

Illustrated key to the British False Scorpions (Pseudoscorpions)

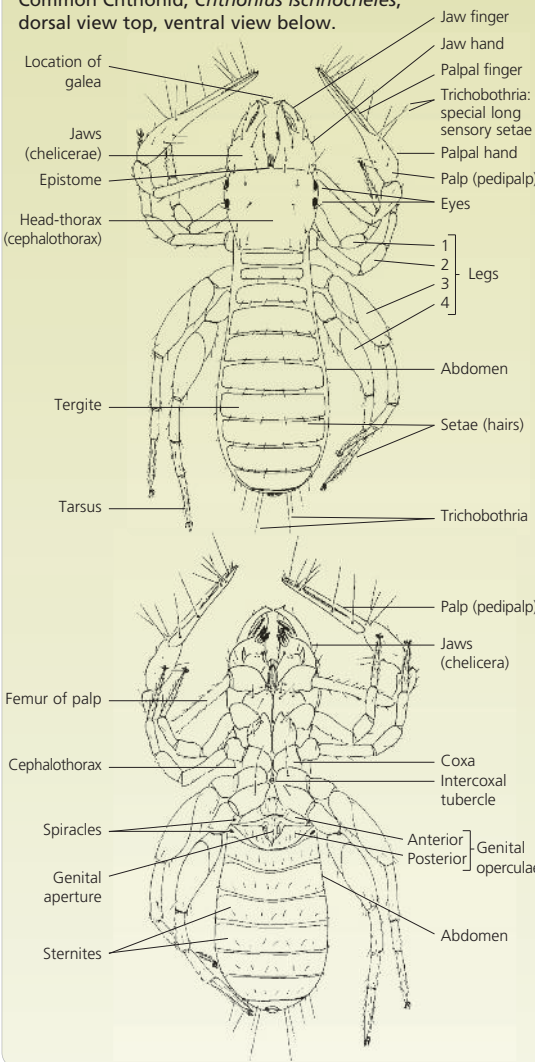
By Gerald Legg with Francis Farr-Cox

Introduction

Most people who see a pseudoscorpion for the first time are fascinated. It is probably because they are so tiny (1.3-4.2mm) yet have an intriguing body shape that is still discernible to the naked eye. Pseudoscorpions or false-scorpions are the fourth most numerous order of arachnids (the 8-legged invertebrate group which includes the spiders). Although there are only 27 different species in the British Isles there are over 2,000 species worldwide. They are never large animals, the

Structure

Common Chthonid, *Chthonius ischnocheles*, dorsal view top, ventral view below.



biggest species, which is a yet undescribed species from Pakistan, is only 15mm long.

The enlarged and lobster-like second pair of appendages, the pedipalps, give a pseudoscorpion the superficial appearance of a scorpion, albeit tailless, hence pseudoscorpion or false scorpion. As aggressive hunters they catch their prey using these formidable weapons which vary in shape and size depending on their favoured prey. Once caught the prey is chewed by jaws called chelicerae and digestive juices are poured into the victim. The resulting soup is then sucked-up into the mouth.

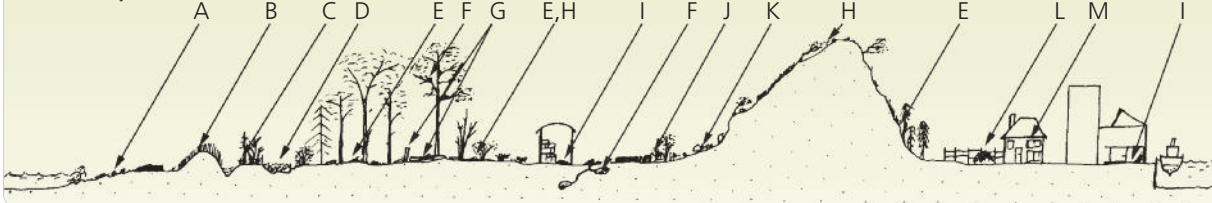
Although many species have eyes, these are only sensitive to light levels. For pseudoscorpions to accurately navigate, find prey and mate, they feel their way using special long sensory hairs – the trichobothria – many of which are on the pedipalps. Others on the rear of the animal enable it to know what is behind. The chelicerae of some species have a special knob or longer process on the tip of the moveable finger. This ‘galea’ produces silk which is used to make silken chambers in which the animal can moult, hibernate or look after its young. Chambers made by pseudoscorpions can sometimes be found beneath tree bark.

