Jorō Spider

Rebekka Horn, Graduate Research Assistant, Department of Entomology and Plant Pathology, University of Tennessee Institute of Agriculture
David Nelsen, Professor, Department of Biology and Allied Health, Southern Adventist University
Midhula Gireesh, Assistant Professor, Department of Entomology and Plant Pathology, University of Tennessee Institute of Agriculture

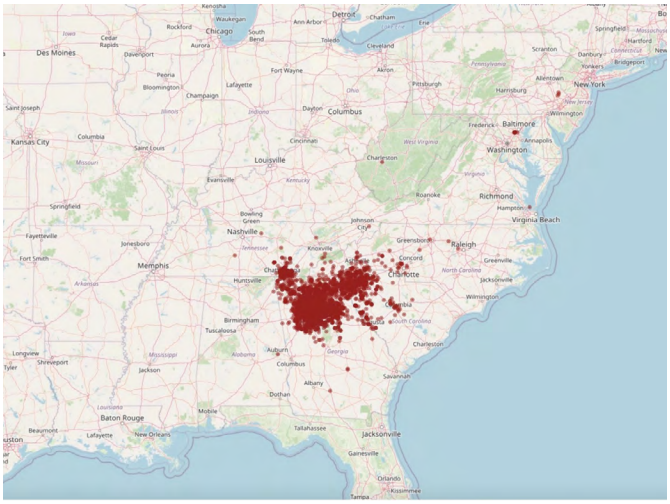

Figure 1. *Distribution of the Jorō spider in the Eastern and Southeastern United States. Picture credit: John Deitsch, University of Texas El Paso.*

Introduction

The Jorō spider (*Trichonephila clavata* Koch) is a species of orb-weaver spider native to Japan, Korea, China, Indochina and Nepal (6). Jorō spiders were first documented in Georgia in 2014 and continue to expand their range throughout Georgia, Alabama, Massachusetts, North Carolina, South Carolina, Pennsylvania, Virginia, West Virginia, Maryland, Tennessee and possibly Florida (Nelsen et al. 2023; Figure 1). In Florida, there have been three observations in total: one in Kissimmee in 2023, one in Gainesville in 2024, and one in Boca Raton in 2025. Additionally, there have been questionable single sightings of Jorō spiders in Illinois and California. In Tennessee, the first two counties where Jorō spiders were found were Hamilton and Bradley counties in October 2021. While they are large and brightly colored in appearance, they are unlikely to bite people or their pets (9). Jorō spiders are considered a nuisance because of their robust, inconveniently placed webs. Jorō spider webs are very large, from 3-4 feet in diameter, and some reach as wide as 10 feet (5). Jorō spiders may be confused with the golden silk orb weaver (*Trichonephila clavipes* Linnaeus), the black and yellow garden spider (*Argiope aurantia* Lucas) and the banded garden spider (*Argiope trifasciata* Forsskål; 1, Figure 2a-2c).

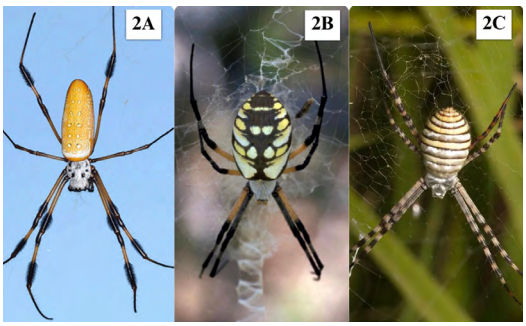

Figure 2a. *Golden silk orb weaver. Picture credit: Blake Layton, Mississippi State University.* **2b:** *Black and yellow garden spider. Picture credit: Ronald F. Billings, Texas Forest Service, Bugwood.org.* **2c:** *Banded garden spider. Picture credit: Jorge Iniguez Yarza, Flickr.*

Figure 3. *Early instar Jorō spiders on a web. Picture credit: David Nelsen, Southern Adventist University.*

Figure 4. *An early instar Jorō spiders on a web, taken with a microscope. Picture credit: David Nelsen, Southern Adventist University.*

