Tiny Tigers

by Gerald Legg

Sifting through dead leaves, humus, soil, and rotting tree bark can turn up some fearsome little predators: **pseudoscorpions**. As their name implies, they look like scorpions, with their large pincer-like **pedipalps**, but unlike scorpions they are tiny, just 2-5mm long. They have trachea rather than lung-books for breathing, and no sting at the end of a long tail. Few people come across them because they are so small and hide away under stones, in soil, moss, decaying leaves, compost, dung heaps, old thatch, rotting wood, in animal nests, barns, caves, and other similar places.

***Chthonius ischnocheles*, Common Chthonid**
Photo: © N.A. Callow

These important predators, veritable tigers, hunt mites and insects, which some subdue with venom while others rely on powerful, crushing pedipalps. Once caught, their victim is chopped open using the jaw-like, sensory-rich **chelicerae** that direct digestive juices onto their prey. The resulting 'soup' is filtered and sucked up. Lovely!

Like spiders and some other arachnids, pseudoscorpions produce silk. But unlike spiders, which have their silk spinners on the end of their abdomen, pseudoscorpions spin it from their chelicerae. It is used to build chambers in which to hibernate, moult, and in some species, produce and protect their young.

Males produce another special silk from their genitalia, in the form of **spermatophores**. These structures carry a packet of sperm for females to pick up. For predators like pseudoscorpions, mating can be dangerous – a female might think the male will make a tasty meal! It is far safer if the male doesn't have to come too close to the female to mate, so the male produces sperm in a packet on a stalk that he leaves for a female to find and pick up. Males of some species produce spermatophores randomly, others only if they sense a female is around. Randomly leaving spermatophores for females to find can be wasteful, so some species have evolved elaborate 'dances' designed to tell each other that reproduction and not food is on the menu (scorpions carry out similar courtship routines).

Spermatophore of the Book Scorpion, *Cheiridium museorum*
Photo: © Kristin Hook 2011

The female doesn't lay eggs, but keeps them attached to her genital aperture. Here her ovaries nourish them as they develop. Once the eggs hatch, the larvae (which have three pairs of legs, not four) remain attached to her and receive nutriment. The larvae moult into **protonymphs** (now with four pairs of legs). In some species the mother continues to feed these with secretions from her mouth whilst still inside the safe silk 'house'. There are three further moults: protonymphs to deutonymph, deutonymph to tritonymph and tritonymph to adult.

***Lamprochernes nodosus,* Knotty Shining Claw, phoretic on a fly**
Photo: © Gerald Legg

Left: A Chelifer pseudoscorpion hitching a ride on a house fly.
Photo: Don Smith

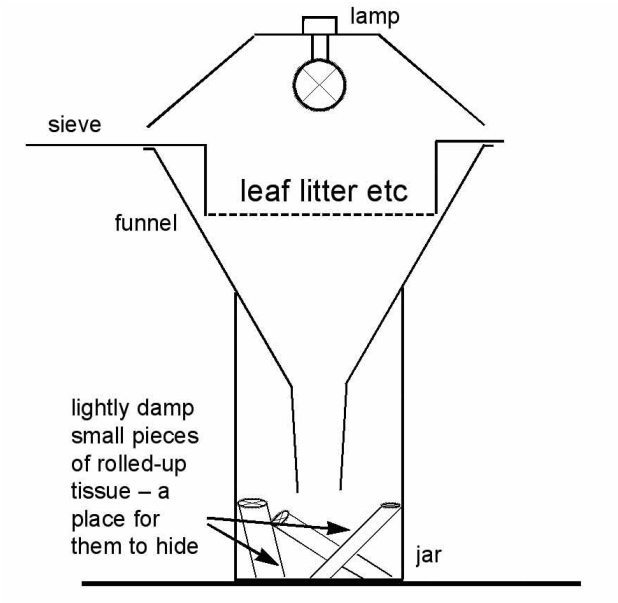
***Phoresy** is when pseudoscorpions hitch a ride on a flying insect*

Many species that live in 'temporary habitats', such as birds' nests, compost heaps and rotting wood would find it difficult to walk to a new habitat, so they hitchhike on other more mobile creatures, like flies, beetles and harvestmen. They grip tightly to their host's leg, keep perfectly still and get carried to a new habitat. This process is called phoresy.

You can find more information on phoresy and other entomological terms in the glossary on the AES website: http://www.amentsoc.org/insects/glossary/terms/phoresy

Twenty-six species of pseudoscorpion have been recorded in Britain and Ireland. They can occur in high

numbers – hundreds per square metre. However, finding them can be hard – they are small! Hand sorting and sieving over a white tray is the simplest way of finding them, but it can take many attempts before one is found. Putting a few handfuls of leaf litter in a **Tullgren funnel** will yield many times more specimens. A simple Tullgren funnel can be made by placing a coarse cooking sieve with leaf litter, moss etc over a plastic funnel and warming it using a low wattage desk light as a heat source. Here is a drawing showing how a Tullgren funnel works:

