural depression	sparsely punctured	densely punctured
Fore tibia	apical process short, stout spines short, apical spine not reaching the apex of first tarsomere (fig. 13)	apical process longer, stout spines longer, apical spine reaching the apex of second tarsomere (fig. 14)
Upper conjunctival process of the penis	straight, massive (fig. 18-19)	hook like, tapering apicad (fig. 15)
Paramere	outer margin regularly curved, apical tooth weak, medial notch of inner margin shallow (fig. 17)	outer margin straight, apical tooth strong, medial notch of inner margin deep (fig. 16)

### *Paraethus raunoi* n. sp.

Type material: Holotype, ♂, Congo, 128-96, DIBOWSKY (MNHN). Paratype, 1 ♀, same data as holotype (MNHN). Both dissected, genitalia in microvials on the same pin as the specimens; other specimen (pygophore lacking): 1 ♂, Ouganda, LE MOULT leg. (MNHN).

### Description

Body broadly oval, coloration black, shiny.

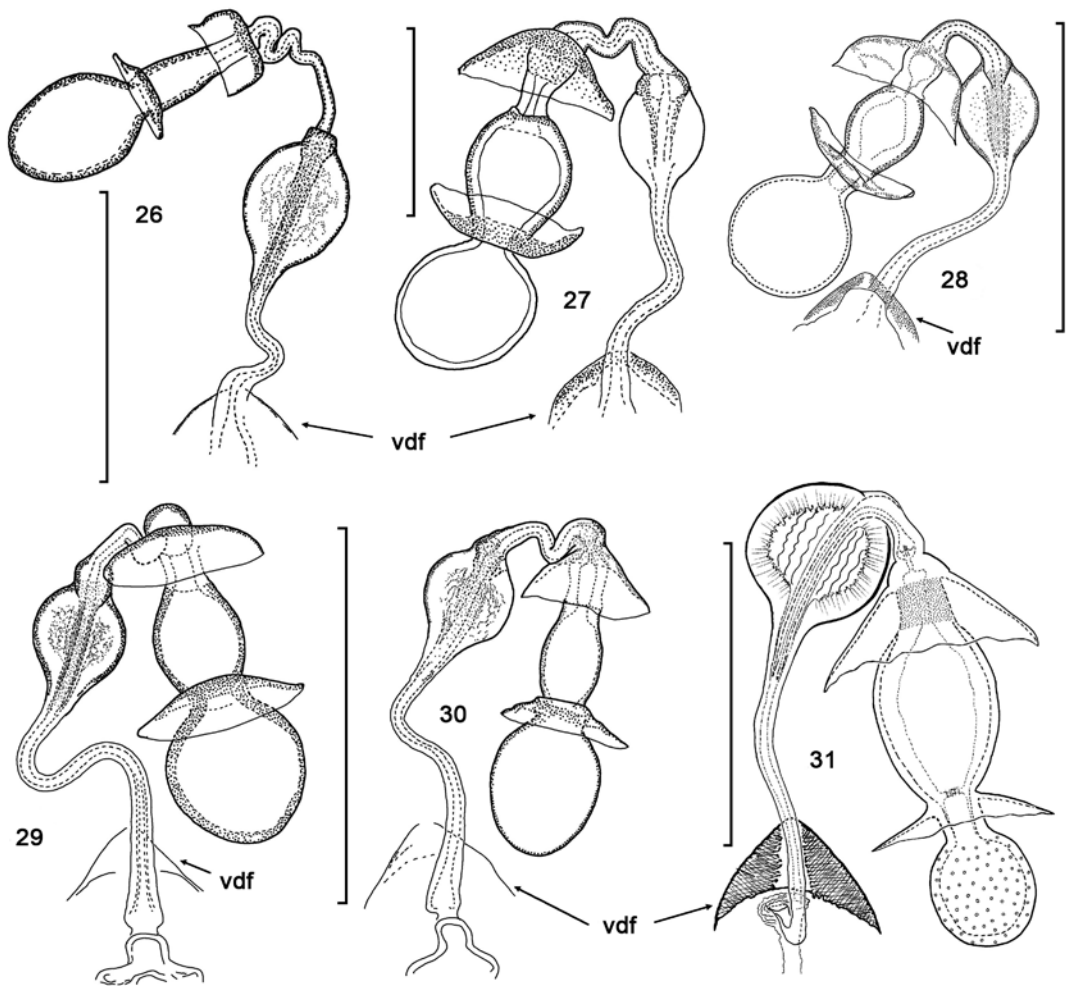
Head (fig. 4): Black or blackish-brown, much broader than long; dorsal surface (except clypeus and area between ocelli) densely finely punctured; clypeus free, tapering apicad, slightly shorter than paraclypei and subapically without setigerous punctures; each paraclypeus submarginally with a row of about 10 setigerous punctures (the present state of the specimens, which have almost completely lost their vestiture, does not allow to differentiate between peg-like setae and hair-like setae); eyes brownish or yellowish, each with long and slender apical spine; ocelli large, yellowish; antennae reddish brown, the 5<sup>th</sup> segment yellowish, 2<sup>nd</sup> segment shorter than 3<sup>rd</sup> by about one fourth, subequal to 4<sup>th</sup> and somewhat smaller than last (1.01, 0.75, 1.01 and 1.15 mm, respectively); rostrum pale brown, long, reaching middle coxae.

