

***Reticulitermes hageni*, the light southern subterranean termite**



Figure 1. Winged termites submitted to the Hamilton County Extension Office.



Figure 2. Alates seen swarming from the ground in this gravel parking lot.

It's the end of July and orangish-brown termites are seen flying from the ground in a gravel parking lot in Hamilton County. Most Tennessee pest management professionals expect to see a dark swarmer, so this insect's identity was questioned. Could it be a drywood termite or possibly the Formosan subterranean termite? Well, to answer these questions, I would need answers to a few other items. What is the length of the termite alate, measured from the head's tip to the end of the intact wings? How many darkened wing veins are found on the leading edge of the front wing? Are the wings covered with hairs? While the above photos (Figures 1 and 2) accompanied the submission, the answers to these questions could not be found. I reported the identification I suspected to the PMP, but then requested the specimens to positively identify these mystery termites.



Figure 3. Close up of termite wing.



Figure 4. Alate was 8 mm from tip of head to tip of wings.

All of the answers could be found in Figures 3 and 4. Only two darkened wing veins were found along the front edge of a nearly hairless wing, and the length from head's tip to the tip of wing was 8 mm. From the description we know it isn't a drywood termite which would have three or more darkened wing veins where the wings attached to the thorax. We also know it isn't a Formosan subterranean termite because it is too small (12.5 – 15 mm from head tip to wing tip) and the wings aren't covered with hairs.

So what are these swarming termites? As I suspected, it was *Reticulitermes hageni*, the light southern subterranean termite. Three of the most common subterranean termites infesting Tennessee structures are the eastern subterranean termite, *Reticulitermes flavipes*; the dark southern subterranean termite, *R. virginicus*; and the light southern subterranean termite, *R. hageni*. *Reticulitermes flavipes* is dark brown to black and has an extended flight season, but often flies between April and May, while *R. virginicus*, also a dark species, flies most often in June. *Reticulitermes hageni*, an orange- or pale-brown species is flying now; it typically flies from July through September in Tennessee (Figure 5). We may get more submissions of *R. hageni* because of its unusual color and not because of its greater abundance. The eastern subterranean termite should be considered the most common subterranean termite in Tennessee.

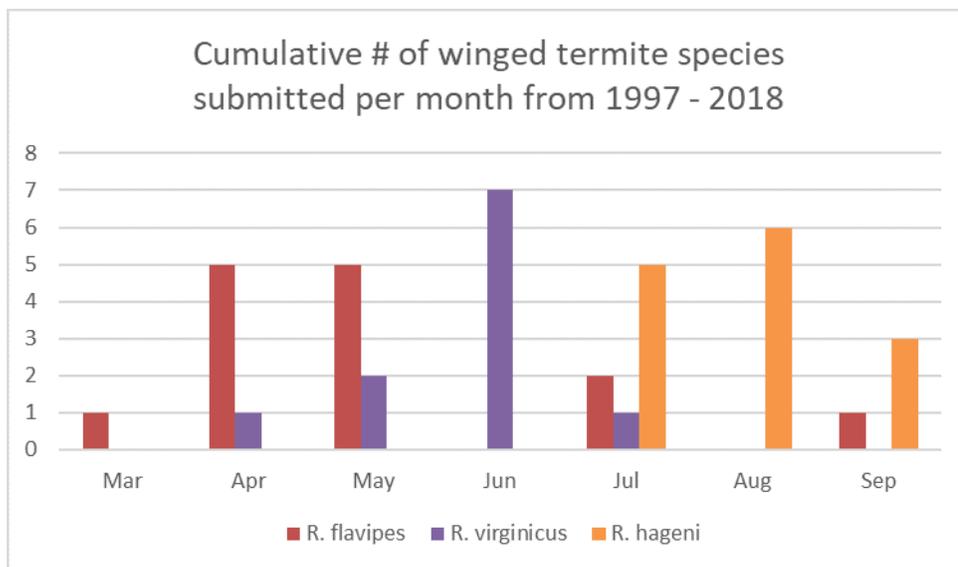


Figure 5. Cumulative number of each termite species submitted to the University of Tennessee Urban IPM Lab by month from 1997 - 2018.

