



Pest Facts

Spiders: Medically Important

Four groups of spiders are of concern when found in structures due to the dangerous nature of their bites. These spiders include the widow spiders, brown spiders, aggressive house/hobo spider, and two species of sac spiders.

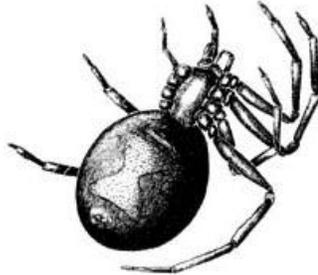
Description:

Widow Spiders

Distribution- Widow spiders are present in every state in the United States, in southern Canada, Caribbean Islands, Mexico, Central and South America, Mediterranean countries, Southern Russia, New Zealand, Australia and warmer parts of the world. They are frequently found in train boxcars, ship holds and tractor-trailer vans.

Life History- Eggs are laid in silken sacs up to ½" (13 mm) in diameter, and from four to nine egg sacs may be produced during one summer. About 300 to 400 eggs per sac is common. The female guards the sacs and moves them as necessary to repair her web. After laying the eggs, the females are hungry and are more likely to bite if disturbed. The eggs generally hatch in 8 to 10 days. After emerging, second-instar spiderlings remain near the sac, but after a few hours they climb to a high point, spin a strand of silk to catch the wind and are ballooned away to a new location.

Depending on the availability of prey, sexual maturity occurs in about 4 months. Contrary to popular belief, males are seldom eaten by the female after mating. Actually, males live longer when associated with a mate because he acts as a "parasite" feeding on prey captured by the female.



Identification- The black widow spider, *Latrodectus mactans*, is the most well-known spider in North America. The adult female is usually black above, with two reddish triangular markings, joined to form an “hour glass” shape on the underside of the abdomen. Mature females are nearly ½” (13 mm) in body length and males are about half this size. The markings of immature spiderlings and mature males are similar. Young black widows are orange and white and acquire more black after each molt. One or two red markings may be present underneath, but these may be variable and not joined into the hourglass. The males have whitish streaks, bars, or dots on the topside of the abdomen and two triangular red markings beneath.

Brown Recluse

Some 54 species of brown recluse are known to exist in North America, Central America and the West Indies. In the United States, *Loxosceles reclusa*, is considered to be the most widespread and important brown recluse spider.

Distribution- The natural range is from southern Texas, north to Nebraska and east to Tennessee and Alabama. It appears to be most concentrated in the south-central portion of the Midwest. Within its range, the brown recluse naturally occurs in outdoor situations, living in piles of debris, utility boxes, wood piles, vehicles and under bark, logs and stones. It has adapted well to indoor living where it is commonly found harboring in storage areas such as closets, attics, crawlspaces, basements, cellars, and other dark recesses, as well as cracks and crevices. They frequently inhabit clothing, boxes, toys, paper, furniture, and other household items. They seem to prefer “layered” or cluttered areas.

Life History- The brown recluse spiders are nocturnal and search for food at night. At dawn, the spider will return to their refuge of an irregularly spun, off-white web with their prey. Males wander farther than the females and are the sex that is most commonly found in shoes, pants and other clothing items. Bites normally occur when a spider hiding in clothing or bedding is accidentally trapped against the skin. The thin, wispy webs of the brown recluse may be seen in drawers, boxes, shelf corners, under furniture or other undisturbed areas.

The female lays about 40-50 eggs in an off-white, round (6mm) silken case. The summer moth from May through August is the optimal time for egg production. From one to five egg sacs will be produced during the female's life time which normally averages one to two years. The presence of shed skins and subsequent attachment in and around residences may be a sign of infestation.



Identification- Most brown recluse spiders possess the characteristic dark brown violin marking on the back. In some species or individuals, however, this marking may be faded or absent. Six eyes are situated in three pairs arranged in a semicircle pattern. Body coloration varies from yellowish to light tan to dark brown. The spiderlings resemble the adults in structure but have lighter coloration and may lack the violin shape.