Thorax: Pronotum almost two times broader than long, umbones not swollen; pronotal disc densely, almost evenly punctured (except callal areas and middle hind margin); each lateral margin with about 12 submarginal setigerous punctures

bearing hair-like setae. Disc of scutellum densely and evenly punctured, less in the fore part, punctures of same size as those on pronotum. Corium distinctly punctured; clavus with one complete and one partial rows of punctures; mesocorium with two rows of punctures, parallel to clavo-corial suture, mesocorial disc with dense puncturation, punctures equal to those on scutellum; exocorium less deeply punctured; costa with 2-4 setigerous punctures; membrane yellowish-brown, reaching tip of abdomen. Propleuron with many coarse punctures in depression, several punctures occur also on posterior convexity. Evaporative areas (fig. 5) large, the mesopleural with a polished band running to the level of the apex of vestibulum, which bears a claw-like tooth posteriorly (fig. 6). Coxae and femora dark brown, tibiae black; fore tibia apically broadened and compressed, dorsal margin of fore tibia with 7-8 stout spines, tarsus yellowish-brown; middle tibia slightly flattened; posterior tibia conspicuously compressed, margins with many long spines. Abdomen: Sternites reddish-brown or dark reddish-brown, their lateral thirds with numerous distinct punctures.

Male genitalia: Paramere (fig. 20), penis slightly curved upward (fig. 21), phallobase short, vesica and processes longer by about one half of its length, upper conjunctival process bilobate (fig. 22).

Female genitalia: Spermatheca (fig. 27): intermediate part swollen; dilation of the duct translucent, small, smaller than the intermediate part; trian-



Figures 26-31. Spermathecae. 26: *Paraethus lisi* n. sp.; 27: *P. raunoi* n. sp.; 28: *P. riegeri* n. sp.; 29-30: *P. seyidiensis* (JEANNEL, 1913) (specimens from Guinea and Comores, resp.); 31: *P. capicola* (WESTWOOD, 1837). [Figure 27 from PLUOT-SIGWALT & LIS (2008)]. vdf : Sclerified fold of the dorsal wall of the vagina. All scales: 0,5 mm.

gular fold of the vaginal wall of about the same width as the posterior part of the duct, strongly sclerotized.

Measurements (mean, (min-max)): total length ♂ 13.4 (13.2-13.7) mm – ♀ 12.5 mm; width ♂ 8.3 (8.2-8.3) mm – ♀ 7.8 mm; ocular index 2,5 (2,3-2,7), interocellar index 3,6 (3,5-3,9).

Derivation nominis: It is a pleasure for me to dedicate this species to my colleague RAUNO LINNAVUORI, in recognition of all his contributions to the knowledge of African Cydnidae. I hope he will

forgive me for electing his first name rather than his family name, but I did this thinking to all our colleagues who will have to write the labels in the years to come.

Distribution: Congo, Ouganda.

Discussion

*Paraethus raunoi* n. sp. can be readily separated from all the other species of the genus by its size, which is by far the largest in the genus. The biggest specimens of the largest already known species, *P. capicola* (WESTWOOD, 1837),

do not even reach 10 mm and are about 25 % smaller than the smallest specimen of *P. raunoi* n. sp. Two other features of habitus may be useful to differentiate the new species from *P. capicola*, the eye of which are much smaller (ocular index more than 3.1, 2.3-2.7 for *P. raunoi* n. sp.) and the fact that the hemelytra are not wider than the pronotum for *capicola*, wider for the new species by 5 to 10 %. Conspicuous differences also appear in the genitalia. The penis of *P. capicola* is slender, recurved ventrad, the processi not surpassing the phallobase by more than 25 % of its length, whereas it is stout, recurved dorsad, and the processi surpass the phallobase by half of its length in the new species. In the female genitalia, the inflation of intermediate part is wider and much longer than the receptacle in *P. capicola* (fig. 31), whereas it is smaller than the receptacle in the new species (fig. 27).

