

Note on Suspected Brown Recluse Spiders (Araneae: Sicariidae) in South Carolina

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The general public believes that brown recluse spiders (*Loxosceles reclusa*) are widespread where they live and that these spiders are frequent causes of bites resulting in dermonecrosis. Research over the past twenty years shows these reports to be unfounded. Vetter (2005) examined 1,773 specimens sent in from across the U.S. as brown recluse spiders and no specimens were found from areas outside the species range, with the exception of a specimen from California.

The reported range of the brown recluse spider includes all or major portions of Arkansas, Oklahoma, Texas, Louisiana, Alabama, Tennessee, Kentucky, Illinois, Missouri and Kansas. Minor portions of the brown recluse range were previously reported in Iowa, Indiana, Ohio, New Mexico, North Carolina, Georgia, and South Carolina. The most recent map (Vetter, 2015) does not include South Carolina, and only the far western tip of North Carolina and northwestern corner of Georgia.

Schuman and Caldwell (1991) found that South Carolina physicians reported treating 478 cases of brown recluse spider envenomations in 1990 alone. This seems like a very high number, unfortunately all or almost all of these are probably not brown recluse spider bites. Frithsen, et al 2007 were able to obtain responses from 514 primary care physicians who reported 738 diagnoses of loxoscelism. They also checked all literature records of the spider and nationwide museum specimens, and found that recluses were collected six times, with a maximum of 44 spider specimens. This included multiple specimens from three house infestations which were reported in Gaddy and Morse (1985).

A critical point regarding necrotic lesions suspected as being caused by the brown recluse spider is that the misdiagnosis may lead to improper treatment and further the necrotic damage, or even lead to death. For example, the recently identified community-acquired methicillin-resistant *Staphylococcus aureus* causes necrotic lesions which have been misidentified by medical personnel as brown recluse envenomations (Vetter, et al 2006). Other misdiagnosed causes include streptococcal infection, herpes, fungal infection, diabetic ulcer, carcinomas and many others (see Swanson and Vetter, 2005, and Vetter, 2015).

The Terminix pest control franchise covering all of South Carolina, much of western North Carolina, and the Augusta region of Georgia have rewarded workers for the past 30 years (through 2018) and they have never seen a specimen of *Loxosceles* from South Carolina. One home in the Augusta area of Georgia (recent moved from east Texas) and one in Hendersonville, NC each had a record (Rowlett, pers. comm.). The author has also not observed brown recluses in the upstate (Greenville and Spartanburg counties), Columbia area (Lexington and Richland counties), and in the lowcountry (Beaufort and Jasper counties). Collections at Congaree National Park including the picnic and visitor areas have not yielded any recluses.

In June of 2000 a call to the general public was made for specimens of the brown recluse. Two newspapers in the Hilton Head area (South Carolina, southern coastal area) and one television station (Savannah, Georgia, northern coastal area) published the announcement. Over the next month, 118 specimens were mailed in or dropped off. All submissions were individual specimens from Beaufort and Jasper Counties (SC), two from Chatham County (GA), except for two groups of 3 and 5 wolf spiders. The following identifications were made on the suspected brown recluse specimens:

Filistatidae (<i>Kukulcania hibernalis</i>)	22 specimens
Lycosidae	21 (3 in one package, 5 in another)
Pholcidae	17
Miturgidae	8
Theridiidae	8
Agelenidae	7
Araneidae	6
Clubionidae	6
Thomisidae	6
Gnaphosidae	4
Corinnidae	3
Philodromidae	3
Amaurobiidae	1
Pisauridae	1
Scytodidae (<i>Scytodes thoracica</i>)	1
Unidentifiable	4

No brown recluses were identified from the specimens obtained in this study, and the types of spiders reported are similar to those reported by Vetter (2005) for U.S., with *Kukulcania* the most common spider in both studies. Many phone calls were received describing sometimes horrific necrotic lesions. All had been treated by the physician with antibiotics commonly used for *Staphylococcus* or *Streptococcus* infections, indicating their lack of confidence in the diagnosis. They were probably more accurate in their treatment, then the diagnoses.

While the brown recluse, *L. reclusa*, does not occur in South Carolina as an endemic, it apparently has arrived a few times with household furniture or other shipments. It is also important to note that *L. rufescens*, which is described as a worldwide tramp species, and *L. laeta*, introduced from South America, are both not yet reported from the state. The latter is one of the most venomous, and has become a resident in a number of port cities in the U.S. and both might yet be found in South Carolina with continued collecting.

These results confirm previous studies and the statement by Vetter (2009) that they are "absent in the atlantic seaboard states..." and "they are readily misidentified or confused with harmless spiders."

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Notes and References

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- Frithsen, I.L., Vetter R.S., & Stocks I.C.. 2007. Reports of envenomation by brown recluse spiders outnumber verified specimens of *Loxosceles* spiders in South Carolina. J. Amer. Board Family Practice 17:220-226.
- Gaddy, L.L. & Morse J.C.. 1985. Common Spiders of South Carolina: With an Annotated Checklist. S. C. Agric. Exp. Station Tech. Bull. 1094. pp. 182.
- Schuman, S. H. & Caldwell S.T. 1991. 1990 South Carolina Physician Survey of tick, spider and fire ant morbidity. J. S. C. Med. Assoc. 87(8):429-32.

- Swanson, D. L. & Vetter R.S.. 2005. Bites of brown recluse spiders and suspected necrotic arachnidism. *N. Engl. J. Med.* 352(7):700-707.
- Vetter, R.S. 2005. Arachnids submitted as suspected Brown Recluse Spiders (Araneae: Sicariidae): *Loxosceles* spiders are virtually restricted to their known distributions but are perceived to exist throughout the United States. *J. Med. Entomol.* 42(4):512-521.
- Vetter, R.S. 2009. The distribution of brown recluse spiders in the Southeastern quadrant of the United State in relation to loxoscelism diagnoses. *Southern Medical J.* 102(5):518-522.
- Vetter, R.S. 2015. *The Brown Recluse Spider*. Cornell University Press, Ithaca, NY, USA.
- Vetter, R.S., Pagac B.B., Reiland R.W., Bolesh D.T.& Swanson D.L. 2006. Skin lesions in barracks: consider community-acquired methicillin-resistant *Staphylococcus aureus* infection instead of spider bites. *Military Medicine* 171:830-832.