FORCIPOMYIA (MICROHELEA) FULGINOSA (MEIGEN) (DIPTERA: CERATOPOGONIDAE), AN ECTOPARASITE OF LARVAL ANAEA TROGLODYTA FLORIDALIS (NYMPHALIDAE)

The Florida leafwing, Anaea troglodyta floridalis F. Johnson and Comstock (Nymphalidae), occurs locally within the pine rocklands of southern Florida and the lower Florida Keys (Minno & Emmel 1993; Smith et al 1994). Hennessey and Habeck (1991) and Worth et al (1996) described many aspects of A. t. floridalis natural history. Salvato & Hennessey (2003) also discussed A. t. floridalis ecology and provided a review of known parasites and predators for the species. Although several larval parasites have been mentioned for Anaea Hübner (DeVries 1987) and similar genera (Muyshondt 1974a, 1974b; Caldas 1996) throughout tropical America, little has been reported for A. t. floridalis larvae.

On 19 January 2008 MHS and HLS observed a female biting midge (Diptera: Ceratopogonidae) attached to the cuticle of an early instar A. t. floridalis larva (Figure 1) in the Long Pine Key region of Everglades National Park (Miami-Dade County, Florida). After photographing the observation in the field, the midge and larva were collected together. The midge was encountered on the A. t. floridalis larva at 1200 h and it remained feeding and in the same position on the larva throughout collection and transport home (3 h). At approximately 2300 h on 19 January 2008 the midge detached itself from the larva, however, both midge and larva were maintained within the same mesh-screened cage for an additional 24 h. After initial detachment, no further midge-larval interactions were observed.

The midge was preserved in 100% ethanol and sent to WLG who cleared it in phenol-alcohol, dissected and mounted it onto a microscope slide and identified it as Forcipomyia (Microhelea) fuliginosa (Meigen). Forcipomyia (M.) fuliginosa is a cosmopolitan ectoparasite that preys on a variety of insect groups, including Lepidoptera (Wirth 1956, 1972a; Lane 1984). In Florida, Phoebis sennae L. (Pieridae) (Suzanne Koptur, pers. comm.) and Erinnyis ello L. (Sphingidae) (Knab 1914; Wirth 1956, 1972b; Borkent & Wirth 1997) larvae have been previously identified as hosts of F. (M.) fuliginosa. After identification, the F. (M.) fuliginosa specimen was deposited into the South Florida Collection Management Center at Everglades National Park.

The A. t. floridalis larva was maintained in a screen mesh cage and provided fresh food plants (Croton linearis, the only known hostplant for the species). MHS and HLS have successfully reared numerous A. t. floridalis larvae under these conditions over 11 years of research on this species. However the A. t. floridalis larva, which behaved lethargically in the field and laboratory, fed only minimally until dying at approximately 48 h after its discovery. In some instances, the role of F. (M.) fuliginosa as ectoparasites of Lepidopteron larvae is sub-lethal (Sevastopulo 1973; Young 1983). However, Wirth (1972) and Koptur (pers. comm.) have indicated that instances of larval death noted in the literature may be the result of F. (M.) fuliginosa vectoring microbes during feeding. Given the widespread distribution of F. (M.) fuliginosa in Florida (Wilkening et al. 1985; Hribar & Grogan 2005), the role of this ectoparasitic biting midge on the natural history of A. t. floridalis and other Lepidoptera requires further examination.

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FIG. 1. An early instar Anaea troglodyta floridalis larva being attacked by a female biting midge, Forcipomyia (Microhelea) fuliginosa on 19 January 2008 in Long Pine Key, Everglades National Park (Miami-Dade County, Florida) (Photo Credit: H. L. Salvato).
LITERATURE CITED


MARK H. SALVATO & HOLLY L. SALVATO, 1765 17th Avenue SW, Vero Beach, Florida 32962, USA; email: anaea_99@yahoo.com, and WILLIAM L. GROGAN, JR., Dept. of Biological Sciences, Salisbury University, Salisbury, MD 21801, WLGROGAN@salisbury.edu.

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