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THE PURDUE LANDSCAPE REPORT

In This Issue

Avoiding Jumping Worm When Landscaping and Gardening

(Elizabeth Barnes, barne175@purdue.edu)

Now that garden planting season is in full swing, make sure to take precautions against bringing in jumping worm with your plants. This invasive insect is spreading around the Midwest and can seriously reduce soil quality. There is currently no proven way to control jumping worms in soil once they've established, so prevention is key.

Jumping Worm Damage

Jumping worm (a.k.a. snake worms, crazy worms, *Amynthas spp.*) is an invasive species that dramatically alters the ecosystems where they are introduced. Unlike the earthworms we are familiar with which live deeper in the soil, jumping worms feed primarily on the topsoil. They rapidly consume nearly all of the organic matter in the topsoil. Plants have a hard time growing and establishing a sturdy root system in this soil. Additionally, jumping worms generally leave castings on the top layer of the soil which makes them more likely to get washed away in the rain. This further decreases the soil quality by removing even more organic matter. Researchers are studying management options, but there is **currently no evidence-based way to control or eradicate jumping worm.**

Identification

Depending on the temperature, jumping worms begin hatching in late spring. They are initially small but can grow to 8 inches by the end of the summer. There are several visual traits you can use to tell the difference between jumping worm and common earth worms (image 1), but the easiest way to identify them is by their behavior. Jumping worms wiggle more than other worms and have been described as jumping, thrashing, and moving like a snake. You can also identify jumping worm based on changes in soil quality. Soil invaded by jumping worm has a grainy, "coffee ground" texture and little or no organic material in it (image 2).

Jumping worm (*Amynthas agrestis*)
- Thrashing, twitching, snake-like movement
- Shiny, slightly iridescent, and grey-brown
- Mostly dry
- Milky-white ring (clitellum)

Photo credit: Purdue Plant and Pest Diagnostic Laboratory

Common earthworm (*Lumbricus terrestris*)
- Wiggles gently
- Dull red-brown
- Wet or slimy
- Reddish ring (clitellum)

Photo credit: Joseph Berger, Bugwood.org

If you're concerned there might be jumping worm in an area where you live or work, you can submit a sample to the Purdue Plant and Pest Diagnostic Lab.

Sign of jumping worms: "Coffee ground" soil
- Little loose organic matter
- Grainy
- Few or no large clumps of organic matter (e.g. leaf pieces)
- Small slightly compact pieces (worm castings)

Photo credit: Purdue Plant and Pest Diagnostic Laboratory

Uninvaded soil
- Loose organic matter
- Higher ratio of organic matter to "sand"
- Some large clumps of organic matter
- No or few small compact pieces

Photo credit: Maria Barnes

Prevention

Jumping worm can spread through soil, compost, and other similar organic material. You can reduce the risk of spreading it between job sites or to your home by:

- Cleaning equipment and tires between locations. Pay particular attention to large clumps of dirt that might be caught in tire treads.
- Clean dirt off your boots between locations. Jumping worm and other invasive species only need a little soil to move from one place to another.
- Whenever possible, remove soil from new potted plants intended for outdoor planting. You can do this by removing the soil from the plants and throwing it in the trash then either planting it directly into the ground or repotting it with sterile or local soil. If you use local soil, make sure it's from the place you intend to put the new plants. Jumping worm populations can be patchy so soil from one place

may be clean while soil from a few blocks away may be infested.
- Avoid walking through or using equipment in areas with jumping worm. If you have to enter these areas, thoroughly clean any soil off yourself and your tools before leaving.

Other prevention measures

- Seal unused fishing bait and dispose of it in the trash.
- Check fishing bait before you buy it when possible. If the worms thrash strongly, don't buy them. They could be jumping worm.
- Check any worms bought for composting before putting them in your compost pile. If you suspect they might be jumping worm, don't risk it. Dispose of them by putting them in a tightly sealed container and throwing them in the trash.