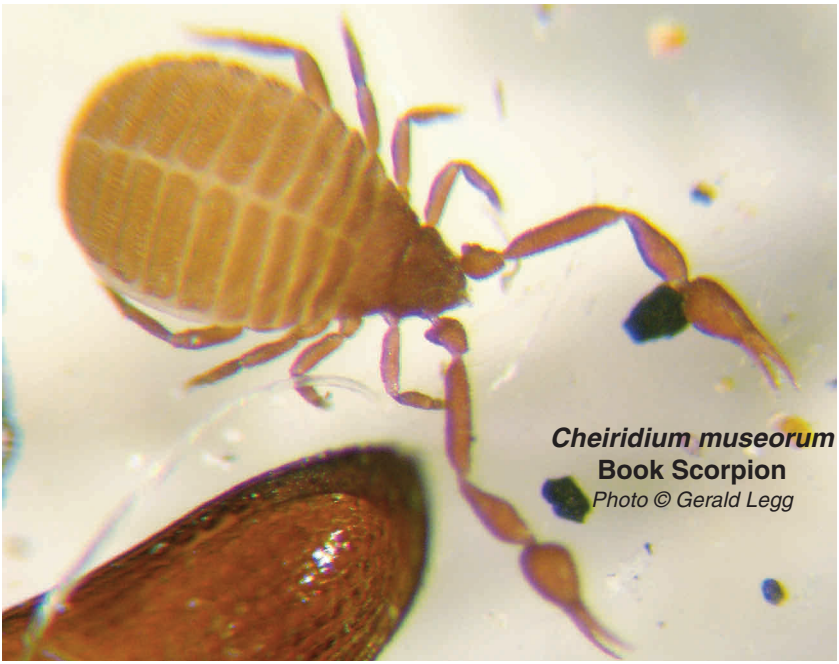


What are the different types of pseudoscorpions that can be found?

The commonest and most widespread species to be found is *Neobisium carcinoides*, the Moss Neobisid, which lives amongst woodland leaf-litter, grass stems in fields and under stones, and can be found from the south of England

to the Orkneys. Another common species is *Chthonius ischnocheles*, the Common Chthonid, that likes leaf-litter and humus but can be found beneath stones in woods and hedges too. It is unmistakeable with its huge chelicerae and thin, delicate pedipalps.

Under tree bark you might be lucky enough to find *Chernes cimicoides*, the Common Tree Chernes, and beneath drift wood etc on a salt marsh or sand dunes, the lovely *Dactylochelifer latreillei*, the Marram Grass Chelifer.

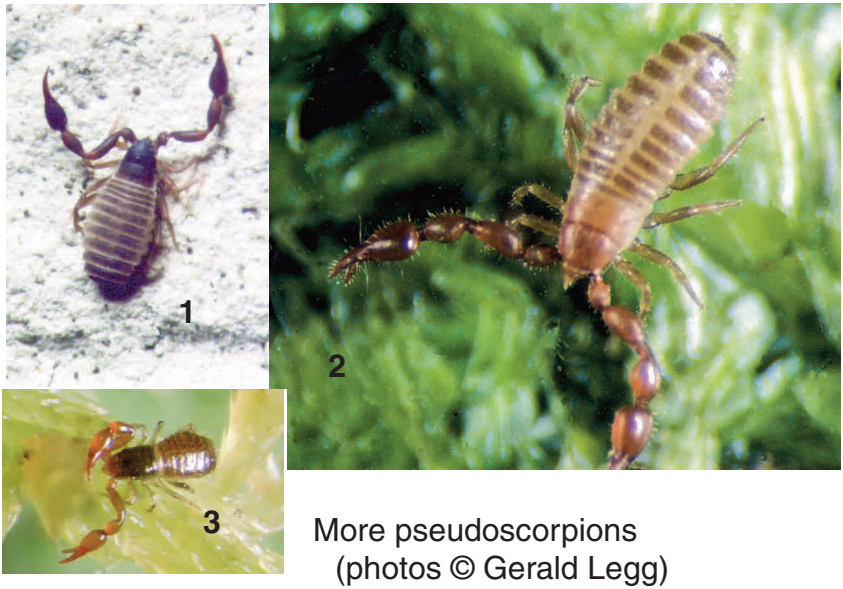


Cheiridium museorum
Book Scorpion
Photo © Gerald Legg

Identifying pseudoscorpions is not easy. Images can be found at http://www.chelifer.com/?page_id=81 and there is a book by the Linnean Society of London (1998) called *Synopses of the British Fauna (New Series) No. 40, Pseudoscorpions* by Gerald Legg and Richard E. Jones. This book is now out of print but copies can be found on

the Internet. A revised edition is in the process of being written. I am always happy to identify specimens and photos can be emailed to me at gerald@chelifer.com. (Chelifer is, of course, a name of a pseudoscorpion!).

Gerald



More pseudoscorpions
(photos © Gerald Legg)

1. *Dactylochelifer latreillei*, Marram Grass Chelifer.
2. *Lamprochernes nodosus*, Knotty Shining Claw
3. *Microbisium brevifemoratum*, Bog Chelifer, photographed on sphagnum moss

QUICK GLOSSARY

Pseudoscorpions: Small arachnids that look like scorpions.

Pedipalps (or palps): Appendages at the front of the head (or prosoma) of an arachnid.

Chelicerae: Mouthparts of an arachnid (in spiders these can contain venom).