Aggressive House Spider/Hobo Spider

The aggressive house spider (*Tenenaria agrestis*) is one of five species of this genus found in North America. The aggressive house spider was introduced into Seattle in the 1920s. Current distribution finds the spider in Montana and Utah. Like most members of the family Agelenidae, the spider builds a funnel web which is flat and have a funnel at one end in which the spider hides, waiting for prey. The funnel portion is commonly built into a crack or hole in a wall or corner.

Life History- The aggressive house spider has a two-year life cycle beginning with over-wintering eggs that hatch in the spring. The spiderlings find a suitable location for building a web and then spend their first year growing and molting. After over-wintering a second time, the males mature early the following summer and the females mature a short time thereafter. Males wander in search of females from late June through October and may crawl into clothing and bedding. After mating, males usually die. Females die after depositing their egg sacs.

Identification- Individuals range in size from 3/8 to 5/8" (10-15 mm) in body length. The abdomen usually has a herringbone stripe pattern of brown, gray, and tan. The legs and back are very hairy. Unlike the domestic house spider, which has distinct rings on its legs, the aggressive spider has solid colored legs. Two parallel gray marks run the length of the carapace. The spinnerets are long and finger-like and can be seen from above as they



protrude from the tip of the abdomen.

Yellow Sac Spider

Yellow sac spiders derive their name from their yellow color and the flattened silk tube or sac they construct and hide in during the day. During the summer, these silken webs may be spun on plant leaves, usually near the ground. Indoors, webs may be found behind pictures, baseboards, ceiling tiles and are commonly found in corners at the wall-ceiling juncture.

Distribution- The yellow sac spider is native and common throughout the United States except for the most northern tier of states.

Life History- Yellow sac spiders may be seen indoors crawling on walls, floors and ceilings at night and rest in the web during the day. They enter structures through exterior cracks and crevices, and some may live in wall voids. After mating, the female deposits her egg sac within the silken tube where it is protected. After emerging, the spiderlings remain in the tube for a short period of time and then begin to move away in search of food. Often, they will return to the tube during the day.



Identification- Yellow sac spiders have two rows of four eyes each, all the same size. The body color ranges from light green to yellow-white. The palps, chelicerae (mouthparts) and the tips of their legs are brown.

Envenomation

As predators, spiders use venom to incapacitate or kill their prey. Venom is a highly complex chemical substance which may contain many different components. Spiders seldom bite people, and these bites are usually the result of the spider accidentally becoming trapped against the skin or when a child tries to pick one up. Only one spider, The Sydney funnel web spider of Australia is reported to attack without provocation.

It is important to note that spider bites probably occur far less than they are reported. Results from a recent study showed that 80% of suspected spider bites were actually caused by other arthropods. Several diseases show lesions similar to those produced by bites of cytotoxic spiders including chronic or infected herpes simplex, arthritis dermatitis, diabetic ulcer, bedsores, poison oak, poison ivy and even Lyme disease.

Neurotoxic venom (Latrodectism): Neurotoxic venom is also called Latrodectism after the widow spiders. Neurotoxic venom travels the nervous system and can cause symptoms and reactions at sites far removed from the bite area, but no local damage or tissue necrosis occurs at the bite site. Although the venom's main component, Alpha-latrotoxin, is more potent than pit viper venom on a volume per volume basis, it is injected in such small quantities that fatalities are rare.

The initial bite may go unnoticed or may feel like a pinprick. Initial pain may be followed by dull, numbing pain in the affected extremity and by pain and cramps in one or several of the large muscle groups (particularly the abdomen). Sweating, weakness and pain in the lymph nodes may occur and symptoms may progress to a rise in blood pressure, nausea, leg cramps, tremors, loss of muscle tone and vomiting. In severe cases, the toxin may cause breathing difficulties, heart irregularities and possibly death.

Cytotoxic venom (Loxoscelism)- Cytotoxic venom is called Loxoscelism after the brown spiders and causes tissue death. The effects of the venom are generally localized at the site of the bite although systemic reaction may occur, usually in children.

