

Wolves With Eight Legs

An Introduction to the Wolf Spiders

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Lycosidae sp. (Brazil) female. Photo: F. Tomasinelli



Of the true, araneomorph spiders (suborder Labidognatha), more than 2,000 species belong to one of the first described families: Lycosidae, the wolf spiders. The common name can be misleading. These spiders do not hunt in packs and are not even particularly hairy. Found in all kinds of habitats from deserts to forests and lowlands to high mountains, they are lone hunters that actively search for prey on the ground. They do not use silk snares, but rely instead on keen eyesight, speed, and brute force to bring down prey.

Identification

Despite the great number of species in the family, all wolf spiders share common characteristics that make them easy to identify. The

cephalothorax is generally large and high. The legs, which are attached to the cephalothorax, are bulky but not very long, and are sparsely strewn with strong hairs. But the most certain identifying characteristic is eye arrangement. Wolf spiders have



Vesubia jugorum with spiderlings. Photo: F. Tomasinelli

eight eyes arranged in three rows: the middle row consists of two large anterior median eyes; below these is a row of four small eyes across the front; above the anterior medians is

a row of two even smaller eyes located somewhat laterally, almost on top of the cephalothorax.

In some ways, wolf spiders could perhaps be confused with wandering spiders (Ctenidae) and nursery or fishing spiders (Pisauridae), as well as with spiders of other families of different habits (e.g., Agelenidae, Gnaphosidae, etc.). However, no others have the same eye arrangement as wolf spiders, so identification is not difficult. Many species of wolf spiders can reach considerable size, some surpassing 3 centimetres in body length. But many other species are quite small, with body lengths of less than 1 centimetre.

The large number of species and their successful design has enabled wolf spiders to occupy a great variety of habitats including desert, grassland, rocky outcrops, forest,

ponds, and alpine areas. Some small specimens have been found at elevations of over 4,000 metres (13,000 feet).

Hunting

Wolf spiders have a typical lifestyle in common with other hunting spiders. They do not build silk webs, but instead actively search the ground for suitable-sized arthropods or sometimes vertebrates.

Most wolf spiders are strictly terrestrial and do not like to climb up into vegetation. Some species are completely nomadic, but others dig holes in the ground and emerge only at night. Many are also active during the day, and have keen eyesight (not a common feature among spiders). Especially diurnal species can hunt effectively using their eyes to detect moving objects a few centimetres away. Some species are credited with the ability to use moonlight to find their way at night.

Wolf spiders perceive movement with their smaller eyes and then focus on the targets with the two larger anterior median eyes. Still, they also heavily depend on tactile stimuli such as vibrations. Very different from jumping spiders — which have more advanced eyes and vertebrate-like curious attitudes — wolf spiders seem to be almost insensitive to prey until the very last moment when the lightning-quick attack is launched. Wolf spiders rush on prey, grab it with their front legs, and kill it with a deadly bite. Even flies can be taken with spectacular speed by apparently resting spiders.

Although they are said to have an active lifestyle similar to that of jumping spiders, wolf spiders are rather sedentary in comparison. Many would be better described as sit-and-wait predators. Still, they tend to move much more than tarantulas of the family Theraphosidae, making them very interesting to observe both in the wild and in captivity.

Housing

The correct setup for a wolf spider depends on the particular species being kept. In general, they can be



Female *Pirata tenuitarsis* on the water. Photo: F. Tomasinelli



Juvenile female *Vesubia jugorum*. Photo: F. Tomasinelli



Lycosa sp. (Paraguay) with egg sac. Photo: F. Tomasinelli



Lycosidae sp. (Brazil). Photo: E. Biggi



Lycosa hispanica adults. Photo: F. Tomasinelli



Lycosidae sp. (Brazil) female with egg sac. Photo: F. Tomasinelli



Juvenile female Hogna radiata. Photo: F. Tomasinelli

kept like terrestrial tarantulas, but need proportionally bigger enclosures. Even though they are not extremely active, they do like to “take a look around.” An enclosure of 20 x 40 x 20 centimetres is good for most species. Most medium-sized and large spiders (of more than 1 centimetre in body length) cannot climb on glass, so are easy to control and transfer to different containers.

