

# Centipedes and Millipedes

Centipedes and millipedes are many-legged relatives of insects (figure 1). Their outer body covering is so thin that it does not provide much protection from desiccation. This normally restricts these species to dark, moist places under landscape mulch and in compost piles.

Sometimes centipedes and millipedes accidentally wander into homes, where they cause concern. This publication will help you identify these species; understand their biology and feeding habits; and make a decision as to whether they are creating enough of a nuisance to require control action.

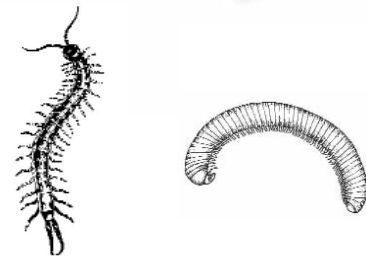


Figure 1. Typical life-size adult centipede (left) and millipede (right). Graphics from U.S. Department of Agriculture.

## Centipedes

### IDENTIFICATION AND BIOLOGY

Centipedes are the flattened, brownish-red 1-inch-long “hundred-leggers” (figure 2) that rapidly run for cover when you turn over rocks and logs. The main trunk of their body consists of a series of 15 or more similar-sized segments, each with a single pair of long jointed legs held to the side of the body. The hind pair of legs is longer than the rest; they point backwards and function like antennae. A pair of long, whip-like antennae point forward from the head.

Centipedes are active, night-hunting predators. They do not feed on plants. Centipedes use their speed to chase down insects and similar small prey; they also feed on earthworms and snails. Centipedes kill their prey with venom delivered from a pair of fang-like structures (figure 3) located behind their chewing jaws under the head.

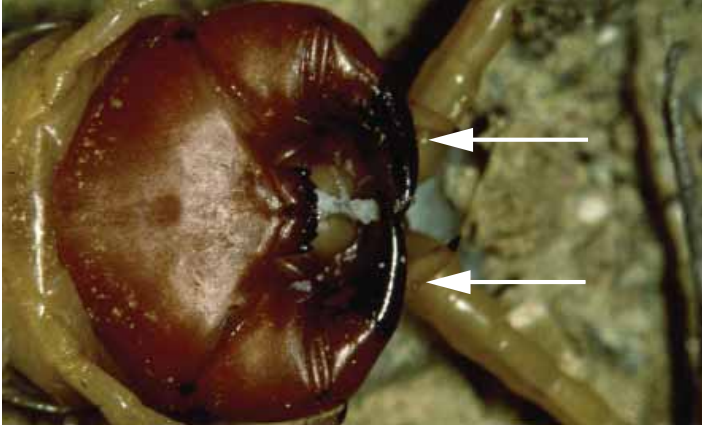
Seasonal life cycles of centipedes are little studied in Idaho. Depending on the species, females lay eggs in batches or singly in the soil. Hatchlings develop through seven or more molts before maturing. Immature life stages in some species look like small versions of adult centipedes. In other species, hatchlings only have four pairs of legs; these species grow additional legs and



Figure 2. Centipedes have long, flattened bodies divided into segments, each bearing one pair of long, jointed running legs held out to the side of the body. Photo from Oregon State University, Ken Gray slide collection.

body segments with each molt until they reach the normal adult number.

One centipede periodically found inside residences that draws attention because of its large body size and unusually long legs is



**Figure 3.** Centipedes are predators that kill small, soft-bodied prey with a pair of poison fangs located under the head. Arrows point to the unusually large poison fangs of a tropical (non-Idaho) species. Photo by Dennis Schotzko, University of Idaho. All rights reserved.



**Figure 4.** The house centipede is about 2.5 inches long and has 15 pairs of long, thin legs; its grey-tan body is marked with darker stripes that run down the back. Photo by Dennis Schotzko, University of Idaho, all rights reserved.

*Scutigera coleoptrata*, the house centipede (figure 4). This fast-running predator sometimes falls into empty sinks and bathtubs, where the slippery surfaces prevent it from escaping. Contrary to what some people say, house centipedes do not crawl up through drains from inside household plumbing. Avoid the possibility of bites by squashing them and rinsing down the drain, or removing specimens with a vacuum cleaner. Toss the vacuum cleaner bag in the trash after vacuuming, or empty the container into a bag, close tightly, and dispose of outside.

