

Commercial Horticulture

September 17, 2021

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IPMnet
Integrated Pest
Management for
Commercial Horticulture
extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems (**include location and insect stage**) found in the landscape or nursery to sgill@umd.edu

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Orb-weaver Spiders in Landscapes and Nurseries

By: Stanton Gill

It is mid September, and spiders are active everywhere in nurseries and landscapes doing what they do best – killing the plethora of bugs that are active. Orb-weaving spiders are the builders of flat webs with sticky spiral capture silk formed into intricate structures on plants and other structures. The building of a web is an amazing engineering feat, that rivals many of the structures humans have built.

The industrious orb-weaver spider, mainly females, floats a line on the wind to another surface. The spider secures the line and then drops another line from the center, making a "Y". The rest of the scaffolding follows with many radii of non-sticky silk being constructed before a final spiral of sticky capture silk.

Here is the problem. Landscapers have customers walking through areas in the morning who are reporting that they are running into spider webs. We have several landscape managers sending in emails asking what their customers can do to get rid of these pesky spiders and their webbing.



UMD-IPMnet
Orb-weaver spider with prey

The answer is – leave them alone. The spiders are a huge benefit in the landscape at this time of year taking out many plant-damaging pests.

These industrious spiders, at least for many of the species, work close to sundown in building a new web to capture insects in the evening and early morning hours. Most of these spiders are active in evenings and after dark, often hiding during the middle of the day.

It is interesting that most insects have two tarsal claws. Scale insects have one tarsal claw. These orb-weaver spiders have three tarsal claws. The third claw is used to walk on the non-sticky part of the web. Characteristically, the prey that blunders into the sticky lines is stunned by a quick bite, and then wrapped in silk. The orb-spinning spider's success in capturing insects depends on the web not being visible to the prey, with the stickiness of the web increasing the visibility and so decreasing the chances of capturing prey. This leads to a trade-off between the visibility of the web and the web's prey retention ability.

Spotted Lanternfly

By: Stanton Gill

We received a report from one of the University of MD Extension offices on the Eastern Shore. They had a grower who purchased mums and perennials from a PA nursery that had spotted lanternflies on the shipment of plants. Fortunately, the MD plant dealer noticed them and called in for advice.

Landscapers and garden centers that purchase plants from quarantine areas in PA need to be very vigilant and inspect plant material before bringing shipments into Maryland to try to slow the spread of this pest. Kenton Sumpter, MDA, is writing an article on this issue for next Friday's IPM Alert.



A spider wrapping up a lanternfly adult
Photo: Steve Roberts of the Randolph, NJ Branch of Savatree

Puss Moth Caterpillars

Rachel Rhodes, UME, forwarded a photo of a puss moth caterpillar and reported that they are active on the Eastern Shore. These caterpillars have hairs that can cause a painful stinging sensation if you come into contact with them.



Avoid the stinging hairs of puss moth caterpillars
Photo: Mike Smithmyer

Fall Armyworms

By: Stanton Gill

Adam Colgan, On The Green, Inc., found fall armyworm adults and early instar caterpillars (green with a dark head) in turf areas in Severna Park. It looks like we have another generation of this pest insect. Good control options are Spinosad, Acelepryn, and Mainspring.



Look for early instar fall armyworm caterpillars in turf

Photo: Adam Colgan, On The Green, Inc.

Cut Flower Seminar and MNLGA Field Day

By: Stanton Gill

We had 80 people registered for the commercial cut flower grower's seminar and field day on September 14th. Interest in commercial cut flower production is booming, and we had several new entrants into this agricultural enterprise. An interesting side effect of the Covid-19 pandemic is that many people delayed their marriages until the spring, summer, and fall of 2021. Demand for cut flowers for these weddings has grown tremendously. Some people are celebrating their nuptials with what is being called "shadow weddings". This is where they married in a small ceremony in 2020 during the height of the Covid-19 shutdown, and now they are celebrating their vows again with more friends and lots of flowers.

At the MNLGA Nursery Field Day, one of the speakers talked about international shipping. He said that the back-up of ships in the harbors greatly impeded the shipment of flowers coming from central and south America. These delays combined with the heavy demand for flowers for weddings was contributing to the robust market for local flowers in 2021.

