

SHORT COMMUNICATION

1149

The Mite *Histiostoma halictonida* Phoretic on Nocturnal Bees of the Genus *Megalopta* (Acari: Histiostomatidae; Hymenoptera: Halictidae)

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Bee-mite associations are well known but poorly understood (e.g., Fain *et al.*, 1999; Fain and Pauly, 2001; Walter *et al.*, 2002). Parasitic interactions are not surprising but more interesting are the commensal or apparently mutualistic associations formed between these lineages. In the latter associations the biologies of the mite and host are synchronized to some extent and in the most dramatic cases, significant morphological alterations result (e.g., formation of acarinarium on the host). Numerous mite associations are increasingly being recorded from the primitive bee family Halictidae, mostly of the tribe Halictini (Fain *et al.*, 1999; Walter *et al.*, 2002).

During studies on the Central American fauna of the nocturnal bee genus *Megalopta* (Halictinae: Augochlorini), mites were discovered on 20% of the specimens of a new species from Panamá and Costa Rica. Mites (anywhere from 1–72 mites/bee) were found on the anterior-facing surface of the first metasomal tergum and at the extreme wing bases, areas typically not easily groomed by bees. Like many other bees, species of *Megalopta* lack an acarinarium. Acarinarium in Augochlorini are well-developed in *Thectochlora*, weakly developed in †*Oligochlora*, and entirely absent in other species (Engel, 2000). Identification of the mites revealed them to be *Histiostoma halictonida* Woodring, a species previously known from the distantly related halictine, *Halictus rubicundus* (Christ) (Woodring, 1973; Fain *et al.*, 1999).

Phoretic deutonymphs of the genus *Histiostoma* have been reported for five species of bees of the family Halictidae. All these deutonymphs present the following combination of characters (terminology follows that of Fain and Erteld, 1998): setae of coxae I, III, and IV modified into thick conoids; great development of prodorsal shield; and shape of palposoma wider than long and trapezoidal. This group includes *Histiostoma orientalis* (Mahunka) on *Halictus tetrazonianellus* Strand, *Hist. szelenyi* (Mahunka) on *Hal. "holtzi"* (an apparent *nomen nudum* in *Halictus*), *Hist. halictonida* Woodring on *Hal. rubicundus*, and *Hist. halicticola* Fain and Erteld on *Hal. sexcinctus* (Fabricius) (see Fain *et al.*, 1999). The single exception to this apparent preference for *Halictus* is *Hist. eickworti* Woodring, found on the augochlorines *Augochlora cordiaefloris* Cockerell and *A. nominata* Michener (Table 1). The discovery of *Hist. halictonida* on *Megalopta* extends the host distribution of this species into the Augochlorini along with *Hist. eickworti* and is the first record of this group on nocturnal bees.

Perhaps the most interesting aspects of this association are that the two known hosts for *Hist. halictonida* are spatial-temporally separated. *Halictus rubicundus* is a Holarctic, diurnal species distributed widely in North America but southward reaching only as far as southern California, Arizona, and New Mexico. The new species of *Megalopta*, a nocturnal forager, is alternatively known only from Panamá and Costa Rica. In fact, the genus *Megalopta* as a whole ranges only as far North as tropical Mexico. Thus, the populations of mites on these two species of bees are apparently disjunct, unless hitherto undiscovered host associations fill the distributional gap. For example, the bee *Hal. ligatus* Say (a relative of *Hal. rubicundus*) is widely distributed in North America southward as far as Colombia. If *Hist. halictonida* is discovered on this bee, then it might offer a connection between *Hal. rubicundus* and *Megalopta* populations further South. Otherwise the maintenance of specific integrity in *Hist. halictonida* is an interesting problem deserving of critical study.

This is the first record of mites phoretic on bees of the genus *Megalopta* and only the eighth account of mites on augochlorine bees (Table 1). It is likely that such associations will prove to be relatively common and widespread in the tribe once more attention is focused on bee-mite associations in Halictinae.

VOUCHERS: Vouchers of the mites are deposited in the Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas and the Institut royal des Sciences naturelles de Belgique, Brussels, Belgium. Vouchers of the bees are in the Division of Entomology, Natural History Museum, University of Kansas.

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Table 1. Recorded bee-mite associations in the Augochlorini (updated from Fain *et al.*, 1999).

Bee host	Mite	Reference
<i>Augochlora cordiaefloris</i> Cockerell	<i>Histiostoma eickworti</i> Woodring	Woodring, 1973
<i>Augochlora nominata</i> Michener	<i>Histiostoma eickworti</i> Woodring	Woodring, 1973
<i>Augochlorella persimilis</i> (Viereck)	<i>Laelaspoides ordwayae</i> Eickwort	Eickwort, 1966
<i>Augochlorella striata</i> (Provancher)	<i>Laelaspoides ordwayae</i> Eickwort	Eickwort, 1966
<i>Megalopta</i> sp. nov. (M. S. Engel)	<i>Histiostoma halictonida</i> Woodring	herein
† <i>Oligochlora eickworti</i> Engel	unident. Acaridae	Engel, 1996
† <i>Oligochlora micheneri</i> Engel	unident. Acaridae	Engel, 1996
<i>Thectochlora alaris</i> (Vachal)	<i>Thectochloracarus neotropicalis</i> Fain <i>et al.</i>	Fain <i>et al.</i> , 1999

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