



Pests and Pesticides in Child-serving Facilities: An IPM Newsletter

Special points of interest:

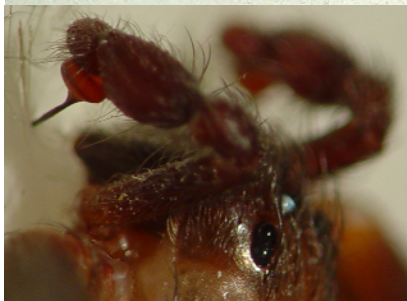
> Avoiding Brown Recluse Bites

Avoiding Brown Recluse Bites

Karen M. Vail,

The brown recluse spider is a light to medium brown spider, although color may vary somewhat. The adult body ranges from a 1/4 to 1/2 inch in length and 1/8 to under 1/4 inch wide. The legs span an area roughly the size of a quarter to a half-dollar. The cephalothorax is round and the second pair of legs are longer than the remaining pairs. Three pairs of eyes are arranged in a semicircle at the base of a violin-shaped marking, but many other spiders have a violin-shaped marking. **Since most other spiders have eight eyes, the eye configuration alone can eliminate many specimens suspected of being a brown recluse spider.** Although there is much concern about brown recluse bites, according to Anderson (1998), "Almost all brown recluse spider bites heal nicely in two to three months without medical treatment at all."

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Top photo. Male and female brown recluse spiders trapped on glue board. Bottom left, male has enlarged pedipalps and bottom right, female's pedipalps are narrow. Note three pairs of eyes arranged in a semi-circle along the front edge of the cephalothorax. Photo credits: UT E&PP

Brown recluse bite description

Often initially painless, the bite wound starts with a central pimple and produces an irregular red skin reaction in 6-12 hours. Initially the lesion may hurt or itch, but then the affected area may become a blister and/or dead skin. Case reports of blood abnormalities, kidney failure or death have been recorded, although it is estimated that less than 1% of cases go systemic. Death is rare. Numerous other diseases, vasculitis, skin infections and other causes have been misdiagnosed as brown recluse spider bites.

Avoiding brown recluse bites around the home

Most bites occur when the spider is pressed against the skin inside clothing or when rolled on in bed. To minimize bites in homes where brown recluse is present:

1. store clothing in sealed plastic bags or storage boxes,
2. store shoes in plastic shoe boxes,
3. shake clothing and shoes before wearing,
4. move beds away from walls or curtains,
5. remove bed skirts from box springs,
6. do not use bedspreads that touch or come close to the floor,
7. inspect bedding before climbing into bed,
8. place glueboards under each bedpost, and
9. wear long sleeves and gloves when reducing harborage and other conducive conditions.

Avoiding brown recluse bites in schools

Because most bites occur when the spider is trapped against the skin, all containers and other objects should be observed for spiders before being touched. Open drawers so materials are visible before reaching into the drawer. Never reach blindly into any space. Because most bites are received when putting on shoes or clothing that has lain on the floor, clothes normally stored in closets, locker rooms, and other storage spaces near the floor should be moved to a higher location. Lab coats, footwear, costumes, uniforms and other stored clothing should be shaken, as appropriate, to dislodge any spiders before using them. Clothing can also be sealed in a plastic box or bag to prevent spiders from harboring in them. Inspect stored mats or cots prior to allowing children to sleep on them. If footwear is removed while sitting at a desk, tap the shoe to dislodge spiders before inserting foot.

Actions to be taken in the event of a bite

Firmly place ice on the wound and elevate the wound.

Seek medical assistance.

Find a cool place to rest until receiving medical assistance. Do not become excited or move about.

Brown recluse spider bite treatment

The following description was modified by Saralyn R. Williams, Vanderbilt University Medical Center, Nashville, Tennessee in 2009 or so.

The treatment of brown recluse spider bites is largely conservative. Ice packs and elevation may reduce the pain from the bites. Antihistamines can be used for itching and analgesics for pain control. Antibiotics are not routinely needed as prophylaxis for secondary infections. Tetanus toxoid should be updated as needed. In animal models of brown recluse spider envenomations, administration of dapsone, steroids, or antihistamines did not change the clinical outcome of the wound. Excising the bite site acutely should be avoided since the inflammatory reaction produced by the venom will inhibit wound healing and produce inferior clinical results. Plastic surgical procedures can be helpful for reconstructing the wound site after the active phase of tissue damage has been completed. This may take up to 20 weeks.

