UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **September 13, 2019**

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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 sklick@umd.edu

Coordinator Weekly IPM Report:
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Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

White Oak Deaths

By: Stanton Gill

Karen Rane, David Clement, and I must have had five different arborist companies call or email us about the white oaks dying in Takoma Park. Takoma Park is a heavily tree lined community with many very large white oaks growing in urban soils.

The reports are that white oaks are suffering with dying branches and whole trees going out in the last month. We are getting reports of ambrosia beetle activity, damage from two-lined chestnut borer, and possible diseases. We suspect these tree deaths may be a multitude of secondary problems moving in after an extremely rain soaked season in 2018 (record 88" with frequent downpours) and a very wet spring from March through July of 2019. Super saturated soils often cause root injury and predispose trees to secondary problems. Why white oak is the major tree species with problems is the question.

We are interested if people are finding white oaks dying in large numbers in other parts of Maryland as well as along the East Coast. Not just single trees, but large groups of trees dying. Let me know at Sgill@umd.edu. Also tell me what the soil is like, what are the growing conditions – urban soils or well drained soil with low pH or other vital information.

Yellow-bellied Sapsucker Damage Starts

By: Stanton Gill

Jonathan Reinhardt, Green Scene Landscaping, sent in pictures of Alleghany viburnum with damage to the major branches. This is yellow-bellied sapsucker damage. Every fall we get pictures of this damage starting in September and continuing through the fall into early winter. For some reason sapsuckers love to tap the sap from Alleghany viburnums, Chinese hollies, and red and sugar maples. There is not much you can do about this damage since it is hard to predict which plants these woodpeckers will pick.

We often receive reports of sapsucker damage on viburnums
Photo: Jonathan Reinhardt, Green Scene Landscaping

Oystershell Scale

By: Stanton Gill

On Tuesday, we conducted a specialty commercial cut flower growers' field day and seminar. While at one of the sites, I noticed several branches dying back on a lilac used to harvest cut woody stems. The dieback was due to a heavy infestation of oystershell scale, *Lepidosaphes ulmi*.

The branches on this lilac are covered with oystershell scale

It is interesting that this scale arrived from Europe back in the 1700s and pretty much spread across the US. It is a general feeder on plant material, and since the covers blend in with the color of bark, it makes detection difficult. Oystershell scale has been recorded on over 125 species of plants, mostly hardwoods, and is most commonly found on ash, maples, willows, and lilac.

There is one generation of oystershell scale produced per year in the Maryland. The crawler period is usually in May and June. Timing of control is critical as oystershell scale becomes much less vulnerable to most insecticides after the crawlers have settled, begun to feed, and molted to the next life stage during which the protective waxy cover begins to form. Determining when the crawler period occurs requires some examination of the plants as timing can vary from season to season due to spring weather conditions. We try to post when crawler periods occur, but we need samples sent in from your customers' landscapes to actually develop degree day models for these scales. We do not yet have a good degree day model for oystershell scale in Maryland. When crawlers occur next season, I suggest using either Talus or Distance.

Wildlife is Hyperactive Near Highways at This Time of Year

By: Stanton Gill

On Wednesday, I was driving into CMREC at 5:30 in the morning. Within 2 miles after leaving my home, I saw three deer standing in the middle of the road. They only moved when I laid on the horn. I drove another 3 miles and saw a pair of deer standing in the road. Next, a fox ran in front of the car. When I was about 4 miles from CMREC, three deer ran across the road in front of my car.

I know many of you send out your crews early in the morning. Be very watchful because deer are moving and unfortunately they are moving toward roads at this time of year. Everyone is in a hurry in the Metro area – just watch out for the hyperactivity of the wildlife. Something about the weather or time of year is making them very active.

Viburnum Leaf Beetle

Jaime Tsambikos, MDA Nursery Inspection Supervisor, reports seeing viburnum leaf beetle (*Pyrrhalta viburni*) egg masses on a viburnum at a nursery in Harford County this week. You can prune out and destroy the affected twigs in fall to drastically reduce next year's problem.

