

Latrodectus

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Latrodectus is a genus of spider in the family Theridiidae, many of which are commonly known as **widow spiders**. The genus contains 32 recognized species distributed worldwide, including the North American black widows (*L. mactans*, *L. hesperus*, and *L. variolus*), the button spiders of Africa, and the Australian redback. Individual species vary widely in size, but in most cases the females are dark-colored and readily identifiable by reddish hourglass-shaped markings on the abdomen.

The venomous bite of these spiders is considered particularly dangerous because of the neurotoxin latrotoxin, which causes the condition latrodectism, both named for the genus. The female black widow has unusually large venom glands and her bite can be particularly harmful to humans. However, despite the genus' notoriety, *Latrodectus* bites are rarely fatal.

Latrodectus



Scientific classification

Kingdom:	Animalia
Phylum:	Arthropoda
Class:	Arachnida
Order:	Araneae
Family:	Theridiidae
Subfamily:	Latrodectinae
Genus:	<i>Latrodectus</i> Walckenaer, 1805

Species

Approx. 32, see article

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Description and behavior

Females of most *Latrodectus* species are dark or black in color usually exhibiting a red or orange hourglass on the ventrum underside or bottom of the abdomen — some may have a pair of red spots or have no marking at all. They often exhibit various red or red and white markings on the dorsal or top side of the abdomen, ranging from a single stripe to bars or spots. Females of a few species are paler browner shades and some have no bright markings. Juveniles and adult male *Latrodectus* are half the size of the females, and are often grey or brown and usually lighter in color than females; while they may sometimes have an hourglass marking on their ventral abdomen, it may be yellow or white, not red.

The prevalence of sexual cannibalism, a behaviour in which the female eats the male after mating, in some species of *Latrodectus* has inspired the common name "widow spiders". ^[1] Research at the University of Hamburg in Germany suggests this ultimate sacrifice strategy has evolved to promote the survival odds of the

offspring;^[2] however females of some species only rarely show this behavior, and much of the documented evidence for mate cannibalism has been observed in laboratory cages where the males could not escape.^[3]

In common with other members of the Theridiidae family, the widow spiders construct a web of irregular, tangled, sticky silken fibers. The spider very frequently hangs upside down near the center of its web and waits for insects to blunder in and get stuck. Then, before the insect can extricate itself, the spider rushes over to bite it and wrap it in silk. To feed, it uses its fangs to further administer digestive enzymes, liquefying the prey's internal organs.^[4] If the spider perceives a threat, it will quickly let itself down to the ground on a safety line of silk. As with other web-weavers, these spiders have very poor eyesight and depend on vibrations reaching them through their webs to find trapped prey or warn them of larger threats. While some species are more aggressive, most are not; many injuries to humans are due to defensive bites delivered when a spider gets unintentionally squeezed or pinched.

The ultimate tensile strength and other physical properties of *Latrodectus hesperus* (western black widow) silk were found to be similar to the properties of silk from orb-weaving spiders that had been tested in other studies. The tensile strength for the three kinds of silk measured in the Blackledge study was about 1000 MPa. The ultimate strength reported in a previous study for *Nephila edulis* was $1290 \text{ MPa} \pm 160 \text{ MPa}$.^[5] The tensile strength of spider silk is comparable to that of steel wire of the same thickness.^[6] However, as the density of steel is about six times that of silk,^[7] silk is correspondingly stronger than steel wire of the same weight.

Spiders of the genus *Steatoda* (also of the Theridiidae family) are often mistaken for widow spiders, and are known as "false widow spiders"; they are significantly less harmful to humans.

Species

Arachnologist Herbert Walter Levi revised the genus *Lactrodectus* in 1959, studying the female sexual organs and noting their similarity across described species. He concluded the colour variations were variable across the world and were not sufficient to warrant species status, and reclassified the redback and several other species as subspecies of the black widow spider.^[8]

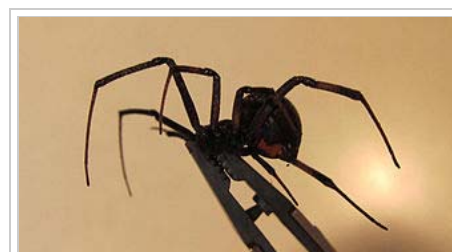
Levi also noted that study of the genus had been contentious; in 1902 both F.P Cambridge and Friedrich Dahl had revised the genus, with each criticising the other. Cambridge questioned Dahl's separating species on what he considered minor anatomical details, and the latter dismissed the former as an "ignoramus".^[8]

The southern black widow, as well as the closely related western and northern species which were previously considered the same species, has a prominent red hourglass figure on the underside of its abdomen. Many of the other widow spiders have red patterns on a glossy black or dark background, which serve as a warning. Spiders found in multiple regions are listed in their predominant native habitat.

Widow spiders can be found on every continent of the world except Antarctica. In North America, the black widows commonly known as southern (*Latrodectus mactans*), western (*Latrodectus hesperus*), and northern (*Latrodectus variolus*) can be found in the United States as well as parts of southern Canada - particularly in the Okanagan Valley of British Columbia, as can the "gray" or "brown widow spiders" (*Latrodectus geometricus*) and the "red widow spiders" (*Latrodectus bishopi*).^[9] The most prevalent species occurring in Australia is commonly called the redback (*Latrodectus hasselti*). African species of this genus are sometimes known as button spiders.