#### PEST STATUS

Centipedes can potentially bite people with their poison jaws. In tropical areas of Central and South America, large centipedes can bite with burning pain. We believe that most Idaho

centipedes have poison jaws that are too small to puncture human skin. Only the largest of our species could bite people, and then only with pain no worse than a wasp sting. Common sense dictates wearing gloves when working around the yard in areas where any biting arthropod might be hiding. In general, consider centipedes not as pests, but as natural predators that are part of our backyard ecosystems.

## Millipedes

### IDENTIFICATION AND BIOLOGY

Millipedes are the slow-moving “thousand-leggers” found in the same damp, dark yard and garden habitats as centipedes. The body of most millipedes consists of a series of ring-like, hard cylindrical segments (figure 5), although some Idaho species have flattened bodies rather than cylindrical bodies (figure 6). The outer body covering is hardened by calcium that millipedes accumulate when they eat decaying organic material. The crusty white body shells seen on basement floors or trapped in garage spider webs are the calcium-embedded exoskeletons that remain after millipedes die.

Millipedes have a different leg structure and arrangement than centipedes. Except for the first part of the body, every millipede body segment bears 2 pairs of legs, whereas centipedes bear just 1 pair per body segment. Millipedes usually have short, hair-like legs oriented directly under their body, rather than placed to the side, as with centipedes. Another difference is that the antennae of millipedes are so short they are hard to see with the naked eye.

Although one might think that having many legs would allow millipedes to run with speed, they instead crawl slowly but powerfully over the soil surface, pushing head-first like bulldozers through leaf litter and loose soft soil. Millipedes flex their legs with a progressive wave-like motion in which the legs on one side of a body segment simultaneously move forward with the legs on the other side of that body segment.

In contrast, the rapid gait of centipedes is due in part to their alternating stepping pattern, in which the forward motion of a leg on one side of a body segment is matched by the backwards motion of the leg on the other side. Many millipedes curl into a “C” shape and remain motionless when disturbed.

Millipedes have a pair of jaws they use to feed on dead, decaying plant material on the soil surface. Ecologically, millipedes are like earthworms, recycling plant nutrients back into the soil.

Millipede eggs are laid in the soil, and hatchlings develop through as many as 10 molts over one to five years before reaching adulthood. Immatures have fewer body segments and legs than adults. They add body length and legs with each molt. Adult millipedes live two years or longer.

#### PEST STATUS

Millipedes do not bite, and entirely lack venom. Vividly colored species (figure 7) can produce droplets of obnoxious-smelling





**Figure 5.** Commonly encountered millipedes in Idaho have cylindrical, multi-segmented bodies with dozens of short, hair-like legs directly under the body trunk. Photo from Oregon State University, Ken Gray slide collection.



**Figure 6.** Some millipedes have flattened rather than rounded bodies. Photo by Dennis Schotzko, University of Idaho. All rights reserved.



**Figure 7.** Millipedes marked in vivid warning colors (such as this mating pair of yellow-spotted millipedes that live in the forests of northern Idaho) secrete droplets of toxic chemicals that can produce a small discolored spot on bare skin. Photo by Dennis Schotzko, University of Idaho. All rights reserved.

defensive chemicals that perhaps could raise a small dark blister on tender skin, but these species seldom are encountered around the home. Outside the home, millipedes sometimes feed on tender shoots and roots of living seedling plants, but they generally should be considered beneficial recyclers in the garden. Inside the home they almost always are limited to lone accidental invaders. They also occur in rooms where there are lots of potted houseplants.

One bark-inhabiting millipede, the bristly millipede (known by the scientific name *Polyxenus*), periodically wanders by the hundreds into homes during the first warm days of spring after snow melt, or in the fall following rainy weather. At first glance, this 1/8-inch long species looks more like a beetle grub than a millipede (figure 8). But whereas beetle grubs always have three pairs of legs, the bristly millipede has 13 pairs of legs.

Under magnification, tufts of needle-like bristles can be seen in rows along the body. Two brushes of detachable, barbed hairs extend from the end of the body. Like the quills on a porcupine, these are defensive structures that the millipede swipes against attacking predators (such as ants) to kill them. These hairs could potentially irritate human skin.

Bristly millipedes normally live unnoticed outside under loose bark flakes on trunks of conifers and broadleaved trees, where they feed on algae and lichens. One species seems to be associated with ant nests. Inside homes they typically are noticed crawling on walls and ceilings of basements (both finished and unfinished rooms) or other ground-level rooms with windows that extend to the soil surface. They do not reproduce inside homes. Any specimens found inside are accidental invaders that originated from adjacent outdoor landscapes.

