Bonn. zool. Beitr.	Bd. 45	H. 3—4	S. 259—263	Bonn, Mai 1995

New synonyms and a key to species of *Plethysmochaeta* Schmitz (Diptera, Phoridae)

R. H. L. Disney

Abstract. Recognition of the species of *Plethysmochaeta* Schmitz, 1924 has been hindered by most being only known in one sex and by considerable variations in the sizes of species. *P. molluscivora* (Schmitz, 1916) is synonymised with *P. trinervis* (Schmitz, 1915); *P. semilutea* Schmitz, 1953 is synonymised with *P. couvreuri* Schmitz, 1953; *P. fulgens* Beyer, 1965 is synonymised with *P. vectabilis* (Brues, 1913). A key to species is provided.

Key words. Diptera, Phoridae, *Plethysmochaeta*, synonyms, key.

Introduction

Mrs Mfon Ekanem (University of Uyo, Nigeria) asked me to identify some Phoridae reared from fish baits exposed near Uyo in 1991. These represented three species, *Megaselia scalaris* (Loew), *Puliciphora borinquenensis* Wheeler and a species of *Plethysmochaeta* Schmitz, 1924. However the two sexes of the latter appeared to belong to two different species, when taken through the literature.

The distinctive genus *Plethysmochaeta* Schmitz is covered by the recent key to world genera (Disney 1994). There is a marked sexual dimorphism in the genus. However, most species of *Plethysmochaeta* have been described from one sex only. Furthermore, the adults tend to exhibit a considerable variation in size, related to the saprophage habits of the larvae. This variation in size is correlated with some allometric affects. The consequence of these facts is that the taxonomy of the genus is in a somewhat confused state.

In order to progress, type material was examined in the Museum Alexander Koenig, Bonn, through the cooperation of Dr H. Ulrich, and further material was borrowed from the Musée Royal de l'Afrique Centrale, Tervuren, through the cooperation of Dr Eliane De Coninck.

The resolution of the identity of Mrs Ekanem's specimens has resulted in the recognition of three new synonyms. These are proposed below, along with a new key to species.

My work on Phoridae is currently funded by the Isaac Newton Trust (Trinity College, Cambridge) and the Leverhulme Trust (London).

Notes on species

Plethysmochaeta couvreuri Schmitz, 1953

Plethysmochaeta couvreuri Schmitz, 1953: 298, Holotype ♀, ZAIRE (CONGO): Kibali-Ituri, Mont. Hawa (Musée Royal de l'Afrique Centrale, Tervuren) [Examined].
Plethysmochaeta semilutea Schmitz, 1953: 308. Holotype ♀, ZIMBABWE (SOUTH RHODESIA): Harare (Salisbury) (Museum Alexander Koenig, Bonn) [Examined]. Syn. nov.

Schmitz (1953) did not indicate any obvious difference between the females of *P. couvreuri* and *P. semilutea*, apart from the larger size of the latter and shorter bristles on the fused abdominal tergites 5 & 6. However, a paratype of *P. couvreuri* is significantly larger than the holotype and the holotype of *P. semilutea* is only fractionally larger than this paratype; the wing length of the former being 2.2 mm and the latter 2.7 mm. A paratype of *P. semilutea*, however, is well within the size range of *P. couvreuri*. At the other extreme I have a female *P. couvreuri* from the Kruger National Park, Transvaal, South Africa (collected at an impala carcass in January 1979, by L. Braack) whose wing is only 1.7 mm long.

With regard to the supposed lack of long bristles on tergite 5/6 of *P. semilutea*, it is apparent in the paratype examined that these bristles are absent in the specimen, but their enlarged sockets are discernible with critical lighting. Evidently these bristles had been lost by the specimens in the type series, probably during capture or subsequent handling.

I conclude that *P. semilutea* is only the larger end of the spectrum of variation in size in *P. couvreuri*, the other minor differences being allometric effects. Accordingly *P. semilutea* is synonymised with *P. couvreuri*.

Plethysmochaeta nobilis Schmitz, 1933

Plethysmochaeta nobilis Schmitz, 1933: 44. Holotype ♀, JAVA, Bogor (Buitenzorg) (Museum Alexander Koenig, Bonn) [Examined].

The female of this species is close to *P. couvreuri*. The male is distinctive (see key below).

Plethysmochaeta trinervis (Schmitz, 1915)

Hypocera trinervis Schmitz, 1915: 498. Holotype ♂, ZAIRE (CONGO): Kisangani (Stanleyville) (Museum Alexander Koenig, Bonn) [Examined].
Hypocera molluscivora Schmitz, 1916: 7. Holotype ♀, ZAIRE (CONGO): Avakubi, Ht. Ituri (in J. Bequaert Collection) [Not examined, but paratype examined]. Syn. nov.
Plethysmochaeta trinervis (Schmitz, 1915) Schmitz, 1924: 150.