One of the equipment people at the meeting mentioned that shipping had skyrocketed. What cost him \$3000 to bring in a shipping crate in 2019, now cost \$8,000 for this same size load in 2021.

Invasive Species Publication Available

The 6th edition of **Plant Invaders of Mid-Atlantic Natural Areas** will be printed soon. **To place a bulk order for one or more boxes (50 books per box), go to <https://docs.google.com/forms/d/e/1FAIpQLScLMxIeiafe3aJd6VFxFVMYBbxXYPEOSoYTcRGL08jM07xZvw/viewform>. Note that this is for bulk orders only, not individual books. You will be able to buy single copies later on. Friday, September 24th is the deadline for ordering.**

Euonymus Scale

By: Stanton Gill

Tony Murdock, Fine Pruning, sent in a sample of euonymus scale from Walkersville. The euonymus sample had various stages, including third instar females, adult males, and first instar settled crawlers, present. Monitor infested plants closely. There may be another generation in October. Talus or Distance can be used at this time to control the settled crawlers.



Multiple stages of euonymus scale are present on this sample

Tuliptree Scale

Marie Rojas, IPM Scout, is reporting that more tuliptree scale crawlers are hatching out under dead female covers this week. When Marie popped off a cover, a predaceous caterpillar of scale, *Laetilia coccidivora*, was found. It had been feeding on the scale crawlers. Talus or Distance can be used for control of crawlers.



This caterpillar, *Laetilia coccidivora*, is a predator of scale insects

Photo: Marie Rojas, IPM Scout

Black Gum Scale

Marie Rojas, IPM Scout, found black gum scale (*Chionaspis nyssae*) on *Nyssa sylvatica* this week. Marie noted that this is the time of year that they are congregating on the undersides of the leaves.



Look for black gum scale on the undersides of leaves at this time of year

Photo: Marie Rojas, IPM Scout

Two More Scales Active in Mid-September

By: Stanton Gill

San Jose scale and white prunicola scale are two armored scales that are active in central Maryland right now. San Jose scale is usually found on plums, peaches, apples, and pears. San Jose scale feeds mainly on the woody tissue of the plant for most of the year. With the second generation back in July to mid-August, many crawlers moved onto the fruit of the plants. As the females feeds, she creates a ring spotting on the fruit surrounding her cover. At this time of year, we are receiving samples of peaches, apples, and pears with third instar females on the fruit itself. Customers are noticing the round discolored spots surrounding the female covers.

The crawlers that emerge this week and next week will move back to the woody stems and trunks of the plants. With the Covid-19 surge of fruit plantings in landscapes, we are receiving more reports of San Jose scale. The increase is coming from young plants that had low populations present when it was shipped from an infested nursery.

White prunicola scale is also in crawler stage this week and we are mainly receiving samples of this scale on cherry laurel. It is also found on cherry trees, but cherry laurel has moved into the number one spot for this scale.

Control: A 0.5 % horticultural oil combined with Distance or Talus are good materials to use for these crawlers, at this time of year. In early to mid November when foliage drops off the plants, plan on applying a 2% horticultural oil to kill overwintering females on the stems and trunk of infected tree.



San Jose scale on apple



White prunicola scale crawlers were active on September 15 in central Maryland
Photo: Marie Rojas, IPM Scout

Late Season Caterpillars

Eric Wenger, Complete Lawn Care, found late instar yellownecked caterpillars that were feeding as a cluster on a blueberry. He also found a luna moth caterpillar. Last week, Dan Fiengold, Maxalea, Inc., sent in a photo of a caterpillar that is most likely a polyphemus moth caterpillar which is another one active now.



Late instar yellownecked caterpillars feeding on blueberry
Photo: Eric Wenger, Complete Lawn Care

Beneficial of the Week

By: Paula Shrewsbury

Lots of scales... lots of parasitic wasps

In [last week's Beneficial](#), I discussed how scales, most commonly soft and armored, are key pests of ornamentals and the lady beetle predators that frequently attack scales. This week, I will focus on armored (Diaspididae) scales, and the parasitic wasps that frequently attack them. Some of our more pestiferous armored scale species include Japanese maple scale on many hosts; gloomy scale mainly on red maples; white prunicola scale on *Prunus* spp., lilac, and privet; and elongate hemlock scale on hemlock.