Brown recluse management

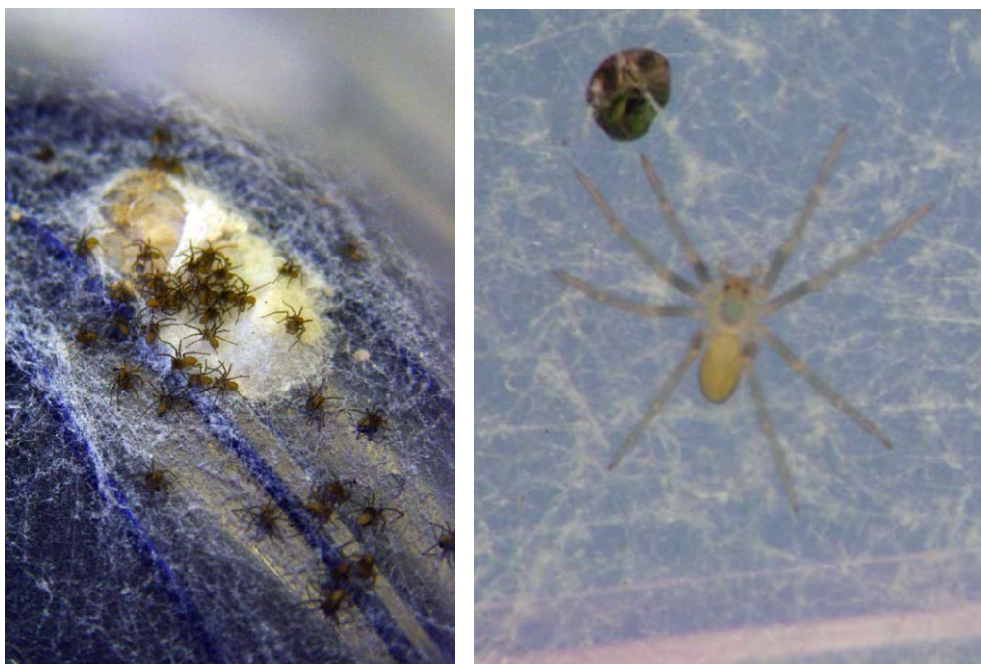
Monitoring

Use glue boards or traps to monitor for this spider to determine its relative abundance, discover its distribution in the building and to aid in control. Glue boards should be placed near typical harborage spots but where they won't be disturbed. Place glue boards where two surfaces, i.e., wall and floor, intersect and under legs of objects that are suspected of harboring these spiders. For instance, traps can be placed along walls in areas such as under pieces of furniture; behind toilets, under sinks; in closet floors and on several shelves; on exposed sill plates, in crawl spaces and basements; near stored items in attics and basements, especially around boxes; and near openings of light fixtures and vents in attics. Do not skimp on monitoring traps. They can be fairly inexpensive, so use plenty throughout the structure. Check glue boards regularly for spiders.

Non-chemical control

Employing non-chemical control, such as eliminating the spider and its resting places, is helpful to reduce brown recluse populations. The brown recluse spider wanders at night searching for prey. It seeks dark, uninhabited areas for protection. Searches for this spider should concentrate on areas close to the floor, particularly in boxes, around piles of paper, clothing, and debris, in closets, and under furniture. Remove spiders, their webs and egg sacs with vacuums. The vacuum bag should be placed into a plastic bag and then placed into a freezer. Wear gloves to prevent spider bites while searching. Periodic checks outdoors should focus on storage sheds, piles of debris or wood, cracks in the soil or in foundations, walls, and window wells, especially if small children play near these places. Because these spiders prefer undisturbed places for nesting and hiding, periodic, thorough cleaning can help reduce their numbers. Floors should be kept well-vacuumed.

Remove debris and excess clutter to reduce the number of harborage sites available. Remove as much cardboard as possible and use plastic sealable totes instead. At the very least, seal the edges of cardboard boxes with tape to prevent spider (and insect) entry. Move boxes off the floor and away from walls. Outside, remove piles of debris, wood, and rock away from the school. Vegetation should be removed from the sides of buildings and grass should be kept mown. Use exclusion practices including maintaining tight fitting screens in windows and sealing around entry sites such as doors and cracks in walls. Fill cracks in walls and foundations with mortar or caulk.



Left, brown recluse spiderlings hatching from an egg sac. Right, young brown recluse in webbing. Note 3 pairs of eyes are visible in this stage too. Photo credit: UT E&PP

Chemical control

A wide variety of chemicals are available for the control of spiders. See the UT Extension PB 1690 *Insect and Plant Disease Control Manual* (<http://eppserver.ag.utk.edu/redbook/pdf/professionalinsects.pdf>) for pesticides suggestions for brown recluse management although not all of these may be suitable for use in schools. In schools, products should be used that have a CAUTION or no signal word on the pesticide label. Products should be applied to maximize exposure to the spiders and minimize exposure to the school occupants and must be applied under the direction of a person licensed by the Tennessee Department of Agriculture. Thus, if necessary, voids can be dusted and sealed and sprays can be applied into cracks and crevices. Misapplied chemical treatments may cause more harm than the real or perceived threat from spiders. See Vail et al. 2002 (<http://www.utextension.utk.edu/publications/pbfiles/pb1191.pdf>) for guidance pertaining to pesticide applications for brown recluse.

