



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

### Special Points of Interest

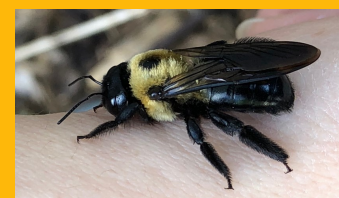
### *Tetramorium tsushimae*, Another Pavement Ant, Found at a Warren County School

Karen M. Vail

Every entomologist suffers from an insect-collecting addiction at some time in their career, and it usually starts with an insect taxonomy class. The thrill of identifying an insect for the first time can be exhilarating. Before you know it, you can't find any food in the freezer because it's full of odd-shaped containers, medicine vials, plastic bags and envelopes. All contain insects waiting to be pinned and/or spread, identified, labeled and inserted into the Schmitt box, Cornell drawer or other insect display box. As I've progressed in my career, I spend more time in front of the computer than collecting insects, but the thrill of identifying an insect I've never seen before hasn't faded. We've had a few first IDs for me this year, including *Muscina pascuorum* mentioned in the last newsletter. In this article, I'll describe another. Please share this information with your pest management professional.

This past summer, the UT Urban IPM Team was conducting an indoor/outdoor inspection of a Warren County, Tennessee school. We kept encountering an ant resembling a pavement ant, *Tetramorium immigrans* Santschi. You may have learned the scientific name of the pavement ant as *Tetramorium caespitum*, but the species name was changed to *immigrans* in 2017. The Warren County ant was slightly smaller, at least, I thought it was with the unaided eye, and something seemed different from pavement ants. The ants were monomorphic (one-sized) like pavement ants. Ant size can vary somewhat, so maybe this was a population of small pavement ants? The ants were numerous and commonly encountered outdoors on the grounds and less frequently on the brick. We were amazed to find many of these ants stuck to a glue board in the kitchen (Figure 1). I tentatively identified the ant as *Tetramorium tsushimae* and Jennifer Chandler recently confirmed the identification molecularly using the CO1 mitochondrial subgene.

### Carpenter Bees are Active



Carpenter bee repeated colonization or expansion of galleries can lead to significant damage over time, so it's important to manage these pests. In addition, woodpeckers seeking prey often widen the holes and cause more damage. It's time to take action.



Figure 1. *Tetramorium tsushimae* stuck to kitchen glue board.

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Figure 2. *Tetramorium tsushimae* (above) and *T. immigrans* (right). The arrow points to the propodeal spine which is longer in *T. tsushimae* than *T. immigrans*. Photo credit: April Nobile / © AntWeb.org / CC-BY-SA-3.0

These two *Tetramorium* species are closely related and are in the same species complex. They are nearly identical in appearance, but the body length of *T. tsushimae*, another pavement ant, is slightly smaller (2.5 – 2.8 mm compared to 2.9 – 3.2 mm of *T. immigrans*) and its propodeal spine is somewhat longer than that of *T. immigrans* (Figure 2). *Tetramorium tsushimae* will eventually displace *T. immigrans* if they occur in the same area. Further comparisons of these species can be found in Table 1.

Table 1. Comparison of *T. immigrans* and *T. tsushimae* characteristics.

Species' scientific name and common name	Native Range	Year introduced into US and US distribution	Single (monogyne) or multiple (polygyne) queen nests in the introduced range	Single or multiple nests per colony in the introduced range	Dispersal in the introduced range	Habitat
<i>Tetramorium immigrans</i> , the pavement ant	Western Palearctic Fig. 3	First recorded in US in the 1800s, in Tennessee in 1895 (Brown 1957), and now throughout large parts of North America. Fig. 3	Single-queen	Single	Probably through mating flights	Mostly urban areas, but also in natural ecosystems (grasslands)
<i>Tetramorium tsushimae</i> , another pavement ant	Eastern Asia Fig. 4	Missouri, Illinois, Tennessee, New York, possibly Kentucky, Michigan. Fig. 4.	Polygyne (up to several hundred queens)	Single super-colony (polydomous in native range)	Budding	Urban areas, suburban areas between widely spaced hardwood trees, grasslands

