



## ***Euglossa marianae* sp. n. (Hymenoptera: Apidae): a new orchid bee from the Brazilian Atlantic Forest and the possible first documented local extinction of a forest-dependent orchid bee**

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### **Abstract**

The orchid bee faunas of Floresta Nacional do Rio Preto, Reserva Biológica Córrego Grande, and Reserva Biológica Córrego do Veado, in the northernmost portion of the state of Espírito Santo, southeastern Brazil, were surveyed for orchid bees for the first time. A total of 1,603 males belonging to 24 species were attracted to 16 different scent baits and actively collected with insect nets during 100 hours from December, 2009, to February, 2010. One species of *Euglossa*, known as strongly dependent on well preserved mature forests, once recorded at the region, was not found in this survey and may indicate the first documented local extinction of an orchid bee species. This species, which Atlantic Forest population has been treated as *Euglossa analis* Westwood, 1840, is here considered a new species, *Euglossa marianae* sp. n.

**Key words:** Atlantic Forest, conservation, *Euglossa analis*, Euglossina, euglossine bees, extinction

### **Introduction**

Field surveys of Neotropical orchid bees (Hymenoptera: Apidae: Euglossina) have gained in popularity through the last decades (e.g. Pearson & Dressler 1985; Powell & Powell 1987; Roubik & Ackerman 1987; Becker *et al.* 1991; Morato *et al.* 1992; Oliveira & Campos 1995; Rasmussen 2009). The Brazilian Atlantic Rain Forest domain was the last of the big Neotropical forest biomes where orchid-bee fauna surveys started to be carried out (Rebêlo & Garófalo 1991, 1997; Bezerra & Martins 2001; Tonhasca Jr. *et al.* 2002; Nemésio 2003, 2010b, 2011a; Sofia *et al.* 2004; Sofia & Suzuki 2004; Milet-Pinheiro & Schindwein 2005; Darrault *et al.* 2006; Nemésio & Silveira 2006a, b, 2007, 2010; Silveira *et al.* 2011). Contrary to the still mostly continuous forested areas in the Amazon Basin, the Atlantic Forest is now highly scattered in thousands of fragments (Ribeiro *et al.* 2009), only a few of them being larger than 10,000 ha. The combination of a fragmented biome with species highly dependent on forested areas – some of them presenting apparently restricted geographic distributions – may represent a threat to many orchid bees, as recently warned (Nemésio 2009, 2010a). Authors of the two most recently described orchid bee species from this biome, for example, treated both species as potentially threatened and considered the loss of suitable habitat as the main reason (Nemésio 2010a, Faria Jr. & Melo 2011). Faria Jr. & Melo (2011: 38) went still further and mentioned that they hope the description of *Eufriesea pyrrophyga* Faria Jr. & Melo, 2011 “does not represent a description of an already extinct species”.

The state of Espírito Santo, southeastern Brazil, once held one of the most impressive forest cover of the Atlantic Forest, but most of this forest was completely wiped out during the 20<sup>th</sup> century, with only a handful of forest patches remaining (Dean 1995; Galindo-Leal & Câmara 2003). Only two of these forest fragments (Reserva Natural Vale, 22,000 ha; Reserva Biológica de Sooretama, 24,000 ha) are larger than 20,000 ha, but both are connected, forming a 46,000-ha area, whereas the remaining forested areas in Espírito Santo are very small, rarely exceeding 3,000 ha (Ribeiro *et al.* 2009). Astonishingly, despite of many collections carried out in Espírito Santo and even several species of orchid bees having Espírito Santo as their type localities, there is no published data on the orchid-bee fauna of the state, except for Silveira *et al.* (2002) and Nemésio (2009: 17), the latter mostly based on the unpublished study by Bonilla-Gómez (1999).