

Spider webs



Advancing Arachnology



Classic orb web of the Garden Spider *Araneus diadematus*.

Not all spiders build webs to catch their, largely insect, prey but those that do are responsible for some of the most iconic and beautiful structures in the living world.

The web descriptions below can't be comprehensive and there is often much variation within families. The outlines should, however, provide an indication of the many ways British spiders use silk to detect and trap their prey.

Orb webs

The orb web is the structure children often draw when depicting spiders (see cover); it is made by four spider families in Britain. In three of the families the silk spirals are coated with sticky glue



Geoff Oxford

Large house spider *Tegenaria* funnel web

droplets. These detain any prey which hits the web, enabling the spider to strike. However *Uloborus plumipes*, an increasingly common orb-weaver in greenhouses and garden centres, produces an orb made of *cribellate* silk. Prey get their legs and bristles caught up in the Velcro-like strands.

Funnel webs

Funnel-web builders in Britain should not be confused with the infamous Sydney funnel-web spider from Australia (which is in a completely different family). Our single family of funnel-web spiders contains the, perhaps all too familiar, large house spiders

(*Tegenaria* species). In the late summer and autumn males of these species run across floors and fall into baths and sinks in their quest for a female. Females, and for most of their lives males too, live in little-disturbed places, constructing a flat sheet of non-sticky silk with a tubular retreat in one corner. These webs can outlive their original builders and be used and refurbished by several generations of occupants.

Tangled webs

These three-dimensional criss-crosses of silk are built by three families of spiders. Perhaps the most familiar example, festooning the corners of rooms and the back of furniture, belongs to the Daddy-longlegs spider *Pholcus phalangioides*, a species that has rapidly spread north through Britain over the last 50 years or so.

FACT FILE

Not all spiders spin webs:

Spiders are unique in the way that silk is involved in virtually all aspects of their lives. However, although spiders and webs are commonly thought of together, only 17 out of the 37 spider families in Britain build webs in order to catch prey.

Silk production: Spiders produce silk proteins in glands deep within their abdomens. It emerges as fine strands of finished silk from highly mobile, finger-like organs (*spinnerets*), at the rear of the body. Some insects also produce silk (like the silkworm) but, unlike spiders, their silk emerges from the mouthparts.

Web silk: Spiders can produce many different sorts of silk with distinct physical properties, and used for a variety of purposes. The familiar orb web of the Garden spider (*Araneus diadematus*), for example, requires silk from three separate types of silk gland during its construction. Some spider families produce a woolly, entangling silk (known as *cribellate* silk) which emerges from special glands and which is combed out by rows of bristles on the hind legs.

Web types: Broadly, seven different web architectures can be recognized among British spiders – orb, funnel, tangled, lacy, radial, hammock and purse.



Tangled web of the comb-footed spider *Enoplognatha ovata*

Less noticeable are tangled webs on low vegetation made by the family of comb-footed spiders, Theridiidae. These spiders are mostly small and rounded and sometimes quite colourful. They include the larger, well-known Noble False Widow spider *Steatoda nobilis*, which can build a tangled web and also one resembling a funnel web.

Lacy webs

Almost every wall with crevices, and dense garden conifers, will support an untidy mesh of bluish-grey

Lacy web and retreat of *Amaurobius*



Geoff Oxford

silk around a central retreat. These are made by the *cribellate* (lace-weaving) spider, *Amaurobius*. The spiders shoot out at frightening speeds when the lacy lines are disturbed; they are easily fooled when the web is touched with a tuning fork or a rapidly vibrating electric toothbrush!

Helen Smith



Hammock web of a money spider

Hammock webs

These are built by the money spiders (Linyphiidae), by far the largest family in Britain. On a cold morning the sheer number of webs, built low down in a grassy field and made visible with dew, is staggering. The web consists of a domed sheet of silk sometimes supported above and below by 'guy ropes'. The upper guys help to intercept flying insects, which fall down onto the sheet, below which the spider lurks.

Jenny Strange



Radial web of *Segestria*

Radial webs

Here a number of trip-wires radiate out from a central, silk-lined retreat, built into a hole or crevice. This is probably the most primitive type of web in that it doesn't serve to entangle but merely alerts the spider to the prey's presence. Some species in the only British family to build these webs (Tube spiders, Segestriidae) are large, such as *Segestria florentina*, which is slowly increasing its range across southern England and south Wales and sports impressive green, iridescent jaws.

Purse webs

The single British species representing the 'tarantula' side of the spider family tree, *Atypus affinis*, occurs largely in the south. It builds a (usually) sealed, silk tube which is part underground and part above and frequently covered with soil particles. Prey walking over the above-ground portion are seized from within and dragged inside through a slit cut in the wall by the spider.

Purse web of *Atypus affinis*

N R Hunt





Vincent Oates

One striking orb-weaver is the Wasp spider *Argiope bruennichi*. This species incorporates a zig-zag of dense, white silk down the web, the function of which in this species is still not known.

For more information

For fact sheets on some of the species mentioned see:
britishspiders.org.uk/factsheets

The British Arachnological Society

The BAS is Britain's only charity devoted exclusively to spiders and their relatives. We use science and education to advance the wider understanding and appreciation of arachnids, and to promote their conservation.

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