## Management

### DEALING WITH NUISANCE PROBLEMS INSIDE THE HOME

The presence of centipedes and millipedes inside your home can be a nuisance. However, these creatures are not dangerous or harmful to people, pets, stored foods, houseplants, furniture, or home structural timbers. Unless they can find damp areas, none can survive inside the home for more than a few days. And even in high moisture areas, unless they also find food in the form of either plant debris (for millipedes) or living insects (for centipedes), none can establish permanent, reproducing populations in the dry, light living quarters of homes.

Damp, unfinished crawlspaces and basements sometimes harbor centipedes and millipedes. They sometimes occur in bathrooms under sink cabinets, as well as in sunrooms with lots of potted houseplants.

When the weather is warm, individual specimens accidentally crawl into the living quarters of homes under loose-fitting doors and basement windows. This is especially true when physical disturbance or overwatering of outdoor landscape beds next to homes causes them to temporarily abandon these hiding sites.



**Figure 8.** The bristly millipede at pencil point (left) is a tiny fuzzy species that sometimes appears in large numbers inside homes. Magnified view (right) shows fine needle-like hairs arranged in bunches, and two thicker brushes at the tip of the body. Photo by Edward John Bechinski, University of Idaho.

Single individuals also sometimes are seen in the middle of winter inside homes. These inevitably were carried into the home on firewood stacked outside.

The key to dealing with centipedes and millipedes is to minimize the high moisture conditions these groups require to survive. This is true for managing pest problems inside the home as well as minimizing plant-feeding damage in gardens.

**ELIMINATE OUTDOOR HABITATS IMMEDIATELY** next to homes. Problems usually begin immediately outside the home in moist plant beds along the foundation. Do whatever you can to dry out these areas and remove ground clutter that shelter these pests. Bark mulch and vining ground covers are common sources of problems.

Millipedes and centipedes can live among wet firewood with loose bark. Stack firewood on raised concrete pads off the soil surface to minimize population build-up during the summer, and shake off individuals clinging to firewood before bringing it inside during the winter.

**SEAL DOOR THRESHOLDS AND BASEMENT WINDOWS TO PREVENT ENTRY.** Any opening in exterior walls can allow pests to enter your home. Loose-fitting sliding patio doors next to flower beds, basement windows (especially those next to window wells), and foundation vents allow for easy inside access.

**VENTILATE BASEMENTS AND CRAWLSPACES.** Damp cellars with freshly stored potatoes or organic debris can offer breeding sites for millipedes. These species in turn provide food for centipedes as well as spiders. Clean up and dry out those spaces.

**PHYSICALLY REMOVE INDOOR SPECIMENS.** Vacuum up, squash and toss, or capture and release outside the few individuals that crawl into your home. There is no need for immediate indoor insecticide treatment to eliminate the occasional individual specimen.

**APPLY PESTICIDES AS OUTDOOR PERIMETER SPRAYS ON HOME FOUNDATIONS.** Only apply pesticides as a stop-gap measure when intolerable numbers of millipedes and centipedes are entering

your home from outdoors. Insecticides cannot substitute for elimination of outdoor breeding sites and exclusion of pest entry by sealing doors and windows. This is especially true for nuisance problems inside garages and sheds.

If you do decide to use an insecticide, look for products that specifically say on the label that they are for outdoor perimeter barrier applications along home foundations to kill home invading pests. Products that contain any one of the following pest-killing active ingredients should be equally effective as foundation sprays against centipedes and millipedes: beta-cyfluthrin ( $\beta$ -cyfluthrin), bifenthrin, carbaryl, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, gamma cyhalothrin, lambda-cyhalothrin, and permethrin. These pest-killing chemicals are sold under dozens of different commercial trade names.

All of these chemicals are broad-acting nerve poisons that kill both by direct contact with the wet spray, and when pests crawl over the dry but treated surface. A single spray of any one of these products should provide immediate control that lasts at least 10-14 days.

The US-EPA classifies most of these home barrier products as slightly toxic to people by inhalation, skin contact or ingestion; these have the word CAUTION printed on the label, which designates the lowest (least toxic) EPA category. A few are moderately toxic to people; these say WARNING on the label. None of the homeowner products are designated by the word DANGER, which identifies products that can seriously burn skin or eyes.



**DO NOT SPRAY** any yard and garden plants – especially vegetable plants, berries, and fruits for human consumption – unless the pesticide label specifically lists your plant.

