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Insec(tc)ure*:
Are you insecure about your insect cures?

A UT Urban IPM Lab Newsletter for the Pest Management Industry

Hammerhead Worms

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Planarians or flatworms are worm-like organisms, flattened from top to bottom, bilaterally symmetrical (the left side is nearly identical to the right), often with stripes down the back, and a spade or arrow-shaped head similar to a hammerhead shark (Figure 1). (Some species are entirely darkened, lack the hammerhead, and taper at the ends.) Many species are aquatic, but land planarians are found in soil and areas closely associated with moisture, including areas under rocks, shrubs, debris, and logs. After heavy rains, land planarians may be found on the soil surface.

Figure 1. Hammerhead worms submission from middle Tennessee, May 2022. Credit: Suzanne Brokamp

So why am I writing about land planarians? They've been in the news lately but have been referred to as one of their more attention-seeking names of hammerhead worms (https://www.wkrn.com/special-reports/hammerhead-worms-pose-threat-to-tn-native-earthworms/). In addition to land planarians and hammerhead worms, these are also called terrestrial flatworms. Television segments or social media postings may have generated some inquiries from your clientele, so I thought I would follow up with more information.

I'm uncertain of the number of planarian species in Tennessee or their distribution. An exotic, *Bipalium kewense,* was well established in Rutherford and Sumner counties in the mid-1970s and was assumed to be introduced to temperate regions of the US through the movement of containerized plants and other nursery stock. In a research study from 1973-74, most *B. kewense* were sited from May to October in Murfreesboro, TN, with a peak in observations occurring in June. *Bipalium kewense* is identified by the five lines running the organism's length with a dark, discontinuous band around the area behind the spade-shaped head. The flatworm in Figure 1 is not *B. kewense*, but it could be *Bipalium pennsylvanicum or Diversibipalium multilineatum,* depending on if there are three or five dark lines present.

The hammerhead shape of the flatworm's head combined with its long body (up to 1 foot) may cause fear in humans. Some species produce tetrodotoxin (pufferfish toxin) to overcome prey or protect their eggs and themselves from predators. It's unclear how dangerous this toxin is to people, so avoid handling these flatworms with bare hands. Hammerhead worms move and feed at night. Mucous or slime covers the body, gives it a shiny appearance, helps the animal move, and protects it from desiccating. Land planarians feed on earthworms, slugs, snails, insect larvae, and other terrestrial invertebrates, including other land planarians!

Although hammerhead worms feed on earthworms and thus may be considered detrimental, management of land planarians may not be needed because of the limited size of the hammerhead worm populations encountered in Tennessee. These flatworms should be considered interesting wildlife to observe unless you raise earthworms. Although hammerhead worms eat slugs, and customer-applied slug control baits may help reduce the size of slug populations, it is unlikely that this technique alone will control the hammerhead population because of the many alternate food sources. If slug baits are used, ensure residents follow label directions carefully as metaldehyde baits may be toxic to pets. Slug management techniques may also negatively impact earthworms. Slug baits or slug trapping may directly impact these flatworms, but efficacy data are lacking. Therefore, we need more research on flatworm management before providing more accurate recommendations.

One option is to kill each hammerhead worm as encountered, one flatworm at a time. Using gloved hands or forceps, place the flatworm into a plastic bag of salt, alcohol, vinegar or similar substance to kill the worm. Don't apply salt or these other substances directly to the planarian in the landscape because these substances can injure or kill plants. A pest management professional should NOT use this salt, alcohol or vinegar approach because they would be applying unregistered pesticides while charging a fee for services.

Flatworms are hermaphroditic, meaning they have male and female reproductive organs used for sexual reproduction. However, they more commonly reproduce asexually when a portion of their body pinches off and regrows another entire flatworm. **So don't chop them with a hoe because each resulting piece could regenerate a new worm.** This asexual reproduction may account for the numerous flatworms found in an area.

I don't believe we can justify flatworm control as falling under a pesticide applicator category 7 purview. Because these are present in the landscape, I assume hammerhead worms would fall under category 3 certification. The advice provided here is to help you answer questions from your clientele.

Please send us photos when you encounter land planarians in Tennessee and include the location so the Tennessee species' distribution can be better understood. Or, upload these data to Inaturalist.org.

References:

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Turkestan Cockroaches Found Throughout Arkansas

Christian Wilcox of McCauley Services in Arkansas presented at the National Conference of Urban Entomology in Salt Lake City a few weeks ago. Just as I had warned in April's Insec(tc)ure newsletter that Turkestan cockroaches were displacing Oriental cockroaches in other parts of the country, he noted the widespread occurrence of Turkestan cockroaches throughout Arkansas. His company routes extend into Memphis but no further east into Tennessee. So look closely at your large peridomestic cockroaches to ensure you have the correct identification. Turkestan cockroaches can build larger populations than Oriental cockroaches and will require more bait. As I requested in the previous article, please send us photos when you encounter Turkestan cockroaches in Tennessee and include the location so this species' distribution can be better understood. Or, upload these data to Inaturalist.org.

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