

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

A UT Urban IPM Lab Newsletter for the Pest Management Industry

Sand Wasps Stinging Pre-K Children?

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I have another unusual situation to share. Nearly two weeks ago, I received an inquiry from an East Tennessee school system about what they thought were sweat bees stinging pre-K children. The insects were flying in and out of holes in the sand in and around a sandbox. When a pest management professional also sent an email questioning the identity of the “bee” the same day, I suspected something else was happening. The latest email included a photo of the alleged bee (Figure 1). I could determine the insect was not a sweat bee but could not distinguish it from a potter wasp or sand wasp. Potter wasps are in the Family Vespidae, and sand wasps in the Family Crabronidae; both can provision nests below ground. Vespids have an arched pronotum, the first segment of the thorax directly behind the head, and crabronids have a straight pronotum. Unfortunately, the pronotum was not visible in the excellent submitted image.

Luckily, I was scheduled to conduct a fire ant bait demonstration in this same school system last week and received the insects in question. Once I could



Figure 1. Photo of insect stinging preK children at an East Tennessee school system. Credit: local school system personnel.

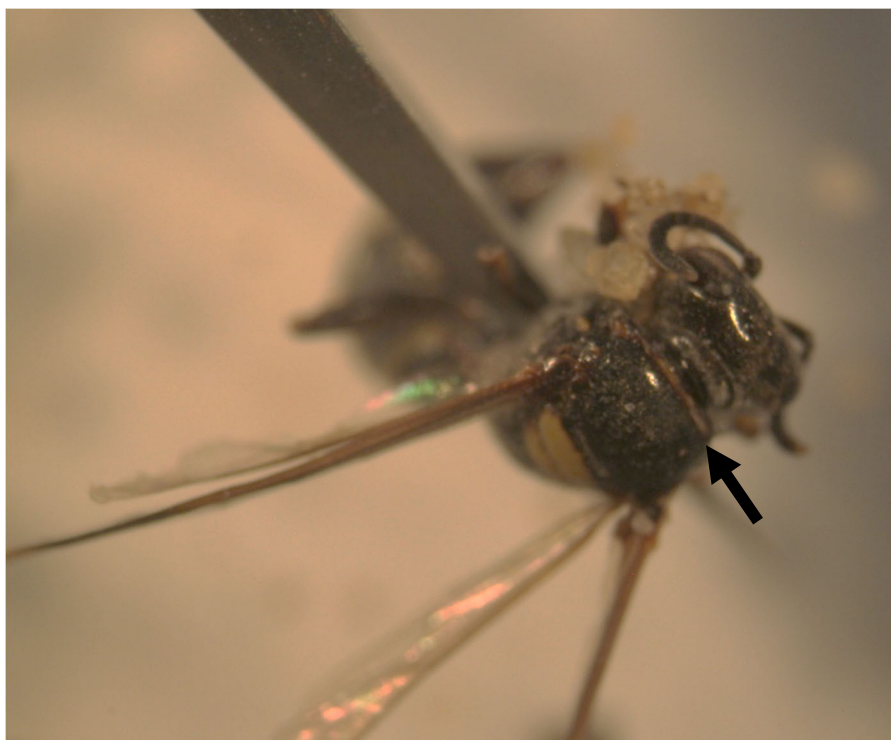


Figure 2. The straight pronotum (arrow) indicated this was not a vespid.

view the insect with the pronotum in view, it was easy to discern it was straight (Figure 2) and not a vespid.

Determining the genus and species was slightly more difficult because the species that looked the most similar was from South America and not found in the U.S.; that is, until I dug a little deeper and discovered it had been introduced into the southern U.S. (Bohart 1997). I’ve **tentatively** identified this sand wasp as [*Hoplisoides semipunctatus*](#) (Taschenberg). I’m far from an expert on sand wasps, so I’ll inform you later if we get an expert’s identification on this wasp. Assuming it is *H.*

semipunctatus, DiscoverLife.org lists an August 19, 2008 specimen collection from Warren Wilson College in North Carolina, about a 2-hour drive east/southeast of Knoxville. Other species of sand wasps have been introduced into nonnative lands through potted plants, so that could have been the case for this species since it was first detected near southern airfields.

In Argentina, the nests of *H. semipunctatus* are relatively shallow, with the terminal chamber ranging from 3.6 – 4.4 inches below ground in excavated nests. Females have been observed to dive into the nest opening with an oblique angle from about 1 m above and travel through a tunnel with a 45-degree angle from the slightly sloping, bare, sandy surface. The tunnels were 5.9 – 6.7 inches long. In Argentina, all of the nest provisions were membracids or treehoppers.

Interestingly, while most North American *Hoplisoides* use a temporary cover when seeking provisions, *H. semipunctatus* leaves the nest open. Nest openings are apparent due to a small pile of sand on the downward side of the slope. No eggs were found in the observed Argentinian nests; thus, it seems this insect provisions the nest before laying an egg.

Many sand wasps may occur in an area. While they are gregarious, they are not social insects and do not have other colony members, so they can not defend a nest en masse. That is, you will NOT have hundreds of sand wasps responding to an alarm pheromone and chasing you down a trail for 100s of feet.

