Scientific Note

Not just honey bees and bumble bees: first record of “zombie” flies (Diptera: Phoridae) from a carpenter bee (Hymenoptera: Apidae: Xylocopinae)

The “zombie” fly, *Apocephalus borealis* Brues, 1924 (Diptera: Phoridae), recently became notorious through discovery that females of this species parasitize western honey bees (Core et al. 2012). Infection of a worker bee apparently causes a change in bee behavior, inducing them to fly at night and be attracted to lights (the “zombie” behavior). Prior recorded victims of this fly include black widow spiders [*Latrodectus mactans* (Fabricius, 1775)], various yellowjacket wasps (Ennik 1973), and bumble bees (Otterstatter et al. 2002), apparently indicating that this fly has a unusually wide range of acceptable hosts (Brown 1993, 1996). Other members of the monophyletic group to which they belong, *Apocephalus*, subgenus *Mesophora* Borgmeier, 1937, are also unusual in their host choices, attacking cantharoid beetles and stingless bees rather than the ants (Formicidae) used by most species of *Apocephalus*, subgenus *Apocephalus* Coquillett, 1901 (literature summary in Disney 1994; Brown 2012, 2014).

A further new host record for *A. borealis* is based on a rearing of several adult specimens from a female valley carpenter bee, *Xylocopa varipuncta* Patton, 1879, one of the largest native bees in North America. The bee was noticed buzzing and flying in circles on the ground, obviously in distress. It was placed in a vial and soon thereafter larvae and pupae were observed. Seven adult flies eventually emerged from about 15 puparia. Specimens are preserved, along with the bee host, in the entomology collection of the Natural History Museum of Los Angeles County. The specimen data are as follows:

USA: California, Santa Barbara Co., Santa Barbara, 34.463902°N 119.743780°W, elev. 209 m, 29 April 2012, S. Russell.

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LITERATURE CITED


