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Nomenclatural issues in the orchid bees (Hymenoptera: Apidae: Euglossina) and an updated catalogue

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Abstract

The taxonomic status (or the taxonomic status of the onomatophores) of seven nomina are revised: *Eulaema meriana* (Olivier, 1789), *Euglossa piliventris* Guérin-Méneville, 1844, *Exaerete appendiculata* (Romand, 1849), *Exaerete subcornuta* (Romand, 1849), *Eufriesea danielis* (Schrottky, 1907), *Euglossa fimbriata* Moure, 1968, and *Eufriesea yepezi* (Moure, 2000). Lectotype is designated for *Euglossa piliventris* Guérin-Méneville, 1844. Neotypes are designated for *Apis meriana* Olivier, 1789 and *Apis dimidiata* Fabricius, 1793 based on the same specimen and *A. dimidiata* Fabricius, 1793 became an objective synonym of *A. meriana* Olivier, 1789. *Chrysantheda subcornuta* Romand, 1849 is shown to be a senior objective synonym of *Chrysantheda appendiculata* Romand, 1849 and their synonymy under *Exaerete dentata* (Linnaeus, 1758) is questioned and discussed. *Eumorpha combinata danielis* Schrottky, 1907 is confirmed as a junior subjective synonym of *Eufriesea auriceps* (Friese, 1899), but the status of its onomatophore is reconsidered. Moreover, a long overlooked *Euglossa dentata* var. *maxima* Romand, 1849, **nom. nud.** and *Euplusia yepezi* Moure, 2000, **nom. nud.** are discussed for the first time. Both nomina *Euglossa fimbriata* Moure, 1968 and *Euglossa fimbriata* Rebêlo & Moure, 1996

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are available, but the latter is permamently invalid as a junior primary homonym of the former. An updated catalogue of all orchid bee nomina is also provided.

Key words: euglossine bees, lectotype, neotype, nomenclature, systematics, taxonomy, Neotropical region

Introduction

The discovery of the dependence of male orchid bees (Hymenoptera: Apidae: Euglossina; alternatively ranked as tribe, *i.e.*, Euglossini, by some authors, *e.g.* Michener 2007) to chemical fragrances naturally found in flowers of many plant species, especially orchids (Vogel 1966), facilitated large collections of these insects from the 1960's onward, when these fragrances were artificially synthesized and used as lures to attract the bees (Dodson *et al.* 1969). Many unknown species at that time were revealed to the scientific community (*e.g.* Moure 1967a, b, 1968, 1969, 1970; Dressler 1978a, b, 1982a, b, c). Much of the taxonomic knowledge on these bees prior to the utilization of fragrances to collect them was based on females. The ease of collecting males with the chemical fragrances completely changed our understanding of the diversity of orchid bees and it was soon realized that there were many more species, especially of *Euglossa* Latreille, 1802, than previously thought through the study of females. As females of many species are strikingly similar and often morphological near indistinguishable, the taxonomy of orchid bees was based on males from the 1970's on, particularly because males display many external structures useful in taxonomic studies. Females were, thus, practically ignored in most taxonomic studies, especially those involving species of *Euglossa* (*e.g.* Moure 1968, 1970, Dressler 1978a, 1982a, b, c). Recently, however, it has been recognized that a few species had been described twice, *i.e.*, once (before the extensive use of chemical attractants) based on female specimens and again (after the use of chemical attractants) based on male specimens (*e.g.* Bembé 2007, Nemésio 2009a: 92). The solution for these and many other problematic taxonomic complications has more recently concerned researchers and some recent attempts to deal with them have been carried out (*e.g.* Nemésio 2009a, b). Nevertheless, due to the complexity of some situations and the intricacies of the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999, hereafter referred to as the *Code*), and also due to a reinterpretation of the old literature (and the designations and/or indications there made), we concluded that the status of some species must be reassigned, as well as the status of some specimens listed as onomatophores (*e.g.* Nemésio 2009a). Below we discuss six particularly relevant cases, in addition to providing an updated catalogue of all available orchid bee nomina. The type repositories in the previously published checklists and catalogues (*e.g.* Moure 1967b; Kimsey & Dressler 1986; Ramírez *et al.* 2002; Roubik & Hanson 2004; Moure *et al.* 2007; Nemésio 2009a) have often relied on information from the original primary description, but we made an attempt to verify the whereabouts of all type specimens through personal visits or contact with curators of institutions as listed in Table 1.

TABLE 1. Repositories and acronyms are cited following the Biodiversity Collections Index (including their permanent links). In parentheses follows the number of primary types of orchid bees in each institution, or in descending order for institutions with more than ten types: USNM, ZMBH, HNHM, DZUP, UFMG, UCDC, SEMC, and BMNH:

AMNH USA, New York, New York, American Museum of Natural History (10) urn:lsid:biocol.org:col:32972;
BMNH United Kingdom, London, Natural History Museum, Department of Entomology (10) urn:lsid:biocol.org:col:1009
CIBC Trinidad and Tobago, Curepe, International Institute of Biological Control (1) urn:lsid:biocol.org:col:33107
DZUP Brazil, Paraná, Curitiba, Universidade Federal do Paraná, Museu de Entomologia Pe. Jesus Santiago Moure (23) urn:lsid:biocol.org:col:33266
HNHM Hungary, Budapest, Hungarian Natural History Museum (28) urn:lsid:biocol.org:col:33453
IAVH Colombia, Boyacá, Villa de Leyva, Instituto Alexander von Humboldt (1) urn:lsid:biocol.org:col:1022
ICN Colombia, Bogotá, Universidad Nacional de Colombia, Insituto de Ciencias Naturales de la Universidad Nacional (2) urn:lsid:biocol.org:col:33478
INPA Brazil, Amazonas, Manaus, Instituto Nacional de Pesquisas da Amazoonia, Colecão Sistemática da Entomologia (1) urn:lsid:biocol.org:col:33531