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Parasitism of the carpenter bee, *Xylocopa virginica* (L.) (Hymenoptera: Apidae), by larval *Dermacentor variabilis* (Say) (Acari: Ixodidae)

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Abstract

Seven larval *Dermacentor variabilis* were found during April 2010 on a male carpenter bee, *Xylocopa virginica*, at Rayne, Louisiana, USA, while looking for chaetodactylid mites. One tick appeared to be partially engorged. Subsequently, 10 more carpenter bees (7 males, 3 females) were collected from the same location and examined for ticks. None were infested. The significance of this finding is discussed.

Ticks are obligate blood-sucking parasites of all terrestrial vertebrates: mammals, birds, reptiles and amphibians. Only very rarely have they been found attached to invertebrates. Hooker reported a beetle as the host of an *Amblyomma maculatum* (no stage specified) (Hooker *et al.* 1912), and an adult male *Rhipicephalus (Boophilus) annulatus* was reported from a horse fly (Leprince *et al.* 1988).

On April 4, 2010, seven larval *Dermacentor variabilis* were found on a male carpenter bee, *Xylocopa virginica*, at Rayne, Louisiana, by the second author while looking for chaetodactylid mites (specifically genus *Sennertia*) on two male bees. Deutonymphs of *Sennertia* are commonly phoretic on *Xylocopa* and *Ceratina* carpenter bees (Gerling *et al.* 1989). No attempt was made to initially scan the bee for attached mites; it was brushed with a toothbrush into a small pan of alcohol. Although no attached ticks were observed, one appeared to be partially engorged (Figure 1).

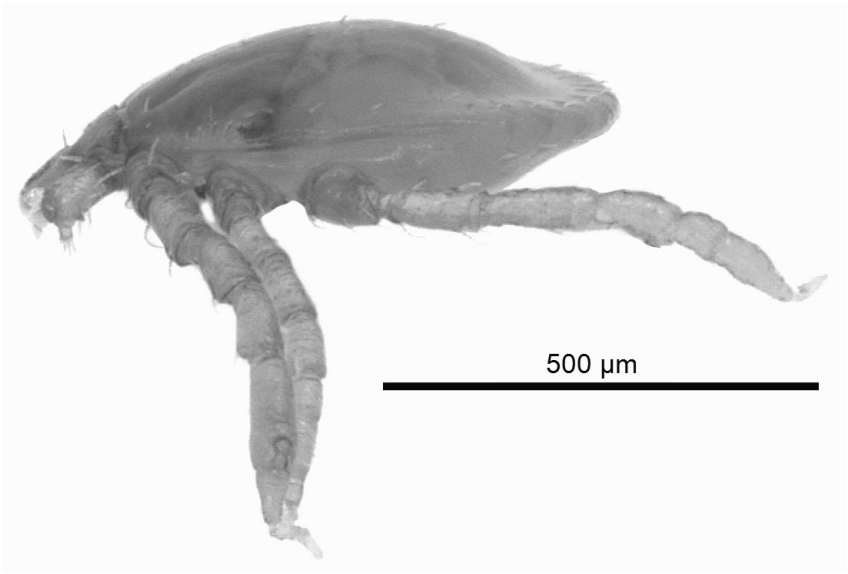

FIGURE 1. Larval *Dermacentor variabilis* removed from carpenter bee (Photo courtesy Joe Macgown, Mississippi State University).

Subsequently, on April 21, 2010, 10 more carpenter bees (7 males, 3 females) were collected from the same location and examined for ticks. None were infested. In the southern United States, *Dermacentor variabilis* larvae are active year-round, but accelerate host-seeking activity from February to mid-April (Sonenshine *et al.* 1966, Clark *et al*. 1998). They have been collected by drag cloth in northwest Florida during February (Cilek and Olson 2000). Since flowers provide the sole source of food and most of the water for carpenter bees (Gerling *et al.* 1989), we assume the infested bee acquired the tick larvae while visiting plants low to the ground, such as clover.

Acknowledgements

The tick identification was confirmed by Dr. Richard G. Robbins (ISD/AFPMB, Walter Reed Army Medical Center), and a voucher specimen is deposited in the Mississippi Entomological Museum, Mississippi State University (accession number 80-1). This article has been approved for publication as Journal Article No. J-11879 of the Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.

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