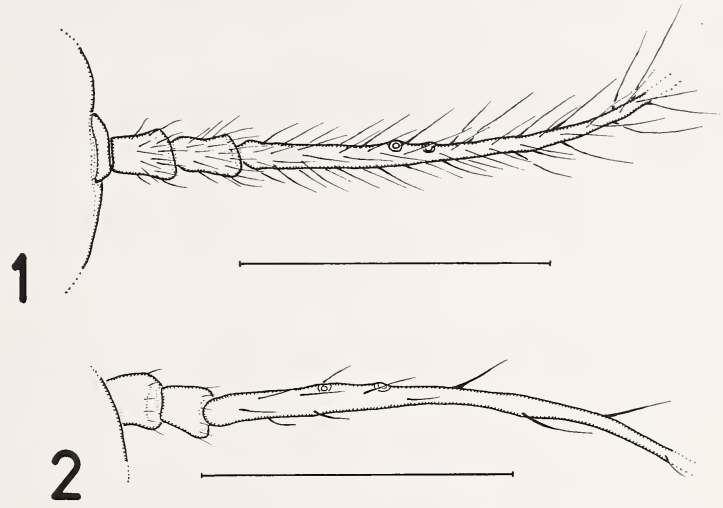
The series reared in Nigeria by Mrs Ekanem allows the correct association of the males and females of this species. The result is that *P. molluscivora* becomes a synonym of *P. trinervis*.

Plethysmochaeta vectabilis (Brues, 1913)

Hypocera vectabilis Brues, 1913: 336. Type series ♂♂ ♀♀, ETHIOPIA (ABYSSINIA): Harrar. [Holotype destroyed. ♂ & ♀ paratypes in Museum Alexander Koenig, Bonn, examined].
Plethysmochaeta vectabilis (Brues, 1913) Schmitz, 1924: 150.
Plethysmochaeta fulgens Beyer, 1965: 24. Holotype ♀, ZAIRE (CONGO): Mayumbu (Musée Royal de l'Afrique Centrale, Tervuren) [Examined]. Syn. nov.

Most specimens of the type series were destroyed in a fire in 1956, in the Hungarian National Museum. Fortunately a few paratypes had been deposited in the Schmitz collection. The latter were redescribed by Schmitz (1958a), who emphasised the strongly shining frons. This seems to have been overlooked by Beyer (1965), who singled out this feature as being unique to *P. fulgens*, in this genus. Beyer also failed

to indicate the variation in size in the type series of this species, and only gives the wing measurements for one of the largest of his specimens. I have no hesitation in synonymising *P. fulgens* with *P. vectabilis*.



Figs 1—2: *Plethysmochaeta* females, bases of aristas. 1, *P. nobilis*, 2, *P. couvreuri* (Scale bars = 0.1 mm).

A provisional key to *Plethysmochaeta* species

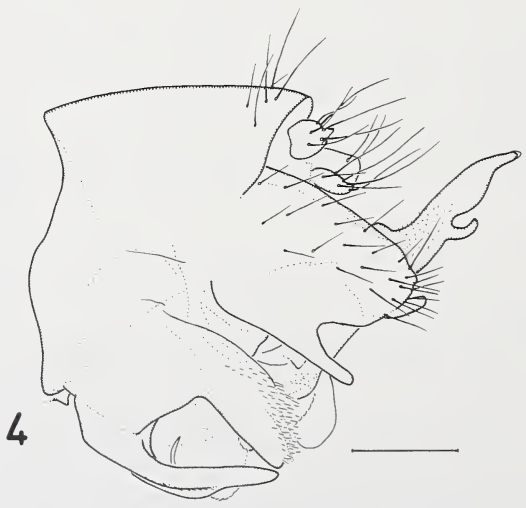
1. Females 2
   — Males 7
2. Hind femur dark brown, as hind tibia 3
   — Hind femur mainly yellowish brown or largely dusky yellow. When yellowish brown the femur is generally paler than hind tibia 5
3. No cheek bristles. (Malaysia) ..... *bicolor* (Brues, 1905)
   — At least three bristles on each cheek 4
4. Basal, swollen, section of third segment of arista more densely haired (Fig. 1). (Java) ..... *nobilis* Schmitz, 1933
   — Basal section of third segment of arista more sparsely haired (Fig. 2). (S. Africa, Zaire, Zimbabwe) ..... *couvreuri* Schmitz, 1953
5. Frons devoid of microtrichia (i. e. shining). (Ethiopia, Zaire) . *vectabilis* (Brues, 1913)
   — Frons with dense microtrichia (i. e. dull), at least in upper half and antero-laterally 6
6. Hind femur narrowly brown along dorsal edge and more broadly so along ventral edge. Hind tibia dark brown. (Kenya, Liberia, Nigeria, Zaire) ..... *trinervis* (Schmitz, 1915)
   — Hind femur not brown along ventral edge in basal half and in distal half a brown transverse band links the dorsal and ventral bands. Hind tibia pale brown. (Liberia) ..... *marmorata* Schmitz, 1929
7. Hind femur and tibia dark brown ..... [*bicolor* (Brues)] and *couvreuri* Schmitz
   Note: The male of *P. bicolor* is not known, but probably keys out here. The rear margin of abdominal tergite 5/6 of *P. couvreuri* has only two weak bristles in the middle.