The eggs of viburnum leaf beetle are along the stem
Photo: Jaime Tsambikos, MDA

Defoliated Cherry Trees

Marie Rojas, IPM Scout, is reporting that a lot of the cherries have defoliated due to leaf spot diseases. She notes that it is particularly the Yoshinos, which she observed had little to no leaves remaining on the plants. It is late in the season so there is nothing to do at this time.

Maple Petiole Borers

Marie Rojas, IPM Scout, is still finding fresh damage from maple petiole borers on red maples. Marie notes that this activity is the latest she has ever seen this pest damaging trees.

Maple petiole borer activity is continuing unusually late in the season
Photo: Marie Rojas, IPM Scout

Harlequin Bugs Active in September

By: Stanton Gill

While we were conducting the seminar and field day for specialty cut flower growers on Tuesday, we saw a lot of damage on cleome from harlequin bugs. We found nymphs and adults at two different sites in western Maryland. This bug loves to feed on cleome. If you are a greenhouse grower who is growing ornamental kale, check the foliage for harlequin bugs. They love this plant almost as much as cleome.

Several people plant daikon radish as green organic material to add to the soil. The seeding is done at this time of year. If you use this daikon radish, realize the harlequin bugs will be attracted to the foliage.

Adults and nymphs of harlequin bugs are active at this time of year

Tuliptree Scale

Marie Rojas, IPM Scout, checked tuliptree scale on *Liriodendron* trees at a nursery in Gaithersburg this week. She noted that scales are not in the egg stage as of yet. Monitor tuliptree scale populations closely for crawlers. Talus or Distance can be used.

If not already, tuliptree scale should be producing crawlers soon so monitor infested plants closely

Redheaded Pine Sawfly

Elaine Menegon, Good's Tree and Lawn Care, found redheaded pine sawflies on mugo pines in Harrisburg, PA this week. This native sawfly feeds on pines including jack, red, shortleaf, loblolly, Japanese black, mugo. Other hosts include deodar cedar and Norway spruce. The larvae feed gregariously. A group of larvae can defoliate whole sections of a pine very rapidly in late August to early September.
Control: Prune off tip growth on which they are feeding and destroy. Conserve insecticide will also give control.

Larvae feed in groups and strip needles from terminal twigs
Photo: Elaine Menegon, Good's Tree and Lawn Care

Barklice (Family Psocoptera)

Mike McWilliams, Maxalea, Inc., found barklice, also called booklice, on a tree trunk on September 12 in Baltimore. The non-winged forms of barklice are generally what you will find on plants, but alates (winged forms) are produced to spread the population. Barklice are often found in areas of high moisture (after rains, during high humidity periods, shady locations). They feed on lichens, decaying organic matter, dead insects, molds, fungi and pollen. No control is necessary.

Barklice feed on molds and fungi so are not a problem to plants
Photo: Mike McWilliams, Maxalea, Inc.

This Chinese redbud was in bloom on September 10. Is anyone seeing other trees blooming out of season?

Caterpillar Activity

Marie Rojas found recently hatched yellownecked caterpillars feeding gregariously on Dura Heat river birch. This species overwinters in the pupal stage in the soil.
Photo: Marie Rojas, IPM Scout

Imperial Moth Caterpillars: Bob Mead, Mead Tree and Turf, and Matthew Hirt both found imperial moth caterpillars this week. There are multiple color forms of this caterpillar from red to tan to green. It overwinters in the pupal stage.

The imperial moth caterpillar is one of the larger species in our area
Photo: Bob Mead, Mead Tree and Turf

This imperial moth caterpillar is feeding on Douglas fir, but the species feeds on a variety of woody plants
Photo: Matthew Hirt

Marie Rojas found catalpa sphinx moth caterpillars feeding on catalpa leaves. Many were being parasitized.
Photo: Marie Rojas, IPM Scout

Orange-striped oakworm caterpillars were causing significant damage to a red oak in New Jersey on September 9. These caterpillars are often found crossing sidewalks and roadways in search of places to pupate.
Photo: Patrick Slattery, SavATree

A nursery grower found and photographed these walnut caterpillars (*Datana integerrima*) feeding on pecan trees. Other plant hosts include hickory and walnuts.

