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Insec(tc)ure*:
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A UT Urban IPM Lab Newsletter for the Pest Management Industry

Interesting Drywood Termite Structural Infestation

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Drywood termites are rarely encountered in Tennessee, so when I was made aware of a structural infestation, I knew I had to share. This story may sound familiar to those who attended the East Tennessee Pest Control Association Smoky Mountain Conference.

You may recall I wrote about drywood termites for Volume 3, Issue 3 of Insec(tc)ure, so I won't repeat their biology here beyond saying that drywood termites don't need a moisture source in the soil as subterranean termites often do. Drywood termites can extract moisture from the wood they feed on and generate water through metabolic processes. Thus they exist in low-moisture wood and are easily transported around the country in furniture and other wood products. Most distribution maps do not include Tennessee in the natural range of drywood termites.

Background

A 2-story home with an attic was built decades ago, and while the address indicates Englewood, Tennessee, it is literally over the river and through the woods with directions like "when you see the three mailboxes, make a right, take the left fork, cross the river", etc. You get the idea. It's in the middle of the woods.

Figure 1. Englewood home with drywood termite infestation on three levels. Credit: John Cook, Massey Services

The original owners had moved from California and we assume brought their furniture. The home was sold and the new owners occasionally saw wood "dust" on items, especially the stairs. When they brought this to the attention of a pest control company, the damage was initially incorrectly identified as acrobat ant damage. Eventually, the fecal pellets made it to the University of Tennessee and were correctly identified, but the pest control company did not offer drywood treatment control. And so nothing was done.

Inspection

In the past year, John Cook of Massey Services was called to inspect this home and on May 30, 2023, Buddy Henry, TDA East Tennessee Regional Supervisor, two Mar-Von/Massey Services technicians, and I joined him in a follow-up inspection.

Drywood termite damage was found on three levels. Earlier, the homeowners had noticed “sawdust” on the wooden stairs, and a couple of years ago, they had replaced an exterior door because it had drywoods in the molding around the door. But on our visit, we found damage to the wooden cabinets on the second floor in the kitchen (Figure 2), the stairs leading to the first floor (Figure 3) and wooden paneling near a window in the basement/first floor (Figure 4 - 6), and in the ceiling joists and elsewhere in the attic (Figures 7 -10). Let’s take a closer look.

Figure 2. On the left, two drywood termite chambers circled in white were exposed when the thin wooden top layer of these kitchen cabinets was removed. Credit: John Cook. On the right is a close-up of one of these chambers.Credit: Karen Vail