Distribution

Unfortunately, we don't have a clear picture of where jumping worms are located yet but with your help we can track their spread. If you've seen a jumping worm or any other invasive species, report it! Take a picture and report it through:

- The GLEDN Phone App
- EDDMapS
- 1-866 NO EXOTIC (1-866-663-9684)
- depp@dnr.IN.gov

Resources

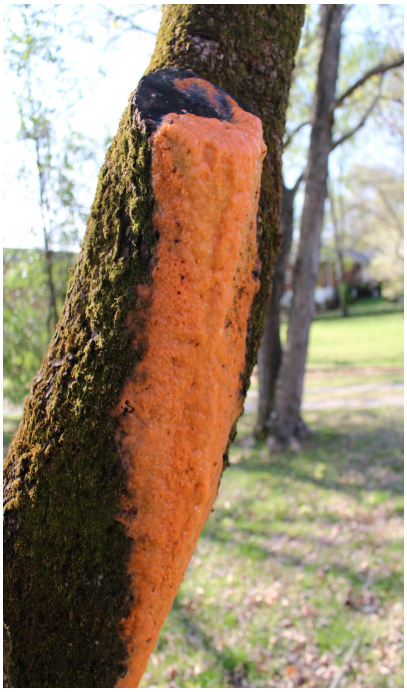
Jumping worms: General Information

Jumping Worms: What Anglers Should Know

Meet the Jumping Worm

Coping with Jumping Worms

Cover image by Ivan Radic, flickr.



Orange goo on cut dogwood branch (photo by Alan Windham)

Orange goo on a tree felled by a bever (photo source unknown)

Orange Goo – Dramatic but Harmless.

(Tom Creswell, creswell@purdue.edu)

If you have ever seen gooey neon orange branches on trees and shrubs you may have been observing a phenomenon commonly known by the very scientific name of 'orange goo'. Appearing in cool, wet weather during spring sap flow, the goo is caused by fungi, bacteria and yeast colonizing tree sap, especially where an injury causes excessive sap flow.

Orange goo (or slime if you prefer) has been reported on a wide range of trees and shrubs from across the US and Europe. Those who have studied the phenomenon have generally reported the main cause of the orange color is a yeast in the genus *Cryptococcus*, which accumulates carotene, the same pigment found in carrots (1). Others have reported a number of different *Cryptococcus* spp. in spring sap-flows as well as several Fusarium species (2) and *Fusicolla merismoides* (3). The composition of the fungi and yeasts present may differ from location to location and may change over time as temperatures increase.

Orange goo on elm (photo source unknown)

Close view of orange goo on tree trunk (photo source unknown)

Regardless of the cause, this colorful display causes no harm to the tree and usually dries up in warmer dry weather. Spring sap flows produce copious sap, in contrast to the more familiar slime flux in trees, which is the result of a slower, chronic production of exudates and may continue throughout the growing season. These chronic sap flows associated with slime flux in trees are colonized by a different set of microorganisms, and rarely have the same brilliant colors.

- https://blog.mycology.cornell.edu/2010/04/30/tree-slime-stump-flux-and-microbial-consortia/
- https://www.sciencedirect.com/science/article/pii/S0269915X06001029
- https://hgic.clemson.edu/fusicolla-orange-slime-on-trees/

Update: Spotted lanternfly has hatched

(Elizabeth Barnes, barne175@purdue.edu)

Spotted lanternfly has now hatched in Indiana. As of the writing of this article, it has only been found in the southeastern corner of the state but there may be other populations we are not aware of (for full distribution in the United States see this map). Be on the lookout for small (~1/4th inch long) black insects with white spots (image 1). First instar nymphs tend to prefer to feed on the new growth of plants and may be found in large groups (image 2). In the spring, they are often found on grape, roses, tree of heaven, black walnut, butternut, and perennials but are capable of feeding on over 70 species of plants. Spotted lanternfly can kill grape vines and early research suggests they may make other plants more susceptible to stresses like disease and drought. If you think you've found a spotted lanternfly, take a picture and report it right away so that we can work to slow its spread (EDDMapS Website, Email: DEPP@dnr.in.gov, or 1-866 NO EXOTIC (1-866-663-9684)).

