Walkeromya plumipes (Philippi) (Diptera: Bombyliidae), a parasitoid associated with carpenter bees (Hymenoptera: Apidae: Xylocopini) in Argentina

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Abstract

This is the first record of the association between Walkeromya plumipes (Philippi) (Diptera: Bombyliidae) and Xylocopa Latreille (Hymenoptera: Apidae) in Argentina. The pupal development and morphology of Walkeromya plumipes, a parasitoid of Xylocopa splendidula Lepeletier, are described. A parasitized nest was collected from Santiago del Estero province, Argentina. The development of the bombyliid fly and large carpenter bees in the nest were observed in the laboratory for a period of 28 days. A detailed description of the fly adult and pupal stages were carried out. This is the first record of W. plumipes parasitizing X. splendidula. This is also the first complete description of this fly species, including male genitalia. With the data presented here the geographical distribution of the parasite is expanded. The results suggest a close relation between the parasitoid and its host, as the genus Walkeromya Paranov has been found parasitizing only carpenter bees of genus Xylocopa.

Key words: pupal development, genitalia description, host-parasitoid association

Introduction

Members of the Bombyliidae are most frequently found in arid and semiarid portions of the world, with a few specialized forms occurring in moist tropical climates (Evenhuis, 1989). Larvae of all reared species of Bombyliidae are parasitoids (most often ectoparasitoids) or predators of other insects, primarily of immature stages of the large endopterygote orders of Coleoptera, Hymenoptera, Lepidoptera, Orthoptera, and Diptera (Boesi et al. 2009). The Bombyliid-Xylocopa association in the Neotropics is little known. The only two genera of Bombyliidae known to be associated with the genus Xylocopa are Walkeromya and Xenox Evenhuis, both members of the subfamily Anthracinae. Most records of this particular host-parasitoid association have been described for Nearctic Xylocopa species. The species Xenox delila (Loew), X. simson Fabricius, X. simson habrasus (Marston), X. tigrinus (De Greer) and X. xylocopae (Marston) are recorded as parasites of Xylocopa in the U.S. and Mexico (Nininger 1916; Hurd 1959, 1978; Marston 1970; Minckley 1989). The only host record for Walkeromya spp. was by F. D. Bennett who raised a female from Xylocopa submordax Cockerell (now X. (Neoxylocopa) transitoria Perez) in Trinidad, vouchers are deposited in the National Museum of Natural History, USA (Hull 1973). The present study describes the association between these bee flies and a carpenter bee in Argentina, providing information for the first time on the pupal development and a redescription of the fly.

Material and methods

This study was carried out on a nest of Xylocopa (Schonnherria) splendidula parasitized by a species of Bombyliidae. The nest was collected in Atamisqui (28°38′54″S 64°04′58″W, 120 m.s.m), Santiago del Estero province,