

Commercial Horticulture

September 4, 2020

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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

Coordinator Weekly IPM Report:

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Regular Contributors:

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Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)

Weed of the Week: Chuck Schuster (Retired Extension Educator)

Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)

Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)

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MDA Tier 2 Plant Additions

By: Christa Carignan, UME-HGIC

Two plants were added to the Maryland Department of Agriculture's Tier 2 invasive plants list, effective June 23, 2020: Japanese barberry (*Berberis thunbergii*) and Japanese angelica tree (*Aralia elata*). These plants can still be sold by nurseries and landscapers, but now require the signage indicating they are Tier 2 invasives.

Here is the current list of Tier 1 and Tier 2 invasives.

<https://mda.maryland.gov/plants-pests/Documents/Invasive-Plant-List-March-2020.pdf>

You can always find the current list on this page of MDA's website.

https://mda.maryland.gov/plants-pests/Pages/maryland_invasive_plants_prevention_and_control.aspx

Deer Are Active and Hungry Now

By: Jerry Brust, UME Vegetable Specialist

Last week, Stanton pointed out that deer are being seen more often in and along roadways. He indicated that deer mating season starts in the next couple of weeks and females kick the young fawns out from their maternal care. I too have noticed in the last couple of weeks more deer in people's yards than I have seen throughout this entire summer. This has led to some landscapes being visited by these wandering deer families and plants that were not attacked all summer are now on the menu. Not only Hostas have been chewed upon (fig. 1), which are some of the deer's favorites, but so have plants such as Oakleaf hydrangea (fig. 2) and even Impatiens (fig. 3). So if you have some landscape plants you know deer enjoy snacking on and you don't want them defoliated you may want to cover them with netting or treat with a deer/rabbit repellent.



Fig. 1 Hosta plant defoliated by deer
Photo: G. Brust, UME



Fig. 3 Impatiens eaten by deer
Photo: G. Brust, UME



Fig. 2 Oakleaf Hydrangea leaves eaten by deer
Photo: G. Brust, UME

Herbicide Drift in Garden Vegetables

By: Jerry Brust, UME

I had some plant samples and saw some gardens in the last couple of weeks with herbicide drift that moved from the lawn into the vegetable garden. Although tomatoes are one of the more sensitive plants to 2,4-D or dicamba or any of the growth regulating herbicides (killing weeds by stimulating excessive growth and exhausting the plant's carbohydrate reserves), other vegetables such as pepper, beans, cucurbits, and flowers also can be susceptible to drifting problems. Herbicide drift on vegetables usually appears as cupped, twisted, thickened, or distorted leaves (fig. 1). The youngest foliage is often the most sensitive to the drift and will show the symptoms first. In addition to new growth distortions, the growth regulating herbicides can also cause extensive adventitious root growth along the main stem and branches of the vegetable plant (fig. 2). The same herbicide also can cause different symptoms on different plant species. Some of these distortions can be caused by other factors such as eriophyid mites, virus diseases, salt damage, misapplied fertilizers, and nutrient deficiencies and would need to be ruled out first. If herbicide is suspected, inspect other plants in the area. Herbicide injury will typically be found on more than one type of plant (including weeds) and will show twisting or distortion at the same time as the vegetables.



Fig. 1 Damage to tomato (A) and pepper (B) leaves by 2,4-D drift
Photos: Karen Rane (left) and G. Brust (right)



Fig. 2 Extensive adventitious root growth caused by 2,4-D drift on tomato
Photo: R. Fowler

Ambrosia Beetle Update

By: Stanton Gill

David Clement and I went out with Russell Bateman, Scientific Plant Service, to look at oak trees that showed dieback in Brookville in Montgomery County. The soil was a silty loam soil and the owner did mention that in 2018 with the continuous rain, the area remained flooded for extended periods of time.

We found many frass tubes from *Xylosandrus* ambrosia beetle activity in black oak. This infestation is the third case that we have been alerted to in the last 2 weeks, with fresh frass tubes projecting from the flair of oak trees.

If you remember in the spring, we found in our monitoring that *Xylosandrus* species continued to be active for a very extended period since it was cool and wet. They extended the egg-laying time, and we are now seeing an elongated activity from this next generation. Check your customers' tree trunks for wet areas. Once the frass tubes are projecting from the trunk, it is too late. If you catch it with wet areas, you can still apply Permethrin or Bifenthrin to the trunk as a protectant.



Multiple frass tubes are coming out at the base of this black oak tree; red arrow points to a small cluster

Photo: Stanton Gill

Crapemyrtle Bark Scale Update

By: Stanton Gill

Thanks to all who sent in pictures of crapemyrtle bark scale. It does appear that we have several locations in which this scale is trying to establish a foothold. As you install plant material this fall in the landscape or nursery, please look closely for this scale.

