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Revision of the New World species of *Houghia* Coquillett (Diptera, Tachinidae) reared from caterpillars in Area de Conservación Guanacaste, Costa Rica

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Abstract

Thirty-five species of the genus *Houghia* Coquillett (Tachinidae, Exoristinae, Goniini) are described, 34 new and one previously described, all reared from various species of caterpillars collected in Area de Conservación Guanacaste (ACG), northwestern Costa Rica. A matrix of character states and a key for the identification of the species are also provided. By coupling morphology, life history and molecular data, with photographic documentation, a clear and concise description of each species is provided. The following 34 new species of *Houghia* are described, all authored by Fleming and Wood: *H. aerata* sp. nov., *H. aurifera* sp. nov., *H. biseriata* sp. nov., *H. bivittata* sp. nov., *H. blancoi* sp. nov., *H. brevopilosa* sp. nov., *H. chavarriae* sp. nov., *H. confinis* sp. nov., *H. delospilota* sp. nov., *H. destituta* sp. nov., *H. fimbriata* sp. nov., *H. gracilis* sp. nov., *H. graciloides* sp. nov., *H. griseifrons* sp. nov., *H. inflatipalpis* sp. nov., *H. latigena* sp. nov., *H. latilobus* sp. nov., *H. longicercus* sp. nov., *H. longipilosa* sp. nov., *H. luteiventris* sp. nov., *H. macilentata* sp. nov., *H. marini* sp. nov., *H. matarritai* sp. nov., *H. nigrofemur* sp. nov., *H. ochrofemur* sp. nov., *H. omissa* sp. nov., *H. pallida* sp. nov., *H. parmata* sp. nov., *H. pilosifrons* sp. nov., *H. romeroae* sp. nov., *H. sexmaculata* sp. nov., *H. spathulata* sp. nov., *H. triangularis* sp. nov., and *H. velutina* sp. nov.

The following are proposed by Wood as new synonyms of *Houghia*: *Actinoprosopa* Townsend syn. nov., *Agrarialia* Curran syn. nov., *Anhangabahuia* Townsend syn. nov., *Aridalia* Curran syn. nov., *Bolohoughia* Townsend syn. nov., *Carceliocephala* Townsend syn. nov., *Chrysohoughia* Townsend syn. nov., *Eumacrohoughia* Townsend syn. nov., *Macrohoughia* Townsend syn. nov., *Orohoughia* Townsend syn. nov., *Pammaerus* Aldrich syn. nov., *Pararrhinactia* Townsend syn. nov., *Petrargyrops* Townsend syn. nov., *Sisyrohoughia* Townsend syn. nov., *Tapajohoughia* Townsend syn. nov., and *Verrugomyia* Townsend syn. nov. New combinations are proposed by Wood as a result of the new synonymies, as follows: *H. analis* (Townsend) comb. nov., *H. approximata* (van der Wulp) comb. nov., *H. aurata* (Townsend) comb. nov., *H. auro-metallica* (Townsend) comb. nov., *H. bistrigata* (van der Wulp) comb. nov., *H. calcarata* (van der Wulp) comb. nov., *H. chlorescens* (Townsend) comb. nov., *H. crypta* (Townsend) comb. nov., *H. facialis* (Townsend) comb. nov., *H. impedita* (van der Wulp) comb. nov., *H. lateralis* (Curran) comb. nov., *H. leptotrichopa* (Brauer & Bergenstamm) comb. nov., *H. maris* (Townsend) comb. nov., *H. marmorata* (Townsend) comb. nov., *H. minor* (Thompson) comb. nov., *H. nuda* (Townsend) comb. nov., *H. orbitalis* (Townsend) comb. nov., *H. orbitalis* (Curran) comb. nov., *H. parva* (Townsend) comb. nov., *H. plagioides* (van der Wulp) comb. nov., *H. punctiger* (Townsend) comb. nov., *H. quadra* (Wiedemann) comb. nov., *H. sexualis* (Curran) comb. nov., *H. similis* (Townsend) comb. nov., *H. simillima* (Thompson) comb. nov., *H. sordida* (van der Wulp) comb. nov., *H. tenuiseta* (Macquart) comb. nov., and *H. tropica* (Townsend) comb. nov.

Houghia orbitalis (Curran, 1934a, described in *Sturmia*), junior homonym of *H. orbitalis* (Townsend, 1927, described in *Verrugomyia*) is synonymized by Wood with *Houghia leptotrichopa* (Brauer & Bergenstamm, 1891), and need not be renamed while in synonymy. Lectotypes are designated by Wood for the following ten valid species of *Houghia*: *Anisia approximata* van der Wulp, 1890, *Actinoprosopa facialis* Townsend, 1927, *Masicera impedita* van der Wulp, 1890, *Macrohoughia marmorata* Townsend, 1927, *Eumacrohoughia minor* Thompson, 1963, *Prospheerisa plagioides* van der Wulp, 1890, *Petrargyrops punctiger* Townsend, 1927, *Carceliocephala simillima* Thompson, 1963, *Masicera sordida* van der Wulp, 1890, and *Masicera tenuiseta* Macquart, 1846: 292.

Key words: *Houghia*, Diptera, Tachinidae, Exoristinae, Goniini, tropical rain forest, tropical dry forest, parasitoid fly, host-specificity, caterpillars

Introduction

Area de Conservación Guanacaste (ACG) is a model of conservation effort through biodiversity development. As a result of the tireless efforts of its staff and collaborators, more than half a million wild-caught lepidopteran larvae have been reared for their parasitoids (Janzen *et al.* 2009, Janzen & Hallwachs 2011, Fernandez-Triana *et al.* 2014). This provides an unprecedented amount of data, providing invaluable information on parasitoid biology and associated hosts. The most speciose fly parasitoids encountered belong to the family Tachinidae.

The Neotropical Region has a tachinid fauna vastly more diverse than anything indicated in any publication. Although the number of named species catalogued by Guimarães (1971), some 2864 species, is larger than that of any other faunal region, this is undoubtedly a small fraction of what exists in nature, based on what has recently been discovered in Costa Rica, and what is already present in other collections. The most speciose elements of the fauna seem to occur in the upper elevations and cloud forests that extend from the western slopes of the Sierra Madre Occidentale in Mexico to both slopes of the Andes from Colombia south to Bolivia, and numerous species of *Houghia* have been found throughout this mountain chain.

The New World genus *Houghia* was erected by Coquillett (1897) for two specimens collected at Tifton,

Etymology. An adjective derived from the Latin noun “*vellus*”, meaning fleece, or wool when shorn off, referring to the velvety appearance of the sex patches.

Distribution. Costa Rica, ACG, Prov. Alajuela, rain forest, 405–461 m elevation.

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