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SHORT NOTE

New Species of Scuttle Flies (Diptera: Phoridae) Associated with a Ponerine Ant (Hymenoptera: Formicidae) in Brazil

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Abstract

Among scuttle flies caught at colonies of the ant *Dinoponera lucida* Emery (Ponerinae) were *Apocephalus exlucida* Disney new species and females of two species of *Megaselia* Rondani that, which in our present state of knowledge, cannot be named until associated with their males.

Introduction

The ant *Dinoponera lucida* Emery (Ponerinae) is endemic of the Atlantic rain forest in Brazil (Peixoto *et al*., 2008) and it was included in the list of Brazilian threatened species in 2003 (Campiolo & Delabie, 2008). During 2012 Marcos Teixeira collected Diptera attacking or hovering over this ant in the vicinity of six colonies at Aracruz, Espírito Santo State, in David Farina Park (19º55`54" S - 40º07`41" W). The scuttle flies (Phoridae) were preserved in 70% ethanol and sent to RHLD for slide mounting and identification. The fly specimens are deposited in the Collection of the Museu de Zoologia, Universidade de São Paulo, Brazil (MZSP**)** and the University of Cambridge Museum of Cambridge Museum of Zoology (UCMZ).

Genus ***Apocephalus*** *Coquillett*

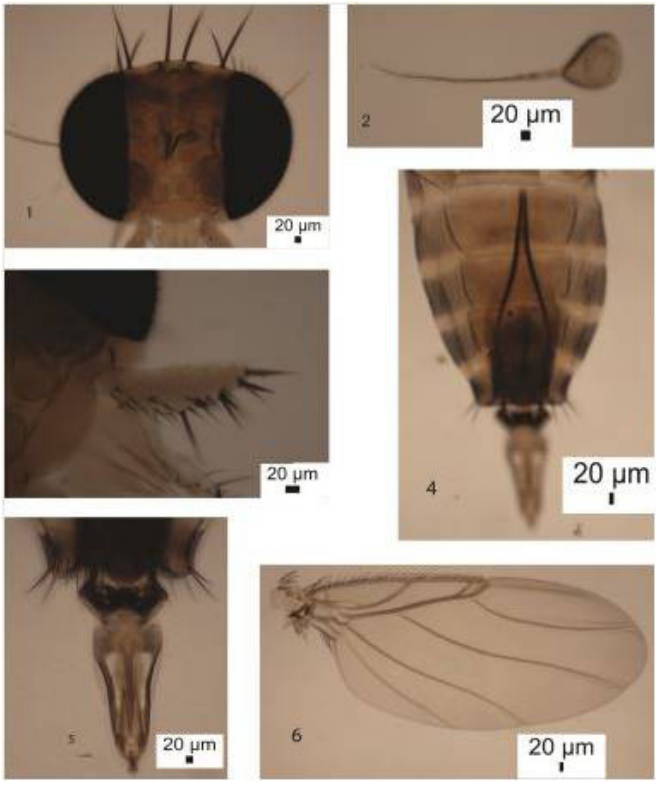
The larvae of this large genus are dominantly parasitoids of ants. We add a further example below.

Apocephalus exlucida *Disney new species*

In the key of Borgmeier (1971) this species runs to couplet 60 but fits neither species nor subsequently described species running to the same couplet. Among the latter are those covered by Brown's (2000) *A. miracauda*-group, which includes some with the most similar ovipositor sheaths, and species associated with leaf cutter ants in Argentina (Brown *et al.,* 2010) but all with very different ovipositor sheaths.

