

A New Species of Scuttle Fly (Diptera: Phoridae) Parasitizing an Ant (Hymenoptera: Formicidae) in Borneo

by

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ABSTRACT

Megaselia insignicauda Disney n. sp. is described from females observed attacking *Leptogenys mutabilis* F. Smith in Sabah, Borneo.

Key Words: Phorid fly, ant parasite, Borneo

INTRODUCTION

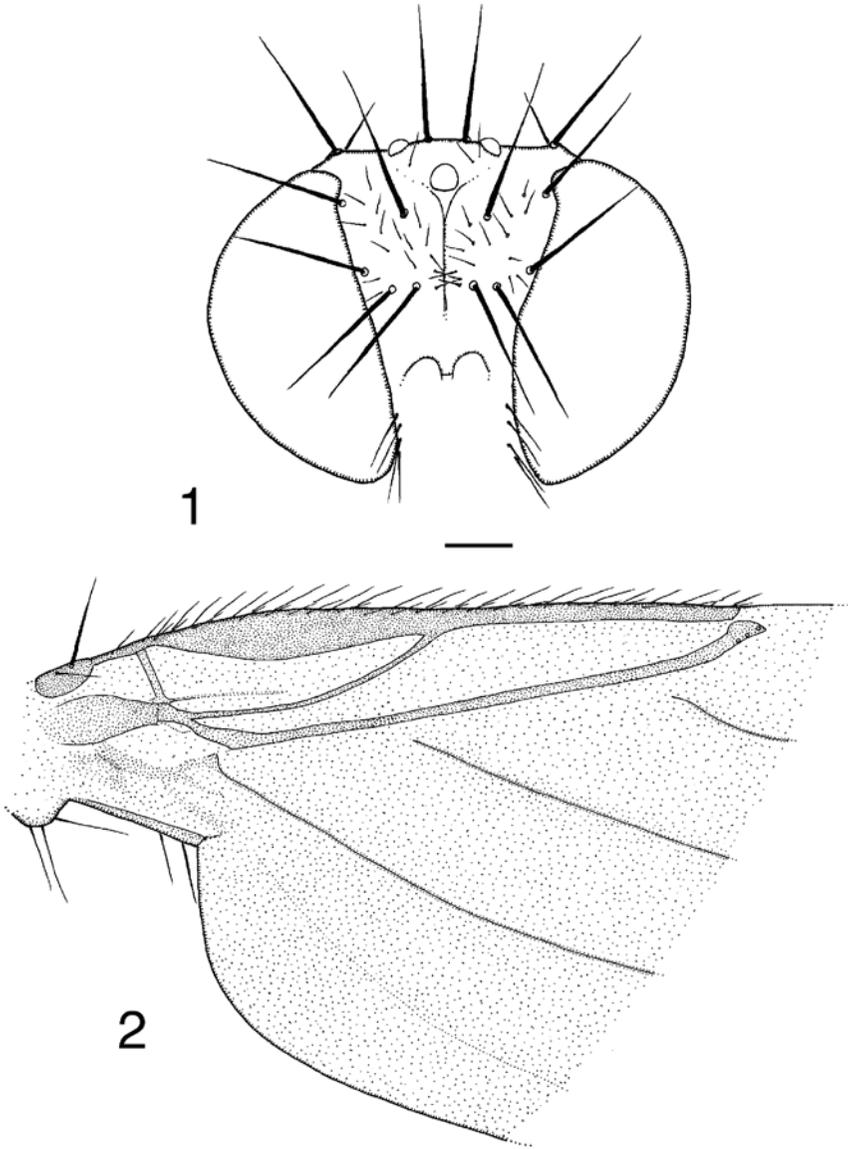
Colonies of the ant genus *Leptogenys* Roger (Ponerinae) are known to harbour flightless female scuttle flies (Phoridae) of three species of *Rhynchomicropteron* Annandale and four species of *Puliciphora* Dahl (Disney 1994). In addition to these myrmecophiles two broad spectrum scavengers, *Puliciphora pulex* Dahl (Disney & Kistner 1998) and *Megaselia scalaris* (Loew), have been reported along with two females of a *Megaselia* sp. of unknown habits and unmodified ovipositor segments. Because of the often marked sexual dimorphism in the giant genus *Megaselia* Rondani, such undescribed females are now routinely not named until they can be linked to their hitherto unknown, or unrecognised, males. This policy serves to reduce the number of unwitting synonyms. However, the species described below is so distinctive that one can be sure that its male has not been already described. Furthermore it represents the first report of a parasitoid scuttle fly attacking this genus of ants.