#### ***Paraethus riegeri* n. sp.**

Type material: Holotype, ♂: Zambèze (Mozambique) Env. de Tambara, Lac Ounjé, 28.9.1929, P. LESNE leg. (dissected genitalia in microvial on the same pin) (MNHN). Paratypes: 1 ♀, same data as holotype; 1 ♂, 2 ♀♀, Mozambique, Haut Nhamapaza, Forêts de Maringoue, 1929, P. LESNE leg.; 1 ♀, Mozambique, Pindiriri, Bas Sangadze, 9.1929, P. LESNE leg. (all in MNHN); 1 ♂, same data as holotype.

#### **Description**

Body broadly oval, coloration black, shiny.

Head (fig. 7): Black, much broader than long; genae punctate, clypeus and middle part of frons almost impunctate; clypeus free, tapering apicad, slightly shorter than paraclypei and subapically without setigerous punctures; in addition to the two primary setae, the juga bear about twelve setigerous punctures, with half hair-like half peg-like setae; eyes brownish to dark brown, each with long and slender apical spine; ocelli small, light yellowish-brown; antennae light brown, 2<sup>nd</sup> segment longer than 3<sup>rd</sup> by about 15 %, smaller than 4<sup>th</sup> and last (0.81, 0.70, 0.96 and 1.02 mm, respectively); rostrum pale brown, long, reaching middle coxae.

Thorax: Pronotum almost two times broader than long, umbones not swollen; pronotal disc very lightly punctured, densely on lateral fore half, with the calli and areas in hind third unpunctured, one row of coarser punctures behind the calli: each lateral margin with 12 to 15 submarginal setigerous punctures bearing hair-like setae. Disc

of scutellum evenly punctured, except two lateral area in the fore part, punctures of same size as those on pronotum. Corium distinctly punctured on the fore two thirds, hind part almost smooth; clavus with one complete and one partial rows of punctures; mesocorium with two rows of punctures, parallel to clavo-corial suture, mesocorial disc with even punctation, punctures smaller than those on scutellum, decreasing toward the apex; punctures on the exocorium similar to mesocorium; costa with 5-7 setigerous punctures; membrane yellowish-brown, reaching or slightly surpassing tip of abdomen. Propleuron with two lines of punctures in the bottom of the depression, almost smooth elsewhere; evaporative areas large, with two polished bands running to the level of the apex of vestibulum on either side of the meso-metapleural suture (fig. 8), larger on mesopleuron, apex of vestibulum with claw-like tooth posteriorly (fig. 9). Coxae and femora dark brown, tibiae black; fore tibia apically broadened and compressed, dorsal margin of fore tibia with 9-10 stout spines, tarsus yellowish-brown; middle tibia slightly flattened; posterior tibia conspicuously compressed, margins with many long spines.

Abdomen: Sternites blackish, lateral thirds with numerous distinct punctures.

Male genitalia: Paramere (fig. 23), penis slightly curved upward (fig. 24), upper conjunctival process trilobate (fig. 25).

Female genitalia: Spermatheca (fig. 28) dilation of the duct translucent, small, its size intermediate between those of intermediate part and receptacle; triangular fold of the vaginal wall of about the same width as the posterior part of the duct, weakly sclerotized.

Measurements (mean (min-max)): total length ♂ 11.8 (11.5-12.0) mm – ♀ 11.3 (10.7-12.3) mm, width ♂ 7.5 (7.3-7.5) mm – ♀ 7.0 (6.5-7.5) mm; ocular index 2.65-3.10, interocellar index 3.5-4.2.

Derivation nominis: It is a pleasure for me to dedicate this species to our colleague CHRISTIAN RIEGER, in recognition of his very important contribution to the knowledge of Heteroptera, particularly by editing the Catalog of the Heteroptera of the Palaearctic Region.

Distribution: Middle Mozambique (Manica and Sofala Provinces).

#### **Discussion**

The characters which separate *P. riegeri* n. sp. from all the already known African species of



the genus are the same as those explained in the discussion about *P. raunoi* n. sp. to which it is very similar, *i. e.* the larger size and greater ocular index.