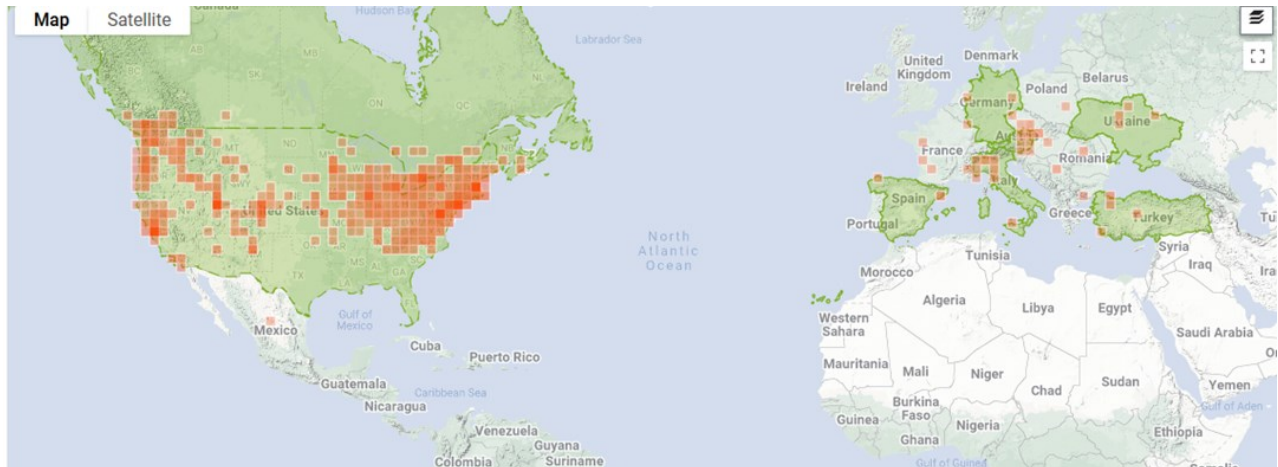


Figure 3. Distribution of *Tetramorium immigrans*, the pavement ant, on iNaturalist.org.



Figure 4. Distribution of *Tetramorium tsushimae*, another pavement ant, on iNaturalist.org.

I thought we had a new state record for *T. tsushimae*. I recalled James Trager's 1988 discovery of this ant in Missouri as the first US record, and it was reported to be in Illinois by 2006. A glance at the [Ants \(Formicidae\) of the Southeastern US website](#) revealed this ant was not found in the southern US yet; however, both [antwiki.org](#) and [antweb.org](#) have 2011 records for this ant in Nashville. Since this ant doesn't disperse through mating flights, its distribution is probably aided by the movement of sod, nursery stock, gravel or soil.

Our role in the school IPM demonstrations is to conduct an inspection, report the conducive conditions and pests present and suggest management strategies. In this case, we inspected the school with the facilities director and a representative from the pest management company. I'm waiting to hear if the ants have been eliminated from the school's interior. *Tetramorium tsushimae* feeds on similar items as *T. immigrans*, including a preference for protein in the spring and summer with an increase in carbohydrate uptake in the fall. I suspect management techniques used for pavement ants, such as granular baits, bait stations, or other baits used where the ants were foraging combined with a slow-acting perimeter treatment, would be successful. Finding and treating the nest associated with the interior activity would also be helpful. Any interior moisture source allowing the ants to thrive could be eliminated. Or, if foragers were entering through an expansion joint or other entry point into the structure, this area could be further sealed and/or treated.

Modified from Vail, K. 2023. *Tetramorium tsushimae*, the Japanese Pavement Ant . *Insec(tc)ure* 4(1): 1-4.

#### References:

Brown, W L. 1957. Is the ant genus *Tetramorium* native in North America? *Breviora* 72: 1-8.



- Flucher, S. M., P Krapf, W. Arthofer, A. Suarez, R. H. Crozier, F. Steiner, and B. C. Schlick-Steiner. 2021. Effect of social structure and introduction history on genetic diversity and differentiation. *Molecular Ecology* 30: 2511–2527
- Hedges, S. 2010. A field guide for the management of structure-infesting ants, 3<sup>rd</sup> ed. GIE publishing, 325 pp.
- Steiner, F.M., B.C. Schlick-Steiner, J.C.Trager, K. Moder, M. Sanetra, E. Christian, and C. StauVer. 2006. *Tetramorium tsushimae*, a new invasive ant in North America. *Biol. Invasions* 8: 117–123.

## Carpenter Bees Are Active

Karen Vail

It's March and the carpenter bees are active. While carpenter bees should be respected for their pollination services to blueberry, maypop (also called passion flower), and other flowers, they are considered pests when they nest in wood used by humans. Many modern schools lack exposed wood for the bees to nest in, but older schools or those with wooden sheds, gazebos or playground equipment may be more susceptible to attack. I refer you to the carpenter bee publication, [UT Extension W876](#), for details on the bee's biology and management. Here I highlight the main points of management.

Our management suggestions are more reactive rather than preventive with carpenter bees. I guess there is at least one



Female carpenter bee. Note the mostly shiny or nearly bare abdomen which helps distinguish it from similar bees. Credit: K. Vail, UT EPP.

thing you can do to prevent the bees from boring into exposed wood to make their galleries. Don't have exposed wood! Carpenter bees won't nest in wood that is covered with vinyl, aluminum or asphalt. While this is an option for covering fascia board or wood siding, it would not be very helpful for gazebos or playground. These could be replaced with nonwooden versions.