We have a [CMBS information factsheet](#) with pictures of the scale posted on the IPMnet website.



Continue to monitor crape myrtles closely for bark scale

Lots and Lots of Activity of Fall Webworm

By: Stanton Gill

This week, I am receiving lots of emails and cell phone calls asking if the fall webworm is worse than other years. I must say they are very noticeable in many parts of the state in 2020, as I travel between nurseries and greenhouses. It looks like nature is doing early decorating with all of the branch webbing.

The fall webworm, *Hyphantria cunea* is in the family of moth called Erehidae. The common name fall webworm is not a great common name since this pest is active most of the summer. Given that by late summer to early fall, it is very noticeable with large tents being formed and probably why many settled on this common name. Back in June, Marie Rojas, IPM Scout, reported finding 1st generation fall webworm feeding and making small tents in nurseries in the state.



The number of generations per year depends greatly on latitude. Southern populations may complete four generations in one year, while in the north the fall webworm completes only one life cycle. The larvae of *Hyphantria cunea* feed in huge nests in late summer and are able to defoliate completely branches of trees and shrubs. We had pictures of fall webworm on cherry laurel two weeks ago. It is showing up in a wide range of trees and shrubs in 2020.

Native to North America, this species has become an invasive pest throughout Europe and Asia. It was shipped into Yugoslavia in the 1940s, and since then has invaded most of Europe. It now also inhabits parts of China and North Korea, again due to accidental introduction, and it is found in Japan. It goes to show that we ship out our pests as well as other countries sending us their pests with worldwide trade.

Four years ago, I conducted an all-day seminar at the Central Maryland Research and Education Center for 13 Chinese entomologists. They came from the northeast part of China where the *Hyphantria cunea* had been shipped to from America in an accidental introduction of the pest. China had embarked on an aggressive program to re-forest large areas of land. This caterpillar, being exotic to China, was causing major defoliation of both young and established forests. They found it amazing that this was not considered a major defoliation pests here in North America. They asked me to tour them about in areas of major defoliation from this pest in Maryland. I told them this really was rather impossible. Here in Maryland we can see high populations, like 2020, but generally our parasites and predators kick in and crash the population or at least keep in acceptable levels. Under Diptera we have Tachinidae species that attack this caterpillar. Under Hymenoptera, we have **Braconidae, Chalcididae: *Brachymeria*, Eulophidae, and several Ichneumonidae species, all of which work to keep this caterpillar in check most seasons.**

This was not the case in China where they brought in the caterpillar but not all of the predators and parasites. It is interesting to note they said that in China the caterpillars, after defoliating the trees would migrate onto the ground and became a major nuisance crawling up people's dwellings. They then pupated in cracks and crevices around homes. It was interesting sharing and exchange of information. I got a wood plague out it and an invite to northeast China, which I declined.

Currently, the taxonomic status of *Hyphantria cunea* as a single species remains intact. The variations in phenotypes of both adults and larvae (presence of dark markings on the wings in some populations and presence

of populations with red-headed vs. dark-headed larvae) has caused speculation that more than one species might be involved. For example, in Japan, DNA barcoding studies have shown that two species might be occurring there sympatrically (Takeda 2005).

So back to Maryland situation with *Hyphantria cunea*. The best thing you can do for your customers is prune out the branches that are reachable with a pole saw if they find the webbing offensive. In most cases, the caterpillars are finished feeding within the web in September or are in the later instar stages making killing them revenge, not control of the webbing. Several people have sent in pictures of small black raisinet style structures that they have mistaken for eggs. Caterpillars are the immature stage of the insect and hence, incapable of laying eggs. This is the dry excrement of the caterpillars that hangs up in the webbing.

If nothing else works, then tell them they are well decorated with the branch webbing for Halloween, just a little early.

Literature cited:

Takeda M. 2005. Differentiation in life cycle of sympatric populations of two forms of *Hyphantria* moth in central Missouri. Journal of Entomological Science 8: 211-218.

Puss Moth Caterpillar

Katie, East Coast Garden Center, found several puss moth caterpillars at a site in Millsboro, DE this week. Continue to keep an eye for these stinging caterpillars.



This photo shows the light and dark color forms of puss moth caterpillars
Photo: Katie, East Coast Garden Center

A Chinese Praying Mantis and a Cardinal

Robert Dallmann, The Davey Tree Expert Company, reported the following: "As I approached a property in Annapolis, there was a commotion in the driveway. A cardinal was tussling with something. I realized when I got closer it was this praying mantid which was still in defensive posture after I startled off the cardinal."



