Zootaxa 3857 (4): 551–570
www.mapress.com/zootaxa/
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Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3857.4.5
http://zoobank.org/urn:lsid:zoobank.org:pub:6033EEF1-FB14-4173-AD89-12D8DCDBCF7E

Revision of the *Apocephalus analis* group of ant-decapitating flies (Diptera: Phoridae)

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Abstract

The species of the mostly Neotropical Region *Apocephalus analis* group are revised, and found to comprise 21 species, 19 of which are new to science: *A. bilineatus, A. euryacanthus, A. holdenae, A. mexacanthus, A. paracanthus,* and *A. rectisetus* in the newly recognized *A. comatus* series, and the following unclassified species: *A. amacayacuensis, A. amati, A. amenti, A. amorimi, A. camarae, A. criniventris, A. gonzalezae, A. marinhoi, A. papei, A. pittadearaujoi, A. riccardae, A. strazhnikae*, and *A. xavierfilhoi*. Little is known of the natural history of this group, other than that the two previously known species, *A. analis* Borgmeier and *A. comatus* Borgmeier, were collected with the army ant *Labidus coecus* (Latreille).

Key words: Formicidae, parasitoid, Neotropical, taxonomy

Introduction

The species of genus *Apocephalus*, subgenus *Apocephalus*, are commonly known as "ant- decapitating flies", because of their parasitoid lifestyle. In most species, an egg is laid in the head of the host ant, and the larva develops inside the head capsule of its host, eventually decapitating it. These flies are found from tropical rain forests at the equator to treeline in the north, and attack a wide variety of ants, including species of *Camponotus* Mayr, *Pheidole* Weswood, *Atta* F., *Eciton* Latreille, *Pachycondyla* Smith, and many others. The highest species diversity is found in lowland tropical rain forests, where their host ants also reach their highest species richness (Ryder Wilkie *et al.*, 2010). Recent revisions and taxonomic treatments of this genus are given in Brown (2012a).

The *Apocephalus analis* group is a little-known subsection of the genus. The name is based on the enlarged cercus + hypoproct, or anal tube, of males of *Apocephalus analis* Borgmeier (Fig. 1). This species was described from specimens found in Brazil, but similar males are known from throughout the Neotropical Region. The females, however, upon which the taxonomy of this genus is based, have not been adequately described.

Another species described by Borgmeier (1958) from Brazil, *Apocephalus comatus*, belongs in this group as well. Males of this species are unknown.

In spite of the small beginnings of the taxonomy of this group, there are a surprising number of species found throughout the Neotropical Region. Almost nothing is known of their lifestyle, and no hosts are known for certain. Many species are rarely collected, and represented by single or few specimens.

Methods and materials

Most specimens were collected by Malaise traps, preserved in 70% alcohol, and later dried using HMDS (Brown, 1993). Each specimen has a bar-coded, numbered label (e. g., "LACM ENT 000001") that serves as both catalog number and an indication of the institution where its data are stored.

Names of new species in this revision were derived largely from surnames of LACM Entomology staff and of

Accepted by D. Bickel: 8 Aug. 2014; published: 1 Sept. 2014

Conclusions

This is a group of rarely collected species for which little life history information is available. Many more new species are expected. Possibly, the use of light traps, such as those proposed by Brown (2012b), will uncover further specimens of this presumably nocturnal group.

Acknowledgments

I gratefully acknowledge the skilled preparation of specimens by Vladimir Berezovskiy. Illustrations were prepared superbly by Inna Strazhnik. Toni Rodriguez helped with data entry. Funding for this project was provided by US National Science Foundation grant 1025922 to B. Brown and P. Smith and grant 1145890 to B. Brown and A. Borkent.

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