Female. Frons as Fig 1, the microtrichia being well spaced. Antennae pale (Fig 2) and postpedicels lacking subcutaneous pit sensilla. Palps as Fig 3. Proboscis with pale labrum and labella, the latter being narrow and lacking fields of spinules on their lower faces. Thorax yellow apart from brown patches on pteropleuron. Notopleoron with two bristles and no cleft in front of these. Mesopleuron bare. Scutellum with an anterior pair of small hairs and a posterior pair of bristles. Abdominal tergites light brown, tending to yellowish at sides with small hairs apart from some longer more robust hairs at sides of T2

and with some slightly longer fine hairs at rear of T6. Venter pale apart from broad grey bands on flanks below the sides of the tergites, and with hairs, longer than those on tegites, below segments 3-6. Terminal opvipositor sheath complex as Fig 5, with its anterior ventral sclerite comprising an anterior long dark sclerotised rod and a broader greyish brown posterior diamond shape ending in a tapered posterior projection. Legs pale straw yellow apart from brown tips to hind femora and patches on mid coxae. Fore tarsi slender with a posterodorsal hair palisade on all five segments and 5 slightly longer than 4. Dorsal hair palisade of mid tibia extends about 0.8 times its length. Hairs below basal half of hind femur longer than those of the anteroventral row of outer half. Hind tibia with about a dozen differentiated posterodorsal hairs, the last being longer and more robust, and spinules of apical comb all simple. Wings as Fig 6. Knobs of halteres mainly brown.

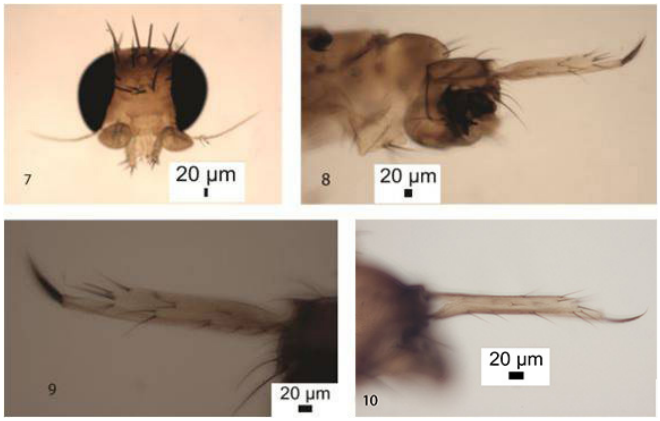


Figs 1-6. *Apocephalus exlucida* female. Fig 1. Frontal view of head; Fig 2. Antenna; Fig 3. Palp; Fig 4. Dorsal view of abdominal segments 3 to tip; Fig 5; Terminal (ovipositor sheath) segments of abdomen; Fig 6. Right wing.

Male. Head as Fig 7. Thorax as female. Abdomen with tergites with hairing similar to female but with stronger hairs at rear of T6 (Fig 8) but while largely brown they are variably partly yellow, especially T5. Venter entirely pale yellow and with hairs below segments 3-6 but those at rear of segment 6 longer than those at rear of T6 (Fig 8). Hypopygium as Figs 8-10. Legs, wings and halteres similar to female.

Material examined. Holotype female, BRAZIL, Espírito Santo, Aracruz, vi.2012, at *Dinoponera lucida* Emery, (Marcos Teixeira, TO-115) (5-164, MZSP). Paratypes: 9 females, 8 males, as holotype except some vii.2012 (TO-114-122) (5-160-165, MZSP & UCMZ).

Comment. Previous records of *Apocephalus* attacking species of *Dinoponera* are *Apocephalus miricauda* Borgmeier and *Apocephalus* sp. at *D. gigantea* Perry (Silveira-Costa & Moutinho, 1996); it being shown that injured ants attracted more phorids than uninjured ants, but it was not the haemolymph that was the lure, *A. miricauda* at *D. longipes* Emery, there being 4-9 eggs per host and oviposition being mainly between the propodeum and petiole but sometimes the antennal suture (Brown, 2000).



Figs 7-10. *Apocephalus exlucida* male. Fig 7. Frontal view of head; Fig 8. Left face of hypopygium; Fig 9. Right face of hypopygium; Fig 10. Left face of hypopygium.

*Genus **Megaselia** Rondani*

In this huge genus, most females cannot be named until linked to their males in our present state of knowledge.