Megaselia insignicauda Disney new species

Figs.1-4

In the keys of Borgmeier (1967a) on page 204 of Group II this species will run to couplet 44, lead 1, to *M. paruminflata* Beyer, which is only known in the male sex. However, the latter, like all the species in this key have a forked vein 3. Borgmeier (1967b) subsequently added *M. nigribasis* Beyer to Group

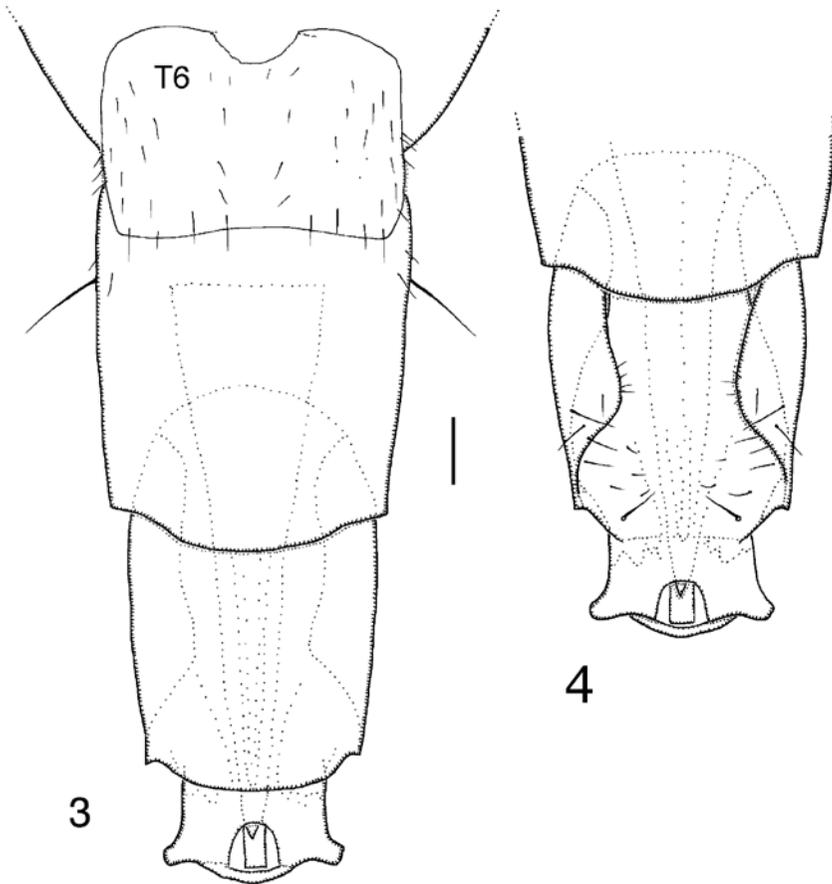
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Figs. 1-2. *Megaselia insignicauda* female. Fig. 1. Frontal view of head (with antennae, palps and proboscis omitted); Fig 2. Base of right wing. (Scale bar = 0.1 mm).

