Introduction

Assassin flies are aggressive aerial predators that wait and ambush their prey in flight. Using a sharp proboscis the assassin fly pierces its prey and injects it with paralysis saliva that also breaks down and liquefies its prey. *Acronyches* is a genus of assassin fly found from northern Mexico to southern Paraguay, but specimens are collected rarely.

Our study is aimed at making new information available as the last reviews of these large collections were published in the late 1960s and early 1970s (Martin, 1968; Papavero, 1971). Since then new material has accumulated in many natural history collections extending the known range of several species and also including potentially new species, which we are studying with particular attention. This revision is based on external morphological features of 38 adult flies. All 18 currently recognized species are re-described based on a more extensive list of features as previously used and the new species are scientifically described. A dichotomous key for their identification was developed.

Materials

Specimens used in this revision were either part of the National Museum of Natural History, Washington, D.C. (USNM) collection or loaned from the following institutions: AMNH- American Museum of Natural History, New York City; CMC-Canadian National Collection of Insects, Arachnids and Nematodes, Ontario, Canada; EMP- Coll. Fisher, El Dorado Hills, CA; FSCA-Florida State Collection of Arthropods, Gainesville, FL; INBio-Instituto Nacional de Biodiversidad, Costa Rica; INPA-Instituto Nacional de Pesquisas de Amazônia, Manaus, Amazonas, Brazil; TAMU – Texas A&M University, College Station, TX; UCD- University of California Davis Collection, Davis, CA; UNAM-Universidad Nacional Autónoma de México, Mexico City; MX; ZMB - Museum für Naturkunde, Berlin, Germany.

Methods

We used Lucid Builder and a character matrix of 776 features to enter information for each species. From this matrix, natural-language species descriptions will be exported. Whole habitus photographs of our specimens were taken with a Visionary Digital Passport II system (base and StackShot only), an Olympus E-530 digital SLR with 50 mm macro lens (equivalent of 100 mm focal length in 35 mm photography), and a 25 mm extension tube. The specimens were illuminated by a Falcon FLDM-i200 LED dome-light for even and soft light. Adobe DNG format images were stacked using HeliconFocus software. Each specimen was data bar assigned in a FileMaker Pro database and assigned a unique specimen number (either an institutional number, if available, or an AAM-XXXXXX number used in the Dikow laboratory and pro-referenced with Google Earth). The occurrence of all species is illustrated in distribution maps plotted with SimpleMappr.

References


New Species

Country: Brazil
Locality: Banan Talk, Peru
Date collected: July 10th, 1977

*Acronyches* sp. nov. is a new species in the genus that is described in this report. The coloration of the hind femur is unique, it starts off black, then it changes to grey and finally to black again. The species is found in the hotspot known as *A. fenestratulus* also occurs in the hotspot known as *A. meruuna* and *A. westcotti*. Additional species occur in the biodiversity hotspots known as the Atlantic forest these include *A. alexanderi* and *A. willistoni*. A. sp. nov. panama is a new species that was collected in Panama, it is quite unique and has some unique characters that distinguish it from congeners. A. sp. nov. panama also has a unique coloration pattern which is dark grey with grey pubescence. This is a unique combination found in other species. In addition to the coloration of the hind femur and wings, there is an additional stripe on the hind femur that is black and exhibits light yellow at the distal end. The species has quite a unique coloration with nuritae 7 primarily a grey body but light yellow bands at the distal end.

Country: Guatemala
Locality: Baja California, Canal Zone
Date: May 7th, 1977

*Acronyches* sp. nov. is a new species that was collected in Guatemala, it is quite unique and has some unique characters that distinguish it from congeners. A. sp. nov. panama also has a unique coloration pattern which is dark grey with grey pubescence. This is a unique combination found in other species. In addition to the coloration of the hind femur and wings, there is an additional stripe on the hind femur that is black and exhibits light yellow at the distal end. The species has quite a unique coloration with nuritae 7 primarily a grey body but light yellow bands at the distal end.

Conclusion

The taxonomic revision of *Acronyches* is still ongoing, in particular new descriptions are needed for those species for which the type specimens did not arrive in time for the revision (material from two German and one Brazilian collection). In addition, other material is known to be deposited in INBio in Costa Rica and the Florida State Collection of Arthropods in Gainesville, FL, which we need to study. Dissections of male and female terminalia are also needed in order to strengthen the distinctions between species. Based on the morphological evidence and the specimens at hand, we have established a revised key to the species of *Acronyches*. The revised key is available as an online resource at the website of the Smithsonian Institution.

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