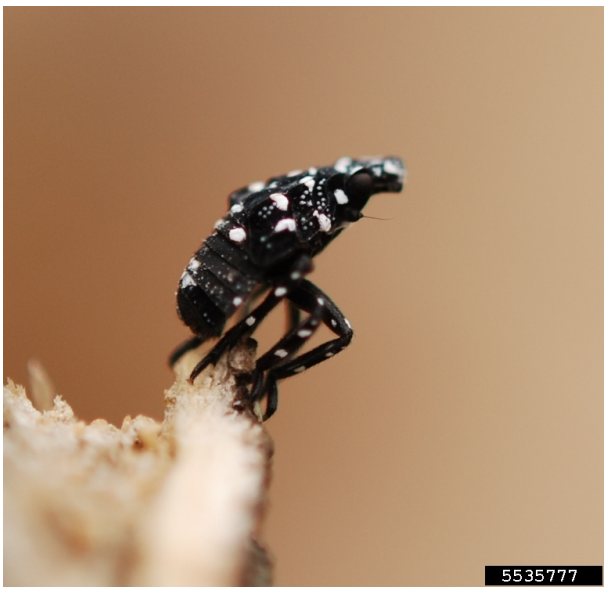


Image 1. This photo shows a closeup of a first instar spotted lanternfly. Note how the insect holds itself at an angle away from the plant when at rest. Photo by Lawrence Barringer, Pennsylvania Department of Agriculture.

Image 2. This photo shows a cluster of first instar spotted lanternflies. Nymphs often feed in groups on the new growth of plants. Photo by Richard Gardner.

Spotted Lanternfly ID and Look-a-Likes

First through third instar spotted lanternfly nymphs have rounded bodies with long noses. Unlike adults, fourth instar spotted lanternfly are a nondescript black with white spots. They are commonly confused with ticks. However, where ticks hold their bodies tight to a surface, spotted lanternfly hold themselves up at an angle. Additionally, spotted lanternfly usually hop away when disturbed whereas ticks will crawl away.

A Note About Ticks

Tick season is ramping up and it's important to know what to do if you find one. A wide range of ticks are common in Indiana including species that are known to transmit diseases like Lyme disease and Rocky Mountain Spotted Fever. Additionally, we are keeping an eye out for two new invasive ticks this year (Gulf coast tick and Asian long-horned tick). Please report them if you find any. If you spend time in tick habitat, using EPA approved repellants and performing a tick check when you get home can help protect you against ticks. The CDC suggests that you seek medical attention if you have been in tick habitat, recovered an attached tick, and develop symptoms of tick-borne diseases known to circulate in Indiana tick populations. To learn more about ticks including how to submit tick samples, check out tick INsiders.

Cover photo by Stan Lupo, flickr. Thank you to Dr. Cate Hill for answering questions about the tick information.

Spotlight on Weeds: Pineapple weed

(Aaron Patton), (Leslie Beck) & *(Kyle Daniel, daniel38@purdue.edu)*

Biology: Pineapple weed (*Matricaria matricariodies)*, behaves as either a summer or winter annual and it is commonly found throughout the United States. It is a weed of both high- and low-maintenance turfgrass lawns, landscapes, and nursery crops. Its ability to tolerate low mowing heights and highly compacted soils allow pineapple weed to compete with in weak turf and landscapes.