Mating involves no direct sexual contact. The male would be a nice meal for the female so he keeps away! Sperm are transferred to the female ‘indirectly’ – the male produces a silken spermatophore that he deposits on the ground on top of which is a packet of sperm which the female picks up with her genitalia. An examination of the underside of the abdomen can determine the sex of an individual, males usually having a more complex and distinctive genital area than females. Young do not have this distinct genital area. 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 like a rotting log, compost heap or birds’ nest allowing a single female with eggs and sperm to start a new population.

Where they can be found

This is only a guide as our understanding of the habitat requirements of species is not fully known so species could appear in different habitats. Numbers refer to individual species as used in the species descriptions and the key.

- A. Littoral, on the seashore under stones, in crevices: 1, 2 (rarely), 3, 8, 9, 10 (west), 25.
B. On sand dunes in vegetation debris, under drift wood: 1, 25.
C. Coastal, in woods: 4, 8, 12.
D. Sphagnum bogs/alder carr: 7, 8.
E. In leaf litter and other decaying vegetation: 4, 6, 8, 11, 12, 21 (rarely), 22.
F. In bird and mammal nests: 4 (damp), 8, 13, 19, 23, 24 (rarely), 26 (in decaying trees).
G. Beneath tree bark and in dead wood: 4, 14 (rarely), 16, 23, 17, 18 (very dry).
H. Among moss, lichen, litter, etc. (woodland, heathland, grassland): 4, 5, 8.
I. Among stored products in barns, warehouses and old buildings: 4 (rarely), 13, 19, 22, 24, 27.
J. Among grass stem bases and rhizomes (tussocks), (away from the sea): 4, 5, 6, 8.
K. Under stones and in rock crevices: 1 (coastal), 2, 3, 4, 5, 8, 9, 10, 11, 12.
L. In manure and compost heaps: 14, 15, 20.
M. In dwellings (excluding phoretic species that may pop in): 13, 24.



Eggs are not laid but glued together and attached to the female’s genital opening and hatch as protonymphs which also remain attached and are fed with ‘milk’ produced by the ovary. The protonymphs grow and moult into deutonymphs, then moult again into tritonymphs and finally into adults. In some species protonymphs remain with their mother in the silken chamber and hence they have never been seen in the wild. To move around, those in soil, leaf litter, etc., just walk, but those in transient habitats, like compost heaps, hitch-hike – they attach themselves to flies, beetles, parasitic wasps and harvestmen and get a lift to a new habitat, a process known as phoresy (☛ phoretic).

To find pseudoscorpions start by getting some woodland leaf litter, spread it out it over a white sheet and wait... and wait – pseudoscorpions defend themselves from disturbance by ‘lying low’. They will usually start to move when all the other invertebrates have run off the sheet and you have decided to start again with another load of leaves! When they do appear, if you touch them with a tiny leaf from the front you will see another defence they have – a very fast reverse gear! Once spotted make a clear, ‘no-man’s-land area’, around the individual so it can’t easily hide and use a fine lightly moistened paint brush (or a small blade of licked grass) to pick them up. For the better equipped enthusiast pseudoscorpions can be found more efficiently using a variety of standard invertebrate techniques e.g. Tullgren funnel and D-vac (a very fine collecting bag is needed as the species are tiny).

You can view them with a x20 hand-lens and be able to identify some of the commoner species. However, it is virtually impossible to identify many without the use of a binocular microscope, and in some cases a compound microscope. Getting the lighting right will greatly improve the chance of seeing some of the features, especially the various hairs and bristles that distinguish some species. When using this key take into account the habitat the specimen was found in. It is important to realise that some species will be relatively easy to identify because of colour, habitat and size, but related species may be more difficult to differentiate.

British species

Some of these images are taken from live specimens others from preserved specimens so the colours may not be true.

Chthonoidea: Chthoniidae



1. Halbert’s chthonid *Chthonius halberti*

1.2mm. Originally at Malahide, Co. Durham in 1915 and under stones on and below the high water mark in Axmouth, Devon this rare species has recently been found at Charnel near Kimmeridge, Dorset.