More information on brown recluse identification, bite management and pest management can be found in the sources used for this article.

Anderson, P. C. 1998. Missouri brown recluse spider: a review and update. *Missouri Medicine* 95: 318-322.

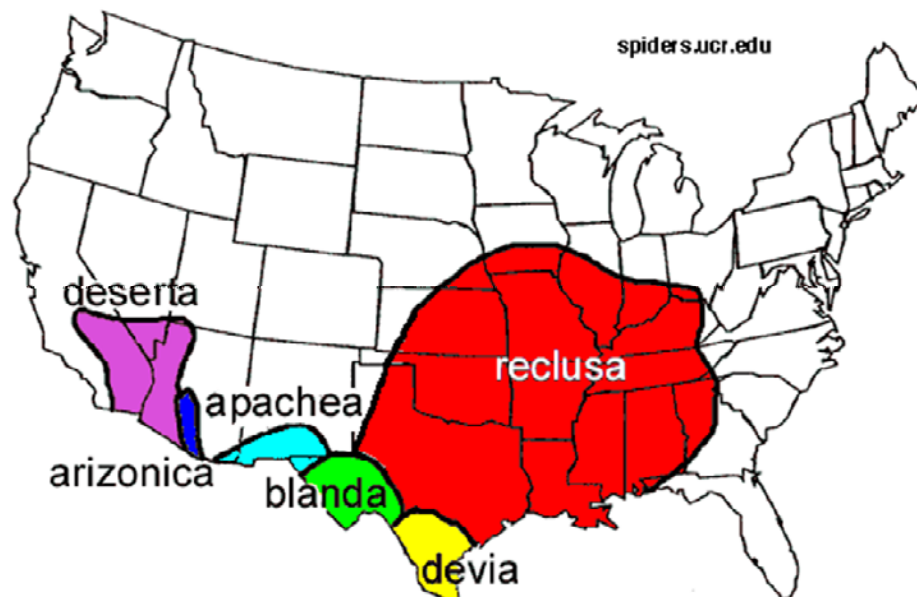
Edwards, G.B. 2008. Brown Recluse Spider, *Loxosceles reclusa* Gertsch and Mulaik (Arachnida: Araneae: Sicariidae). University of Florida IFAS Extension EENY299. <http://edis.ifas.ufl.edu/pdffiles/IN/IN57600.pdf>

Vetter, R. UCR Spider Research Website. <http://spiders.ucr.edu/>

Vail, K.M., H.W. Williams and J.A. Watson. 2002. PB1191. The Brown Recluse Spider. The University of Tennessee Extension. <http://www.utextension.utk.edu/publications/pbfiles/pb1191.pdf>

Vail, K. 2009. Avoiding Brown Recluse Bites and Actions to Take After a Bite. University of Tennessee Extension, Entomology and Plant Pathology EPP#60 *What's Happening Newsletter* <http://eppserver.ag.utk.edu/Whats/wh2009/Issue-12-2009.pdf>

Branscombe, D. 1998. IPM for Spiders in Schools. <http://schoolipm.ifas.ufl.edu/newtp11.htm>



Range of recluse (genus *Loxosceles*) spiders in the United States

Brown recluse spiders should be less common in upper east Tennessee.

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**Comments or questions
 on this newsletter?
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For more information about IPM in Tennessee schools and other facilities, or to view past issues of *Pests and Pesticides in Child-serving Facilities*, please visit schoolipm.utk.edu or utyeah.utk.edu

NATIONAL IPM INFORMATION
 eXtension's Pest Management In and Around Structures: Urban Integrated Pest Management
<http://www.extension.org/Urban%20Integrated%20Pest%20Management>

National School IPM
schoolipm.ifas.ufl.edu/

IPM in Schools Texas
schoolipm.tamu.edu/resources.htm

IPM Institute of North America
www.ipminstitute.org/

School IPM PMSP—all schools IPM by 2015
http://www.ipminstitute.org/school_ipm_2015.htm

National Pest Management Association IPM
www.whatisipm.org/

EPA schools
www.epa.gov/pesticides/ipm/schoolipm/index.html

For further information about the IPM program at your school or in your county, contact your county Extension Agent or the school IPM Coordinator. For county agent contact information, please visit www.agriculture.utk.edu/personnel/districts_counties/default.asp

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

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