Identification: Pineapple weed can behave as either a summer or winter annual broadleaf in both high- or low-maintenance turf, landscapes, and nurseries throughout the Midwestern United States. It has a very low-growing, bushy, and branching growth habit and it reproduces by seed, which have the ability to emerge year-round if environmental conditions are favorable. Typically, the seedlings germinate in late summer to early fall and again from early spring to early summer. Young plants form a small, but dense rosette of fragrant, hairless, shiny bright green leaves that are also thick and succulent. Rosettes form from a very shallow taproot with a secondary fibrous root system. As the plant matures, the smooth, hairless stems continue to elongate in either an erect or a low-branching/spreading growth habit. The leaves are also hairless, fleshy and are pinnately divided with deep, finger-like lobes and short linear segments. All pineapple weed foliage (stems and leaves) have a very sweet odor similar to that of pineapple when damaged or crushed; thus, giving the plant its common name. From May through September, the plant produces flowers that are yellow, egg-shaped, and are composed of densely-packed, tiny, yellowish-green flowers. Flowers also emit a very sweet, pineapple like odor when crushed. Pineapple foliage can sometimes be confused with that of wild chamomile; however, the foliage of plants in the chamomile family can range from highly bitter to absent, not sweet and pineapple-like.

Figure 1. Pineapple weed has a sweet smell when crushed.

Figure 2. Pineapple weed flower and leaves.

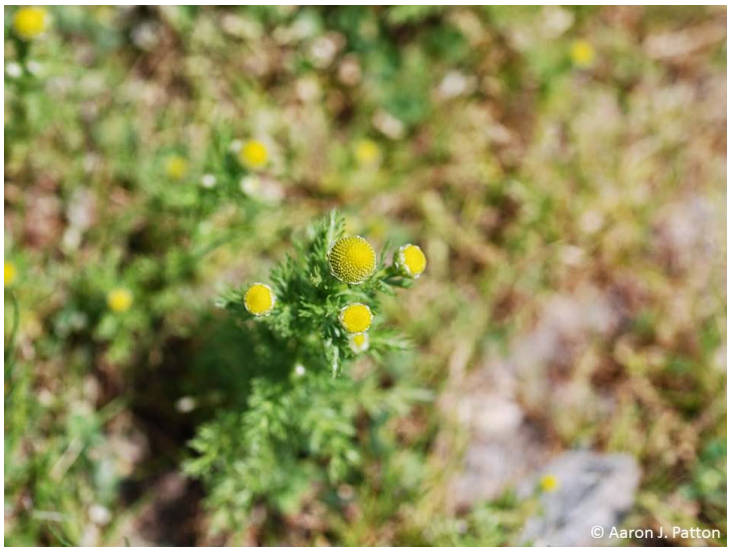


Figure 3. Pineapple weed is typically low growing/prostrate.

Figure 4. Pineapple weed growing in turf.

Cultural control: None known specifically for pineapple weed. Though it tolerates low mowing heights and compacted soils, a combination of frequent mowing, adequate fertilization, and irrigation to keep turf dense will help the desired turf compete and gradually eradicate pineapple weed. Reducing traffic will also help increase turf density and reduce pineapple weed invasion.

Due to this weed germinating from seed, mulching can help in reducing populations in the landscape. Additionally, hand pulling small populations may help to physically remove pineapple weed due to its shallow tap root.

Biological control: None known specifically for pineapple weed.

Chemical control: Since it reproduces from seed, it is possible to manage pineapple weed through the use of preemergence herbicides. However, control with preemergence herbicides may be difficult since the seeds have the ability to germinate year-round under favorable environmental conditions. In turf, postemergence applications of two- or three-way mixtures of 2,4-D, dicamba, MCPP, or MCPA will likely provide adequate control in established turf. Though dicamba does the majority of the work in controlling pineapple weed, the addition of MCPP often helps to increase the effectiveness of the overall application. In the landscape, glyphosate can effectively control as a postemergence herbicide.

For information on turf, check out the Purdue Turf Tips at https://turf.purdue.edu/turf-tips/.