

BLACK WIDOW SPIDER

CARD 22

GROUP 5: INSECTS & SPIDERS



CLASS
Arachnida

SUBORDER
Labidognatha

FAMILY
Theridiidae

GENUS
Latrodectus



The black widow spider is not as dangerous as its reputation implies. It has caused only 55 human deaths during a 217-year period.

KEY FACTS



CHARACTERISTICS

Length: Female, 1 in. Male, much smaller.

Color: Black body with red markings on abdomen.

Venom: Poisonous, but rarely fatal to man.



BREEDING

Mating: During warm months.

Frequency: 1 mating fertilizes several batches of eggs.



LIFECYCLE

Habit: Solitary, non-aggressive.

Diet: Flies, moths, ants, beetles, and other spiders.

Lifespan: 1 year. Longer in captivity.



RELATED SPECIES

Latrodectus mactans lives in the Western Hemisphere.



Range of the black widow spider species.

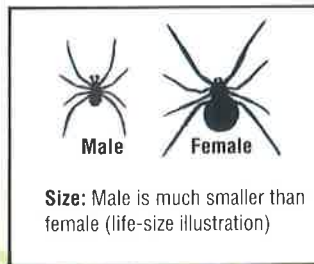
DISTRIBUTION

Found throughout the warm regions of the world. The ranges of some species have been widened by man—some spiders have traveled in fruit cargo, for example.

CONSERVATION

Common throughout its range, it does not appear to be in need of protection, except the species local to Madagascar.

FEATURES OF THE BLACK WIDOW SPIDER



Legs: Female, black and slender with a few spines. Male, orange with dark bands.

Palps: Short limbs. Male uses his to transfer sperm to female.

Fangs: Used to inject venom and digestive fluids into victim.

Abdomen: Shiny-black, with bright red markings (hourglass-shaped markings on *Latrodectus mactans*). The male's abdomen is narrower and more finely patterned.



Spinnerets: Organs at rear produce silk for building web and cocoons and for securing prey.

Black widow spiders are found throughout the warm parts of the world. The most familiar species are in North America. They are known for their powerful venom, which is deadly to prey but rarely fatal to humans. In other countries, black widows may be known by different names, such as hourglass, redback, jockey, or button spider.



HABITS

The black widow spider lives in various types of wild habitat and cultivated farmland, but it is best known for populating human residences. It likes dark, secluded places, such as in cellars and sheds and underneath houses. This spider spins its messy web beneath floorboards or in piles of rubbish and wood.

The black widow is a shy, solitary creature and will attack humans only when surprised or threatened. Its venom is called a *neurotoxin*

—it attacks the nervous system, causes severe pain and muscle cramps, and makes breathing difficult. These symptoms, although unpleasant to humans, are rarely fatal.

The front part of the black widow's body, called the *cephalothorax*, houses poison glands. Venom passes through ducts to the spider's fangs, known as *chelicerae*. The black widow stabs its prey with its fangs to inject the venom, though its mouth is really adapted for sucking.

BREEDING

Before seeking a mate, the male black widow spins a web and rubs a drop of *semen* (fluid that carries the sperm) on it. He then transfers the semen to reservoirs in his *palps*, which are limbs near his mouth that look like a pair of short legs. Then he finds a female and vibrates her web, signalling that he is ready to mate.

During mating the male transfers the sperm from his palps to the female's body. Only one mating is necessary,

Left: *Markings occur below or on top of the abdomen, depending on the species.*

since the female stores the sperm and uses it for several months to fertilize five or six batches of eggs.

The female spins a silken cocoon and lays the eggs inside as she fertilizes them with sperm. Each cocoon contains 10 to 100 or more eggs. The eggs hatch into tiny, pale spiders that quickly become independent.

Below: *Compared to his mate, the male black widow is much smaller.*

Bottom: *The female guards her cocoon of eggs, which is often tied to her web with silk.*



FOOD & HUNTING

The black widow spider eats flies, moths, and other flying insects, as well as ants and even some spiders. It spins a tangled, three-dimensional web. The male black widow's web is much smaller than the female's.