A praying mantid remains in the defensive posture after an encounter with a cardinal
Photo: Robert Dallmann, The Davey Tree Expert Company

Oak Lace Bugs

Robert Dallmann, The Davey Tree Expert Company, found oak lace bugs active in Edgewater this week. Oak lace bugs cause stippling on the upper side of the foliage and leave black fecal spots on the undersides. There are several generations a year.

Control: Feeding activity is finishing up for the year. Monitor trees closely next season. A systemic can provide season-long control. Treating with horticultural oil when lace bugs are found is also effective. When using horticultural oil, be sure to get thorough coverage of the plant for good insect control.



Oak lace bugs cause stippling on the top sides (left) of leaves and leave fecal spots on the undersides of leaves (right)

Photo: Robert Dallmann, The Davey Tree Expert Company

Spotted Lanternfly

Elaine Menegon, Good's Tree and Lawn Care, reported that she has a customer in Millersville, PA who knew he had spotted lanternfly because he found sooty mold covering plants below the infested tree.



Sooty mold on hosta and liriope gave away an infestation of spotted lanternfly
Photos: Elaine Menegon, Good's Tree and Lawn Care

Mushrooms are Plentiful

David L. Clement

Fall is the best time of year to see our many mushroom species especially if we've had good rainfall. As landscapers and arborists, you will see many of the general decomposer types of mushrooms on mulch and even dead branches that should not cause alarm. However, when mushrooms appear at the base of trees, or on tree trunks take a closer look to be sure they are not just in the mulch. Mushroom growths attached to the wood could be pathogens and are the signs of the fungus causing death and decay that may lead to structural failure. So take the time to look over the mushroom growths to identify signs of tree decline on your clients' properties.



***Inonotus* mushrooms at the base of oaks on the University of Maryland campus**
Photo: David Clement, UME



These mushrooms have popped up in Owings Mills after the recent rain fall
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Stinkhorn Fungus

Todd Armstrong, The Dave Tree Expert Company, found stinkhorn fungi in Stevenson on September 2. These fungi show up suddenly in lawns and landscapes. Spores adhere to the tip in a smelly slime which attracts flies. They break down old plant material.



Stinkhorn fungi produce a smelly slime on their tips that attracts flies

Photo: Todd Armstrong, The Davey Tree Expert Company

Wheel Bugs

On August 30, Todd Armstrong, The Davey Tree Expert Company, found a wheel bug feeding on a caterpillar in Jarrettsville. Wheel bugs are generalist predators found throughout the spring and summer in landscapes. As we move into fall, adult females will be laying eggs in clusters on small branches of woody plants.



Wheel bugs are generalist feeders - this one is feeding on a caterpillar

Photo: Todd Armstrong, The Davey Tree Expert Company

Beneficial of the Week

By: Paula Shrewsbury

Monitoring for fall crawlers of soft scales, be sure to look for the predatory caterpillar *Laetilia coccidivora*.

In last week's IPM newsletter, crawler activity of magnolia and tuliptree scale were reported. Most species of soft scale have crawlers that are active in late spring through early summer. However, two species of soft scale that we commonly see on ornamental trees have crawlers that are active in late summer through early fall. They are tuliptree scale which feeds on tulip tree and magnolia, and magnolia scale which feeds only on magnolia. As with many plant-feeding insects, there are species of natural enemies that are commonly associated with specific pests. For magnolia and tulip tree scales, a predacious caterpillar commonly feeds on them. In general, caterpillars feed on plants. However, some species (less than 1% of caterpillars) are predators of other insects.



Magnolia branch with tuliptree scale (see reddish "bump") covered in silk produced by the predatory caterpillar, *Laetilia coccidivora*.

Photo: P.M. Shrewsbury, UMD

The predacious caterpillar commonly associated with soft scale is the larvae of a snout moth (Family Pyralidae) *Laetilia coccidivora*. It is found in southern states and northward up into Maryland and Pennsylvania. The larvae are [predacious](#) on [Coccidae \(soft scale\)](#) species such as tulip tree scale, magnolia scale, wax scale, pine tortoise scale, and other soft scales. They feed on the eggs and young of soft scales. So you can find *Laetilia* in the spring / early summer feeding on many soft scale species when they are laying eggs and there is an abundance of crawlers and early instars. They are also active in late summer / early fall when they feed on the young stages of tuliptree and magnolia soft scale. These predacious caterpillars forage on the branches of plants with soft scale and produce webbing that appears to "coat" or encircle the branch while encompassing the scales (see image). The branches have a dusty, messy appearance to them. When you look closely you can see the webbing. If you tease the webbing apart you may get lucky and find the predacious caterpillar. This caterpillar has been recorded to provide good levels of biological control and suppress soft scale populations. When you are monitoring scale activity on your trees and shrubs, be sure to look closely for signs of this voracious caterpillar feasting on the scales. If *Laetilia* is present, you may not need to apply any control measures; if you do, be sure to use a product that does NOT harm caterpillars.



