

# LOS ANGELES UNIFIED SCHOOL DISTRICT PEST OF THE MONTH PROGRAM NO. 9

## SPIDERS

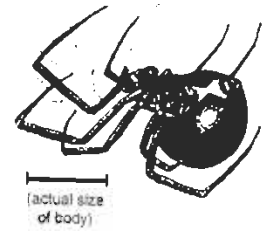


Figure 1. Adult black widow spider.

### INTRODUCTION

Most people fear and dislike spiders in spite of the fact that the overwhelming majority of them are beneficial because they feed on insects and other arthropods. As an old English saying goes, "If you wish to live and thrive, let the spider run alive." A quotation from E.B. White's *Charlotte's Web* is also appropriate here: "And furthermore said Charlotte, shaking one of her legs, 'do you realize that if I didn't catch bugs and eat them, bugs would increase and multiply and get so numerous they'd destroy the earth, wipe out everything?'" Only a small number of spiders, for example, the black widow spider, can harm or injure people, and these spiders generally spend most of their time hidden in various secluded and protected places such as in, under, around, and between miscellaneous stored materials, or in woodpiles, corners, cracks, crevices. Most spiders have toxic venom that they use to subdue their prey. However, only a few possess venom that can cause serious reaction in humans and these are called poisonous spiders.

### BLACK WIDOW SPIDER

The western black widow spider, *Latrodectus hesperus* (Fig.1), is the most common harmful spider in California. Venom from its bite can cause reactions ranging from mild to painful and serious, but death is unlikely and the symptoms can be alleviated if medical treatment is promptly obtained. Anyone bitten by this spider should remain calm and seek medical treatment right away. It is often helpful if the offending spider can be caught so that a correct identification of the species can be made. Species identification is helpful in administering the proper treatment.

The typical adult female black widow spider has a shiny black body, slender black legs, and a red or orange hourglass marking on the underside of the round abdomen. The adult male black widow spider is smaller than the female. It possesses venom but its fangs are too weak to break human skin. The top of its abdomen has a pattern of cream-colored areas with a light-colored band running lengthwise along the top. The hourglass mark on the underside of the abdomen is generally yellow or yellow-orange. Contrary to popular belief, the female black widow spider rarely eats the male after mating, but may occasionally do so if she is hungry. Young female black widow spiders have cream colored markings on the top side and in their early stages of development, they resemble the males in color pattern. Only the larger immature female and adult female spider are able to penetrate human skin with their fangs and inject enough venom to cause a painful reaction.

## **BLACK WIDOW SPIDER WEBS AND EGG SACS**

The web of the black widow spider is irregular in shape and thus there is no pattern to it. The web is fairly strong and emits a crackling sound, similar to crumpled cellophane paper, when broken. The black widow spider is, for the most part, active at night and during the day it secludes itself in an inconspicuous area of the web or in a nearby crack or crevice or other protected place. It has a tendency to rush out of its web during the day if the web is disturbed because this signifies to it that a prey may be trapped in it. The egg sacs are spherical, papery, tan to cream-colored and they are often seen hanging in the web. A female spider may produce several egg sacs. Tiny, young black widows are whitish in color and they disperse to new locations by letting out a thread of silk which is caught by the wind and they are taken parachute-style to other areas. This dispersal method is called ballooning.

## **WHERE ARE BLACK WIDOW SPIDERS COMMONLY FOUND**

In southern California, black widow spiders are commonly found in dry, dimly lit, sheltered undisturbed places such as piles of wood, rubbish, rocks, stones, unused furniture, miscellaneous debris storage areas, where exterior pipes and other utilities and utility boxes are attached to structures. Anywhere the spiderlings can establish a foothold and start a small web is a place where these spiders can take up residence. When they are plentiful in an area, black widow spiders can be found almost anywhere including on the hinges of exterior doors and on the handles of trash cans. At schools, black widow spiders are common under air conditioning units that are attached to the outsides of buildings and under water fountains and anything else that is attached to the exterior walls of structures.

People are most likely to be bitten when they disturb or inadvertently squeeze a spider while they are cleaning out or picking up items in spider infested places. A smart precaution is to wear a pair of leather gloves and long sleeved shirt when working in areas that are considered good hiding places for black widow spiders.

## **SIGNS AND SYMPTOMS OF A BLACK WIDOW SPIDER BITE**

The symptoms of a black widow spider bite vary depending on the person bitten and where on the body the bite was inflicted. Two tiny red spots, about 1 to 2 mm apart, resulting from the puncture wounds may be visible at the bite site. This is where the fangs were inserted into the skin. These spots are not always present. Local redness and swelling may develop at the wound site. The internal effects may range from mild to severe. Pain tends to spread from the bite to other parts of the body and muscular spasms may develop. In severe cases the abdominal muscles may become quite rigid. Other effects may include profuse sweating, fever, increased blood pressure, difficulty breathing and speaking, restlessness, and nausea. Generally, the pain and other symptoms peak at 2 to 3 hours after being bitten and then gradually subside over the next 2 or 3 days. Most people who are bitten do not develop symptoms severe enough to require treatment. Most patients have a resolution of symptoms within 48 to 72 hours of the

onset, but symptoms may last for several days in some cases. Patients at greater risk for serious systemic complications include children, the elderly, and persons with cardiovascular disease or other underlying medical problems. The truth is that more people die from lightning strikes, bee stings, and snakebites than from spider bites.