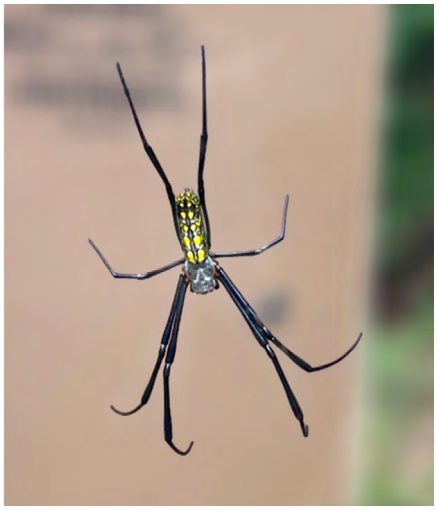

Figure 5. *A juvenile female Jorō spider. Picture credit: David Nelsen, Southern Adventist University.*

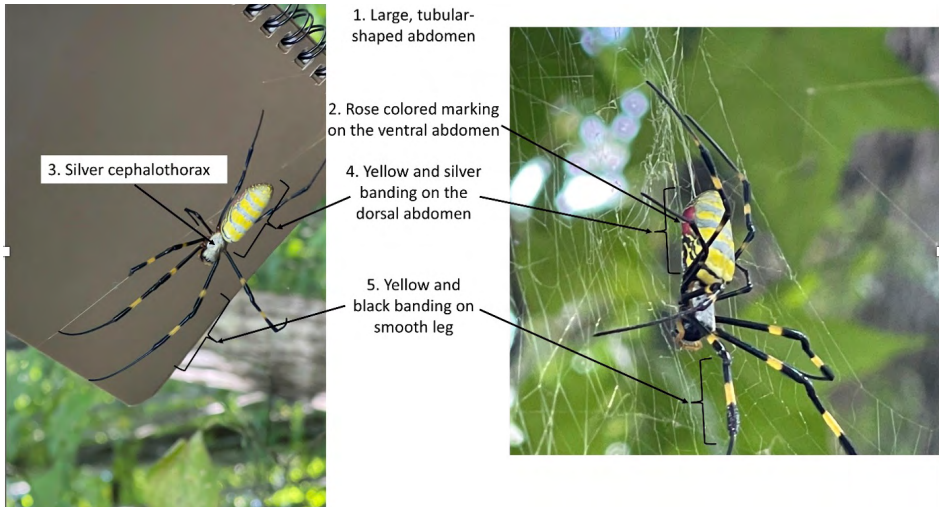

Figure 6. *A physical description of female Jorō spiders. Picture credit: David Nelsen, Southern Adventist University.*

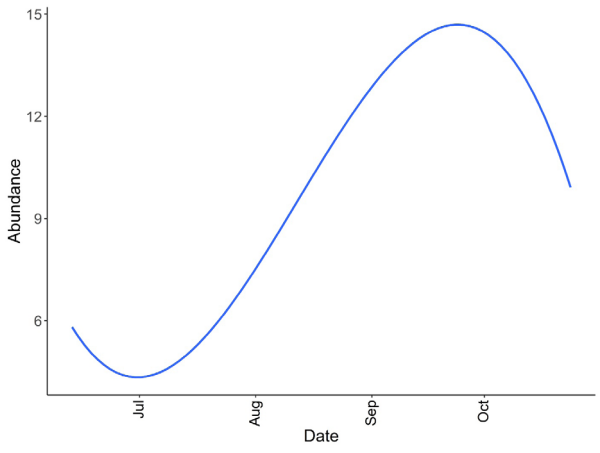

Figure 7. *Seasonal observance of Jorō spider. Graph credit: David Nelsen, Southern Adventist University.*

Identification and Biology

Mature and immature Jorō spiders are extremely colorful, with the mature females able to exceed a body length of 1 inch. Early instar juveniles begin to emerge from their egg sacs in mid-May and occupy small webs by late May (Figures 3, 4). Juveniles typically have a silver and black checkered pattern with yellow spots, and their webs are not the stereotypical golden color characteristic of the genus (Figure 5). Juveniles can grow rapidly, and their color and pattern change with each shed. However, juveniles similar in size to those observed in May can still be seen into mid-September. Sub-adult females (those that have not completed their final shed) exhibit a different coloration and pattern than juveniles and adults. Sub-adult females are slightly smaller than the adult females, having a more slender abdomen (i.e., not noticeably gravid), a bright yellow and black body pattern but typically lack the silver banding and the red splotch seen on mature females. Mature females are very large, have a yellow body with silver/gray-colored bands on their abdomen, a black and white checkered underside with a red splotch(es) near their tail end, and long black and yellow banded legs (3 inches wide including the legs; Figure 6). While black and yellow banding is typical for adult females, some will have solid black legs. Adult females are most noticeable in late September through mid-October, with populations noticeably declining by late October (Figure 7). However, adult females may still be found into December.