II and noted that it was the first Oriental species with an unforked vein 3 in this group. However, it has a yellow, not brown, haltere knob and a thickened vein 3. Three further such species with an unforked vein 3, from Sulawesi, have been added since; the myrmecophile *M. pagei* Disney (1987), the ant parasitoid *M. sembeli* Disney (1986) and the presumed parasitoid species *M. torautensis* Disney (1990). The females of all three have very different ovipositor segments. A further three species, formerly placed in the genus *Plastophora* Brues, need to be considered. *Plastophora* was originally erected for a species with modified ovipositor segments and an unforked vein 3. The subsequent addition of further species with variously modified ovipositor segments and most of which have a forked vein 3, with several being transferred from *Megaselia* without any clear generic diagnosis for the males, created an ever more confusing generic concept. Consequently all those with a forked vein 3 were re-assigned to *Megaselia* (Disney 1978) and subsequently (Disney 1987) the three with an unforked vein 3 were also synonymised with *Megaselia*. Two of these were reported from New Guinea and one from the Philippines. They are keyed by Colyer & Elberg (1969). Again all three have very different ovipositor segments.

Female: Frons brown, with dense and well developed microsetae, and as Fig. 1 (the inclination of the bristles being as on a slide mount). The jowl with two bristles little, if any, stronger than those on cheek. The uppermost ommatidia of the eyes are smaller (0.018 mm diameter) than the most ventral ommatidia (diameter 0.023 mm). Postpedicels a little longer than greatest breadth (1.3-1.4x), yellowish brown, and without SPS vesicles. Palps slightly dusky straw yellow, with six bristles that are almost equal in length and 1-3 hairs. Labrum pale straw yellow and about 0.6x as wide as postpedicel. Labella also pale, narrow on top, and with very few short spinules below. Thorax mainly brown on top but mainly straw yellow on sides. Mesopleuron with 5-6 hairs and 4 bristles of which the two lowest are stronger than the other two. Three notopleural bristles and no cleft in front of these. Scutellum with an anterior pair of hairs (at most as strong as hairs at rear of scutum) and a posterior pair of bristles. Abdominal tergites 1-6 brown. T1-T5 are all much wider than long and T2-T5 have slightly concave hind margins. T6 as Fig. 3. Venter of segments 1-6 straw yellow and with hairs below segments 3-6 that include a pair of longer bristles at rear of 4 and 5. Segments 7 onwards



Figs. 3-4. *Megaselia insignicauda* female, terminal segments of abdomen. Fig. 3. From above (T6 = tergite 6); Fig. 4. From below. (Scale bar = 0.1 mm).

modified into an elongated, brown, retractile sheath embracing the sharply pointed ovipositor that lacks cerci (Figs. 3-4). With four rectal papillae. No Dufour's crop mechanism. Legs straw yellow apart from brown tip to hind femur and patch on mid coxa. Front and mid tibiae somewhat slender. Fore tarsus slender and with a posterodorsal hair palisade on segments 1-5. Dorsal hair palisade of mid tibia extends almost 0.8x its length. Hairs below basal

half of hind femur long, being clearly longer than those of anteroventral row of outer half. Hind tibia with a dozen differentiated posterodorsal hairs, those in the lower half being stronger and the last being more spine like. Spinules of apical combs simple. Wings 1.9-2.0 mm long. Base of wing as Fig. 2. Costal index 0.051-0.052. Costal ratios 0.8-0.9 : 1 (vein 3 being unforked). Costal cilia (of section 2) 0.06-0.07 mm long. Thick veins yellowish grey, thin veins 4-6 grey and 7 pale. Membrane tinged brownish grey (evident to naked eye when viewed against a white background). Haltere brown.

Material examined: Holotype female, BORNEO, Sabah, Danum Valley, primary rainforest, West trail (W4) on forest floor, attacking *Leptogenys mutabilis* F. Smith, 10 April 2007, T. Fayle (Cambridge University Museum of Zoology). Paratype female, same data as holotype.

Etymology: the name refers to the remarkable modification of the abdominal terminalia.

Comments: The myrmecophiles *Puliciphora rosei* Disney and *Rhynchomicropteron nudiventer* Papp have previously been reported from colonies of *Leptogenys mutabilis* (Disney 1994). The above is the first record of a parasitoid phorid attacking this ant. The lowermost ommatidia of the eyes being larger than the rest is associated with the habit of hovering above the target host prior to an oviposition attack (Disney & Schroth 1989).

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