The spider waits for its prey while sitting on the web, with its feet touching the strands. An insect flying into the web quickly becomes entangled. The black widow detects the vibrations

and runs out and binds the prey with sticky silk.

The spider injects venom and saliva that contains digestive fluids into the prey's body, paralyzing it. Over the next hour or two, the saliva *predigests* (liquefies) the contents of the prey's body.

The black widow feeds by sucking out the predigested material. The prey is reduced to an empty shell, which the spider cuts away from the web and lets fall to the ground.



Left: *The web appears structureless, but the faintest tremor in a strand alerts the spider to its prey.*

BLACK WIDOW & MAN

The black widow spider has a reputation for being a killer, but few people actually die from its venom. This shy spider avoids humans rather than attacking them.

In the United States from 1726 to 1943, there were

1,291 cases of black widow bites recorded; only 55 of those people died. Most of the victims were probably children, the sick, or the elderly, whose small size or weakened condition contributed to their deaths.

DID YOU KNOW?

- The myth that the female black widow always eats the male after mating is untrue. Only when the male becomes weak and near death after several matings does the female eat him.
- The male black widow is much smaller than the female. Because it produces only a tiny amount of venom and has fangs too

- small to penetrate skin, the male black widow is harmless to humans.
- Young, growing spiders are capable of regenerating missing legs.
- Black widows have been bred successfully in captivity in large numbers. Male spiders in captivity have been known to mate more frequently than in the wild.

STICK INSECT

CARD 21

GROUP 5: INSECTS & SPIDERS

ORDER
Insecta

FAMILY
Phasmatoidea

GENUS
Phasmatidae



KEY FACTS



SIZES

Length: 2-13 in. Female larger than male.

Mouthparts: Chewing.

Wings: When present, one pair folded beneath horny cases formed from modified forewings. Many species are wingless.



BREEDING

Breeding season: In temperate areas the eggs are laid in summer, but in the tropics they may be laid at any time of year.

Eggs: 100-1,300, depending on species.

Incubation: 3 months to 3 years.



LIFESTYLE

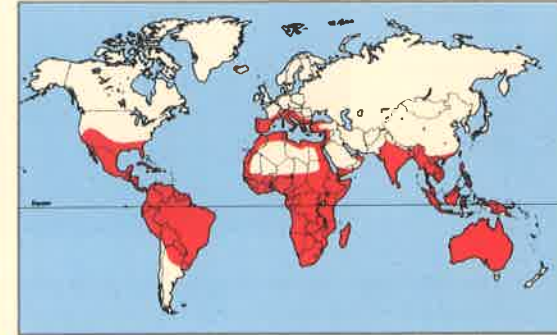
Habit: Nocturnal, slow moving.

Diet: Foliage.



RELATED SPECIES

The leaf insect, a flattened leaflike creature, is in the same order. Both are closely related to grasshoppers and mantises.



Range of the stick insect.

DISTRIBUTION

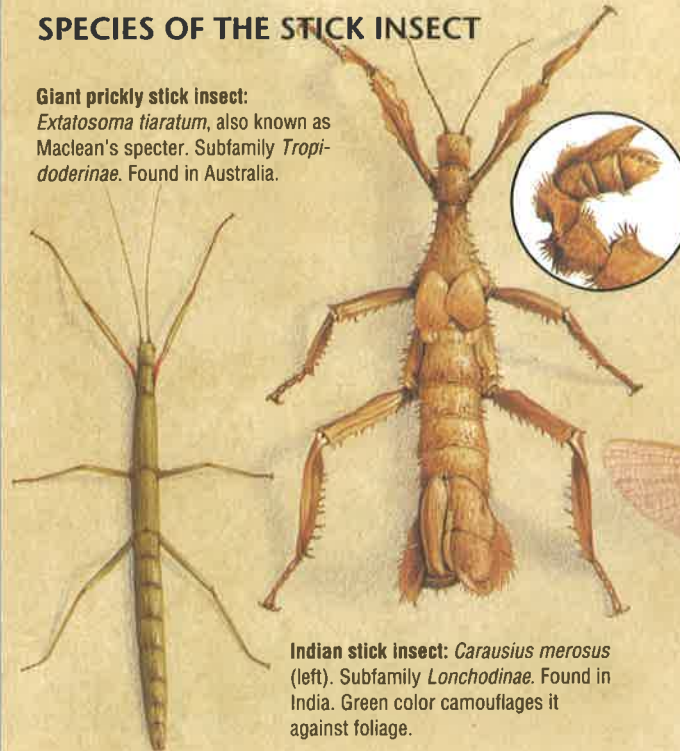
Widespread throughout the tropics, but also found in warm and temperate regions.