Fortunately, there are many species of parasitic wasps (Hymenoptera) that kill scales. Many of the wasp parasitoids that attack armored scales belong to the families Aphelinidae and Encyrtidae. For example, we (Shrewsbury lab, UMD) have surveyed the parasitoids that emerge from Japanese maple scale in MD. We collected 5 species of wasps in the family Aphelinidae and one in the family Encyrtidae.

Gloomy scale, *Melanaspis tenebricosa*, is an armored scale pest mainly of red and silver maples planted in urban landscapes. Adam Dale (UFL) and Steve Frank (NCSU) did a nice study where they determined gloomy scale populations on trees in “warmer” parts of urban areas (less overstory vegetation/more impervious surfaces) reached higher population densities than those in cooler areas. They determined the mechanism for higher densities of gloomy scale was that female reproductive output, along with female size, survival, and abundance, increased as temperature increased. Differences in natural enemies did not influence densities of gloomy scale, which has been shown in other insect systems where natural enemies are more abundant in



Gloomy scale on the branch red maple with an orange colored entomopathogenic fungus protruding from under some of the scale covers.
Photo: P.M. Shrewsbury, UMD

landscapes with greater vegetation complexity. However, even given this phenomenon there are at least five species of parasitoids, in the families Aphelinidae, Encyrtidae and Signiphoridae, that attack gloomy scale, in addition to predators such as lady beetles, lacewings, and predatory fly midges. Entomopathogenic fungi are also found attacking gloomy scale. With insects such as gloomy scale, where factors such as temperature strongly influence pest densities, natural enemies contribute to suppression, but pest management requires an IPM approach. [Just et al. \(2020\) provide a very comprehensive overview on the ecology and management of gloomy scale on landscape trees.](#) If you have problems with gloomy scale, this article is well worth the read.

Parasitoids in these families are tiny wasps that are usually no bigger than 0.5 mm in length. Adult female wasps will work their ovipositor under the cover of an armored scale to find the soft-bodied scale insect underneath into which the wasp inserts an egg. A single wasp usually lays 1 egg per scale insect, but will oviposit in numerous individual scales. The number of scales a wasp will attack varies with wasp species. The wasp egg hatches inside the scales body, and the wasp larva proceed to consume the scale, ultimately killing the scale. The wasp develops within its scale host, pupates, and emerges as an adult – then the cycle starts again. Wasps may have one or multiple generations per year, again depending on the species.

How do you know if parasitoids are attacking the scales on your trees and shrubs? It usually is NOT by seeing adult wasps – they are very, very tiny - making them difficult to see. Adults are fast moving and the immature stages often develop within its insect host making it difficult to monitor for parasitoid activity by watching for adults or larvae. You have to call on your CSI skills and look for “signs” or clues of parasitism. When some insects such as aphids or whiteflies are parasitized, there is often a change in color and/or size of the insect. Think of aphid mummies where the parasitized aphid looks “bloated” and tan or darkened in color. Unfortunately, most scales do not change in size and color. A more universal sign that scales are parasitized is a discrete circular hole in the waxy cover of the armored scale (see image), or body of the soft scale. When wasps reach the adult stage within their host’s body, they then chew their way out through the scale cover to freedom. This chewing results in a circular hole in the scale cover. So when you are monitoring your plants and find scales, be sure to look at the scale covers for circular holes which indicate parasitoids are active in your scale population providing biological control. If you see more ragged (not circular) holes in the scale, that indicates chewing predators (ex. lady beetles) have attacked the scales. If you see natural enemy activity, which we commonly find, take this into account when you are selecting which pesticides to apply for scale suppression. Select products that have less detrimental impact on natural enemies, like oils or insect growth regulators.



**A close up of an Encyrtid wasp adult (*Encarsi perniciosi*) searching for a host (a scale to lay her egg in) on a leaf infested with San Jose scale.
Photo: Inra-Hyppz, Invasive.org**



**Note the discrete circular hole in the obscure scale covers. These holes indicate parasitic wasp adults have emerged from the scale after the wasp larva consumed and killed the scale.
Photo: J. Davidson, UMD**

Weed of the Week

By: Kelly Nichols, UME-Montgomery County

Nimblewill (*Muhlenbergia schreberi*) is wiry-looking, warm-season perennial grass (Figure 1). It can grow in a variety of conditions, including sun, shade, wet, dry, low fertility, and high fertility. As a warm season grass, it will go dormant during cooler weather, leaving brown patches that stand out in the midst of our cool season grasses. The leaf blades are short and hairless (except for a few hairs near the stem). Nimblewill forms thick patches, and often has a slightly blue or grey color, which can help distinguish it from our desired turf grasses. Nimblewill has a hairy ligule (a small piece of tissue located at the base of the blade near the stem). Creeping bentgrass, which can be confused with nimblewill, has a membranous, or smooth, ligule.

