

# NATURE DETECTIVES

Summer 2016



## Roly-poly Roundup

Wild critters tend to run, hop, slither or fly away before you can observe them up-close or for very long. Most are difficult or impossible for a kid to catch. Many could be dangerous if you do get near them.



Happily, **roly-polies** are not dangerous. They don't bite, sting, poke or pinch, and instead of running away, they form an easy-to-pick-up, hard ball when you touch them. Roly-polies live interesting lives in yards and gardens near you. Gather up some raisin-size roly-polies and see what you can detect about them.

Hold one gently, and it might unroll and begin to walk on your hand. Study its legs and the overlapping plates on its back. The plates make up the roly-poly exoskeleton. The plates on their back are hardest and act like armor to protect their softer belly and legs from enemies.

## A Roly-poly Is a Pill Bug – Not a Sow Bug

Pull Out and Save

Another common name for roly-poly is **pill bug** because the rolled-up critter looks a bit like a pill. When you search for pill bugs, you might find crawlers that look very similar. If they run rather than roll up, they are sow bugs. Sow bugs are closely related to pill bugs, but they cannot roll up. Sow bugs have a flatter body than pill bugs, and they have two tiny appendages that stick out behind like short tails.

## Pill Bugs and Sow Bugs Are Both Crustaceans

Have you eaten any **crustaceans**? Shrimp, lobsters and crabs are all crustaceans. Most crustaceans live in the ocean or very near it. Pill bugs and sow bugs live totally on land.

Compare a roly-poly (pill bug) with a picture of a lobster or a crayfish. (Northern crayfish are freshwater crustaceans living in our area.)

Do you see any similarities?

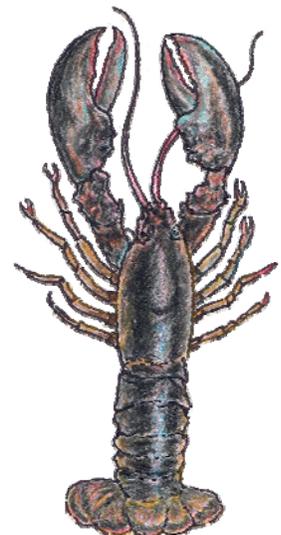
What differences do you see?



sow bug



pill bug



lobster



## Upside-down Roly-poly

Gently flip a captured roly-poly on its back. The underside is paler in color than the dark gray top. Notice its fourteen legs are alike. The belly and legs are protected when the pill bug rolls up. (Did you remember insects have six legs and spiders have eight?)

Opposite the head, look for two small white areas under the pill bug. These are gills. Oxygen is transferred from the air into the pill bug's blood through its gills. Gills need to be kept moist. If they dry out, the roly-poly suffocates.

Drying out is an occupational hazard for crustaceans that don't live in water.

## Mini-me Babies

Pouches aren't just for mammals such as kangaroos. A pill bug female lays her eggs into a pouch on her underbelly. The pouch is between the first five pairs of her legs, and it can hold hundreds of eggs. The eggs develop in the pouch for two to three months. After the eggs hatch, the roly-poly babies stay in the pouch for three or four days before they crawl out. They look like tiny, colorless copies of their mom, and they stay near her for about a year until they grow into adults.

## Molting to Grow

Baby pill bugs hatch with six pairs of legs, but after their first molt, they have a complete set of seven pairs. Their exoskeleton does not grow and as they get bigger, it gets tight so they have to molt. They molt half their exoskeleton at a time. First the back half comes off then days later, off comes the front half.

If you find a pill bug that looks brownish in front or back, it is halfway molted. The newly uncovered outer layer hardens into the new exoskeleton. The babies molt five times as they become adults, and adults molt a few more times during their life. A single molt can take a month to complete.

It is a tough environment for babies once they wriggle out of the moist pouch. Most will suffocate because they can't keep their gills damp. Others will die from disease or predators, but those that survive will live a year and a half on average. The longest survivors live four or five years.

## Pill Bugs **Conglobate**; Can You?

This weird word is pronounced "con-glow-bate" and rhymes with "roller skate." It means rolling up into a ball shape.



