

HITCHING A LIFT: STAG BEETLES AS CARRIERS OF MITES



Photo: Maria Fremlin

Male Stag beetle carrying two phoretic mites, shown by the arrow.

In the 1996 Colchester "Search for Stag Beetles" survey, two instances were reported of mites attached to stag beetles (*Lucanus cervus*). However, it was not possible to determine whether these were ectoparasites, or species which simply use other animals for transport (phoretic species) (Bowdrey, 1997). Mites attached to stag beetles have also been noted in Suffolk (Hawes, pers. obs.) but no attempts have been made to identify these minute arachnids. That is, until this year when Maria Fremlin sent me specimens collected from two stag beetles captured in TL 9824 on the 13th July 2010. Viewed under the microscope, the specimens were clearly seen to be mites but as a more specific identification could not be made, they were despatched to The Natural History Museum for the expert opinion of Dr Anne Baker. The following in bold type is her report.

Order Mesostigmata

Suborder Uropodina

Phoretic deutonymphs (there is no comprehensive key to the deutonymph fauna).

Uropodine mites have a worldwide distribution and are common in the UK. They mainly inhabit accumulations of decomposing organic matter. These can be both permanent, e.g. forest soils, and temporary, e.g. dung, compost, tidal debris, stored food products and nests of birds and mammals. Most species are thought to be saprophagous (feed on decaying organic matter), but some are known to be fungivorous (fungal-feeders) or predators of nematodes and small arthropods. The life cycle comprises the egg, six-legged larva, and eight-legged protonymph, deutonymph and adult (male and female). Most species disperse from temporary habitats via a phoretic deutonymph, i.e. one that uses other animals for transport. Beetles are common carriers and the deutonymphs attach themselves by means of a stalk produced from their anus (the anal pedicel). This is composed of a strand of glandular secretion that hardens on contact with air.

The mite deutonymphs (final nymphal stage or instar) observed on stag beetles by the author were all attached to the thin, flexible membrane at the joint between the head and pronotum or the joints at the upper end of each femur. Photograph p. 16.

Coincidentally, shortly after I had completed this article, I opened my newly arrived copy of *Antenna* to discover an article entitled 'Phoresy: hitch hiking in tiers', which describes the capture of an odd looking fly that on examination was seen to be not one insect but three. The fly was host to some pseudoscorpion hitchhikers, which in turn were playing host to hitchhiking mites. The article goes on to explain that many arthropods exhibit phoresy, and that pseudoscorpions have been seen to form phoretic associations with many different arthropod hosts.

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Reference

- Bowdrey, J. (1997). The stag beetle *Lucanus cervus* L. (Coleoptera: Lucanidae). Results of the 1996 Colchester "Search for Stag Beetles" survey. *The Essex Naturalist* 1997: 79-88.

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