

Occasional Invaders: Millipedes



HOUSEHOLD & STRUCTURAL PESTS

Gary Phillips, Graduate Student; Robert J. Pivar, Graduate Student; Karen Vail, Professor;
Rowland M. Shelley, Adjunct Professor
Entomology and Plant Pathology
Jason Evitts, Extension Agent, Trousdale County

DESCRIPTION

Millipedes are arthropods, meaning that they have an exoskeleton, jointed legs, molt, and reproduce by laying eggs. Along with three other multi-legged arthropod groups, they are known as myriapods because they have lots of legs; their formal scientific name is *Diplopoda*, and they are also known as diplopods. Some millipedes have as few as 22 legs and one has as many as 750. Because millipedes have numerous legs, many people know them as “thousand-leggers” or “those little brown worms with many legs.” They are unique because they have two pairs of legs on all body segments except for the first and last, which are legless; segments 2-4, which have only one pair; and the reproductive segment(s) in males, which are either legless or have only one pair. Millipedes differ from centipedes in numerous anatomical features and behaviors, three being that centipedes have only one pair of legs per body segment, are predators, and most are fast moving. In contrast, millipedes are generally subcylindrical, slow

moving, live in moist areas, and are detritivores (they eat dead and decaying wood and plant materials). Ecologically, they are important because they break up leaf litter, thereby aiding bacterial breakdown, which helps retain nutrients in forest soils. Millipedes are not harmful to man, but when disturbed, some can squirt their defensive secretions (most millipedes employ chemical defenses) that can stain or irritate human skin and eyes. When squirted into the eyes of dogs and chickens, the defense chemicals from certain large Neotropical millipedes have blinded them.

Approximately 230 species of millipedes reside in the southern Appalachian region, and some common ones are shown in Figure 1 ([A] *Narceus americanus*, [B] *Apheloria virginiensis*, both native to Tennessee, and [C] *Oxidus gracilis*, introduced from east Asia). In Tennessee, millipedes naturally occur in forests, under decaying logs and their bark, near streams and creeks, in mulch, flowerbeds,



Figure 1. Some common examples of local millipedes are (A) *Narceus americanus*, (B) *Apheloria virginiensis*, and (C) *Oxidus gracilis*. Photos courtesy of Rowland M. Shelley and Gary Phillips

compost piles, gardens, and under rocks. Since most millipedes lack a waxy cuticle, they require moist habitats to survive and will typically die within a few days in a dry indoor environment. After heavy rainfall and periods of dry, hot weather, high numbers of some millipedes have been known to invade buildings (Figure 2). They gain access through cracked foundations and caulking, gaps under doors, open garage doors, windows, and crawlspaces. When homeowners encounter millipedes indoors, they are often found in basements, which provide the damp environment they need to survive. They are also found in or under damp boxes in areas with standing water, or near leaking washing machines, laundry sinks, or drains. *Pleurolooma flavipes*, a local Tennessee millipede, aggregated during the summer months of 2015 in Trousdale County. The unusually large numbers of millipedes concerned residents in both commercial and residential areas. Mass concentrations of *P. flavipes* were observed in commercial businesses, schools and local residences. Two areas where large numbers were observed were drainage ditches and moist residential lawns. As cool, damp mornings

progressed into hot, dry afternoons, individuals moved toward areas that offered more shade and moisture (Figure 3). If unable to find moist areas during the day, they quickly succumbed to the heat, became dehydrated, and died (Figure 4). Because there were such high numbers of millipedes, thousands were discovered on concrete floors, inside businesses and near buildings. Mass aggregations are often associated with higher than normal rainfalls, suggesting that they are forced out of subsurface habitats to avoid inundation. It is unknown whether the millipedes produce aggregation pheromones, which cause them to follow a common path.



Figure 2. *Bollmaniulus* sp. in Thurston County, Washington, congregating on the ceiling of a porch. Photo obtained from William P. Leonard; original source unknown.