Chthonoidea: Chthoniidae



2. Kew’s chthonid *Chthonius kewi*

1.4-1.8mm; preserved specimen which is somewhat dark, in reality very similar in appearance to the following (3). Found and probably restricted to the east coast (Norfolk to Kent) in drift-line debris, timber and under stones. However there have been records from Dorset, Sussex, Lincolnshire and Notts.

Chthonoidea: Chthoniidae



3. Dimpled-clawed chthonid *Chthonius tetrachelatus*

1.3-1.9mm; preserved specimen. Widespread but especially near the coast. Easily confused with a more recent species, *C. kewi* (2). It occurs in strandline debris, under brick and stones and may be synanthropic.

Chthonoidea: Chthoniidae



4. Common chthonid *Chthonius ischnocheles*

Males 1.6mm, females 2.4mm. One of the two most likely found species (*Neobisium carcinoides* (8) is the other). A widespread distribution, but not far into Scotland. It occurs in leaf litter and humus of woodlands, hedgerows even the coastal strandline (*C. tetrachelatus* (3) favours this microhabitat too), beneath stones, bricks, and even in birds’ nests.

Chthonoidea: Chthoniidae



5. Dark-clawed chthonid *Chthonius tenuis*

Males 1.3mm, females 2.3mm. The dark palps, pale legs and general colour make this an easy species to identify. Found in leaf litter, humus and beneath stones it appears to prefer well drained habitats on sandstone, sands and chalk.

Chthonoidea: Chthoniidae



6. Straight-fingered chthonid *Chthonius orthodactylus*

Males 1.9mm, females 3.0mm; preserved specimen. The status of this species has been put in doubt but it is distinct enough to be included here in the British fauna. Records are largely from the south-east and south Wales occurring in dead leaves and grass tussocks.

Neobisioidea: Neobisiidae: Microcreagrinae



7. Bog neobisid *Microbisium brevifemoratum*

1.6-2.4mm. Our most recent addition to the British fauna, only found in two localities, both raised Sphagnum bogs. At first glance it could be confused with *N. carcinoides* (8) as this is often found in Sphagnum, but the stubby femora and its overall size clearly identify it. If in doubt compare with a known *N. carcinoides* specimen. Records especially needed.

Neobisioidea: Neobisiidae: Microcreagrinae



10. Shore neobisid *Neobisium maritimum*

3.2mm. Found along the Welsh coast, Atlantic coast, and Channel coast as far west as and including the Isle of Wight. It tolerates submergence at high tide and hides in rock crevices and beneath stones from the top of the upper shore to the splash zone.

Neobisioidea: Neobisiidae: Microcreagrinae



9. Carpenter’s neobisid *Neobisium carpenteri*

3.3mm; preserved specimen. Colour not typical due to preservation. Originally found in 1909 beneath *Arbutus* bark and in moss on the coast of Glenariff. Found off the Essex coast in the 1950s. Further ones matching the description found in a Welsh quarry. It has been suggested the original specimen was a form or subspecies of *N. ischyrum*. All this suggests we are dealing either with a misunderstood species or more than one species.

Cheleroidea: Cheleroidea: Cheleroidea

Cheleroidea: Cheleroidea: Cheleroidea



14. Knotty shining claw *Lamprochernes nodosus*

1.8-2.2mm. Easily confused with *L. chyzeri* (16), but has smaller palpal femora and tibia lengths both of 0.5mm. A synanthropic species preferring rich dung and compost heaps but has also been found in rotting wood where *L. chyzeri* is more typically found. Phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



15. Savigny’s shining claw *Lamprochernes savignyi*

1.5-1.7mm; preserved specimen. A cosmopolitan synanthropic species found in compost and manure heaps, plant beds and is commonly phoretic on flies. Palpal femur length is around 0.36mm and the tibia 0.4mm.

Cheleroidea: Cheleroidea: Cheleroidea



11. Reddish two-eyed chelifer *Roncus lubricus*

2.0-2.5mm. A tritonymph is shown, which has the characteristic reddish palps and thorax. It appears to be restricted to the southern half of Britain and favours dry leaf litter, particularly beech, poplar and sycamore. It can also be found under stones in woods and hedges.