Crapemyrtle Aphids

Elaine Menegon, Good's Tree and Lawn Care, found active aphids on crape myrtles in Harrisburg PA this week. Crapemyrtle aphids have winged and non-winged forms. The winged forms can take flight whenever they want and spread to a new plant. When photoperiod and temperature decrease in the October, there is a generation of aphids that produces both male and female aphids. Males and females of this generation mate and the females lay eggs in crevices located on the bark of crape myrtle stems. If populations are heavy, sooty mold will be very noticeable and may cause early leaf drop or complete defoliation of affected plants.

Crapemyrtle aphids have multiple overlapping generations each year and can cause significant damage to plants
Photo: Elaine Menegon, Good's Tree and Lawn Care

White Prunicola Scale

Jim McWilliams, Maxalea, Inc., found a heavy infestation of white prunicola scale on skip laurel this week. This scale is commonly found on *Prunus* species and is also seen on magnolia, ligustrum, rhododendron, forsythia, boxwood, and lilac. Now is the time to look for third generation crawlers on plants. Talus or Distance can be used on crawlers for control.

This skip laurel is heavily infested with white prunicola scale
Photo: Jim McWilliams, Maxalea, Inc.

Mantisfly

Samantha Lancke, Potomac Flower & Garden Design, found this mantisfly (*Zeugomantispa minuta*) in Great Falls, VA this week. It has the same mantid-like prayer pose of the front legs. Adults and larvae are predators. The larva hitches a ride on a spider. If it is on a male spider, it will move to the female when the spiders mate. When the female spider lays eggs, the mantisfly larva gets into the egg sac before it is closed and feeds on the eggs while inside the sac. When the mantisfly is done feeding, it pupates and then emerges as an adult. The adult feeds on small insects.

Mantisflies are predators as both adults and larvae
Photo: Samantha Lancke, Potomac Flower & Garden Design

Robert Dallmannn found a mating pair of wheel bugs in Edgewater on September 10. Wheel bugs are generalist predators.
Photo: Robert Dallmann, Davey Tree

After the leaves fall from the trees, look for the egg massses of wheel bugs

Dragonfly Swarms

Marie Rojas, IPM Scout, reported seeing hundreds of dragonflies flying around her farm in Montgomery County on September 12. She noted that some were flying low about the fields, others were flying high above the buildings. We have also received reports from Ohio and Pennsylvania that the numbers of dragonflies are so high that they are darkening the skies. We do not know if these swarms are due to a change in weather, mating, or some other factor. If you have seen any of these swarms, let us know at sgill@umd.edu.

Horntails

Marty Adams, Bartlett Tree Experts, found a horntail wasp ovipositing into a beech tree on September 9. Females lay eggs deep into the wood of trees. The larvae bore into the wood and live in the tree for up to two years, possibly more. They typically migrate to just under the bark before pupation.

A female horntail wasp uses her long ovipositor to insert eggs under the bark
Photo: Marty Adams, Bartlett Tree Experts

Beneficial of the Week

By: Paula Shrewsbury

Lots of caterpillars, lots of parasitoids attacking caterpillars!

It is that time of year again when we start seeing a diversity of caterpillars with numerous "rice-like" structures (wasp pupae) sticking out of their bodies. There is a family of parasitoid wasps, Braconidae (the 2nd largest family in the order Hymenoptera with over 17,000 named species), in which some members parasitize caterpillars. In last week's newsletter, there was a picture of a hornworm in this situation. A few years ago while hiking on the Appalachian Trail one day I noticed an unhappy saddleback caterpillar on a leaf. Upon closer inspection I could see it was covered with 30-40 legless

***Cotesia congregata* (Say) (Braconidae) larvae recently emerged from their tobacco hornworm host but before spinning individual cocoons.**
Photo: Justin Bredlau, Virginia Commonwealth University.

larvae that were protruding from its body. Some of the larvae had started to make little white cocoons that attached to the caterpillar. Similar to an Alien movie, these larvae (immature wasps) had recently emerged out of the caterpillar, where they had previously been feeding on the insides of the caterpillar, to form their little white cocoons so they could complete their development.