— Hind femur mainly dusky yellow, but with brown pigment along dorsal edge in apical third or more. Hind tibia dusky yellow. (With four or more strong bristles at rear of abdominal tergite 5/6 in middle) 8

8. Frons devoid of microtrichia (i. e. shining). (Hypopygium figured by Schmitz, 1958a) ..... *vectabilis* (Brues)

— Frons with dense microtrichia (i. e. dull) at least in upper half and antero-laterally 9

9. Haltere knob largely brown or greyish brown. Epandrium brown. Rear of abdominal tergite 5/6 with four bristles (the outer pair being clearly shorter than inner pair) 10



Figs 3—4: *Plethysmochaeta* males, left faces of hypopygia. 3, *P. trinervis*, 4, *P. tripartita*. (Scale bars = 0.1 mm).

— Haltere knob pale yellow. Epandrium pale yellowish brown. Rear of abdominal tergite 5/6 with six bristles ..... *nobilis* Schmitz

10. Hypopygium as Fig. 3 ..... *trinervis* (Schmitz)
— Hypopygium as Fig. 4. (Angola, Kenya) ..... *tripartita* Schmitz, 1958b
Note: This is probably the "missing" male of *P. marmorata*.

Zusammenfassung

Die Gattung *Plethysmochaeta* Schmitz, 1924 war bisher unzureichend bearbeitet, was Umfang und Abgrenzung der Arten betrifft. Dies ist mit beträchtlicher intraspezifischer Größenvariation und damit zu erklären, daß die meisten Arten nur in einem Geschlecht bekannt waren. Auf Grund der Untersuchung neuen Materials und der Typen werden folgende Arten synonymisiert: *P. molluscivora* (Schmitz, 1916) mit *P. trinervis* (Schmitz, 1915), *P. semilutea* Schmitz, 1953, mit *P. couvreuri* Schmitz, 1953 und *P. fulgens* Beyer, 1965 mit *P. vectabilis* (Brues, 1913). Eine Tabelle zur Bestimmung der Arten wird gegeben.

References

Beyer, E. M. (1965): Phoridae (Diptera Brachycera). — Exploration du Parc National Albert, Mission G. F. de Witte (1933—1935) 99: 1—211.

Brues, C. T. (1905): Phoridae from the Indo-Australian Region. — Annls hist.-nat. Mus. natn. hung. 3: 541—555.

Brues, C. T. (1913): A new species of Phoridae reared from dried Coleoptera. — Annls hist.-nat. Mus. natn. hung. 11: 336—338.

Disney, R. H. L. (1994): Scuttle Flies: The Phoridae. — Chapman & Hall, London, xii + 467 pp.

Schmitz, H. (1915): Neue Beiträge zur Kenntnis der myrmecophilen und termitophilen Phoriden (No. 2—15). — Dt. ent. Z. 1915: 465—507.

Schmitz, H. (1916): Neue Phoriden aus Belgisch-Congo, gesammelt von Dr. Josef Bequaert. — Zoöl. Meded. Leiden 2: 1—10.

Schmitz, H. (1924): Mitteilungen über allerlei Phoriden. — Natuurhist. Maandblad 13: 148—150.

Schmitz, H. (1929): Zur Kenntnis einiger von Dr. Jos. Bequaert gesammelter afrikanischer Phoriden. — Rev. Zool. Bot. afr. 18: 37—43.

Schmitz, H. (1933): Zwei neue exotische Phoriden (Diptera). — Natuurhist. Maandblad 22: 34—36, 43—44.

Schmitz, H. (1953): Ueber die Gattung *Plethysmochaeta* Schmitz, mit Beschreibung neuer Arten (Diptera, Phoridae). — Rev. Zool. Bot. afr. 47: 297—310.

Schmitz, H. (1958a): Zur naeheren Kenntnis von *Plethysmochaeta vectabilis* (Brues) (Diptera, Phoridae). — Studia ent. 1: 259—264.

Schmitz, H. (1958b): Acht neue und einige bekannte Phoriden aus Angola und dem Belgischen Kongo (Phoridae, Diptera). — Publcoes cult. Co. Diam. Angola, Lisboa 40: 13—61.

Dr R. H. L. Disney, Field Studies Council Research Fellow, University Department of Zoology, Downing Street, Cambridge, England.