Now the PMP was right to be concerned about this unusual termite. It could have been a Formosan subterranean termite, *Coptotermes formosanus*, an exotic species that builds large colonies and eats four to six times the amount of wood our native species do. We appreciate the diligence of Tennesseans to report potential Formosan subterranean termite finds. In the past few years, Formosan subterranean termites have been reported from Henderson (1 in 2018) and Shelby (1 in 2019 and 2020) counties. Time will tell if this species is established in Tennessee. (Historically, *C. formosanus* was recorded from an international shipper in

Memphis, Tennessee at least four times from 1984 - 2010, but was never established. S. Powell, TDA, personal communication)

Drywood termites develop small colonies and cause much less damage than subterranean termites. They extract moisture from the wood or other cellulose source they are feeding on, so it would have been unusual to see them taking flight from the soil as they are rarely found there. The drywood termite's range typically does not include Tennessee, although an established population exists in Nashville (Jerry Seabolt, TDA, personal communication). Most drywood infestations are brought into the state from infested furniture from coastal southeastern states or other warmer areas.

While reviewing the literature I found that at least one other termite has been recently found in Tennessee. *Reticulitermes mallei* was accepted as a valid species in 2007 (Austin et al. 2007) and has since been reported from one site on the Tennessee side of the Great Smoky Mountains National Park (Garrick et al. 2015). *Reticulitermes nelsonae* Lim and Forschler was first described in 2012 from coastal areas of the southeastern US, but no specimens from Tennessee were included in the analysis (Lim and Forschler 2012). While we don't expect it to be present here, we don't know its entire distribution yet. *Reticulitermes arenicola* is reported to occur in Tennessee (Krishna et al. 2013b), but this species is thought to be a synonym of (the same as) *R. flavipes* (Lim and Forschler 2012). The taxonomy of *Reticulitermes* is very messy and it may be years before it is sorted out.

One other termite species is reported from Tennessee. *Blattotermes wheeleri* was found as a fossil from a clay layer in Grand Junction, TN dated 55.8 to 48.6 million years ago (Krishna et al. 2013a, Collins 1925). *B. wheeleri*'s forewing was 26.0 mm long – that's nearly four times as long as *R. flavipes*' fore wing!

There's another insect that looks similar to a termite and I wanted to share it with you. It was submitted from far eastern TN the same day, July 27, as the light southern subterranean termite specimen above was submitted from southeastern TN. The description is very similar to *R. hageni*. Good thing I looked closely before replying to the



Figure 6. Dorsal view of golden stonefly that swarmed July 27, 2020.



Figure 7. Ventral view of golden stonefly

email. Stoneflies (Figures 6 and 7) have two long cerci (caudal filaments or tails) and long, thin antennae which were unfortunately broken off in these specimens. Cerci and antennae are much shorter in termites and termites have beadlike antennae. The stonefly's wings are held flat over its body similar to termites. This golden stonefly flies in the summer; other species may swarm in the winter or spring. Stoneflies can swarm in large numbers and are often attracted to lights causing your customers to be concerned about termites.

Well, that's it for this month. I plan to write a monthly newsletter article for TPCA. If you would like me to address a certain topic, please send an email with *TPCA newsletter topic* in the subject line to kvail@utk.edu. The Urban IPM Lab at the University of Tennessee provides support to the pest control industry. We are here to troubleshoot your pest problems, help you identify pests and to conduct research on pest problems where we lack solutions. So contact us if you need assistance. While I'm currently working from home, I check my email regularly and come to campus to identify specimens. Please contact me before sending specimens so I can alert the EPP office staff.

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