*P. riegeri* n. sp. and *P. raunoi* n. sp. can be separated from one another by the size, the first being clearly smaller the second, the size of eyes, clearly larger in *P. raunoi* n. sp., and the chetotaxy which show 12 setigerous punctures on the genae, 12-15 on the pronotal margin and 5-7 on the hemelytra costa for *P. riegeri* n. sp., resp. 10, 12, 2-4 setigerous punctures for *P. raunoi* n. sp. Other differences appear in the genitalia, the paramere (fig. 23) being roundish on the external margin and having longer setae in *P. riegeri* n. sp., more angular on the external margin and having shorter setae in *P. raunoi* n. sp. (fig. 20). Regarding the spermatheca (figs. 27-28), although very similar, it can be noticed that the flexible zone is more than two times wider than long in *P. riegeri* n. sp., longer than wide in *P. raunoi* n. sp. and that the dilation of the duct is smaller than the inflation of the intermediate part in *P. riegeri* n. sp., larger in *P. raunoi* n. sp. The upper conjunctival process is trilobate in *P. riegeri* n. sp., bilobate in *P. raunoi* n. sp. (figs. 22, 25)

***Paraethus seydiensis* (JEANNEL, 1913),  
nov. comb.**

*Aethus seydiensis* JEANNEL, 1913: 14

*Aethus seydiensis* (sic): LINNAVUORI (1993: 65)

*Aethus seydiensis* (sic): LIS (1999: 188)

Type material: Holotype, ♂, Côte d'Afrique orientale anglaise (Kenya), Shimoni, 11.1911, ALLUAUD & JEANNEL (MNHN). Remark: The type is labelled: '*Aethus sehidiensis* n. sp.'

Other material examined: 1 ♀, Sierra Leone, Firawa savane – Mt Loma, 1.6.1963, Mission ENS-IFAN leg.; 4 ♂♂, 4 ♀♀, Sénégal, Parc national Casamance D. PLUOT-SIGWALT leg.; 1 ♀, Guinée, Mont Nimba, 7.-8.1957, LAMOTTE & ROY; 1 ♂, 11.1942 Guinée, Tabouna; 3 ♀♀, Côte d'Ivoire, Lamto, 20.8.1962, D. GILLON leg.; 1 ♀, Côte d'Ivoire, Man; 1 ♀, Nigeria, Abboekuta, P. FRANÇOIS leg.; 6 ♀♀, Cameroun, Nkoenvnoe, prov. Ebolowa, 12.1964, B. DE MIRÉ leg.; 1 ♂, Cameroun (littoral), région de Kribi, 1925, Dr. GROMIER leg.; 5 ♂♂, 4 ♀♀, République du Congo, Odzala Brazzaville, 10.-11.1963 DESCARPENTRIES & VILLIERS leg.; 1 ♂, 2 ♀, Comores, Grande Comore, 3.-4.1980, P. VIETTE leg. All specimens preserved in MNHN.

**Remarks**

The description of this species by JEANNEL (1913) was based on a single male from Shimoni (Kenya), and has been completed by LINNAVUORI (1993), giving drawings of both male and female genitalia. It is not necessary to reproduce it here, there are only two comments which seem necessary. First, in his original description, JEANNEL indicated that the male specimen is 5 mm long and 2.2 mm wide. The measurements of the holotype are in fact 4.7 mm long by 2.4 mm wide. Secondly, LINNAVUORI's drawing of the spermatheca shows a very light inflation of the intermediate part, which is not representative of the general case. The spermatheca within the species seems somewhat variable (figs. 29-30).

**Discussion**

*P. seydiensis* presents all the characters of *Paraethus*. The antennae are 5-segmented and the head bears both peg-like and hair like setae in a submarginal row. The anterior margin of the pronotum is angularly insinuated in the middle and the pronotum umbones not swollen. The apex of the vestibulum (fig. 10) of the metathoracic gland is fitted with a short claw-like spur pointing laterally; the posterior tibiae are conspicuously flattened. Furthermore, the mat fields of the evaporatoria (fig. 11) are interrupted by a polished band on the merapleuron.

Regarding the genitalia, the intermediate part of the spermatheca is inflated with a receptacle ovoid, the sclerified fold of the dorsal wall of the vagina is present. The penis is straight, with vesica and processus surpassing only very lightly the phallobase (see LINNAVUORI 1993).

The presence of the apical claw of the vestibulum, the shape of the posterior femora and of the spermatheca forbid the placement of this species in the genus *Aethus*.

Distribution: This species is widespread in equatorial Africa: Cameroun, Comoros, Guinea, Ivory Coast, Kenya, Nigeria, Republic of the Congo, Senegal, Sierra Leone. Cameroun, Comoros, Sierra Leone are new localities for this species.

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