

Two new species and a revised key to *Rhynchomicropteran* (Diptera, Phoridae)

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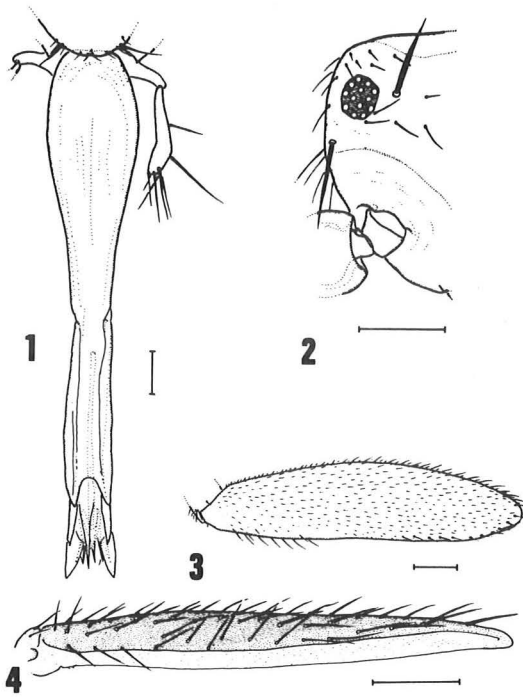
Rhynchomicropteran necaphidiforme sp. n. is described from West Malaysia, where it is associated with a Ponerine ant. The female matures a single egg at a time. Silvestri's (1947) specimen from Indo-China attributed to *R. caecutiens* Schmitz is recognised as a new species and named *R. silvestrii* sp. n. A key to the eleven known species of *Rhynchomicropteran* is provided.

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Since providing a key to the species of *Rhynchomicropteran* Annandale (Disney 1981) three new species have been described (Papp 1982) and a specimen attributed to *R. caecutiens* Schmitz by Silvestri (1947) has been recognised as an undescribed species (see below). Prompted by the receipt of a further new species, sent by Dr. Ulrich Maschwitz and Sabine Steghaus-Kovac, I provide a description of the latter along with an updated key to world species.

Key to species of *Rhynchomicropteran* Annandale

1. Abdomen with hairs scattered along entire length of dorsal surface, also on side in posterior third and on ventral surface. Hind tibia with a dorsal, longitudinal, hair palisade. Basiproboscis subequal to, or a little shorter than, rest of proboscis (Fig. 1) 2
- Abdomen at most with hairs restricted to a more or less clearly defined tergite immediately behind thorax and one or two transverse rows just before terminalia. Hind tibia without a dorsal, longitudinal, hair palisade. Basiproboscis clearly longer than rest of proboscis 3
2. Eyes with less than 10 lenses. Length of hind femur only about 3× breadth ... *aphidiforme* Schmitz & Mjöberg
- Eyes with more than 10 lenses (Fig. 2). Length of hind femur about 4× breadth (Fig. 3). (Wing as Fig. 4) *necaphidiforme* sp. n.
3. With a patch of hairs on a more or less defined abdominal tergite situated immediately behind thorax 4
- Abdomen devoid of hairs apart from one or two transverse rows just before the terminalia 9
4. Eyes with more than 10 lenses *puliciforme* Annandale
- Eyes with fewer than 10 lenses 5
5. Head, thorax and wing rudiment with robust, spine-like hairs (figs 1 and 4 in Disney, 1979) . *beaveri* (Disney)
- Only fine hairs in these situations 6
6. Tergite (bearing hairs) at base of abdomen as wide as thorax (fig. A in Schmitz, 1914) . *caecutiens* Schmitz
- This tergite clearly narrower than width of thorax ... 7
7. Apical hair of wing rudiment stronger and longer than rest of hairs 8
- Apical hair of wing rudiment not obviously differentiated from rest of hairs. (Antennae and palps clear yellow) *dudichi* Papp
8. Hind metatarsus with 6 well-developed transverse combs *silvestrii* sp. n.
- Hind metatarsus with only 4 to 4.5 transverse combs *brevipes* Papp
9. Maximum breadth of hind metatarsus at least equal to maximum breadth of hind tibia (fig. 6 in Disney, 1981) *vallacki* Disney
- Maximum breadth of hind metatarsus clearly less than maximum breadth of hind tibia 10
10. Costa only starts to narrow from about halfway point *nudiventer* Papp
- Costa strongly tapered from well before halfway point *muluensis* Disney



Figs. 1–4. *Rhynchomicropteron necaphidiforme* sp. n., female. 1: Proboscis and left palp. — 2: Right side of frons. — 3: Anterior face of left hind femur. — 4: Right wing. — Scale bars = 0.1 mm.

