

Acknowledgements

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Notes on the predators and prey of British pseudoscorpions

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Records of the predators and prey of British pseudoscorpions are sparsely scattered throughout the various literature. It was therefore thought useful to collect these as far as possible into this one paper.

References to the predators of pseudoscorpions are few and are mainly confined to spiders and harvestmen. Cloudsley-Thompson (1956) records a specimen of *Allochernes dubius* (O.P.-C.) being eaten by the harvestman *Oligolophus meadii* Cambr., on which it had been phoretic. Bristowe (1941) claims that pseudoscorpions do not often fall victim to spiders, since they provide a good match for spiders of their own size (the largest British species of pseudoscorpion attains a length of 3-4 mm) and are likely to be missed by many spiders of a larger size. He says, however, that he has observed that *Chthonius ischnocheles* (Hermann) is accepted by

Linyphia, *Lepthyphantes*, *Pholcus*, *Theridion*, *Meta* and *Zygiella*, and *Lamprochernes nodosus* (Schrank) by *Lepthyphantes* and *Araneus*.

Pontin (1961), working in the Oxford district on the prey of ants, found that *C. ischnocheles* was fed to the larvae of *Lasius flavus* (F.) (Hym., Formicidae).

The only reference to parasites of pseudoscorpions appears to be an old one by Godfrey (1908), who recorded pupae of the ichneumon *Obisiphaga stenoptera* (Marshall) from the reproductive nests of *Neobisium muscorum* (Leach) and a pupa of *Pezomachus impotens* Först from the nest of *C. ischnocheles*.

Turning to larger predators, some pseudoscorpions must be taken by birds, especially those which feed amongst mast and leaf litter. Betts (1950) found specimens of *C. ischnocheles* in the gizzards of great tits in the Forest of Dean, Gloucestershire.

Pseudoscorpions are exclusively carnivorous and according to Godfrey (1909) and Cloudsley-Thompson (1958) feed on living or recently-killed prey, e.g. Collembola, Psocoptera, Thysanura, Diptera, Symphyla, molluscan eggs, annelids, centipede larvae, and beetles (e.g. *Tachyporus chrysomelinus* Linn.). Kühnelt (1961)

states that their food consists mainly of mites, including hard-shelled oribatids. They have great powers of abstinence and, like many arachnids, will live for months without food. When prey is secured, feeding may take place continuously over a period of hours. Under laboratory conditions, Bristowe (1941) recorded *Dactylochelifer latreillei* (Leach), taking spiders as large as itself (2-3 mm); Gilbert (1951) fed specimens of *D. latreillei*, *C. ischnocheles*, *N. muscorum* and *N. maritimum* (Leach) on larvae of *Drosophila melanogaster*; Cloudsley-Thompson (1959) fed *D. latreillei* on mosquitos and the clothes moth *Tineola biselliella* Hum., and one on a jumping-spider *Euophrys frontalis* (Walck.), which it grasped and killed within a few minutes; and Wallwork (1970) has observed pseudoscorpions attacking and consuming mesostigmatid mites of the genus *Veigaia*, large collembola such as *Tomocerus longicornis* (Müller), enchytraeids and other pseudoscorpions of smaller size.

Cannibalism is known to occur in pseudoscorpions, although it appears to be less common than in spiders, and is unusual if other food is available. An injured or ailing individual, however, has very little chance of survival. Godfrey (1908) records *D. latreillei* as accepting an egg mass of *N. muscorum* and Cloudsley-Thompson (1959) records a specimen of the same species eating a pseudoscorpion as large as itself, leaving only the pedipalpal claws.

In conclusion, one may say that in view of their scattered distribution and low numbers, pseudoscorpions have little effect upon populations of

detritus-feeding animals. They could be regarded as secondary consumers, feeding on for example Collembola, but, since they are apparently not preyed upon extensively by other carnivores, they may be regarded mainly as tertiary consumers, feeding on for example macrochelid mites or other pseudoscorpions, and occupying the terminal stage of the detritivore/predator food chain (Wallwork 1970).

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