## **PREVENTION AND NONCHEMICAL CONTROL**

Spiders may enter school buildings through cracks, crevices, openings around doors and windows, and gaps around utility penetrations in walls and floors, and other points of entry. Spiders can also be carried into buildings in or on items such as plants, boxes, office supplies, and on almost any other materials that are brought into structures. Regular vacuuming or sweeping of windows, corners of rooms, storage areas, and other places that are not frequently used will help to remove spiders and their webs and discourage their reestablishment. Vacuuming spiders is an effective control technique because their soft bodies are easily damaged as they tumble through a vacuum device. A good, relatively inexpensive, portable vacuum device that can be used to vacuum spiders is shown in Fig. 2. This device can be obtained from Home Depot Maintenance Warehouse.

To prevent spiders from coming indoors, seal cracks in the foundation and other parts of the structure and gaps around windows and doors. Install door sweeps on exterior doors as appropriate. Openings around utility wall penetrations should be caulked and/or patched. Good screening not only keep spiders out but also prevent insect entry that they use as food.

When storing materials indoors, place boxes off the floor and away from walls to help eliminate spider harborages. Sealing boxes with tape will prevent spiders from taking up residence in them. Clean up clutter and miscellaneous debris from storage areas and tidy up the place.

Eliminate outdoor spider harborages by keeping the area next to the foundation free of debris, storage, trash, leaf litter, heavy vegetation, and other accumulations of miscellaneous materials. Trimming plant growth away from the structure will discourage spiders from taking up residence near the structure and then moving indoors. Outdoor lights attract insects, which in turn attract spiders. Where possible, keep exterior light fixtures away from windows and doorways. Sweep, mop, hose, or vacuum webs and spiders off buildings regularly. Use a long handle broom to remove spider webs from under outdoor lunch tables and benches at schools. Old webs under these places often gather dust, leaves, feathers, and other miscellaneous debris and become unsightly. Old spider webs under outdoor benches and tables serve as a constant reminder to people that spiders might be present there. Most people incorrectly assume that any spider web they see belongs to black widow spiders. This is certainly not the case as most of the spider webs I have seen on LAUSD school campuses belong to non-poisonous spiders such as house spiders, cellar spiders, long bodied spiders, etc. Also, not all spider webs observed contain live spiders. Many spiders, including black widow spiders, are killed by predators, therefore it is not uncommon to find webs without any spiders in them. For aesthetic and safety reasons at schools, it is best to periodically remove spider webs from areas of human activity.

Chemicals do not work well for black widow spider control because they live in webs above the ground. Spiders have to be contacted directly with sprays at the time of treatment in order to obtain control. It is easy and better to crush a spider with a rolled up newspaper or your shoes or to vacuum it up instead of trying to control them with sprays. Individual nonpoisonous spiders found on the floor indoors can be removed by placing a jar over them and slipping a piece of paper under the jar that seals up the opening of the jar when it is lifted up. The spider can then be relocated to a place outside the building away from human activity.

## **BROWN RECLUSE SPIDERS**

Recluse spiders of the genus *Loxosceles* have been made famous because of erroneous and sensational reports by uninformed media people. The real brown recluse spider, *L. reclusa*, is not known to be present in California although it has been occasionally brought into this state in household goods, other miscellaneous materials, and in vehicles. They have occasionally been found in facilities that receive goods from out of state. Another related recluse spider, *L. laeta*, sometimes referred to as the Chilean recluse spider, was first found in Los Angeles in 1969 and it is established in certain isolated areas such as Alhambra, Sierra Madre, and Monterey Park. The bite of this spider is as toxic to humans as the bite of the brown recluse spider. The most common native California recluse spider is the desert recluse, *L. deserta*. This species is mostly found in the Sonoran and Mojave deserts, in the foothills of the lower San Joaquin Valley, and in adjacent areas of Mexico, all of which are sparsely populated by humans. Recluse spiders may have a violin-shaped marking on the top side of the head region (cephalothorax) (Fig. 3). This mark is not always conspicuous and it should not be used as the definitive identifying characteristic. A unique feature of recluse spiders is their six eyes, arranged in pairs in a semicircle (Fig. 3) which can often be seen with the use of a good hand lens. Most other spiders have eight eyes.

## **LIFE HISTORY CHARACTERISTICS**

Recluse spiders, as their name implies, are reclusive in their behavior. These nocturnal spiders emerge from their retreats at night and actively hunt prey or may wait for prey to come by their retreat area. These spiders do not build webs to capture prey but they will construct a small web in which to hide during the day and in which they will suspend a flattened eggs sac. As dawn approaches, they may seek shelter in dark, dimly lit areas such as clothing or shoes. Mature males roam around in search of females. These two behaviors will bring these spiders in contact with humans.