Cheleroidea: Cheleroidea: Cheleroidea

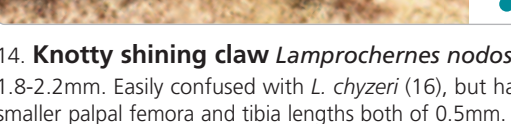


16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea

Cheleroidea: Cheleroidea: Cheleroidea



15. Savigny’s shining claw *Lamprochernes savignyi*

1.5-1.7mm; preserved specimen. A cosmopolitan synanthropic species found in compost and manure heaps, plant beds and is commonly phoretic on flies. Palpal femur length is around 0.36mm and the tibia 0.4mm.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea

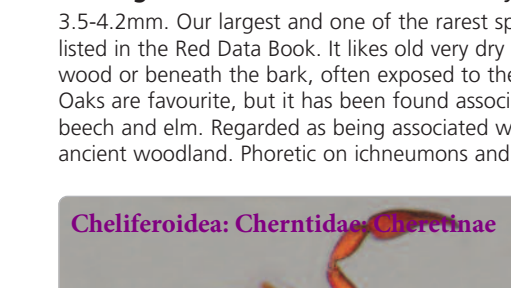
Cheleroidea: Cheleroidea: Cheleroidea



15. Savigny’s shining claw *Lamprochernes savignyi*

1.5-1.7mm; preserved specimen. A cosmopolitan synanthropic species found in compost and manure heaps, plant beds and is commonly phoretic on flies. Palpal femur length is around 0.36mm and the tibia 0.4mm.

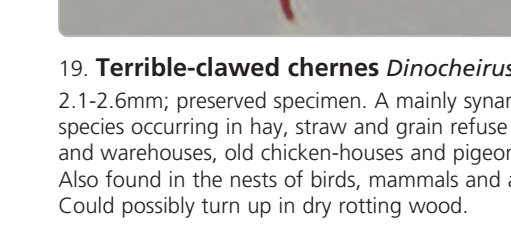
Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

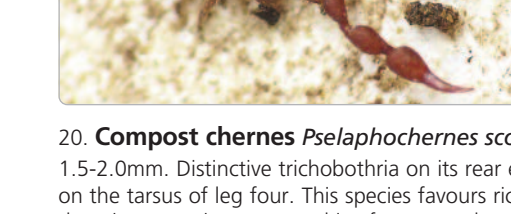
Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea

Cheleroidea: Cheleroidea: Cheleroidea



15. Savigny’s shining claw *Lamprochernes savignyi*

1.5-1.7mm; preserved specimen. A cosmopolitan synanthropic species found in compost and manure heaps, plant beds and is commonly phoretic on flies. Palpal femur length is around 0.36mm and the tibia 0.4mm.

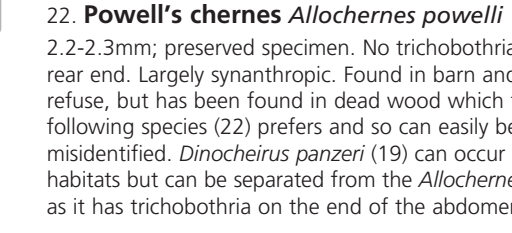
Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

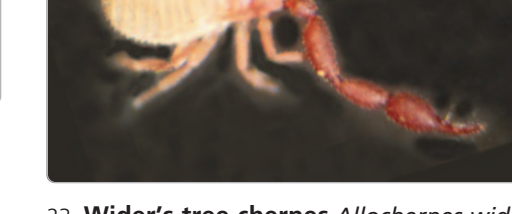
Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea

Cheleroidea: Cheleroidea: Cheleroidea



15. Savigny’s shining claw *Lamprochernes savignyi*

1.5-1.7mm; preserved specimen. A cosmopolitan synanthropic species found in compost and manure heaps, plant beds and is commonly phoretic on flies. Palpal femur length is around 0.36mm and the tibia 0.4mm.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*

1.8-2.0mm; preserved specimen. There are a paucity of records, possibly resulting from confusion with *L. nodosus* (14). Palpal femur and tibia length both usually 0.6mm. It can be found beneath bark on old and dying trees, especially aspen but also beech and birch and is also phoretic on flies.

Cheleroidea: Cheleroidea: Cheleroidea



16. Chyer’s shining claw *Lamprochernes chyzeri*