Close up of the predacious caterpillar, *Laetilia coccidivora*, that was under the silk feeding on soft scale eggs and crawlers.

Photo: P.M. Shrewsbury, UMD

Also of interest is that some soft scales produce a chemical for defense called carminic acid. This chemical deters many predators from feeding on soft scale. *Laetilia*, however, is not affected or deterred by carminic acid and they just eat away. Moreover, this caterpillar sequesters and uses [carminic acid](#) that it acquires from its prey, as a defense against its own predators - very cool!

Weed of the Week

By: Chuck Schuster

The weeds seem to be so intense this year. A very mild winter gave way to the early start to too many weeds.

With spotted lanternfly being found in many areas, it is necessary to to understand the potential weed tree, tree-of-heaven. At this time of year, spotted lanternfly would, in its adult stage most likely be found on this tree. Tree-of-heaven, *Ailanthus altissima*, also known as ailanthus, sumac, stinking sumac, and Chinese sumac, is a tree found in many locations throughout the United States. This tree invades urban, agricultural, forests, landscapes, and agricultural areas as a fast growing tree and displaces the more desirable tree species. This tree was introduced into the United States in the late 1700's as an ornamental species. Right now, the female trees have very showy clusters of orange-red maturing seeds across the upper crowns, which cause it to look like uniquely colored hydrangeas.

Tree-of-heaven will have smooth gray bark (photo 1), and can, when mature, have a diameter at breast height (DBH) of thirty-six inches. Rarely growing much taller than 70 feet, it is a tree that will shade out and outcompete other desired species of trees. Leaves are alternate along a single stem that will have 15 or more individual leaflets (photo 2). Leaflets are lanceolate with entire margins except that one to five teeth can be found near the base. Leaves and stems, when crushed, will emit an unpleasant odor, which is why it has some of its nicknames. The roots can produce saplings up to ten feet away from the main trunk and will do so when the tree is cut if appropriate actions are not taken. The trunk bark is tan to brown in color. Fruit is produced and form seeds in clusters that have a winged structure called samaras (photo 3). This is a prolific seed producers, a mature tree can produce as many as **300,000** seeds per year. Trees are in seed production currently. This tree is known to live 30 to 70 years.

Control of this weed tree can be done using several methods. Cutting the trees down with no other treatment will not provide satisfactory results, as stump and root suckers will appear quickly, and additional treatment will be necessary. Small forests can grow from roots when the main stem is cut and not properly treated with an herbicide. A basal bark application to smaller trees (six to ten inch diameter) will be successful. Apply the herbicide on the trunk during the now. Use 20% triclopyr (Garlon 4) with an oil base carrier. Ready to use products include Pathfinder II, are also available with the same active ingredients and contain the basal oil. Hack and squirt (stem injection) is more effective on the larger trees and needs to be done during the summer months, with an immediate herbicide application after cutting. Products that will work with this method include triclopyr at a 20 % rate. Glyphosate has been used but is not always effective, and may require more than one application. Foliar application of herbicides will work, but the site must be free of desirable plant species as these herbicides will damage or destroy most species. Products for foliar applications include triclopyramine (Garlon 3A) using a rate of 2% AI, glyphosate (Roundup, Rodeo, Accord and Razor Pro) using a 2% AI solution , both being applied during active growth, from early June through early September. Other products have been used for foliar sprays but have a residual soil activity that will prevent non target plants from growing. Krenite can be used for suppression but not for total control.



