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Abstract

A detailed synopsis of all the orchid-bee species known to occur in the Atlantic Forest Domain, eastern Brazil, is provided, including synonymy, complete type data, diagnoses, relevant data on biology and geographic distribution (with detailed localities of known occurrence of each species), colorful illustrations of onomatophores (“name-bearing type specimens”), and a list with the main references dealing with each species. Fifty-four species are recognized to occur in the Atlantic Forest Domain. Identification keys are presented for each genus and their species occurring in the Atlantic Forest. *Euglossa carinilabris* Dressler, 1982, *Euglossa cyanaspis* Moure, 1968, *Eulaema (Eulaema) niveofasciata* (Friese, 1899) and *Exaerete lepeletieri* Oliveira & Nemésio, 2003, considered junior synonyms of other species by different authors, are reinstated as valid species. A full discussion on the status of the four orchid-bee species described by Linnaeus is presented, as well as colorful illustrations of the four onomatophores. The two existing onomatophores of orchid bee species described by Fabricius are also illustrated and his *Apis cingulata* has been shown to be the species recently described as *Eulaema (Apeulaema) pseudocingulata* Oliveira, 2006, which, thus, becomes a junior synonym (**syn. n.**). *Euglossa aratingae* **sp. n.**, *Euglossa carolina* **sp. n.**, *Euglossa nanomelanotricha* **sp. n.**, *Euglossa roderici* **sp. n.**, *Euglossa roubiki* **sp. n.**, *Eulaema (Eulaema) atleticana* **sp. n.**, and *Eulaema (Apeulaema) marcii* **sp. n.** are described as new species. Neotypes are designated for *Eufriesea violacea* (Blanchard, 1840) and *Exaerete frontalis* (Guérin-Méneville, 1844). Some corrections concerning the repository institutions of some onomatophores of orchid bees were also made: *Eufriesea auriceps* (Friese, 1899) holotype has been listed as belonging to the US National Museum (Washington) or to the American Museum of Natural History (New York) but, in fact, it belongs to the Zoologisches Museum der Humboldt Universität (Berlin); the lectotype of *Eufriesea aeneiventris* (Mocsáry, 1896) has been listed as belonging to the Istituto e Museo di Zoologia, Università di Torino (Turin), but it actually belongs to the Hungarian Museum of Natural History (Budapest). Publication dates of both *Exaerete frontalis* Guérin-Méneville and *Exaerete smaragdina* Guérin-Méneville have been listed as 1845 but, in fact, the actual date is 1844. Based on the known geographic distribution and abundance of each species in orchid-bee inventories, IUCN criteria were applied and three species are recommended to be included in future lists of threatened species in one of the IUCN categories of risk: *Eufriesea brasilianorum* (Friese, 1899) and *Euglossa cognata* Moure, 1970 are suggested to be listed as “vulnerable”, and *Euglossa cyanocholora* Moure, 1996 is suggested to be listed as “endangered”. A fully annotated check list of all known orchid bee species is also presented as an Appendix.

Key words: aromatic baits, conservation, Euglossina, geographic distribution, nests, new species, synonymy, taxonomy

Introduction

Orchid bees (Hymenoptera: Apidae: Apini: Euglossina) are endemic to the Neotropics, occurring naturally from northern Mexico to northern Argentina (Moure 1967b, 2003; Roubik & Hanson 2004) with odd vagrant specimens collected in the southern United States (Minckley & Reyes 1996), and a species recently introduced into Florida (Skov & Wiley 2005, Pemberton & Wheeler 2006). Michener (2000, 2007) and most modern authors outside Brazil (*e. g.* Dressler 1982b, Kimsey 1982, Kimsey & Dressler 1986, Engel 1999, Cameron 2004, Roubik 2004, Bembé 2004b, 2007) have treated orchid bees as a tribe: Euglossini. The alternative classification, proposed by Roig-Alsina in Roig-Alsina & Michener (1993), treats orchid bees as a subtribe Euglossina and this classification has been adopted by most Brazilian authors, especially after the work by Silveira *et al.* (2002) which adopted the subtribal classification rank for orchid bees. I favor Roig-Alsina’s proposition and adopt subtribal rank for orchid bees in this paper.

Although orchid bees were known in Linnaean times—four species were described by Linnaeus (1758) himself, three of them [*Eufriesea surinamensis*, *Euglossa cordata*, and *Exaerete dentata* (all described as *Apis*)] currently recognized as valid—it was only after the mid-19th century that the number of known species began to increase, especially after the works by Mocsáry [1896, 1897, 1898, 1899 (in Friese 1899), 1908] and Friese (1899, 1900, 1903, 1904, 1912, 1916, 1921, 1922, 1923a, b, 1925, 1930, 1940). These two authors described 36 species of *Eufriesea*, 25 of which are currently recognized as valid. Friese described another 15 species of *Euglossa* (13 currently valid), 12 species of *Eulaema* (eight currently valid), and one valid species of *Exaerete*. It was from the 1960s on, however, when the floral fragrances which attract male orchid bees were discovered and synthesized (see Dodson *et al.* 1969), that the true diversity of euglossines—especially *Euglossa*—began to be fully understood. Moure alone (1943, 1947, 1950, 1960c, 1966, 1965, 1967, 1968, 1969, 1970, 1976, 1978, 1989, 1996, 1999, 2003) or in association with other entomologists (*e. g.* Sakagami *et al.* 1967, Rebêlo & Moure 1996, Moure *et al.* 2001, Moure & Schindwein 2002) played the largest role in recognizing this diversity and described 54 orchid-bee species (Urban 2003)—thirty-nine *Euglossa*, nine *Eufriesea*, five *Eulaema*, and one *Exaerete*, most of them currently recognized as valid. He also proposed several arrangements for supraspecific groupings of these bees (*e. g.* Moure 1943, 1950, 1968, 1989). Moure’s contribution in the taxonomy of Euglossina is obvious, considering that there are *ca.* 200 orchid-bee species currently recognized as valid. Finally, Dressler’s (1978, 1982b, c, d) contribution to *Euglossa* taxonomy was also noticeable, although this author described many species already recognized by Moure (1967b) and, unfortunately, designated as type specimens bees deposited in Washington, instead of respecting the countries of origin of such specimens, which would have made the study of these specimens much easier by those living in the region where the bees occur.