Carpenter bee repeated colonization or expansion of galleries can lead to significant damage over time, so it's important to manage these pests. In addition, woodpeckers seeking prey often widen the holes and cause more damage. Males hovering to protect their territory can be easily swatted with a badminton racket. It is unlikely that an entire population will be eliminated this way, but the students would be greatly entertained watching the

process. To kill the adult bees, we suggest dusting the gallery openings with an insecticidal dust in the evening when the bees have returned to the nest. The advantage to using dusts is they don't soak into the wood as a spray or foam would and should be present on the gallery's surface when the next generation of bees leaves their cells. Wait at least 24 hours, when all bees should have returned to the nest, and then seal the gallery opening with a wooden dowel held in place with carpenter's glue or putty. In the fall, re-inspect the facility to detect new nests and dust and seal these to prevent carpenter bees from overwintering in the galleries.

Insecticides suggested for carpenter bee control can be found in the UT Extension publications, "PB 1303 Managing Pests Around the Home" ([extension.tennessee.edu/publications/Documents/pb1303.pdf](https://extension.tennessee.edu/publications/Documents/pb1303.pdf)) and "W 658-A Quick Reference Guide to Pesticides for Pest Management Professionals Working in and Around Structures" ([extension.tennessee.edu/publications/Documents/W658.pdf](https://extension.tennessee.edu/publications/Documents/W658.pdf)).



Male carpenter bee with a light patch on the front of its head exiting a gallery. Below it, pollen stores in another gallery. Credit: K. Vail, UT EPP.



Carpenter bee gallery openings are typically 1/2 inch in diameter and round (A). The other elongated openings are probably due to woodpeckers enlarging the hole to find their prey. Credit: K. Vail, UT EPP

## References

Hietala, L., K. Vail, J. Skinner, A. Taylor, L. Russo, J. Tsuruda and P. Rhoades. W876 Nature's Right-Angle Drill: Carpenter Bees. <https://extension.tennessee.edu/publications/Documents/W876.pdf>

## Save the Date

The 9th Annual Tennessee Bed Bug, Cockroach and Rodent Management Meeting will be held August 2, 2023 at the UT Conference Center in downtown Knoxville. Details to come. For updates, check <https://bedbugs.tennessee.edu/resources/events/>

## 9TH ANNUAL TENNESSEE

# BED BUG, COCKROACH & RODENT MANAGEMENT MEETING WEDNESDAY | AUGUST 2, 2023



UNIVERSITY OF TENNESSEE CONFERENCE CENTER | 600 HENLEY STREET | KNOXVILLE, TN

## Webinars

### View all of EPA's webinars anytime on-demand!

#### IAQ Master Class Professional Training Webinar Series

These technical, core-competency trainings are designed to build the capacity of school district staff across the country to start, improve, or sustain an IAQ management program. Complete all 10 hours and you will be recognized as a member of the IAQ Master Class.

#### IAQ Knowledge-to-Action Professional Training Webinar Series

These technical webinars demonstrate how the knowledge gained in the IAQ Master Class Professional Training Webinar Series can be translated into actions that improve or sustain an IAQ management program within your school or school district.

#### Healthy Indoor Environments in Schools Series

This series of webinars cover strategies for developing comprehensive IAQ management plans to proactively prevent the spread of viruses and bacteria in schools.

**Learn from** technical experts, industry leaders, and model school districts during these webinars that are followed by 30-minute mentoring Q&A sessions.

**Gain recognition** for your knowledge acquisition and commitment to action by receiving a certificate of completion for each training upon completion of the webinar evaluation.

#### IPM Webinars

Many webinars related to school IPM are posted here.

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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 <http://schoolipm.tennessee.edu>

### NATIONAL IPM INFORMATION

eXtension's Pests in the Home  
<https://pestsinthehome.extension.org/>

National School IPM  
[schoolipm.ifas.ufl.edu/](http://schoolipm.ifas.ufl.edu/)

IPM in Schools Texas  
<http://schoolipm.tamu.edu/>

IPM Institute of North America  
[www.ipminstitute.org/](http://www.ipminstitute.org/)

The Pest Defense for Healthy Schools Online IPM Training  
 for School Employees [pestdefenseforhealthyschools.org](http://pestdefenseforhealthyschools.org)

EPA schools  
<http://www2.epa.gov/managing-pests-schools>

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 <https://utextension.tennessee.edu/office-locations-departments-centers/>

## 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.

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