

Invasive Asian Jumping Earthworms

Nearly all earthworms in the Northeast today are non-native, and European and Asian invasives are altering the soil structure and chemistry of our forests. Asian jumping worms are a relatively new invasive species, but they are rapidly spreading across the United States. They can be found in the Southeast, along the Eastern Seaboard, and in the mid-Atlantic, Midwest, and some Northwestern states. The first records of Asian jumping earthworms date back to the late 19th century; unfortunately, relatively little is known about them compared to European earthworms. European night-crawlers are now being displaced by the destructive Asian jumping worms. There are actually at least three species: *Amyntas agrestis*, *Amyntas tokioensis*, and *Metophire hilgendorfi* that

co-occur.

Asian jumping worms devour organic matter more rapidly than their European counterparts, stripping the forest of the layer critical for seedlings and wildflowers. Jumping worms grow twice as fast, reproduce more quickly, and can infest soils at high densities. In areas of heavy infestation, native plants, soil invertebrates, salamanders, birds, and other animals may decline. These invasive worms can severely damage the roots of plants in nurseries, gardens, forests, and turf. They, along with other invasive worms, can also help spread invasive plant species by disturbing the soil.

Asian jumping worms are an annual species; the adults die after the first freeze. But the cocoons, which are about the size of a mustard seed, will sur-

vive the winter and hatch when temperatures reach 50°F for a consistent period. One worm can produce many cocoons without mating. Because they are more aggressive and their populations can grow faster than the common European species, they may out-compete existing worm populations. Cocoons are very small and dirt-colored, so they are nearly impossible to spot with your own eyes. Cocoons can be spread easily in potted plants, on landscaping equipment, mulch, tire treads, and even hiking boots.

As a first warning sign for presence of jumping worms, look for diminished duff and understory plant cover.

One telltale sign of an infestation is a very uniform, granular soil created from worm castings. The texture of this soil is often compared to coffee grounds.

When you scratch the top layer of soil you will see the worms thrashing about with an erratic, snakelike movement. These worms, which can reach 6 inches in length, are much more active than European nightcrawlers. The Asian jumping worm can be found on the soil surface and in the leaf litter, making them easy to find. They can live anywhere from urban parks and suburban backyards to rural forests. You are also very likely to find them in compost piles and along roads.

The Asian jumping worm has a prominent band around the body of the worm, called the clitellum, where cocoons are produced. The band completely encircles the body, is milky white to light gray, and is flush with the body; the body looks metallic. On European nightcrawlers, the clitellum is raised or saddle-shaped

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and reddish-brown in color and does not wrap entirely around the body.

How do you stop the spread? There are currently no viable jumping earthworm control methods, although research is continuing, and we can prevent their spread:

- Do not buy or use jumping worms for bait, vermicomposting, or gardening. Also eliminate fishing bait refuse.

- When purchasing bulk mulch or compost, use a reputable producer that has heat-treated the material to a temperature of 130°F for at least three days to destroy the cocoons or purchase bagged mulch.

- Check properties for jumping earthworms using a mustard pour (it won't harm plants!). Mix a gallon of water with 1/3 cup of ground yellow mustard

seed and pour slowly into the soil. This will drive any worms to the surface where you can easily remove them.

- Cocoons are sensitive to heat and can be destroyed with clear plastic solarization; in late spring or summer, cover moistened soil with a sheet of transparent polyethylene for two/three weeks or until the soil temperature exceeds 104°F for at least three days.

- Be careful when sharing and moving plants; always check for worms and know where your plantings come from; buy bare root stock when possible.

- If you have a small population of jumping worms, handpick and destroy them by bagging them and throwing them in the trash, or place them in a bag and leave out in the sun for at least 10 minutes; then throw the bag away.

- Research is currently being conducted on invasive worms at the University of Wisconsin and several practices do show some promise of control. Abrasive materials such as biochar (ground up charcoal) and diatomaceous earth (fossilized diatoms) may show some promise in killing adult jumping worms. Incorporate one of these products into the infested soil to a depth where the worms are located; worms that come in contact with the materials will be adversely affected.

Here in New Hampshire, if you have jumping worms, report it (nhbugs.org/reporting-form) and avoid moving plants or soil from your yard.

Resources:

“Invasive Species: Jumping Worms”; ccecolumbiagreene.org
“Look Out for Jumping Earth-

worms!”; Penn State Extension; extension.psu.edu/look-out-for-jumping-earthworms

Invasive Worms,” The Entomology Research Laboratory at the University of Vermont, uvm.edu/-entlab/Forest_IPM/Worms/InvasiveWorms

“Jumping Worms Field Guide, Wisconsin Department of Natural Resources, dnr.wisconsin.gov/topic/invasives/fact/jumping_Worm

UNH Cooperative Extension’s “Invasive in the Spotlight: Jumping Worms,” extension.unh.edu/blog/s018/03/invasive-sportlight-jumping-worms.

—story adapted from an article by Sandy Vanno on the Cornell Cooperative Extension, Warren County, NY, website, www.warren.cce.cornell.edu/gardening-landscape/warren-county-master-gardener-articles

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