It's unusual to hear of sand or other solitary wasps stinging people. Are the wasps seeking salt from perspiration as sweat bees do? If so, we should have heard about this before. Stinging occurs probably when the wasp is crushed against the skin. Are the children swatting at the wasps or catching them in their hands causing the wasps to defend themselves with a sting? Have the children removed their shoes and stepped on them? Well, we can't rule this out when dealing with 3 – 5 yr. olds. I'm assuming that a stinging event occurs rarely.

I visited the school Monday, September 18, to better understand the situation. According to the maintenance person assigned to this facility, the sandbox had been installed 4 years ago, but this was the first year they had a problem. He noted adult wasps were very common starting the last week in July and estimated hundreds of wasps were flying at a time. Not only were the wasps seen digging tunnels inside the sand box, but because sand had been thrown or dumped outside the box by the children, wasps had also tuneled outside the sandbox (Figure 3).



Figure 3. Sandbox where sand wasps are tunneling in the sand inside (A) and outside (B) the box.



Figure 4. Sand wasp approaching the tunnel it has been excavating.



Figure 45. When I destroyed a sand wasp tunnel, the wasp searched within several feet of the original tunnel for 9 minutes and then initiated another tunnel about 4 inches away.

When I arrived, the sandbox was covered. But, once the cover was pulled back, sand wasps soon began digging tunnels (Figure 4) in the sandbox, seeming to prefer the yellow, coarse sand in the box to that outside the box. I observed the wasps for some time, but not long enough to see them provision the nest. They kicked out sand very quickly (see [facebook.com/UrbanIPMTN](https://www.facebook.com/UrbanIPMTN) for a video), and at no time did I see them make a temporary closure to the opening. I decided to destroy a tunnel and observe the wasp's subsequent behavior, curious to know if it would abandon the site. I watch the wasp fly close to the ground and investigate the sand within a foot or so of the original tunnel. Within 9 minutes, it settled down and began excavating a new tunnel about 4 – 5 inches from the original (Figure 5).

I covered a wasp standing on the sand with the insect net; it remained on the ground and did not fly up into the net. I next tried waving an insect net around the sandbox to catch the wasps in flight or otherwise disturb them. I did manage to catch a couple, but that wasn't easy. No, I don't have a video of the net waving to share with you.



Figure 6. Sand wasp resting on the yellow caution tape about 3 ft above the ground.

After waving around the net, I counted to determine how long they avoided the area. I only counted to three before the wasp activity returned.

We also noted some wasps resting on the yellow caution tape about 3 ft above the ground (Figure 6). Are sand wasps attracted to yellow? Could we hang yellow sticky cards or tape about 3 ft off the ground to trap the wasps? That thought lasted a few seconds as images of 3 – 5 yr olds running around the playground with yellow tape or cards stuck to them came to mind.

The challenge remains in reducing the occurrence of these sand wasps in and around the sandbox. School personnel had been innovative in their attempts to rid the area of these wasps. Maintenance personnel had tried raking the sandbox every morning, but this had no effect. I wasn't surprised by this since the wasps had returned in 3 seconds after being disturbed. Two to three weeks ago, school personnel excavated and replaced all of the sand in the box. At the very least, they may have removed the next generation developing in the sand. But, when adult wasp activity returned, the sandbox was covered, and children were prevented from playing in this area.

Because small children are digging through this sand, pesticide use is discouraged. Before my visit, I had several suggestions.

1. Wait until the nest provisioning ceases which could be after the second hard frost at the latest, then excavate the nests to remove the developing insects before the next generation of adults emerges. Dead wasps were found around the sandbox when I visited, which may be a sign that the current generation of sand wasps is approaching the end of their life. While nest burrows aren't reused, the area could still be attractive to sand wasps next year. Removing the next generation may reduce the number of sand wasps in the area and thus their use of this sand. While this may be the case, just as I was leaving the site, the principal informed me of sand wasp activity near the drop-off line in the front of the school. The sandbox wasn't the only area near the school rearing sand wasps. Most likely, these other sand wasps would eventually find the sandbox.
2. When activity is noticed next year, run a robot over the sandbox so the commotion may prevent the sand wasps from nesting. Well, scrap this option. We already noted that disturbance doesn't keep the sand wasps away from the sand for very long, 3 seconds.
3. Make this situation a biology experiment and use this area for observation. Keep the students away from the sand so they aren't stung, and discuss the sand wasp behavior with them. Create artwork about the sand wasp biology.
4. Cover the sandy area with a tarp to prevent the wasps from creating tunnels. Of course, this would mean the children could not play in the sand during this time. Rather than a tarp, the school had already tried this option with a cover that fit the sandbox. Unfortunately, this may be the best option. When, or if, the sand wasps become active next year, cover the sandbox and prevent the children from playing in the sandbox until adult activity ceases. This may require a few months of no sandbox play.

If you have other suggestions on ridding the sandbox of sand wasps, I'm willing to listen. Send me an email or post your suggestion to our Facebook site.

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