**DO NOT SPRAY FIREWOOD.** Treated logs may produce toxic fumes when burned.

**NEVER USE YARD AND GARDEN PESTICIDES INSIDE YOUR HOME** unless the pesticide label states the chemical is safe for indoor use.

Unless otherwise directed by the label, spray a 1 or 2-foot wide continuous band of insecticides on the soil outside around the building foundation, spraying upwards on the exterior foundation another 2 feet. Spray around doors, windows, utility line entrances, vents, and other exterior-wall openings.

It is neither necessary nor desirable to spray entire landscape beds. Broad-scale sprays kill pest and beneficial species alike, including earthworms, lady beetles, and pollinators. Indeed,

when centipedes and millipedes remain outside the home, they too are best considered beneficial species.

“Least-toxic” alternatives to broad-acting pesticides include diatomaceous earth and plant-derived botanical insecticides. These products pose reduced risks to people, pets, and wildlife, but are not necessarily less toxic to beneficial insects and earthworms.

All of these products have limited usefulness as outdoor barrier treatments for home-invading pests. Only three diatomaceous earth products are available to homeowners for outdoor use: Safer Brand Ant & Insect Killer, Natural Guard Crawling Insect Control, and Concern Diatomaceous Crawling Insect Killer. These should be applied as a light, dry dust to patios, window wells, and around door thresholds.

Plant extracts include pyrethrin (which is sold under many different commercial trade names) and the GreenLight Biogonic product line of clove, thyme, and sesame-oil sprays. Botanicals can kill when centipedes and millipedes come into direct contact with the wet spray, but these natural pesticides quickly evaporate, break down, and disappear.

For all but exceptional cases of massive numbers of invading pests, we recommend against indoor pesticide use for centipedes and millipedes. It is more cost-effective and less hazardous to you, your family, and your pets to only use pesticides as exterior perimeter sprays.

#### DEALING WITH PLANT-FEEDING MILLIPEDES IN GARDENS AND FRUIT BEDS

Millipedes usually only feed on dead, decaying plant debris, but are known to occasionally feed on the lower leaves of tender garden seedlings and on over-ripe berries or vegetables that directly rest on damp soils. Feeding damage normally is inconsequential. Populations sometimes build up in backyard and commercial greenhouses, where their plant-feeding can be more significant.

Centipedes never damage plants; they only eat living prey, not plants.

**Minimize breeding sites.** Water plants early in the day so that the soil surface dries by night, when millipedes are most active. Avoid heavy organic mulches that shelter pests early in the season, when



**ONLY USE BAITS TO PROTECT PLANTS SPECIFICALLY NAMED ON THE LABEL.** If your plant is not listed, you have the wrong product. DO NOT USE IT.

**NEVER ALLOW BAITS TO CONTACT ANY PORTION OF THE PLANT.** Toxic residues otherwise might transfer to edible produce.

small, succulent plants are most susceptible to feeding injury.

Ripe strawberry fruits on straw beds, and maturing vegetables like cucumbers that rest on the soil, can be susceptible. Whatever you can do to raise produce off the ground will reduce feeding.

**Use dry pesticide baits if feeding damage is severe.** Millipedes are best considered beneficial decomposers and recyclers of plant nutrients. Only use pesticides if they are causing severe feeding damage to young seedlings or ripening fruits.

If you decide that pesticides are needed, we recommend using insecticide baits rather than plant-applied sprays. Baits consist of flakes or pellets of food materials impregnated with insecticide. These are scattered on the soil next to (but not touching) plants, where they only kill pests that eat the bait. Because they must be eaten to be effective, baits are less ecologically disruptive to beneficials than sprays that kill by contact. Look for baits that specifically say on the label that they can be applied around garden vegetables and berries for millipede control.

Table 1 lists some representative bait products and the garden crops on which those products legally can be used. Many baits combine one chemical that kills millipedes with another chemical that kills slugs and snails. *Baits that only list slugs and snails on the label as target pests do not control millipedes.* These baits only contain metaldehyde or iron phosphate as the active ingredient, both of which are specific in their killing action to slugs and snails.