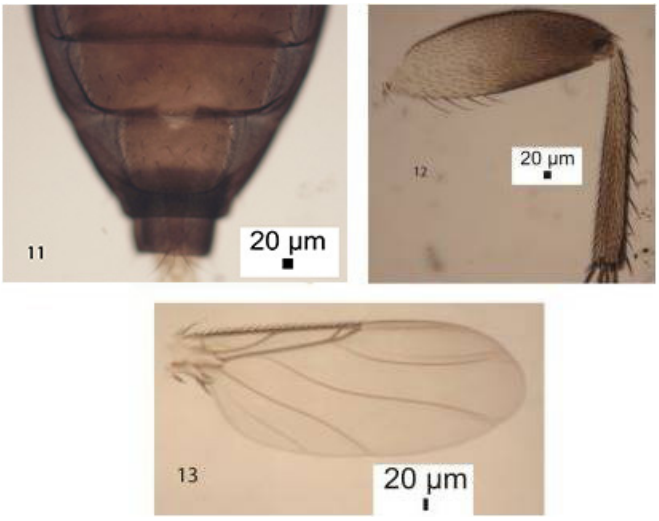
***Megaselia** species A*

In the keys of Borgmeier (1962) this species belongs to Abteilung VII, running down to couplet 8 but fails to fit either lead.

Female. Frons brown, clearly broader than long, with about 80 hairs and devoid of very fine microtrichia. Supra-antennal bristles (SAs) unequal, the lower pair being clearly shorter and finer. The upper SAs slightly wider apart than the pre-ocellars. The antials very slightly lower on frons than anterolaterals, closer to ALs than to upper SAs. Pre-ocellars closer together than than either is from a mediolateral bristle, which is a little higher on frons. Cheek without bristles and jowl with two. The subglobose postpedicels light brown, 0.09 mm in diameter, with 2-3 subcutaneous pit sensilla (SPS) vesicles of which the diameter of the largest is subequal to that of the socket of a lower SA bristle. Palps pale yellow, at most 0.038-0.039 mm at broadest, with 7-8 bristles (the longest clearly longer than palp breadth) and 4-5 hairs. Labrum pale brownish yellow and about 0.95-0.10 mm wide. Labella paler than palps and lacking small spinules below. Thorax brown. Three notopleural bristles and no cleft in front

of these. Mesopleuron bare. Scutellum with an anterior pair of hairs (about as long as hairs of scutum adjacent to notopleuron) and a posterior pair of bristles. Abdominal tergites brown. T5-T7 as Fig 11. Venter brown, and with fine hairs below segments 3-6. Sternite 7 a narrow bar, about 0.08 mm at widest and tapering a little anteriorly. Epiproct pale contrasting with its sclerotised anterior apodemes. Posterolateral lobes at rear of sternum 8 pale and with 3 longish hairs at hind margin (the longest about 0.05-0.06 mm). Furca not evident. Dufour's crop mechanism pale, and at least twice as long as broad and rounded behind. Apart from increasingly brown outer half of hind femur and dark brown patch on mid coxa, legs yellow. Fore tarsus with posterodorsal hair palisade on segments 1-4 and 5 about as long as 4. Dorsal hair palisade of mid tibia extends about 0.75 times its length. Hairs below basal half of hind femur longer than those of anteroventral row of outer half (Fig 12). Hind tibia with 10 differentiated posterodorsal hairs, the last being stronger and longer than the rest, and spinules of apical combs simple. Wings (Fig 13) 1.2-1.3 mm long. Costal index 0.56-0.57. Costal ratios 3.6 : 3.3 : 1. Costal cilia (of section 3) 0.04-0.05 mm long. Without hair at base of vein 3. With two unequal axillary bristles, the outer being 0.06-0.07 mm long. Sc not reaching R1. Haltere with pale stem and brown knob.

Material examined. 1 female, Espírito Santo, Aracruz, vii.2012, at *Dinoponera lucida* Emery, (Marcos Teixeira, TO-115, MZSP).