Wolf spiders are solitary and do not like the presence of fellows. Confinement together can lead to cannibalism, which is most common among full-grown specimens of large species.

If you are collecting specimens in the wild just simulate the environment they come from in the terrarium. Some wolf spiders do not require a retreat, but if you do not know the habits of the particular species you acquire, always provide a retreat and then observe whether the spider uses it.

Burrowing species, which are usually nocturnal predators from sunny

and rocky areas, should always be provided a few inches of a sand-soil mixture to allow for digging. Simulate the natural conditions of drier soil on the surface and more humid soil underground by using small plastic tubes to add water deep into the soil. Be sure not to flood the retreat.

Many species from scrubland, savanna, and grassland, like a hot spot. I provide this with a small light bulb aimed at a rock inside the terrarium, or with a heating pad mounted above half of the enclosure. Sand and rocks in this area will hold heat well and make a good basking spot. An adult female will use the basking spot to speed up development of eggs in the abdomen or egg sac. Specimens from tropical rainforest are kept under the same conditions as terrestrial tarantulas — a moist peat or moss substrate, temperatures of 25–30°C (77–86°F) and 70–90 percent humidity

Many species are resistant to dehydration and like sunny places, but never expose a closed terrarium

to direct sunlight. Ventilation is very important, especially for species from drier habitats. A screened lid usually allows for enough air circulation. When in doubt about the correct maintenance conditions, try providing a choice of environments — with one section of the terrarium more humid and another section warmer and drier — and see what the spider likes best.

Pay attention when handling wolf spiders. They are not considered dangerous, but some species can be aggressive and can deliver nasty bites. Always treat them with respect and remember how fast they are!

Wolf spiders in captivity almost always have good appetites, feeding readily on mealworms, king mealworms, wax worms, and crickets.

Mating

One of the most interesting aspects of wolf spider lifestyle is their complex courtship and unusual care of young. Adult males are always smaller than adult females. Males

also have evident pedipalps, proportionally longer legs, and sometimes more vivid coloration. Males tend to mature before females.

Before copulation, male courtship behaviour consists of sounds (stridulation), vibrations (drumming on the substrate), and visual displays. These are species-specific — a female will respond only if the displaying male produces the sequence specific to her species. Diurnal species pay more attention to visual cues, but their courtship often also involves other senses.

The procedure can be fascinating to observe. An adult, receptive female will cover the substrate of her enclosure with strands of silk impregnated with pheromones. This is a signal to males. When a male comes upon freshly laid silk lines, he immediately starts a complex display. If the female recognizes the display, she will come closer and investigate the male’s efforts with growing interest. If everything is carried out in the correct way, the encounter will eventually culminate

in copulation. The male hugs the female from above and introduces sperm with his pedipalps. The mating process varies in duration from minutes to hours.

After 1–8 weeks, the first egg sac will be produced. It is a spherical white or brown silk case that can hold from several dozen to hundreds of eggs. The sac is attached to the female’s spinnerets, and she pulls it around with her always, never leaving it alone, and defending it fiercely. Sometimes the female will release the sac and bring the eggs forward for a close inspection. In burrowing species the sac can be exposed to direct sunlight to speed up development and prevent the growth of moulds and fungi.

Care of spiderlings

Offspring normally hatch 3–6 weeks later as nymphs, with huge abdomens filled with yolk. They moult either immediately or within a few days, and are then ready to climb up onto the mother’s abdomen with the aid of hooked hairs on their

own abdomens and legs. The mother carries the spiderlings around in a cluster on her back without any apparent fatigue. They dismount in small groups to eat and drink, and then climb back onto the mother. In most cases they do not start feeding until they are ready to disperse. This can be a week or even a month after the first moult. When the spiderlings begin to walk around they progressively lose their immunity from mothers and brothers and are ready to start solitary lives.

Sometimes a female dies of old age with spiderlings on her back, and is partially devoured by the offspring, which are ready to exploit every possible energy resource.

If you want to raise the young, do not keep them together for a long time. In the wild, if young spiders abound and prey is scarce the spiderlings begin to eat their brothers and sisters. In captivity they can be fed fruit flies and kept together for 2–6 weeks in a big cage, but be ready to separate them when size differences develop.