The bite may be painless or it may cause a slight stinging. Usually a localized burning sensation develops and lasts about 30 to 60 minutes. During the next eight hours, a reddened area enlarges and a pus-filled blister forms in its center. Within 24 hours after



the bite, systemic reaction may occur, characterized by fever, malaise, stomach cramps, nausea, and vomiting. The venom usually kills the affected tissue and causes skin loss. Ulceration develops and a well-defined eschar pock-like area forms which may take a week to develop. If the bite progresses to this stage, removal of the dead tissue may be necessary followed by skin grafting. Secondary bacterial infections often complicate the situation. Normally the site will heal in about eight weeks.



Aggressive House/Hobo Spider Bites- Bites of the aggressive house spider are cytotoxic in nature and produce similar and sometimes as equally severe reaction as the brown recluse. Normally the bite is not felt, nor is the spider seen. Within a short period of time, from about 15 minutes to an hour, a red area develops around the bite. In some cases, this redness subsides within a few days and no further damage is experienced. Often, however, the bite may cause more serious results. Within 15 to 36 hours, the bite site may blister, filling with puss. This blister breaks within 24 hours, leaving an open sore or ulceration that may take from 10 days to several months to heal. The venom may kill the affected tissue. Systemic illness occurs in about half the cases including weakness, dizziness, disorientation and confusion, visual disturbances, sweating, nausea, severe headache and joint pains.

Sac Spider Bites- Bites of sac spiders are cytotoxic, but rarely result in more than localized redness and burning sensation at the site of the bite. Although blistering or swelling may occur, seldom does it progress to an open sore. Systemic reactions may occur in children.

MANAGEMENT OF SPIDERS

Inspection and Identification:

A thorough inspection inside and outside the structure is needed to determine the spiders which are involved, the sources of the infestation, how they are entering and any contributing factors. Accurate identification of the spider is especially important in the case of spider bites. Inspect for webbing in corners, near windows and secluded places. Move items to determine the presence of spiders. Carefully collect any specimen, if possible. Submit for positive identification by a pest management professional.

Non-chemical Measures:

Non-chemical techniques should comprise the majority of the management effort, especially for web-building spiders.

Sanitation- Removal of spider webs, egg sacs and potential harborages are critical for long-term success in spider management. Indoors, store boxes off the floor and away from walls to limit their use by spiders. Seal all box openings to prevent use as a spider harborage. Removal of all new and old webbing allows for easier determination of future spider activity. Remove or organize clutter in storage areas. Establish a vegetative free zone 18 to 20 inches out from the perimeter of the building.

Exclusion- Keeping spiders from entering is the best strategy. As many cracks and holes as possible in exterior walls should be sealed and tightly fitted screens installed in windows and vents. Tight-fitting weather stripping should be present around the edges of all doors. Finally, all exterior openings should be closed when not in use.

Exterior lighting- Exterior lights often attract insects and, subsequently spiders. Mercury vapor lights should be replaced with sodium vapor lights which are less attractive to insects.

Ventilation- Installation of proper ventilation in crawl spaces and attics/storage area reduces excess moisture which attracts insects and spiders.

Vacuuming- The use of a vacuum device removes not only individuals spiders but also webbing and egg sacs. Vacuum devices equipped with several extension tubes are useful in the removal of webs and spiders from high corners, rafters, overhead beams and otherwise unreachable surfaces. This technique is the primary control technique for web building spiders.

Chemical methods:

A variety of insecticides are labeled for spider control and are effective when directed to the area of spider activity or where they may be resting. Spiders are, however, easily disturbed and drop from their webs and seek cover when treatments are applied. Before deciding on any pesticide application, consult a professional pest manager for additional information.

This publication contains general recommendations that are subject to change and update. For additional pest management information, please contact the Entomology Department at the Defense Supply Center Philadelphia-West Coast Support Office, Alameda, California. DSN 686-8122, Commercial (510) 337-8122, email paa5245@exmail.dscp.dla.mil.

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