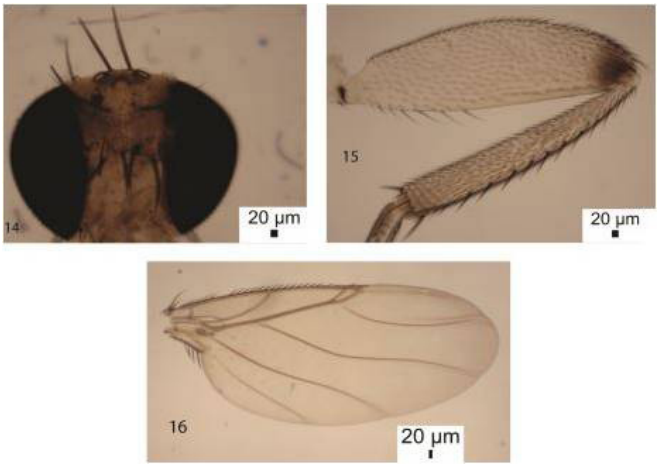


Figs 11-13. *Megaselia* species A female. Fig 11. Abdominal tergites 5-7; Fig 12. Hind femur; Fig 13. Right wing.

Megaselia *species B*

With the anterior scutellar strong hairs being about 0.59 times as long as the posterior bristles, in the keys of Borgmeier (1962) this species belongs either to Abteilung VI or VII, depending on whether it is considered to possess 2 or 4 scutellar bristles. In Abteilung VI it runs to couplet 50, but is immediately excluded by its yellow thorax. In Abteilung VII, it runs down to couplets 79 and 82-84, which cover males only but in all cases non sexually dimorphic details exclude this species.

Female. Frons as Fig 14 and with fairly dense but very fine microtrichia. Cheek with 2-3 small bristles and jowl with two that are longer and more robust. The subglobose postpedicels pale yellow, without subcutaneous pit sensilla (SPS) vesicles, and 0.10-0.11 mm at widest. Palps yellow, 0.05 mm greatest breadth with, 6 bristles (the longest being 0.08 mm long) and as many hairs. Labrum yellow lightly tinged brown and 0.16-0.17 mm wide. Labella coloured as palps and lacking short spinules below. Thorax yellow, apart from brown patches on pteropleuron. Two notopleural bristles and no cleft in front of these. Mesopleuron bare. Scutellum with an anterior pair of hairs and a posterior pair of bristles, the former being about 0.59 times as long as the latter. Abdominal tergites 1-5 part brown and part whitish yellow. T6 whitish yellow apart from very narrow brown lateral margins and about twice as long as broad. Tergite 7 similar but smaller. Epiproct very pale. Venter mainly pale apart from broad gray bands on the flanks extending from the sides of the tergites, and with hairs below segments 3-6. Sternite 7 represented by hairs only. Posterolateral lobes at rear of sternum 8 pale with 2 hairs at rear margin. Cerci very pale and about twice as long as broad. Furca not evident. Dufour's crop mechanism very pale, about twice as long as wide and slightly pointed at rear end. Apart from brown patch on mid coxa and tip of hind femur legs yellow. Fore tarsus with posterodorsal hair palisade on segments 1-5 and 5 slightly longer than 4. Dorsal hair palisade of mid tibia extends about 0.8-0.9 times its length. Hairs below basal half of hind femur longer than those of anteroventral row of outer half (Fig 15). Hind tibia with about 16 differentiated posterodorsal hairs, the last being the longest and strongest but the two preceding it clearly weaker and shorter than those above them; and spinules of apical combs simple (Fig 15). Wings (Fig 16) 1.2-1.3 mm long. Costal index 0.59. Costal ratios 3.7 : 3.4 : 1. Costal cilia (of section 3) 0.05 mm long. No hair at base of vein 3 . With 6 axillary bristles, the outermost being 0.10-0.11 mm long. Sc reaching R1. Haltere knob pale grayish brown.



Figs 14-16. *Megaselia* species B female. Fig 14. Frontal view of head; Fig 15. Hind femur and tibia; Fig Right wing.

Material examined. 1 female, Espírito Santo, Aracruz, vii.2012, at *Dinoponera lucida* Emery, (Marcos Teixeira, TO-118, MZSP).

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