Figure 3. *Pleuroloma flavipes*. Photo courtesy of Karen Vail



Figure 4. Mass aggregation of *P. flavipes*. Photo courtesy of Norman and Cheryl Lavers

MANAGEMENT

The most effective method for managing millipedes is to reduce moisture in and around the structure and prevent access to the interiors of homes and businesses. Some common and easy ways to prevent millipedes from gaining entry into urban home and business structures are as follows:

Reduce moisture and decaying vegetation around structures.

- Keep yards well-manicured (dethatched and edged) and free of debris.
- Water the landscape in the morning to allow it to dry between waterings.
- Keep grass clippings and leaves away from the side of the structure's foundation to prevent and reduce potential colonization of a new habitat.
- Keep a 12- to 18-inch bare zone next to the foundation wall. If this is unacceptable because of mud splash, use pea gravel or small stones in this area.
- Reduce the amount of mulch near the foundation. Mulch should not be thicker than 2 to 4 inches.
- Remove rocks near foundations, especially those near crawlspaces and entryways.
- Pick up loose lumber, firewood and other items from your yard that may provide a moist environment and that can shelter millipedes.
- Direct any water runoff away from your residence or business structure.
- Keep drains and gutters clean.
- Install sump pumps or dehumidifiers to reduce moisture.
- Fix or replace leaking hoses and spigots; replace o-rings and washers on hose connections.
- Trim trees and shrubs to allow for more light to reach areas around a structure's foundation.
- Prevent water from accumulating under air conditioning drip lines.
- Seal and repair dripping pipes and leaky faucets.
- Install sump pumps or dehumidifiers in basements or crawlspaces to reduce moisture indoors.
- In crawlspaces, soil should be covered with plastic and the foundation walls adequately ventilated, or the entire crawlspace should be enclosed ([nrel.gov/docs/fy13osti/54859.pdf](https://www.nrel.gov/docs/fy13osti/54859.pdf)).

Millipede-proof your house or business.

- Repair cracks in foundations.
- Install weather stripping or sweeps to doors and replace worn door thresholds.
- Caulk around window and door frames and door thresholds and replace old, dry, cracked caulking with new.
- Do not leave garage doors open after periods of heavy rainfall.
- Add screening with appropriate mesh size behind crawlspace and other vents to allow adequate ventilation and prevent millipedes from entering.
- Clean out crawlspaces that may have wood, blown-in leaves, or other items that millipedes can feed upon or take shelter under.

Millipedes are in my basement — now what?

- Wear latex gloves and pick them up and return them to their natural habitat.
- Vacuum them up if they are small.
- Use a dust pan and broom to sweep them up.
- Large numbers of millipedes removed from the structure should be placed in a plastic bag; the bag should be sealed and placed in an outdoor garbage container.

What about pesticides?

- Pesticides should not be used unless there is a severe infestation but may be used as a supplement to the pest-proofing and moisture-reducing options.
- If necessary, pesticides should be applied to the structure's perimeter and around potential entry points such as doors, windows, vents, and pipe and utility penetrations.
- Thick layers of mulch should be raked back so the exposed soil can be treated.
- Millipedes may still cross the insecticidal barrier and come indoors before dying, but their numbers should be substantially reduced. Routine maintenance to prevent accumulation of moisture, to remove millipede food sources and habitat, and to keep the structure pest proofed will more than likely keep millipedes out of your home or business. When millipedes invade by the thousands, reducing moisture in the immediate proximity to the structure does not reduce the occurrence; a search for moisture and food sources

farther away from the structure may be necessary. For suggestions on pesticides and additional pest-proofing techniques, see the Household and Structural Pests chapters in UT Extension “PB 1690: Insect and Plant Disease Control Manual (Redbook)” at ag.tennessee.edu/EPP/Pages/Household-Structural.aspx.

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Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

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