**Table 1.** Widely available baits for control of pillbugs and sowbugs in home vegetable gardens and berry patches.

| <i>product name(s)</i>    | <i>Bug Bait*</i>        | <i>Cooke Pest Granules*<br/>Go-West Meal*<br/>Slug, Snail, &amp;<br/>Insect Killer Bait*</i> | <i>Corry's Bug Bait*<br/>Corry's Insect Killer*<br/>Deadline Bug Bait*</i> | <i>Earwig &amp; Sowbug Bait<br/><br/>Grasshopper, Earwig,<br/>Cutworm &amp; Sowbug Bait</i> | <i>Ortho Bug-Geta Plus<br/>Snail, Slug &amp; Insect Killer*</i> | <i>Sluggo Plus*</i>        |
|---------------------------|-------------------------|--|--|---|---|----------------------------|
| manufacturer              | Green Light             | Lilly Miller   | Matson   | Lilly Miller  | Ortho   | Monterey                   |
| active ingredient(s)      | carbaryl<br>metaldehyde | carbaryl<br>metaldehyde  | carbaryl<br>metaldehyde  | carbaryl  | carbaryl<br>metaldehyde   | spinosad<br>iron phosphate |
| label signal words        | caution                 | caution  | caution  | caution   | caution   | caution                    |
| <b>vegetable crops --</b> |                         |  |  |   |   |                            |
| asparagus                 | NO                      | YES  | YES  | YES   | NO  | YES                        |
| beans                     | YES                     | YES  | YES  | YES   | YES   | YES                        |
| beets                     | YES                     | NO   | NO   | YES   | YES   | YES                        |
| broccoli                  | NO                      | NO   | NO   | YES   | YES   | YES                        |
| Brussels sprouts          | NO                      | NO   | NO   | YES   | YES   | YES                        |
| cabbage                   | YES                     | YES  | YES  | YES   | YES   | YES                        |
| carrots                   | NO                      | YES  | YES  | YES   | YES   | YES                        |
| cauliflower               | NO                      | NO   | NO   | YES   | YES   | YES                        |
| celery                    | NO                      | YES  | YES  | YES   | NO  | NO                         |
| Chinese cabbage           | NO                      | NO   | NO   | YES   | YES   | NO                         |
| collards                  | NO                      | NO   | NO   | YES   | YES   | NO                         |
| corn                      | NO                      | NO   | NO   | YES   | YES   | YES                        |
| cucumber                  | NO                      | YES  | YES  | YES   | YES   | YES                        |
| eggplant                  | YES                     | NO   | NO   | YES   | YES   | YES                        |
| garlic                    | NO                      | NO   | NO   | NO  | NO  | YES                        |
| kale                      | NO                      | NO   | NO   | YES   | YES   | NO                         |
| kohlrabi                  | NO                      | NO   | NO   | YES   | YES   | NO                         |
| lettuce                   | YES                     | YES  | YES  | YES   | YES   | YES                        |
| melons                    | NO                      | YES  | YES  | YES   | YES   | YES                        |
| onion                     | NO                      | NO   | NO   | NO  | NO  | YES                        |
| parsnip                   | NO                      | NO   | NO   | YES   | YES   | YES                        |
| peas                      | NO                      | YES  | YES  | NO  | YES   | YES                        |
| peppers                   | NO                      | YES  | YES  | YES   | YES   | YES                        |
| potatoes                  | YES                     | YES  | YES  | YES   | YES   | YES                        |
| radishes                  | NO                      | YES  | YES  | YES   | YES   | YES                        |
| rutabagas                 | NO                      | NO   | NO   | YES   | YES   | YES                        |
| soybean                   | NO                      | NO   | NO   | NO  | NO  | YES                        |
| spinach                   | YES                     | YES  | YES  | NO  | YES   | YES                        |
| squash                    | NO                      | YES  | YES  | YES   | YES   | YES                        |
| Swiss chard               | NO                      | NO   | NO   | YES   | YES   | YES                        |
| tomato                    | YES                     | YES  | YES  | YES   | YES   | YES                        |
| turnip                    | YES                     | YES  | YES  | YES   | YES   | YES                        |
| <b>berries --</b>         |                         |  |  |   |   |                            |
| strawberries              | YES                     | YES  | YES  | YES   | YES   | YES                        |

\*product also kills slugs and snails in addition to millipedes

NOTE: YES designates products that legally can be applied on the soil next to the listed plant; NO designates uses that are illegal and potentially hazardous because the pesticide label does not include that particular plant. NEVER ALLOW THESE BAITS TO CONTACT PLANTS; only apply baits to the soil surface as directed by the label.

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ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless both the pest and the plant, animal, or other application site are specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock. Trade names are used to simplify the information; no endorsement or discrimination is intended.

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