

A Churn of Earthworms

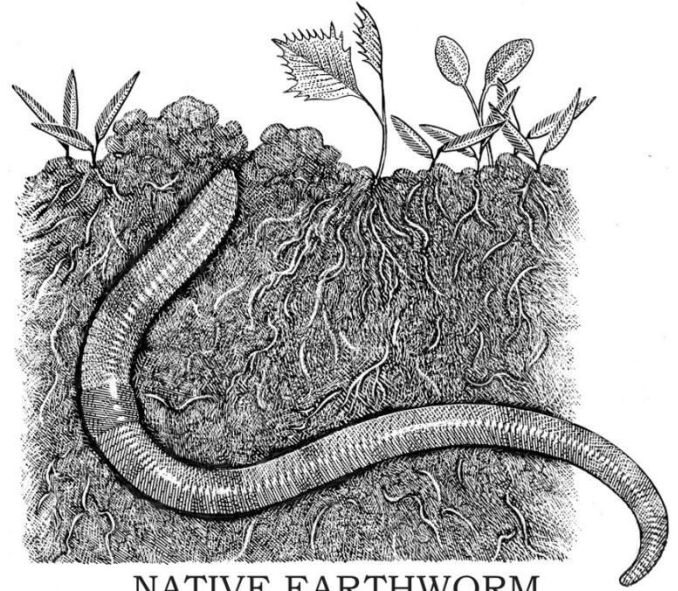
By Eric Dinerstein

Colorful names of animal aggregations abound: a crash of rhinos, a murder of crows, a murmuration of starlings. I have yet to find one that applies to the humble earthworm. When you brush away the leaf litter and dig into the forest soil, what do you call the wriggling masses of earthworms interrupted in the middle of performing nature's chores? So I offer the following: a churn of earthworms. For where we have a wealth of earthworms in our forests, we have a secret ingredient to saving life on Earth.

An early sign of spring is the activity of earthworms, pushing through the earth and pulling down decaying plant matter with them. This rather pedestrian description of the daily lives of earthworms masks their superpower characteristics: those upstairs/downstairs earthworm movements have many beneficial attributes. The most obvious, as any serious gardener will tell you, is the aeration and softening of the soil. These interactions, between worms and soil, benefit plants by improving water flow through the soil and allowing tiny chutes and tunnels for gas exchange that improve root condition and growth. But the biggest benefit is one that scientists are only now discovering: that native earthworms punch above their weight when it comes to sequestering carbon in the soils. It is theorized that where leaf litter builds up under the forest canopy, if there are fewer earthworms in the soil layer, decomposition is slower than where earthworms are plentiful. Instead of pulling down the layer of decaying leaf material, the litter in these areas where few native earthworms release gases back into the atmosphere, thus having minimal effect on improving carbon balance and stabilizing the climate.

Most birdwatchers see worms as food for robins, woodpeckers, bluebirds, catbirds, orioles, wrens, and nuthatches, to name a few. It seems that robins, barn swallows, and mourning doves—some of our favorite backyard birds—may eat half their weight each day in earthworms. Why such a passion for the mucous-covered crawlers? Earthworms are rich in protein and other nutrients and have a high moisture content, which is important for birds during periods of water scarcity. But one of the most important reasons birds often feast on them is simply that worms are usually plentiful and easy to find. The old cliché, the early bird gets the worm, may not jibe with what we know about bird foraging behavior.

The aquatic species, from birds, to toads, snakes, salamanders, and especially fish, also love the diet of worms. The attractiveness of worms to fish brings back memories of childhood, baiting the hook with a nightcrawler. But here is where the ecological unraveling starts. The worms typically used for attracting fish, sold as nightcrawlers, are non-native, from Asia, likely arriving in ornamental potted plants. Called jumping worms, the first invaders to reach our area were discovered in Baltimore in 1939. Since then, several species of



NATIVE EARTHWORM

the non-native worms collectively known as jumping worms (genus *Amythas*) have outcompeted our native red and common earthworms (genus *Lumbricus*). This usurpation is quite serious because jumping worms are actually harmful to forest health. They grow rapidly and become very large, up to six inches in length. But unlike our natives, they are surface feeders, so they damage the soil instead of aerating it. Birds do eat jumping and non-jumping worms, but not enough of the former to keep them from spreading.

How do you tell natives from the non-native jumpers? When you expose the surface layer of soil in your garden or in the forest, if the worms you uncover start to flop violently, these are likely jumping worms. The flip-flopping is a behavior that likely evolved to escape predators. There are other distinguishing characteristics, too, that indicate you have jumping worms: they sport a pale egg case (the clitellum) compared to their dark body, whereas the natives have darker egg cases.

Now for the native earthworm's second superpower: all species of earthworms are hermaphrodites, so they don't need another worm to make more worms. If a mate is available, they will have worm sex, but that is optional rather than mandatory for procreation.

Our native earthworms survive the winter by digging deep in the soil. Jumping worms usually don't stick around for the winter as adults but leave massive egg cases. That feature also contributes to their spread. So as fishing season approaches, if you like to use worms for bait and you buy them from a store, you can thread non-native earthworms on your hook, but don't release unused worms into the environment when your fishing excursion is over. In the northern forests of the U.S., non-native earthworms have already done major damage to the hardwood forests, where they have replaced native worms. Safely get rid of them and leave our lovely wild nature for the Lumbricids. 