Nimblewill reproduces by seeds (Figure 2) and stolons (Figure 3). The seed head will form a panicle once mature. The roots are shallow, making it easy to pull out. However, remember that any piece of stolon or root left in the ground can re-sprout, adding to the challenge of controlling it. Therefore, while tillage can bury the plants, it can also serve as a means to spread the plant. Bermudagrass is another grass that can be confused with nimblewill; however, nimblewill has a more upright growth habit. Bermudagrass also has a deeper root system, and its seed heads resemble those of crabgrass.

Ensure that proper fertility and irrigation practices are followed to help desired plants compete with the nimblewill. Mowing just prior to seed formation (typically late summer through the fall) can reduce the amount of viable seeds present for the following years. There are a few herbicide options as well. Glyphosate can be used as a spot treatment in areas thick with nimblewill. Tenacity® (active ingredient: mesotrione) and Pylex® (active ingredient: topramezone) are two additional herbicides that are labeled for



Figure 1. Nimblewill growth habit
Photo: Chris Evans, University of Illinois, Bugwood.org.



Figure 2. Nimblewill seed heads
Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org



Figure 3. Nimblewill stolons.
Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org.

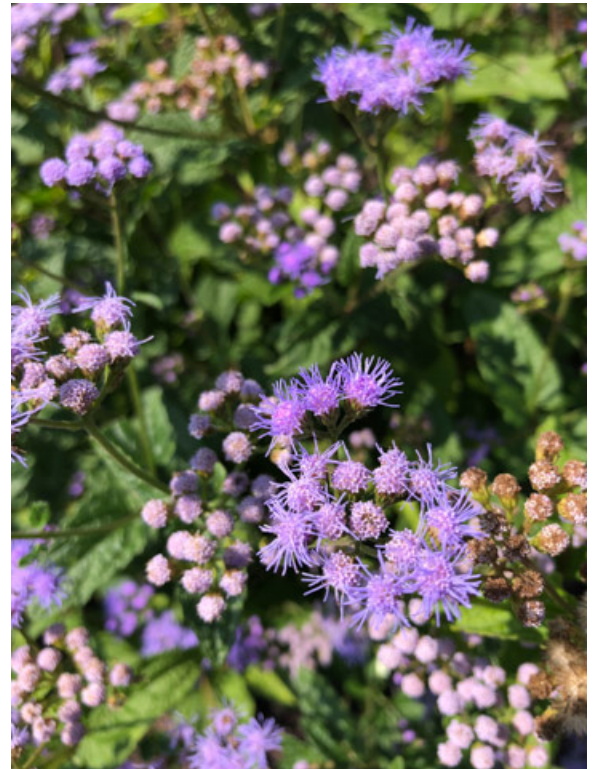
nimblewill control in turf. Mesotrione and topramezone interfere with chlorophyll production, resulting in a bleaching effect. Both herbicides allow for up to three applications, with a few weeks in between applications. A surfactant is also needed. With any control option, re-seed treated areas to avoid bare spots where weeds can just fill in again.

Axxe® herbicide contains the active ingredient ammonium nonanoate. This is on the OMRI approved list of organic pesticides; however, there are some restrictions. Preventative, mechanical, physical, or other weed management practices must also be used. When used as an herbicide, Axxe can only be used for farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops.

Plant of the Week

By: Ginny Rosenkranz

Conoclinium coelestinum or blue mistflower is a native herbaceous perennial that blooms from July to October in full sun to part shade and medium to wet soils. Although most native plants are not listed as invasive, the blue mistflower does spread aggressively by both underground rhizomes and seeds. The plants grow 1-2 feet tall and wide and bloom when many plants are finished flowering. The soft blue thin spiky tubular flowers are grouped in a dense flat cluster and look very similar to ageratum. The flowers can bloom for up to 8 weeks and are loved by many pollinators for both the nectar and pollen. The stiff purple stems of the plants are covered with soft downy hairs that hold coarsely toothed triangular leaves that attach to the stems opposite from each other. Leafminers and aphids can be found on blue mistflower as well as powdery mildew. These late blooming perennials should be planted in naturalized areas or alongside of streams or ponds where they can grow and spread without harm.



