Almost Everything about Woodlice

By Susan Camp

Last Saturday, Jim asked me, “Have you ever written a column about roly-polies, those cute little bugs that I find under flowerpots and in the compost? What do they do?”

I responded, “Woodlice? The ones that roll up into a ball when you touch them? Little kids love to play with them. I think they just eat decaying material, sort of like nature’s little garbagemen. I did read something special about them, but I can’t remember what it was.”

Thus began my quest for information on woodlice or roly-polies or about 250 other names, including pillbug, doodlebug, and armadillo bug, depending on region, state, country, or species. The fact is that woodlice are neither lice nor bugs, nor are they armadillos, although some species can roll up into a tight ball when disturbed, very much like an armadillo. The family name, Armadillidium, means “little armadillo.” Armadillidium vulgare is a commonly found species.

Woodlice are crustaceans, terrestrial isopods that have their very own suborder, Oniscidea, of about 5000 species worldwide. Another 4500 species of aquatic isopods live in the ocean, and about 500 species in fresh water. Woodlice probably appeared during the Carboniferous period several hundred million years ago.

All isopod species have a rigid exoskeleton composed of armor-like plates and seven pairs of jointed legs on the thorax. Five pairs of branching limbs located on the abdomen aid in respiration. Gills, which are covered in a thin layer of water, are located on these abdominal appendages. The gills must remain moist, or the woodlouse will dehydrate and suffocate.

Female woodlice produce two to three broods of 100 to 200 young each per year. The eggs are carried in the female’s brood pouch, or marsupium, and the newly hatched young may remain in the pouch for one to two weeks after hatching. They will undergo their first molt in one to two days after leaving the pouch and continue to molt every one to two weeks for about 18 weeks until they reach adult size. When they molt, woodlice will lose the rear half of the exoskeleton first, then the front half will drop off. In this way, woodlice can maintain mobility as a protective mechanism during the molting process.

Woodlice are nocturnal and require an environment of high daytime humidity in neutral to alkaline soil that is rich in organic material, which is why we frequently find them under rocks and decaying logs and in compost. They don’t tolerate a highly acidic environment. Their neighbors include earthworms, millipedes, and sowbugs. Sowbugs are similar in appearance, but have two antennae and cannot roll themselves into a ball.

Woodlice often are considered pests, especially if they are found in the house, but they are harmless to humans and pets. It is unlikely that woodlice will survive in the dry environment of a house; they will quickly dehydrate and die.

They can be helpers in the garden. They eat various garden insects, including stinkbugs. They sometimes eat each other. In turn, they are prey for spiders, birds, centipedes, lizards, and toads.

As I digested the mounds of information on woodlice, I suddenly remembered one finding about them that is special. Foraging by woodlice increase soil pH, eliminates carbon from decaying leaves, and increases nitrogen (N), phosphorous (P), and potassium (K) in the soil. This is good news, because there are hundreds of millions of woodlice working every night under our bricks, flowerpots, and paving stones. Woodlice are considered primary decomposers and play a significant role in the development of healthy soil.

An even more interesting fact is that woodlice, as they forage, have been found to remove heavy metals, particularly copper, lead, and cadmium from soils and sequester them in their bodies. Whether this innate ability will prove to be valuable to science remains to be seen, but several authors indicated woodlice might serve as potential biomarkers to identify contaminated soil.

Find more information in University of Kentucky Extension publication “Sowbugs and Pillbugs (aka Rollie-Pollies).”