Figure 3. Damage is evident on the stairs too. Credit: Karen Vail

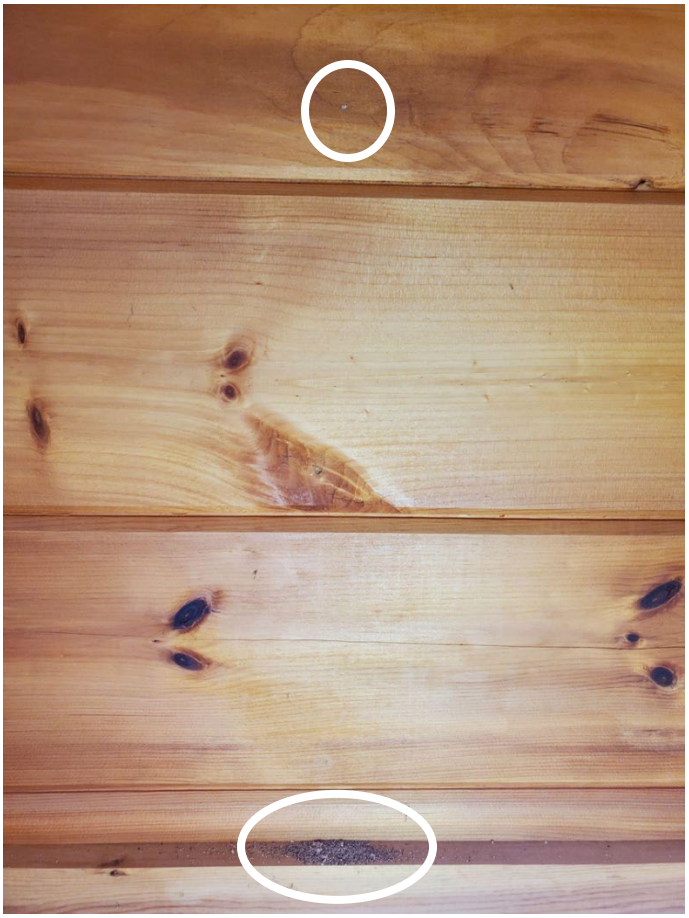

Figure 4. Pile of fecal pellets below plugged drywood termite kickout hole in the exterior wall wooden paneling. Credit: John Cook

Figure 5. John Cook photographing the kickout hole plug. Credit: Karen Vail

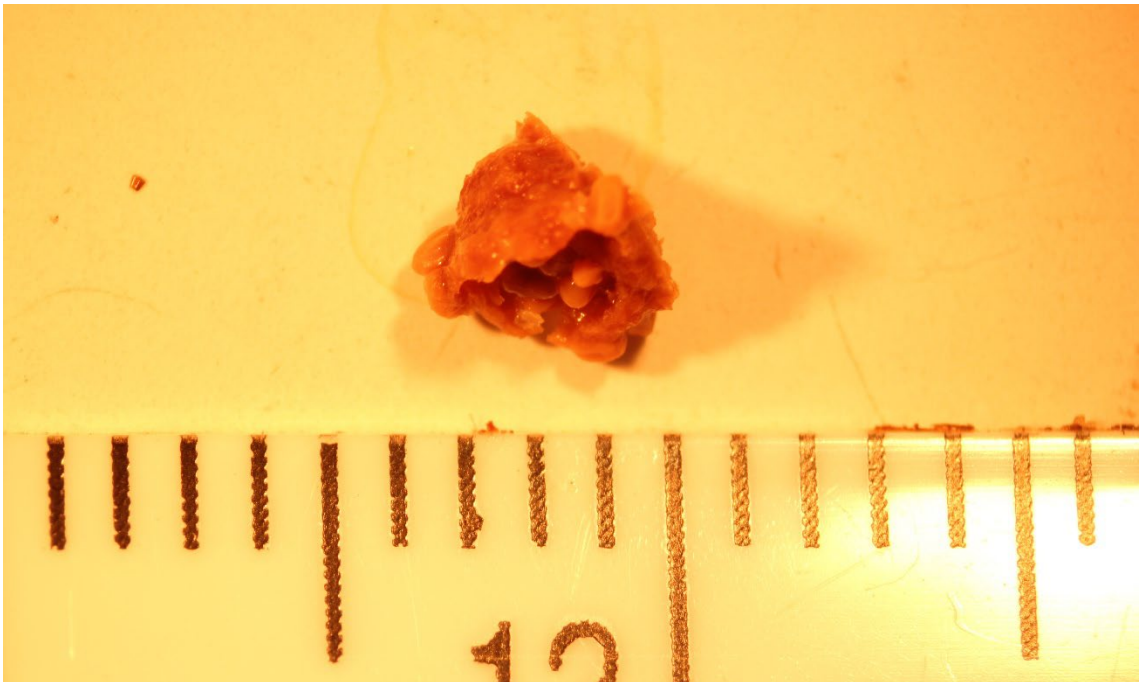

Figure 6. The drywood termite gallery fecal plug removed from the kickout hole. Ruler is in millimeters.Credit: Karen Vail

Figure 7. Piles of drywood termite 6-sided fecal pellets piled high on the attic floor joists. Normally, the fecal pellets fall to the ground, but the insulation on the sides of the board prevented the termites from creating a side gallery opening. Credit: John Cook

Figure 8. A pocketknife easily removed the thin wood hiding the termite chamber. Drywood termites leave a thin layer of wood to protect the colony in the chamber. Often the wood is puckered in these locations and serves as a clue to the termite galleries' locations. Credit: John Cook