Female Lycosa hispanica. Photo: F. Tomasinelli



Trochosa ruricola. Photo: E. Biggi



Adult female Lycosa sp. (Libya) with spiderlings on her back. Photo: F. Tomasinelli



Female Pardosa wagleri with egg sac. Photo: F. Tomasinelli



Lycosidae sp. (Brazil) female with egg sac. Photo: F. Tomasinelli



Male *Lycosa narbonensis*. Photo: E. Biggi



Juvenile *Pirata tenuitarsis*. Photo: F. Tomasinelli



Pardosa monticola on the snow. Photo: F. Tomasinelli



Female *Hogna radiata* with prey. Photo: F. Tomasinelli

In small species, spiderlings can be really tiny and I do not recommend keeping them in captivity. Fruit flies can be too large for them, and providing food of the correct size can be a big problem in the first weeks.

Unfortunately several species of large wolf spiders do not mature as fast as other true spiders. Many tropical species reach adulthood in less than 2 years, but temperate species can take longer because of winter diapause. In any case, most wolf spiders can live for at least 3 years, and some in temperate climates are said to live for more than 5 years.

Observation

Unfortunately wolf spiders are not common among dealers and breeders, but it is possible to find them in the wild. Many can be discovered in the grass and under stones. Burrowing species can be gently coaxed out of the ground by moving a grass stem in front of the hole.

Nighttime is always a good time to look for spiders, and wolf spiders are among the easiest to find. When illuminated with a flashlight, their eyes reflect the light brightly even from a few metres away.

European species

Lycosa tarentula is native to southern Italy, Croatia, and Spain. The female measures 25–30 millimetres in body length; the male, 18–20 millimetres. This nocturnal species is common in dry and rocky habitats. Females and juveniles dig burrows and venture out to hunt only at nights. Males roam. The growth

rate of this species is not particularly fast. Spiderlings are born in late summer, and mature in 2 years. During winter, juveniles and adults retreat into their burrows to hibernate. Females can live for more than 4 years; males for only 2 years.

This species is the famous “Italian tarantula” considered guilty of serious envenomation, leading to the “tarantella” dance in southern Italy. Most serious bites were actually inflicted by the much more dangerous black widow *Latrodectus tredecimguttatus*.

Lycosa narbonensis, from southern France, is very similar to *L. tarentula* in size and ethology. *L. narbonensis* can be distinguished by its extended black area and lack of the reddish band typical of the underside of the abdomen of *L. tarentula*.

Lycosa hispanica is the Spanish variant of *L. narbonensis*, with identical habits. *Lycosa oculata*, found in Corsica (and perhaps in Sardinia, but data is still doubtful), is another very similar variant of *L. narbonensis*.

Hogna radiata is from Italy, the Balkan region, southern France, and Corsica. The female reaches 20–25 millimetres in body length; the male, 15–18 millimetres. A widespread species common in fields from late spring to early autumn, females are nocturnal but may be seen during the day too. This spider does not dig a retreat, but sometimes hides under rocks and logs. Its life cycle is similar to that of *Lycosa tarentula* but *Hogna* grows faster. Pregnant females can be found in late summer.

Pirata piraticus is found in all of southern Europe. The female grows

to 10 millimetres in body length; the male to 8 millimetres. This interesting species lives near ponds and lakes. It does not catch fish (as does the fishing spider *Dolomedes*), but it can dive underwater to escape predators.

Another species of this genus, *P. tenuitarsis* is so similar that only close examination with a binocular microscope can ensure correct identification. The two species are often sympatric, so identification based on geographic location is practically impossible. Spiderlings are born in late summer and mature in just 1 year.

Vesubia jugorum is from Italy and France. The female reaches 20–25 millimetres in body length; the male reaches 15–18 millimetres. A very interesting and massive species, it is found only in certain rocky habitats of the Mercantour and Alpi Marittime National Parks, at above 2,000 metres (6,500 feet). This spider hibernates most of the year, and growth is probably very slow, taking more than 3 years to mature. Pregnant females can be found in July and early August.

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Bibliography

JONES, D., 2001. *Guides des araignees et opilions d'Europe*. Éditions Delachaux et Niestlé, Lausanne-Paris.
NIEUWENHUYNS, E. *Araneae, Spiders of North-West Europe*. www.xs4all.nl/~ednieuw/Spiders/spidhome.htm.