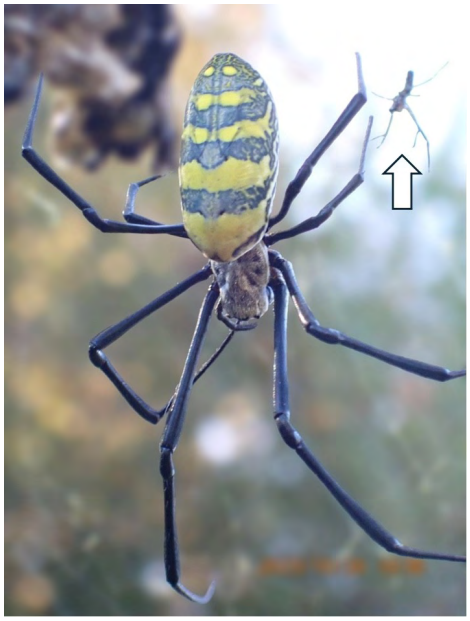

Figure 8. *An adult female Jorō spider (left) next to an adult male Jorō spider (right, indicated by the arrow). Picture credit: David Nelsen, Southern Adventist University.*

Figure 9. *An adult female Jorō spinning a golden silk web. Picture credit: David Nelsen, Southern Adventist University.*

Compared to females, male Jorō spiders are much smaller and duller in color (Figure 6). Male Jorō spiders are roughly 0.3 inches in body length, with a brown body and dark brown stripe on their abdomen and can be routinely found sharing a female's web, singly or with several other males by September. Hatchlings, or spiderlings, travel to other locations by ballooning on a fine, silk strand while adults stay within the same geographic area. However, they may abandon their web and move several meters before rebuilding their web (6).

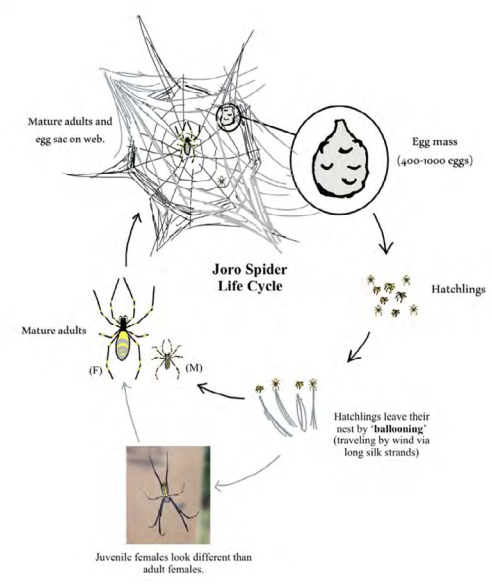

Figure 10. *Jorō spider life cycle, adapted from Penn State. Illustration credit: Rebekka Horn, University of Tennessee.*

Figure 11. *Jorō spider egg mass. Picture credit: David Nelsen, Southern Adventist University.*

Research shows that Jorō spiders most likely have one generation per year (8). Female spiders lay between 100-200 eggs per egg case (see Figure 11) that protects them during the harsh winter months. The appearance of the egg mass is fuzzy and off-white in color, which is laid on leaves, bark or homes and other structures (3; Figure 9).

Diet

The diet of Jorō spiders includes adult brown marmorated stink bugs and dewdrop spiders, among a wide range of insects (4, 6). Because the adult brown marmorated stink bug is a significant agricultural pest that destroys corn and many other crops, Jorō spiders could potentially aid in population control. However, there is ongoing research to determine the effect this spider has on native spiders.

Management

Jorō spiders prefer to spin their webs in forested areas, along forest edges, and around suburban and urban environments (2). The most effective way to control Jorō spiders is to kill the ones that are within reach (not above 10 feet) by wrapping them up in their webs and stomping on them. Recommended tools for web removal include a broom, a rake, or a stick. Physically removing webs that are around pollinator gardens, flower gardens, and bee hives immediately may help prevent beneficial insects from becoming trapped in the web (2). Since the Jorō spider may be misidentified as a native orb weaver, ensure proper identification before removal.

