



First record of the orchid bee genus *Eufriesea* Cockerell (Hymenoptera: Apidae: Euglossini) in the United States

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Abstract

The orchid bee genus *Eufriesea* Cockerell is documented for the first time from the southwestern United States, extending its apparent range north well beyond its previous tropical/subtropical boundaries. *Eufriesea coerulescens* (Lepelletier de Saint Fargeau 1841) is recorded from the Guadalupe Mountains of western Texas and southeastern New Mexico, USA. Whether *E. coerulescens* is resident in the USA, or merely a vagrant from Mexico, remains unclear. Distinctive morphological traits shared with the holotype are enumerated and illustrated. In addition, observations that question the current species concept and distribution of *E. coerulescens* are provided.

Key words: Neotropics, Chihuahuan Desert, range extension, taxonomy

Orchid bees (tribe Euglossini) are traditionally thought of as tropical taxa restricted to hot and humid parts of Central and South America, yet they are occasionally found outside of these limits (Búrquez, 1997). Rarely, they have been detected in the southern United States, viewed as vagrants or accidental introductions. Only two of the five euglossine genera have thus far been detected north of Mexico, each represented by a single species (Hinojosa *et al.* 2009). *Euglossa dilemma* Bembé & Eltz 2011 [as *E. viridissima* (Friese 1899)] was recorded recently from southern Florida, the presumed result of an accidental introduction (Skov & Wiley 2005; Eltz *et al.* 2011). *Eulaema polychroma* (Mocsáry 1899) has been reported twice, in southern Arizona and southernmost Texas (Minckley & Reyes 1996). Predictive distribution modeling based on native distributional data supported the suitability of southern Florida for *E. dilemma* where this species has become established while suggesting the absence of such habitat for *E. polychroma* in southern Arizona (Hinojosa-Díaz *et al.* 2008).

The diverse orchid bee genus *Eufriesea* Cockerell (nearly 70 species) seems a likely candidate to be added to the fauna of the United States. It has the greatest distributional range across the Neotropics, from Mexico to Argentina, and is second only to *Euglossa* Latreille in richness (Cameron 2004, Nemésio & Rasmussen 2011). In Mexico it reaches as far north as the border state of Chihuahua (Kimsey 1982; Michener 2007), suggesting the possibility that it might be found in the United States. It is also the least known genus in terms of its diversity and biology. Species of *Eufriesea* appear to be univoltine and highly seasonal, with adults flying for a few months each year (Kimsey 1982). As in other bees, species concepts are outdated, many species are known only from the type specimen, a single sex, or a few specimens, and the biology for the majority of the species unknown (Gonzalez *et al.* 2013). That much remains to be known about *Eufriesea* in North America is underscored by the recent description of a new species from Mexico (Ayala & Engel, 2008).

Herein we document for the first time the presence of *Eufriesea* in the U.S. Two male specimens were captured during a study of the bee fauna of Carlsbad Caverns National Park, Eddy County, New Mexico, and adjacent Guadalupe Mountains National Park, Culberson County, Texas. Both parts of the Guadalupe Mountains, a montane island of the Arizona/New Mexico Mountains Ecoregion within the Chihuahuan Desert (see below). Both specimens were collected at elevations of 1550–1780m in juniper to pine forests; one specimen was collected while foraging on *Cirsium* sp. (Asteraceae).