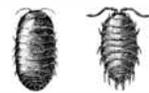


# Pillbugs and Sowbugs

Pillbugs and sowbugs 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 pillbugs and sowbugs 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 pillbug (left) and sowbug (right). Graphics from U.S. Department of Agriculture.

## Identification and biology

Pillbugs and sowbugs (figure 2) are crustaceans, a group of mostly aquatic animals that also includes crayfish, lobsters, crabs, and shrimp. Although they closely resemble one another, and indeed the names “pillbug” and “sowbug” are often used informally for the same specimen, **pillbug** correctly refers to those species that can roll up into a tight ball (figure 3), while **sowbug** describes other species that physically cannot roll into a ball. Together pillbugs and sowbugs are known as isopods (iso = equal, pod = foot) because each leg is nearly identical in shape and size to the others. Other names for these species are roly-polies, potato-bugs, and woodlice.

Of the seven species of pillbugs and sowbugs known in Idaho, four commonly occur in Idaho home gardens. All four are native to Europe and all share certain body features and behaviors. The body is divided into a series of hardened, overlapping segments that often are blue-grey on pillbugs, and brown-grey on sowbugs. Body shape looks rounded when viewed from above, and hollow when viewed from below.

Both pillbugs and sowbugs have 7 pairs of short, jointed walking legs and one pair of short but stout, jointed antennae at the head. They have a pair of weak jaws that are mainly used to feed on decaying vegetation, but sometimes they also feed on tender living garden seedlings. They usually feed at night and hide by day.

An external body feature that separates pillbugs from sowbugs is the length of the paired tails (technically called uropoda) at the end of the body. Pillbugs have tails that usually are so short they



**Figure 2.** Pillbugs (top) and sowbugs (bottom) look similar to each other but comprise seven different species in Idaho. Photos by Edward John Bechinski, University of Idaho.



**Figure 3.** Pillbugs are also known as roly-polies for their ability to roll up into a tight ball. Sowbugs cannot curl their bodies into a ball. Photo by Edward John Bechinski, University of Idaho.

cannot be seen when looking down at a specimen, but as figures 1 and 2 show, the paired tails of sowbugs are long enough to visibly extend from the tip of the abdomen.

Pillbugs and sowbugs breathe by means of gills and specialized air tubes enclosed in protective chambers under the body. Gills must be kept wet in order to extract oxygen from water, restricting these creatures to moist habitats.

Several generations develop each year. Females brood their eggs under their bodies for several weeks within a water-filled sac called the marsupium. Immatures initially stay inside the pouch for a few weeks after hatching but then disperse, developing through 10 or more molts before reaching adulthood after 2 years. Adults live up to 2 years and continue to molt at irregular intervals throughout their lives.

## Pest status

Pillbugs and sowbugs usually are minor nuisance pests. On rare occasions, pillbugs and sowbugs become numerous enough to feed on leaves of seedling plants in gardens. Their feeding damage is similar to that caused by slugs – ragged holes eaten between leaf veins.

## Management

### DEALING WITH NUISANCE PROBLEMS INSIDE THE HOME

Pillbugs and sowbugs can be nuisance pests inside the home. They 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 plant debris, they cannot establish

permanent, reproducing populations in the dry, light living quarters of homes.

Damp, unfinished crawlspaces and basements sometimes harbor pillbugs and sowbugs. They sometimes appear in bathrooms under sink cabinets, as well as in sunrooms with lots of potted houseplants.

When the weather is warm, individuals 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.

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 pillbugs and sowbugs 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.

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### LAND LOBSTERS?

Because pillbugs and sowbugs are crustaceans, one might wonder if our backyard types are as tasty as ocean-dwelling crustaceans like lobster, crab, and shrimp. One British expert said this about pillbugs and sowbugs: "If you accidentally get one in your mouth, it's a most unpleasant experience. Basically it tastes of strong urine." Another scientist described them as having "a somewhat pungent sweetish [but] nauseous taste" (Gadsby, 1999, p. 67).

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**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. Pillbugs and sowbugs 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 CASEMENT 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. 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 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 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 pillbugs and sowbugs: 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.



**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.

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 carry the word DANGER, the label signal word that identifies products that can seriously burn skin or eyes.

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 pillbugs and sowbugs 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 pillbugs and sowbugs come into direct contact with 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 pillbugs and sowbugs. It is more cost-effective and less hazardous to you, your family, and your pets to limit your pesticide use to exterior perimeter sprays.

#### **DEALING WITH PLANT-FEEDING PILLBUGS AND SOWBUGS IN GARDENS AND FRUIT BEDS**

Sowbugs and pillbugs 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.

**MINIMIZE BREEDING SITES.** Water plants early in the day so that the soil surface dries by night, when pillbugs and sowbugs are most active. Avoid heavy organic mulches that shelter pests early in the season, when 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. Pillbugs and sowbugs 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 pillbug or sowbug 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 pillbugs and sowbugs with another chemical that kills slugs and snails. *Baits that only list slugs and snails on the label as target pests do not control pillbugs and sowbugs.* 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.

#### WORK CITED:

Gadsby, Patricia. "How Now, Sow Bug?" *Discover*, volume 20, issue 8, pp. 64-67.



**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.

**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* Go-West Meal* Slug, Snail, &amp; Insect Killer Bait*</i>	<i>Corry's Bug Bait* Corry's Insect Killer* Deadline Bug Bait*</i>	<i>Earwig &amp; Sowbug Bait  Grasshopper, Earwig, Cutworm &amp; Sowbug Bait</i>	<i>Ortho Bug-Geta Plus Snail, Slug &amp; Insect Killer*</i>	<i>Sluggo Plus*</i>
manufacturer	Green Light	Lilly Miller	Matson	Lilly Miller	Ortho	Monterey
active ingredient(s)	carbaryl metaldehyde	carbaryl metaldehyde	carbaryl metaldehyde	carbaryl	carbaryl metaldehyde	spinosad 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 pill bugs and sow bugs

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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