

Essential pseudoscorpion info



Advancing Arachnology



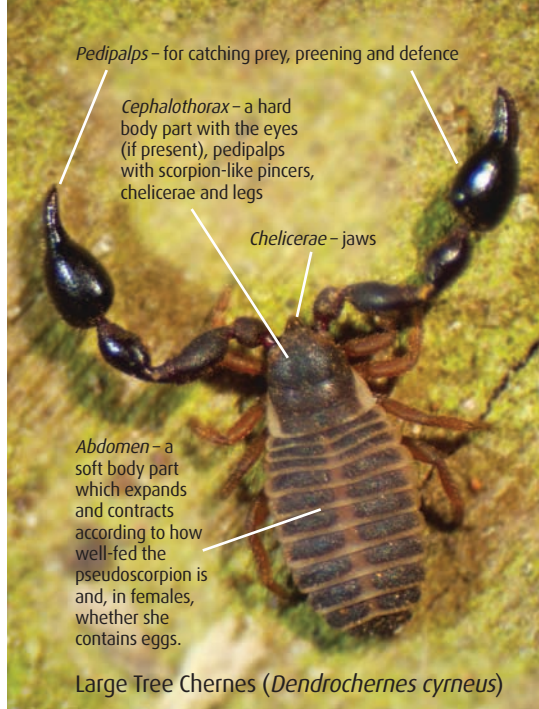
Common Chthonid (*Chthonius ischnocheles*)

Pseudoscorpions, or false scorpions, are formidable but tiny and rarely seen predators that hide away in soil, leaf-litter, compost, rotting wood and old nests.

In Britain we have 26 known species (a 27th is listed, but hasn't been found for decades).

Not spiders but closely related

Pseudoscorpions are arachnids. Like spiders, they have four pairs of jointed walking legs and another pair of jointed appendages (*pedipalps*) either side of a pair of powerful jaws (*chelicerae*). Unlike spiders though, the pedipalps are huge, with scorpion-like pincers; hence the name 'pseudoscorpion'. Some species have poison glands in their pedipalps and inject venom to subdue their prey. Different species catch different prey. Those with stout, muscular pedipalps prefer insects that have a hard body and move slowly,



FACT FILE

Size: Our largest pseudoscorpion, the Large Tree Cherns (*Dendrochernes cyrneus*) measures over 4 mm long whilst our smallest, the Book Scorpion (*Cheiridium museorum*), is only 1.3 mm long.

Escape: Touch a pseudoscorpion and it is likely to run as fast backwards as it does forwards. The long sensory hairs (*trichobothria*) on the rear-end enable it to know what is lurking behind.

Silk: Some pseudoscorpion

species produce silk, used to make chambers in which to moult, hibernate or look after their young. These chambers can sometimes be found beneath tree bark. In contrast to spiders, which produce silk from spinnerets at the rear of the abdomen, pseudoscorpion silk comes from a special knob or tube (the *galea*) on the tip of a moveable 'finger' on the jaw (*chelicera*).

Breathing: Oxygen is taken into the abdomen through tiny holes (*spiracles*) that connect to a network of fine tubes (*trachea*) distributed throughout the body. A similar system is found in insects.

including some kinds of beetle. Species with long, delicate pedipalps catch soft-bodied insect larvae, tiny worms and other similar creatures. They are also excellent mothers, taking care of their young and feeding them (see *Life History*, right).

Where they live

Most terrestrial habitats will have pseudoscorpions. They even live on the seashore, hiding in rock crevices and under stones down to the mid-shore level, and coming out to feed when the tide recedes. They exploit two types of habitat. Permanent habitats used include woodland leaf litter, soil and Sphagnum bogs. They also live among

Geard Legg



mosses and lichens, in grass tussocks, and beneath stones. More transient or temporary habitats include under tree bark, and in rotting wood, manure and compost heaps, buildings (thatch and old debris), and in bird and mammal nests. They may also live among stored products in barns, warehouses and old buildings. Aristotle found these living in his library more than 2000 years ago.

Hitchhiking

To move around, those in soil and leaf litter just walk, but those in transient habitats, like compost heaps, hitchhike! They attach themselves to flies, beetles, parasitic wasps (see right, pseudoscorpions arrowed) and harvestmen and get a lift to a new habitat, a process known as *phoresy* (from the Greek word for 'being carried').



Steve Woodward

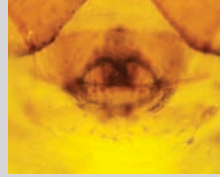
Food and feeding

As aggressive hunters, pseudoscorpions catch their prey using their formidable pedipalps and chelicerae, which vary in shape and size depending on their favoured prey. Once caught, the prey is chewed and digestive juices are poured onto it. The resulting soup is then sucked up into the mouth.

Senses

Although many species have eyes, these are only sensitive to varying light levels. For pseudoscorpions to navigate accurately, and to find prey and mates, they feel their way using long sensitive hairs (*trichobothria*), many of which are on the pedipalps. Thin pits sensitive to chemicals are scattered over the body and provide a sense of 'taste'. These are known as the *lyriform organs*.

Pseudoscorpions can detect the acids and sugars produced by the microbial decay of leaf litter and wood. They use these tastes/scents to guide them to good habitats and likely sources of prey.



Mature male genital area



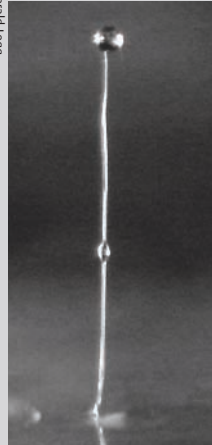
Mature female genital area

Life history

Adult males can be distinguished from females by their more complex and distinctive genital area on the underside of the abdomen; immature pseudoscorpions have no visible structures in this region.

Mating involves no direct sexual contact; the male would be a nice meal for the female so he keeps away or stays at arm's length! Instead, sperm are transferred to the female indirectly.

The male produces a silk-wrapped 'packet' of sperm on a stalk (a *spermatophore*) that he deposits on the ground. The female picks up the sperm packet from the top of the stalk with her genitalia.



Genital Legs

Spermatophore (just over 1mm high) of Book Scorpion (*Cheiridium museorum*)

Some species fertilise their eggs soon after mating whilst others store the sperm for future use. By storing sperm these species can exploit temporary habitats such as a rotting log, compost heap or bird's nest, allowing a single female carrying eggs and sperm to start a new population.

The female does not abandon her eggs but instead keeps them glued together attached to her genital opening. They hatch as minute replicas of the adults (*protonymphs*) which remain attached to the mother and are fed with 'milk' produced by the ovaries.

The young pass through two more, usually free-living, nymphal stages before becoming adult. In some species the protonymphs remain with their mother inside a silken chamber, and therefore have never been seen in the wild.



Common Tree Chernes (*Chernes cimicoides*)

For more information

Weygoldt, P. (1969) *The Biology of Pseudoscorpions*. Harvard University Press, Cambridge.

Legg, G. (1988) *Pseudoscorpions. Synopses of the British Fauna (New Series) No. 40*, Linnean Society, London.

Legg, G. and Farr-Cox, F. (2016) *Illustrated key to the British False Scorpions (Pseudoscorpions)*. AIDGAP/FSC Publications, Telford.

UK species: www.chelifer.com/?page_id=81

The British Arachnological Society

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