In addition to physical removal, previous studies tested a series of products (insecticides, household items, etc.) to determine which products were effective at killing the Jorō spider (11). Results of the study showed that pyrethroids (e.g., Black Flag), products containing a combination of sodium lauryl sulfate and essential oils (e.g., Zevo insect killer), machine lubricant, and dishwashing detergent had high mortality rates (11). When applying any pesticides, always read and follow label directions before buying, applying, mixing, storing, or disposing of chemicals and pesticides. While household items have been tested, they should not be used outside their intended uses.

References

1. Althoff, E. 2024. Jorō spiders are nothing to worry about – yet. University of Missouri Extension. https://extension.missouri.edu/news/joro-spiders-are-nothing-to-worry-about-yet

2. Pettis S. 2025. Joro spider in North Carolina. Henderson County Center, NC Cooperative Extension. https://henderson.ces.ncsu.edu/news/giant-spider-invades-north-carolina/

3. Hudson, W. S. V. Joseph and J. Schmidt. 2023. Managing Jorō spiders in the landscape. University of Georgia Extension Circular 1289. Accessed 11/19/2024. https://secure.caes.uga.edu/extension/publications/files/pdf/C%201289_1.PDF

4. Grabarczyk, E. E., Querejeta, M., Tillman, P. G., Wallace, R. D., Barnes, B. F., Meinecke, C. D., Villari, C., Gandhi, K. J. K., LaForest, J., Elliott, M., Schmidt, and J. M. 2023. DNA metabarcoding analysis of three material types to reveal Jorō spider (*Trichonephila clavate*) trophic interactions and web capture. *Frontiers in Ecology and Evolution*, 11. https://doi.org/10.3389/fevo.2023.1177446

5. Loehrke, J. 2023. Invasive Jorō spiders are weaving their way across the U.S.: what to know about hte arachnid. USA Today. Accessed 4/23/2026. https://www.usatoday.com/story/graphics/2023/11/16/joro-spider-poisonous-size-parachuting-explained/71579639007/

6. Allen, M. 2024. Jorō spiders are nothing to worry about, explains expert. Virginia Tech News. Accessed 11/19/2024. https://news.vt.edu/articles/2024/06/Joro-spider-expert.html

7. Grabar zyk, E. E., Tillman, P. G., Querejeta, M., Schmidt, and J. M. 2025. Honey, what's for dinner? Dietary overlap and size dimorphism between female and male jorō spiders (*Trichonephila clavate*). *Integrative Zoology*. https://doi.org/10.1111/1749-4877.12947

8. Nelsen, D. R., Corbit, A. G., Chuang, A., Deitsch, J. F., Sitvarin, M. I., and Coyle, D. R. (2023). Veni, vidi, vici? Future spread and ecological impacts of a rapidly expanding invasive predator population. *Ecology and Evolution*, 13(11), e10728.

9. Nelsen, D. R., Chuang, A., Corbit, A. G., Sitvarin, M. I, Bergmann, H. E., De Araujo, E. P., Hunter, S. R., Ing, J. K., Park, J. J., Vasquez, K. A., Wang, A. S., and Coyle, D. R. 2025. Keep calm and carry on: bites from Trichonephila clavata are unlikely and cause minimal discomfort. *Journal of Medical Entomology*, OO(1-13). https://doi.org/10.1093/jme/tjaf103

10. Russell, J. E., Mizera, N. R., Brown, C. G., Chuang, A., Coyle, D. R., and Nelsen, D. R. Mitochondrial and *Wolbachia* phylogenetics of the introduced Jorō spider, *Trichonephila clavata* (Araneae: Araneidae) in North America PeerJ. (In Press)

11. Chuang, A., Nelsen, D. R., Sitvarin, M. I., Bailey, J. B., Bergmann, Bertagnolli, V. E., De Araujo, E. P., Donohoe, B., Geitner, W. A., Hunter, S. R., Ing, J. K., Park, J. J., Vasquez, K. A., Wang, A. S., and Coyle, D. R. 2025. Chemical Management Strategies for the invasive Jorō spider, *Trichonephila clavata* (Araneae: Araneidae). Journal of Economic Entomology, OO(1-12). https://doi.org/10.1093/jee/toaf225

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 and registered for use in your state.

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. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

UTIA.TENNESSEE.EDU

Real. Life. Solutions.™

W1415 08/26 26-0098 Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and County governments cooperating. UT Extension provides equal opportunities in programs and employment.