***Rhynchomicropteron necaphidiforme* sp. n.**

Figs. 1–4

This species is immediately distinguished from all other species of the genus, except *R. aphidiforme*, by its large size, its extensively hairy abdomen, its basiproboscis being subequal to or slightly shorter than the rest of the proboscis, and by the presence of a dorsal, longitudinal hair palisade on the hind tibia. Its larger eyes, with more than 10 lenses, and more slender hind femora will immediately distinguish it from *R. aphidiforme*.

Description

Female: Frons (Fig. 2) pale brownish with scattered hairs, a pair of supra-antennal bristles, and a pair of bristles near each eye (one beside and one below). Antenna and palps pale dirty yellowish. The palps are borne on distinct processes

(Fig. 1), which appear to be just extensions of the integument at the base of the proboscis. The latter as Fig. 1, being pale brownish with an even paler labium.

Thorax a little darker than frons and with scattered hairs as on latter. Abdomen with similar, but mostly slightly more robust, hairs scattered over entire dorsal face, the flanks and along mid-line ventrally. The well-developed tergite at base of abdomen brownish like the membranous areas of abdomen. The short cerci each have a posterolateral short bristle in addition to 2–3 fine hairs. Internally there is a lightly sclerotised atrial furca (an internalised sternite 9, see Disney 1986a).

Wing as Fig. 4, with brown costa and pale membrane.

Legs pale brown. Mid tibia with a dorsal, longitudinal hair palisade in basal half. Hind tibia with a dorsal hair palisade extending almost to apex. Both mid and hind tibiae with the anterodorsal and postero-dorsal rows of hairs somewhat differentiated from the rest. Hind metatarsus not swollen (i.e. as fig. 4, not fig. 5, in Disney 1981).

Type material: Holotype ♂, West Malaysia, Ulu Gombak, 23.X.1982 (U. Maschwitz) in emigration trail of *Leptogenys* sp. (cf. *mutabilis*) (In Cambridge University Zoology Museum). Paratypes: 30♂♂ (17 on slides, 13 in alcohol) same data as holotype.

Biology

All the specimens were caught, along with eleven females of *Puliciphora rosei* Disney, following ants in an emigration trail: the ants being *Leptogenys* sp. (cf. *mutabilis*) (see Ferrara et al., 1988). *Puliciphora rosei* runs after *Leptogenys mutabilis* (Smith) in Sulawesi (Disney 1988a) and also *Pheidologeton diversus* (Disney & Kistner 1988).

In two specimens sperm is discernible in the atrium (genital chamber). The species, therefore, is not parthenogenetic. The missing males in this genus may be known under a different generic name because of a marked sexual dimorphism.

Only one egg is matured at a time. The fully developed egg measures 0.90–0.95 × 0.75–0.80 mm, the length to breadth ratio being 1.2–1.3 : 1. A less mature egg is more elongate, thus one only 0.3–0.4 mm long has a length to breadth ratio of 2.4–2.5 : 1. It seems that initially two eggs start to mature, but the second one is then suppressed.

A similar situation occurs in species of Phoridae that parasitise termites (Disney 1986b, Disney & Kistner 1990). In a female of *R. necaphidiforme* harbouring an egg 0.6 mm long, a second egg only 0.3 mm long is also present in the other ovary. The single fully mature egg occupies most of the female's abdomen.

Apart from the reduction in egg number associated with an accelerated larval stage in some Termitoxeniinae, it has been suggested (Disney 1988a) that in Phoridae a reduction in the number of eggs matured at a time is associated with larvae that are specialised predators or parasitoids. This hypothesis has recently received further support (Disney & Kistner 1990). It seems probable, therefore, that *R. necaphidiforme* has parasitoid or predatory larvae.

Rhynchomicropteron silvestrii sp. n.

Rhynchomicropteron caecutiens Silvestri, 1947:21, nec Schmitz, 1914:519.

While Borgmeier's (1968) Catalogue noted Silvestri's paper of 1947 he failed to cite the latter's redescription of "*R. caecutiens* Schmitz". This fact was also omitted from the two supplements to the Catalogue (Borgmeier 1971, Baumann 1976). Silvestri's well illustrated 'redescription' reveals, in the light of our present understanding of the genus, that his specimen from Indo-China clearly belongs to a different species. I accordingly name it after him and indicate its affinities in the key.

Discussion

R. aphidiforme and *R. necaphidiforme* exhibit a number of character states which are plesiomorphic, with respect to other species in the genus. The presence of a basal abdominal tergite in *R. necaphidiforme* is found in some other species. However the presence of hair palisades on the mid and hind tibiae is only found in these two species. This is a ground-plan character for the Phoridae (Disney, 1988b). Also the wider proboscis, with a shorter basiproboscis, is undoubtedly plesiomorphic with respect to the rest of the genus. The

reduced, but evident, bristles on the frons, in addition to the frontal hairs, is plesiomorphic with respect to the species with hairs only. This clarification of some ground-plan features for the genus should help the eventual resolution of the affinities of this peculiar genus. The procurement, or recognition, of the missing males will probably resolve this question.

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