CONSERVATION

Most stick insects live in poorly documented areas, so their numbers are not known. The deforestation of the rainforests affects many species who rely on single food plants.

SPECIES OF THE STICK INSECT

Giant prickly stick insect:
Extatosoma tiaratum, also known as Maclean's specter. Subfamily *Tropidoderinae*. Found in Australia.



Defense: The giant prickly stick insect curls up its abdomen to mimic the scorpion attacking with its tail.

Pink-winged stick insect:
Sipylodea sipylus.
Subfamily *Necroiciimae*.
Found in Madagascar.

Indian stick insect: *Carausius merosus* (left). Subfamily *Lonchodinae*. Found in India. Green color camouflages it against foliage.

Stick insects blend into their surroundings to fool predators. Their stemlike bodies and muted colors make them almost invisible among the foliage of their food plants.

Right: A green stick insect perching on foliage resembles a leaf stem. It even sways to imitate the effect of the wind on leaves.



The stick insect camouflages itself from predators with its unusual appearance. Another characteristic that makes this insect so unusual is its ability to produce young without mating—some populations consist entirely of mature females and their offspring, all exact replicas of each other.

DEFENSES

Birds foraging in grass or in leaves and branches of forest trees prey on the stick insect. Most hunt during the day, so the insect camouflages itself.

The stick insects' slender, mottled brown or green bodies and legs give them a twiglike appearance. A green stick insect blends into a grass stem or leaf by clinging with its tail to a twig and extending its forelimbs above its head. It sways to imitate the effect of

wind on vegetation.

If disturbed, the insect may drop to the ground like a dead twig. If this does not fool predators, it may then fly away.

The extended wings of some species have bright colors. When the insect folds its wings, the color is hidden, making it invisible to hunters.

Right: *The Didymuria violescens found in Australia can devastate eucalyptus trees.*

DID YOU KNOW?

- The southeast Asian stick insect, *Pharnacia serratipes*, is, at 13 inches, the longest insect in the world.
- The males of some stick insect species have never been found in the wild.
- If a young stick insect loses

- a leg, it grows another to replace it. The non-molting adult loses this ability.
- Some stick insects will discourage their attackers by regurgitating their food at them or squirting them with poison.



FOOD & FEEDING

Stick insects only eat the foliage of herbaceous plants, shrubs, and trees, gnawing the leaves with their small but effective jaws. Each species has its own preferred food plants.

The stick insect feeds at night while enemies sleep. The insect forages slowly, avoiding

abrupt movements that might give away its presence.

Most species feed alone, but *Didymuria violescens*, found in the eucalyptus forests of Australia, gather in swarms and strip leaves from entire trees, causing serious crop damage or failure.



SPECIAL ADAPTATION

Some stick insects can expose or conceal pigment granules in their skin cells, making their colors lighter or darker.

These pigments can also control body temperature.

The tropics can be hot by day and cold at night. The insect remains pale in the sun, reflecting heat. As the temperature drops, it becomes dark to absorb heat.

BREEDING

Some species have few males. Instead of mating, the female lays eggs that develop without fertilization.

Most stick insects reproduce non-sexually, but this fact has disadvantages. The young are identical to the female, allowing no random variations that cause a species to evolve. The male genes from other groups are what cause these variations.

Stick insects find mates

easily in groups, but scattered females attract mates by emitting a *pheromone*, a seductive scent. The two then mate while clinging to a twig or leaf.

The female scatters her eggs. Each egg may stay on the forest floor for up to three years, protected by its seedlike appearance and hard shell. Eventually the young insect emerges from its hinged shell.



Left: *The female attracts the smaller and rarer male to mate by emitting a seductive scent, or pheromone.*