Stink Bugs!
by Wendy E. Jones, Head Naturalist

Fall is the time of peak insect activity: monarchs are migrating to Mexico, katydids are calling at night, preying mantids and walking sticks are appearing in gardens and backyards. But there is one insect that you won’t be so happy to see . . . .

Remember when the only bothersome insects in your house were houseflies, or maybe some box elder bugs? Then Asian ladybugs arrived, becoming prolific in our area in the early 2000s as they mobbed buildings in fall looking for a cozy spot to overwinter. For several years, they were almost overwhelming, but their numbers have settled down a bit since then.

And now we have a new invader: the brown marmorated stink bug, which somehow seems even more insidious than the Asian ladybugs. Starting in September, they enter buildings through every small crack and tiny opening (seven millimeters or larger does it, which means it is virtually impossible to keep them out of your home), looking for a place to hibernate, and spreading the word to other stink bugs that your house is PERFECT, resulting in thousands of them invading your home. And while the fall months bring the most activity, on warm winter days they can become active and re-enter you living space, and once spring arrives, they reverse the process, looking for an exit from their comfortable winter quarters. Based on observations in Fernwood’s Nature Center, we only seem to be “free” of them mid-June through mid-September!

Native to East Asia, they were first found in the U.S. in Pennsylvania in 1998, most likely an accidental introduction to America via shipping pallets from China. They arrived in Michigan in 2010 and are well-established in the southern half of the state but with sightings throughout most of the tip of the Mitt and into the U.P. Interestingly, in Indiana, the sightings map shows records mainly in counties surrounding urban areas, which would make sense as they are easily and unintentionally transported by people. With great stealth, they arrive in a new area and go unnoticed, but after several years their populations explode and the invasion begins.

Brown-marmorated stink bugs are easily recognized by their shield-shaped dull brown body with cream-and-black banding around the abdomen and pale banding on the antennae. “Marmorated” is in reference to their marbled or mottled color, and they are about the size of a dime. If you don’t recognize one by sight, their “stink” will confirm their identity; to some it recalls cilantro as the same odor chemical is present in both, but “stink” is the best description for the unpleasant scent that can be hard to describe.
Native stink bugs live in our area with minimal problems, but the brown marmorated species has many traits that cause it to be such a nuisance to us. With a high reproductive rate, the bugs are primed for a quick expansion across new territory. Eggs are laid in the summer, twenty to thirty at a time, about once a week, for an average total of 240 by the end of the female’s life. After growing through five life stages in five weeks, within two weeks the nymphs become mature themselves and start to lay their own eggs. While cold winters will limit their populations in northern areas, as climate change results in milder winter conditions, stink bug populations will only continue to grow. In warmer environments, there can be up to five new generations each year!

That mass invasion into your house? It is triggered by the release of an aggregation pheromone that signals other stink bugs to move in, and that chemical remains active for up to a year (no avoiding them next fall!). Instinct drives them up and away from the ground, so they head into your ceilings and attics (a survey at a college dorm found them in 11% of rooms on the first floor but in nearly 70% of rooms on the top floor). Once there, they huddle together with each other or any surface (thigmotaxis: the tendency to move toward physical contact; I’ve found them tucked into the pages of notebooks stored in our attic for the off-season). And don’t expect them to only go into your house – this spring I found them in my car too! While they are only annoying in our homes, once they clog wells, pipes, and chimneys in buildings or valves and vents in cars, that can lead to expensive repairs. Hotels and restaurants have to battle the critters as well, and American cars being shipped to other destinations must treat the vehicles for stink bugs before sending them off.

But the damage is perhaps most dramatic beyond of our buildings. Brown marmorated stink bugs are generalists and eat just about any plant they encounter. In the forest, that includes tulip trees, black walnuts, sycamores, oaks, cherries, hemlocks, maples, and more. At the farm and in backyard gardens, they relish broccoli, asparagus, tomatoes, cabbage, bell peppers, avocados, and cucumbers; pecans, almonds, and hazelnuts; hops and grapes; apples, pears, peaches, raspberries, blackberries, apricots, nectarines, and citrus fruits. Even horseradish, cayenne pepper, habaneros and jalapenos are on the menu! Remember that aggregation pheromone that called them to your house? It also calls them to feeding time!

In total, more than 250 plants are eaten by these voracious insects, causing millions of dollars of damage each year. Reported crop losses range from 60% to 90% of peaches in New Jersey and more than $37 million dollars in Mid-Atlantic apple orchards. While some damaged crops can be salvaged for juice, those fruits lose up to 90% of their value when downgraded from sale as produce, and the aggregation chemical can affect the flavor of the resulting drinks.
Therefore, and understandably, many farmers are turning to increased pesticide use to protect their crops – but again the stink bug wins out: its relatively long legs hold it above the surface of the plant, limiting its exposure to pesticide applications. They also like to eat from the interior of plants, places that pesticides often don’t reach. And the class of pesticides called pyrethroids, which control our native stink bugs, don’t kill the alien invaders. After decades of progress in managing crop pests, chemical use is on the rise. But there is hope: the samurai wasp is a parasite of brown marmorated stink bug eggs in East Asia and it also arrived accidentally in the U.S. sometime around 2014. Scientists are hoped to breed and release them to help in the battle against these highly efficient pests.

So brace yourselves, the stink bugs are coming to houses all across the area this fall, and there is not much you can do to stop the invasion. Their highly generalist feeding habits, effective reproduction strategies, and social nature make them great at what they do; it just becomes a problem when they are doing it outside of their native lands. All these traits they share with the other “great” invasive species in America: purple loosestrife, garlic mustard, chestnut blight, zebra mussels, Asian carp, and many more. Once humans began travelling planet-wide in the last 600 years and then with high speed in the last 70 years, environments world-wide have never been the same.

For more information on stink bugs, please visit:

http://www.stopbmsb.org  to learn more about research on stopping stinkbugs

https://www.entm.purdue.edu/FPOSP/?tag=fpsop-indiana  to report stinkbugs in Indiana