

A case of Phoresis involving a pseudoscorpion and a longhorn beetle

Amy Fleming

The term 'phoresis' or 'phoresy' is of Greek origin meaning 'to carry' (Bogtish *et al*, 2019). It denotes the relationship between two organisms, where the one is carried by the other, the larger being referred to as the host and the smaller organism being the phoront (Bogtish *et al*, 2019; Sudan *et al*, 2023). The relationship between the organisms has no acquirement of food or dependency association like commensalism (Panadero-Fontan *et al*, 2015). The phoront is transported by the host, assisting in their dispersal to environments that may provide new food sources and potential mates (Christophoryova *et al*, 2021; Warburg *et al*, 2023).

On the 7th of June 2024, I visited Hampton Orchard, a Vale Landscape Heritage Trust site in Evesham. While inspecting the Hogweed *Heracleum sphondylium* at the orchard for insects I found a Variable Longhorn beetle *Stenocorus meridianus*, and encouraged the beetle to climb on to my finger for closer inspection. I returned it to the flower and then noticed a pseudoscorpion (undetermined species) on my hand. I reviewed a short video clip that I had taken of the beetle climbing onto my finger and sure enough there was the pseudoscorpion, hanging onto the beetle's middle left leg (01, 02). The video revealed the pseudoscorpion releasing its grip on the beetle's leg and then the beetle flicking its miniature hitch-hiker off, on to my hand.



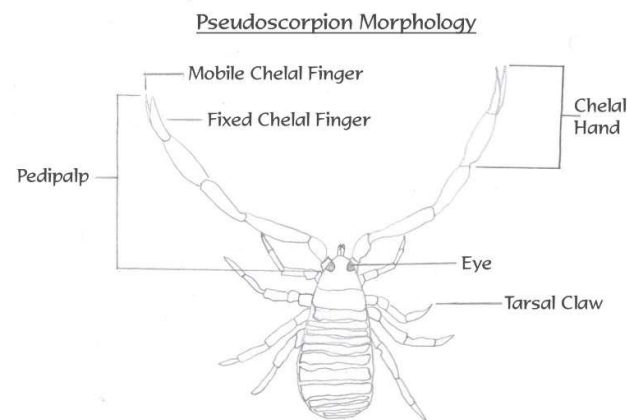
01. Variable Longhorn beetle with pseudoscorpion hitch-hiker. Still from a video clip. Hampton Orchard 07.06.24. Amy Fleming.



02. Magnified view of the pseudoscorpion hitch-hiking on the leg of a Variable Longhorn beetle. Still from a video clip. Hampton Orchard 07.06.24. Amy Fleming.

This behaviour seen at Hampton Orchard is an example of phoresis for which the pseudoscorpion used a longhorn beetle as the host, though other hosts are more commonly fly species (e.g. Winnall 2022) and occasionally arachnids.

Pseudoscorpions use the end segments of their pedipalps called the chelal hands (03), to grip tightly onto their host species, releasing when ready to dismount. As they are a flightless species, this process allows them to conserve energy, which is critical to their survival due to their size (Pisani *et al*, 2004).



03. Sketch of a typical pseudoscorpion. Amy Fleming.

There is little documentation of this behaviour taking place with longhorn beetles as the host in the UK, although it has been observed in pseudoscorpions utilising species of arachnid and diptera, making this sighting even more fascinating. There is a question however, as to how and where the pseudoscorpion attached itself to the Variable Longhorn; did it climb up the Hogweed and wait for a host to attach to once at the top of the flower, or did it attach to the longhorn after it had emerged from the decaying log piles nearby and stay attached while the beetle flew to the flowers?

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Images

01. Variable Longhorn beetle with pseudoscorpion hitch-hiker. Still from a video clip. Hampton Orchard 07.06.24. Amy Fleming.
02. Magnified view of the pseudoscorpion hitch-hiking on the leg of a Variable Longhorn beetle. Still from a video clip. Hampton Orchard 07.06.24. Amy Fleming.
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