In nature, recluses are found in cracks and crevices in and under rocks and other objects such as trash cans, plywood, tarps, tires, boxes, and various other materials lying on the ground. Unlike many other spiders that disperse by either migrating or being carried by air currents as spiderlings (ballooning), recluse spiders can only expand outside their native range by being carried from place to place by humans in household belongings. California does not have high populations of these spiders to be responsible for the number of cases of bites that are attributed to them. Many human necrotic wounds in California have been misdiagnosed as “brown recluse bites.” Bites have been attributed

to these spiders in areas where the spiders do not occur. Necrotic wounds are often caused by a number of factors that are unrelated to recluse spiders. Refer to the following web site for more information on recluse spiders:

<http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html>. The name of this publication is Pest Notes: Brown recluse and other recluse spiders. UC DANR Publication 7468.

## **RECLUSE SPIDER DISTRIBUTION**

Fig. 4 shows the distribution of recluse spiders in California. If you do not live in the shaded areas, you do not need to be concerned with recluse spiders. Also, not all of the micro-habitats in the shaded areas are suitable for recluse survival. Although *L. laeta* occurs in isolated densely populated areas of Los Angeles County, this species is usually found in dark commercial and municipal storage basements. None of the buildings in the Los Angeles Unified School District are located in areas known to harbor recluse spiders so it is safe to assume that people are not likely to be bitten by these spiders on District property.

Humans have differential susceptibilities to spider venom. Some people may react drastically to non-poisonous spider bites while others do not react at all. It is not wise to assume that any irritation, rash, wound, or necrosis occurring on a human body is due to a spider bite. Refer to the following publication regarding possible causes of human necrotic wounds: Vetter, R. 2000. Medical Myths. Myths: idiopathic wounds are often due to brown recluse or other spider bites throughout the United States. West Journal of Medicine 173:357-358.

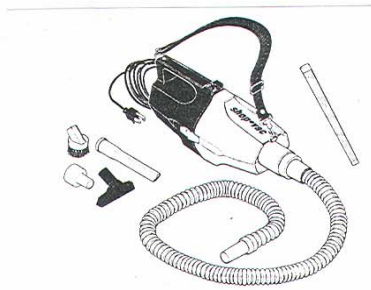
## **CONCLUSIONS**

Because of concerns expressed by parents and because of health and safety reasons, spider webs accessible to children at schools should be periodically removed and any live spider found crushed. The best way to do this is by using mechanical web removers such as Websters® that are commonly sold in hardware stores (Fig. 5). Some plant managers have routinely used a pressure water hose to wash away spiders and spider webs from under outdoor lunch tables and benches. Vacuum devices like the one shown in Fig.3 are also useful for removing spiders and their webs.

Prepared by Dr. Hanif Gulmahamad, LAUSD IPM Coordinator

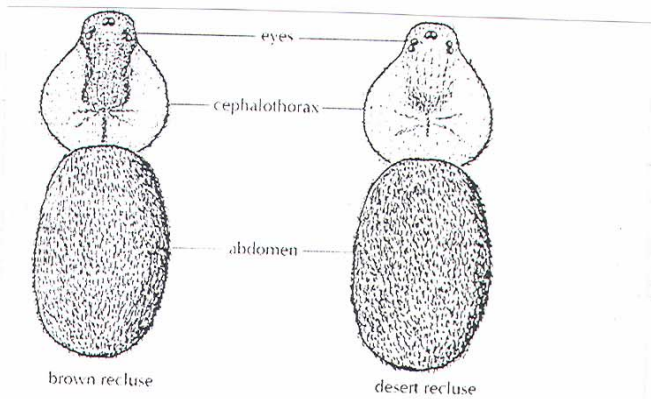
Date: 8 October, 2003

Issue 09-10.



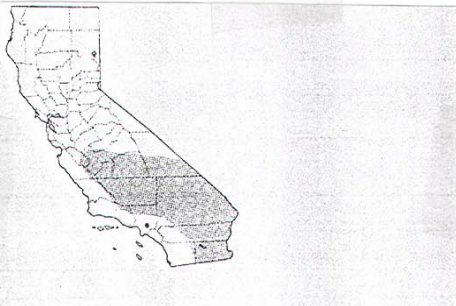
**B** 191875 Hippo Portable Industrial Dry Vacuum/Blower - 1.5 HP, 7.2 Amp Motor - 2-1/2 To 1-1/4" Adapter Fits All Standard Size Accessories - 6' Hose With Attachments - 18' Power Cord - Use 191878 Replacement Bags - 10 Lb - Mfg #999-19 - (U)  
\$99.95 ea

Figure 2. Portable device for vacuuming spiders.



The head region (cephalothorax) and abdomen of a brown recluse, *Loxosceles reclusa* (left), and a desert recluse, *Loxosceles deserta*. Note the characteristic spacing of the six eyes arranged in three dyads. The violin marking is well defined on the brown recluse but is very faint on the desert recluse.

Fig. 3



Distribution of the desert recluse, *Loxosceles deserta* (shaded area) and a South American recluse spider (dot), *Loxosceles laeta*, in California.

Fig. 4



Fig. 5. Using a Webster® to remove spider webs from under a drinking fountain.