1. Smooth, gray bark of tree-of-heaven

Photo: Chuck Schuster



2. Tree-of-heaven stems have 15 or more individual leaflets

Photo: Chuck Schuster



3. Samaras on tree-of-heaven

Photo: Chuck Schuster

Plant of the Week

By: Ginny Rosenkranz

Gaura lindheimeri 'Whirling Butterflies' is a lovely herbaceous perennial that thrives in full sun in loamy or sandy well drained soils. Be sure to choose a good location in the garden because the strong taproot which helps it tolerate high heat and humidity, makes it difficult to move. 'Whirling Butterflies' has tall stems with panicles of flowers at the tips, and they are light enough to dance in the lightest breeze which gives them their fanciful name. Plants are cold tolerant from USDA zones 5-9 and grow in clumps as tall as 2-3 feet tall and wide. If the soil is too rich, the plants may become floppy and leggy. If that happens, prune the plants back to half their size in the early spring to control the height. The flower buds are rose pink which open to 4 pure white petals about a 1 inch across that slowly mature to a soft pink. The flowers open only a few at a time from late spring into autumn, providing color and motion in the landscape. The flowers are visited by many pollinators. The arching stems are wiry and wand-like. The narrow 1-3 inch long lance-shaped leaves are medium green with maroon spots. The cultivars are sterile, but the species will quickly self-seed. Pests include rust, powdery mildew, aphids, whiteflies, and flea beetles.



Many pollinators visit the flowers of *Gaura lindheimeri* 'Whirling Butterflies'
Photos: Ginny Rosenkranz

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 2711 DD (Cumberland) to 3604 DD (Reagan National). 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 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 pests.

Degree Days (as of September 2)

Aberdeen (KAPG)	2873
Annapolis Naval Academy (KNAK)	3213
Baltimore, MD (KBWI)	3335
Bowie, MD	3404
College Park (KCGS)	3112
Dulles Airport (KIAD)	3193
Frederick (KFDK)	3137
Ft. Belvoir, VA (KDA)	3286
Gaithersburg (KGAI)	3034
Greater Cumberland Reg (KCBE)	2711
Martinsburg, WV (KMRB)	2895
Natl Arboretum/Reagan Natl (KDCA)	3604
Salisbury/Ocean City (KSBY)	3300
St. Mary's City (Patuxent NRB KNHK)	3481
Westminster (KDMW)	3310

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

Cut Flower Tour

September 14, 2020

Cut Flower Tour in Howard County and Montgomery County

Locations: Plant Masters at Endless Rows Farm, Woodbine, MD and and Plant Masters in Gaithersburg, MD. Coronavirus Covid-19 will impact this program by limiting the number of participants and requiring physical distancing and masks. See the announcement for details.

IPM Diagnostic Session at CMREC

September 22 and 23, 2020 - only sign up for one day since it is the same program each day

[For more information](#)

Natural Area Management Services Webinar Series

Learn About Expanding Green Industry Services to your Clientele

Are you a Green Industry professional interested in expanding the suite of services to include creating and enhancing natural areas? Perhaps you manage land for an organization, work with volunteers, or are just an interested landowner? If so, then this four-part webinar series is for you!

Small-scale natural area management services include: wildlife habitat enhancement, forestry practices, invasive plant control, tree planting, trail development, chosen tree mgt., and more.

A resource manual & specialized checklist tool have been developed to complement the training and help Green Industry professionals determine which enhancement practices are suitable for a given property/site. Join us for this webinar series to increase your knowledge and skills useful for providing additional services to clientele.

When:

- ☐ **Webinar 1 - Expanding Your Business: Land Care Practices on Small-Acreage Properties** - Thursday, October 22, 2020
- ☐ **Webinar 2 - Land Care Practices for Woodland Health**-Thursday, October 29, 2020
- ☐ **Webinar 3 - Land Care Practices for Woodland Health Continued**-Thursday- November 5, 2020
- ☐ **Webinar 4 - Introduction to Woodland Health Assessment & Incorporating Woodland Health Practices** -Thursday, November 12, 2020

Time: Thursday evenings from 7:00 – 8:30 p.m.

Registration Information: <https://go.umd.edu/NaturalAreasServices>

Registration Materials & Cost: \$35.00. Includes Woodland Health Practices Handbook, Woodland Health Assessment Checklist and Management Actions, and two Woody Plant Identification Guides (Common Native Trees of Virginia Identification Guide and Common Native Shrubs and Woody Vines of Virginia Identification Guide)

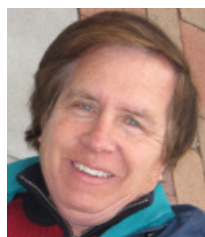
Note: For an additional \$20 (\$55.00 total) participants can also receive a copy of the original Woods in Your Backyard book (regular cost \$29 + shipping).

The Woods in Your Backyard Partnership: includes the University of Maryland Extension, Penn State Extension, Virginia Cooperative Extension, Alliance for the Chesapeake Bay, and Virginia Dept. of Forestry

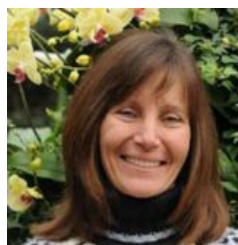
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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.

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