Try it for yourself. See if you can curl up like a pill bug with your legs, arms, and head all tucked out of sight.

Maybe it will be helpful the next time your brother or sister or a friend tries to jump on top of you, but you might wish you had roly-poly armor too!

## For These Land Crustaceans, Habitat is Critical

A damp habitat is a healthy habitat for pill bugs. They drown in too much water and suffocate if they get too dry. Their bodies cannot regulate temperature so they freeze if their surroundings are too cold, and they die if temperatures are too hot. The best place to find the happy medium is under rocks, logs, bricks, boards, rotting leaves and dirt—especially near human habitation. They are often hidden along foundations of buildings. They are more likely to emerge from hiding at night when the air is cool and humid, or during cloudy days after a rain.



If habitat conditions become drier, rolling up may help their gills stay moist. Roly-polies tend to huddle together to preserve moisture when they get warmer or drier. Maybe they also huddle just because they like to be in a group.

Smell is the key to how pill bugs group together. Roly-polies give off their own scent that other pill bugs can sense and follow. Smell is also important for finding food. Tiny hairs on two pairs of antennae and around their mouth are sensitive to touch and smell. Their two eyes are less useful and probably see little more than light and dark.

## Pill Bug Dinner Menu

Pill bugs perform an essential task in nature by eating. Their tiny mouthparts can only munch soft rotting leaves and other dead plant bits. Think what the world would be like with mounds of rotting plants building up everywhere.

Organisms smaller than roly-polies decompose the pill bug poop into food that plants need for new growth. Without decomposers like pill bugs, plants wouldn't have food and ultimately neither would we.

## Pill Bug Defenses

To avoid being on the dinner menu of predators, a pill bug's body matches the color of its surroundings. If a roly-poly is found – despite its camouflage color – by an animal such as a preying mantis, rolling up is a good defense.

The plates extending around the pill-shaped body shield the roly-poly from the bite of many enemies.



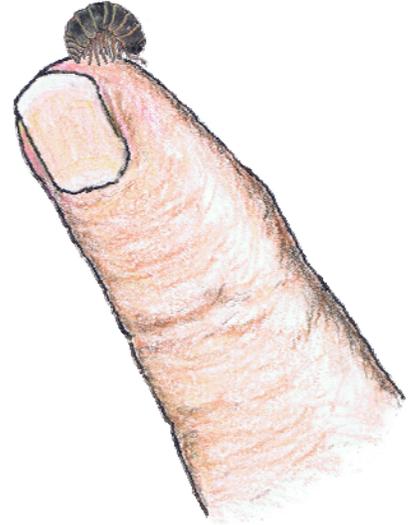
Pill bugs must stay hidden to avoid larger predators such as birds that can swallow them whole.



## Get Up Close and Personal with a Pill Bug

Look under rocks and logs, or damp leaves and dirt close to where you live to find some roly-polies.

Pick one up very carefully so you don't hurt it. Don't forget, it will not hurt you. Set it on the sidewalk in a shady spot and see what happens. Remember pill bugs need moisture so a sunny, dry spot is not a good place for a pill bug to be.



See if you can answer these questions:

Does it roll up? If it does, wait and see how long it takes for it to unroll and try to get away.

Watch the pill bug walk. Can you count its legs? How many of the legs face forward and how many face backward?

Count the overlapping plates on its back. There should be seven—not counting the head and tail area.



### Reminder:

Return the pill bug to the place where you found it, and wash your hands to keep from spreading any germs you might have picked up.

## Studying Pill Bugs

It's never a good idea to keep wild critters out of their natural habitat for too long. But if you want to study pill bug behavior, you can catch a few and put them inside a glass or plastic container (make sure air can get in). Include moist dirt and some decaying leaves or sticks. Put in a piece of apple or potato.

Keep the container out of the sun and in a cool spot. Sprinkle in a little water to keep it moist, but make sure it's not too wet.

When you are finished studying the roly-polies, put them back outside exactly where you found them.