The flowers of blue mistflower bloom from July to October and attract many pollinators
Photos: Ginny Rosenkranz, UME

Pest Predictive Calendar “Predictions”

By: Nancy Harding and Paula Shrewsbury

In the Maryland area, the accumulated growing degree days (DD) this week range from about **3133 DD** (Martinsburg WV) to **4000 DD** (Reagan National Airport). The [Pest Predictive Calendar](#) tells us when susceptible stages of pest insects are active based on their DD. Therefore, this week you should be monitoring for the following pests. The estimated start degree days of the targeted life stage are in parentheses.

- **White prunicola scale – egg hatch / crawlers (3rd gen) (3270 DD)**
- **Banded ash clearwing borer – adult emergence (3357 DD)**
- **Tuliptree scale – egg hatch / crawlers (3519 DD)**

See the [Pest Predictive Calendar](#) for more information on DD and plant phenological indicators (PPI) to help you better monitor and manage these pests.

Degree Days (as of September 15)

Aberdeen (KAPG)	3176
Annapolis Naval Academy (KNAK)	3625
Baltimore, MD (KBWI)	3732
Bowie, MD	3777
College Park (KCGS)	3425
Dulles Airport (KIAD)	3525
Ft. Belvoir, VA (KDA)	3558
Frederick (KFDK)	3398
Gaithersburg (KGAI)	3376
Greater Cumberland Reg (KCBE)	3152
Martinsburg, WV (KMRB)	3133
Natl Arboretum/Reagan Natl (KDCA)	4000
Salisbury/Ocean City (KSBY)	3643
St. Mary's City (Patuxent NRB KNHK)	3854
Westminster (KDMW)	3780

Important Note: We are using the [Online Phenology and Degree-Day Models](#) site. Use the following information to calculate GDD for your site: Select your location from the map Model Category: All models Select Degree-day calculator. Thresholds in: Fahrenheit °F Lower: 50 Upper: 95 Calculation type: simple average/growing dds Start:Jan 1

Conferences

Diagnostic Session

We will be holding one more plant diagnostic session for nutrient problems, diseases, and insects on **September 22nd** at the Central Maryland Research and Education Center (11975 Homewood Road, Ellicott City, MD 21042) from 12:30 – 3:30 p.m. We encourage participants to bring samples of nutrient disorders and insect, including natural enemies, and disease problems for diagnosis by David Clement, Karen Rane, Stanton Gill, Paula Shrewsbury, and Andrew Ristvey, University of Maryland Extension.

FALCAN Truck and Trailer Safety Seminar

October 20, 2021

Location: Urbana Fire Hall, Urbana, MD

For more information

[falcantruckandtrailer21.eventbrite.com](https://www.eventbrite.com/e/falcan-truck-and-trailer-safety-seminar-2021-10-20-tickets-15094971000)

2022 Advanced Landscape IPM PHC Short Course

This is a recertification short course for arborists, landscapers, IPM consultants, horticulturalists, professional gardeners, and others responsible for urban plant management. The course LECTURES will be VIRTUAL (online). In addition, there will be an IN-PERSON LAB held over two days (available to a limited number of course attendees). Coordinators: Drs. Paula Shrewsbury and Mike Raupp, Dept. of Entomology, University of Maryland

Lecture (virtual) Dates: Tuesday, Wednesday, Thursday; January 4, 5 and 6 AND January 11, 12, and 13

Lab (in-person) dates: Tuesday and Wednesday January 18 and 19

Course and Registration* Information: <https://landscapeipmphc.weebly.com/>

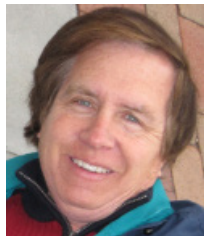
*Registration will open within the next week or so. Please check the site again.

Questions contact: Amy Yaich, 301-405-3911, umdentomology@umd.edu

LCA Pesticide & Fertilizer Recertification (Virtual Program, February 2022)

The Pesticide & Fertilizer Recertification will return in 2022 with great speakers and new topics.

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