Figure 9. Two signs of drywood termites are found in this photo (1) pile of 6-sided fecal pellets and (2) swarmer wings. The pile of pellets in the photo is on top of the attic access panel so there was a colony at the very edge of the attic just feet away from those cabinets. No drywood colonies were found above the rafters. Credit: Karen Vail

Figure 10. Alates were flying when we opened the attic hatch. Credit: Karen Vail

Figure 11. The drywood termites from the Englewood infestation were identified as the western drywood termite, Incisitermes minor. Ruler is in millimeters Credit: Karen Vail

Figure 12. Drywood termites have 3 - 4 darkened wing veins along the front edge of the forewing. Subterranean termites have 2. The numerous diagonal cross veins connecting those edge veins are more easily seen in Figure 11. Credit: Karen Vail

Figure 13. The coloration of the western drywood alate (and de-alate seen here) easily distinguishes it from other termites. Note the orangy-brown head and thorax, and darker abdomen. Credit: Karen Vail

Identification

Specimens brought back to the University of Tennessee Urban IPM Lab were identified as the western drywood termite *Incisitermes minor* morphologically using a microscope (Figures 11 – 13) and molecularly using the 16s ribosomal gene. The western drywood's range is from southern California and Baja Mexico up the coast to northern California, and it is found sporadically along the coasts of Washington and Oregon. Eastward, it naturally occurs through central Arizona. But it's been introduced beyond this range, including in the southern U.S. coastal states. The western drywood termite has been found outdoors in a New Orleans tree, creating concern for the coastal southeastern U.S. where boats can easily be a source of alates. Identifying western drywood termites as the culprit supports our theory that the original California inhabitants may have brought the termites in their furniture.

Management

So, we had wood damage on three levels, an exterior wall was infested, and mating flights were occurring in the attic. We didn't think localized treatment was an option as the infestation was too widespread, and we had evidence of it in the structural support wood. A tarped fumigation would be the best solution. But this is East Tennessee. Where could we find a PMP licensed in structural fumigation with tarps? Because we had activity in the structure's exterior wall, we thought it was essential to have tarps to maintain the fumigant in the exterior walls. Taping and sealing windows and doors may not have maintained the needed fumigant levels and times in that exterior wall.

Buddy searched the TDA databases, and John searched in Georgia for someone with drywood termite fumigation experience, tarps and a Tennessee license in structural fumigation (FUM). While drywood termites are found in Georgia and folks fumigate, none they could find were licensed for fumigation in Tennessee. Plus, DOT regulations about driving fumigants over state lines would require additional training and testing. It wasn't looking good. Enter the story of Tennessee Fumigations LLC out of Dandridge. Deidre Hubbard and Terry Hazelwood fumigate for bed bugs and many other pests but do not use tarps. Upon inspecting the Englewood property, they proposed to the owners that they tarp the structure themselves. The family purchased the tarps and clips, called in family members from around the country and covered the house in plastic tarps using directions from Tennessee Fumigations (Figure 14). On August 7, the Vikane (sulfuryl fluoride) fumigation began (Figure 15).

Figure 14. Plastic installed by the family covered the house before fumigation began. Credit: homeowner

Figure 15. Fumigant stored on Tennessee Fumigations LLC truck. Credit: homeowner

Now, we wait to see if the fumigation was successful. Will more pellets drop or will alates swarm this year? Pellet observation is tricky because pellets could be knocked out of chambers due to human activity, but if alates are seen flying, we'll know some colonies survived. Only time will tell. Remember last year they flew at the end of May.

Typically, drywood termites found in our state can be easily traced back to furniture shipped or moved from the Gulf Coast states or some other subtropical area. But I've been informed of a few structural drywood infestations in the past year. This means we are missing the signs when conducting inspections or homeowners are uninformed and not reporting them. Let's keep this in mind as we go about our services.

Resource:

Cabrera, B.J. and R.H. Scheffrahn. 2017. EENY-248. Featured Creatures: Western Drywood Termite. https://entnemdept.ufl.edu/creatures/urban/termites/western_drywood_termite.htm

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