L. hesperus hair and markings



L. hesperus profile

Americas

The following widow spiders are indigenous to North America:

- *Latrodectus bishopi*, the red widow, Florida, USA
- *Latrodectus hesperus*, the western black widow, widespread range across the Western United States and extreme southern Canada, ranging East to Oklahoma, and South to Mexico.
- *Latrodectus mactans*, the black widow spider (sometimes called the southern black widow), warm regions of the USA
- *Latrodectus variolus*, the northern black widow, from the extreme southeastern part of Canada and south to northern Florida, with frequency higher in the northern part of this range

The following are indigenous to Central and South America:

- *Latrodectus antheratus*, Paraguay, Argentina
- *Latrodectus apicalis*, Galapagos Islands
- *Latrodectus corallinus*, Argentina
- *Latrodectus curacaviensis*, Lesser Antilles, South America
- *Latrodectus diagma*, Argentina
- *Latrodectus mirabilis*, Argentina
- *Latrodectus quartus*, Argentina
- *Latrodectus thoracicus*, Chile
- *Latrodectus variegatus*, Chile and Argentina

Europe, North Africa, the Middle East, and western Asia

The following widows are indigenous to the Mediterranean region, as well as in western Asia:

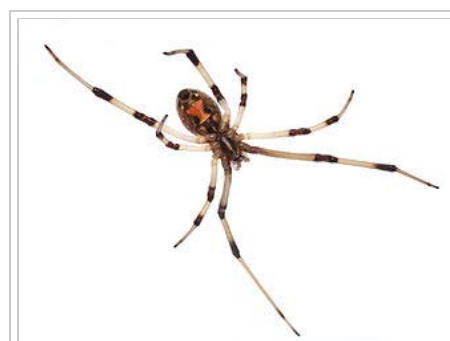
- *Latrodectus dahli*, Middle East to central Asia
- *Latrodectus hystrix*, Yemen, Socotra
- *Latrodectus liliana*, Iberian Peninsula
- *Latrodectus pallidus*, the white widow or white steppe spider, North Africa, the Middle East, Russia, Iran, Cape Verde
- *Latrodectus revivensis*, Israel, Palestine
- *Latrodectus tredecimguttatus*, the Mediterranean black widow or European black widow, Mediterranean area, central Asia, Kazakhstan, also reported in China, some specimens are reported as *L. lugubris*

Sub-Saharan Africa and Madagascar

- *Latrodectus cinctus*, a black button spider found in southern Africa, Cape Verde and Kuwait
- *Latrodectus indistinctus*, a black button spider found in South Africa and Namibia
- *Latrodectus karrooensis*, a black button spider found in S. Africa
- *Latrodectus menavodi*, found in Madagascar
- *Latrodectus obscurior*, found in Cape Verde and Madagascar.
- *Latrodectus renivulvatus*, a black button spider found in Africa, Saudi Arabia and Yemen
- *Latrodectus rhodesiensis*, a brown button spider found in Zimbabwe
- *Latrodectus geometricus*, a brown button spider found in Southern African savannah



L. hesperus with egg sac



Ventral side of a *L. geometricus* displaying the hourglass marking



Dorsal side of a *L. geometricus* in Colorado, USA

South and Eastern Asia

- *Latrodectus elegans*, China, Myanmar, Japan
- *Latrodectus erythromelas*, Sri Lanka
- *Latrodectus ex laos*, Laos

Australia and Oceania

- *Latrodectus hasseltii*, the redback, native to Australia, also found imported into Southeast Asia and New Zealand
- *Latrodectus katipo*, the Red katipo, found in New Zealand
 - *Latrodectus atritus*, the Black katipo, found in New Zealand,^[10] originally thought to be a separate species, but DNA studies have linked them.^[11]

Worldwide

- *Latrodectus geometricus*, the brown widow, grey widow, or brown button spider is found in Africa, USA, South America, and Australia. It is unclear where this spider originated; however, it has been discovered in many warm, cosmopolitan locales.

Bite

Due to the presence of latrotoxin in their venom, black widow bites are potentially dangerous and may result in systemic effects (latrodectism) including severe muscle pain, abdominal cramps, hyperhidrosis, tachycardia, and muscle spasms.^[12] Symptoms usually last for 3–7 days, but may persist for several weeks.^[13] Contrary to popular belief, most people who are bitten suffer no serious damage, let alone death. Fatal bites were reported in the early 20th century mostly with *tredecimguttatus*.^[14]

Since the venom is not likely to be life-threatening, antivenom has been used as pain relief and not to save lives.^[15] However, a study demonstrated that antivenom and placebo added to standardized pain medication had similar improvement in pain and resolution of symptoms.^[15]

See also

- List of spiders associated with cutaneous reactions

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L. tredecimguttatus female



Male *L. elegans* from Japan




Latrodectus hasseltii

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Resources

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External links

 Media related to *Latrodectus* at Wikimedia Commons

 Data related to Latrodectus at Wikispecies

- Tree of Life: *Latrodectus* (<http://tolweb.org/Latrodectus/93274>)
- Black Widow Spider: Large format photographs and information (http://www.cirrusimage.com/spider_black_widow.htm)
- Description of crossing experiments between various *Latrodectus* species (http://www.european-arachnology.org/proceedings/13th/215-222_Schmidt.pdf)
- widow spider parasitoids (http://entnemdept.ifas.ufl.edu/creatures/beneficial/wasps/latrodectus_parasitoids.htm) on the UF / IFAS Featured Creatures Web site

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