A saddleback caterpillar with cocoons of the parasitic braconid wasp, *Cotesia empretiae*, attached to its body.
Photo: Richard Orr, marylandbiodiversity.com

In both cases, these are the larvae or cocoons of small parasitic braconid wasps in the genus *Cotesia*. *Cotesia* adults are only a few mm in length. Female *Cotesia* wasps hunt saddlebacks, hornworms, and other caterpillars on the foliage of plants. Many species of braconids specialize on certain groups of caterpillars (ex. mainly hornworms). Individual species of braconids recognize chemical cues given off by plants being fed on by the species of caterpillar it attacks. This allow the braconid wasp to locate plants that have their host caterpillar. Once on the plant the wasp engages in host searching behavior by moving their antennae back and forth quickly to sense additional cues (semiochemicals) from the caterpillar. Upon encountering a suitable host, the wasps jump onto the host and rapidly deliver many "stings" to the caterpillar using an appendage called the ovipositor. Each sting inserts a wasp egg into the caterpillar. So one female wasp can lay many (average 65) eggs in a single caterpillar. Once inside the caterpillar, eggs develop and hatch, and then the wasp larvae feed on the tissues of its host. However, to survive successfully, the tiny wasp larvae must avoid death by the caterpillar's vigilant immune system. This is where a little help from their wasp mother comes along. In addition to depositing eggs, mother *Cotesia* injected a special virus known as a polydnavirus into the caterpillar. The polydnavirus disables the caterpillar's immune system, allowing her young to develop without interference. Once development is complete, wasp larvae move near the surface of the caterpillar, burrow through its skin using its strong mandibles, protruding out while still attached to the caterpillar body. The larvae spin a cocoon on the exterior of their host. With numerous cocoons sticking out of its body, the caterpillar looks like grains of rice have been stuck into it. After a bit of time wasp adults emerge from the white rice like pupa and go on to mate and then lay eggs in other caterpillars. Ultimately, the wasps kill the caterpillar. The circle of life continues.

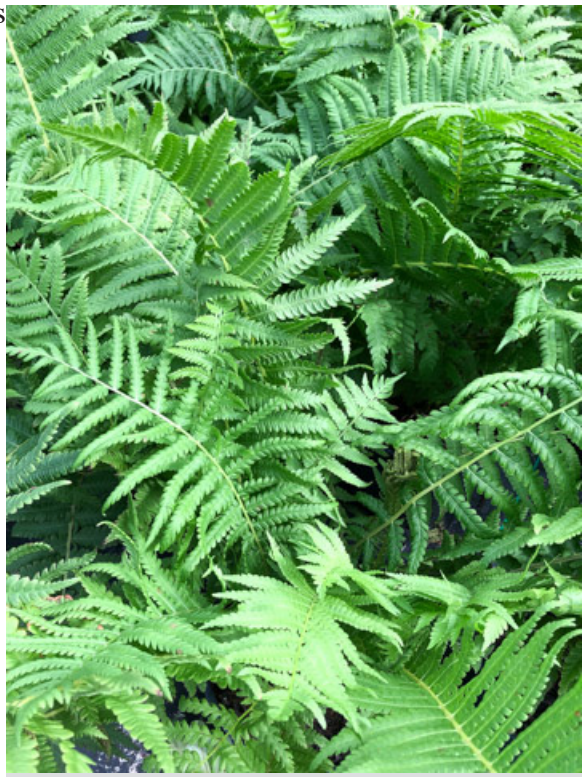
***Cotesia congregata* (Say) (Braconidae) adults (<2mm) aggregating on the surface of a leaf that will follow chemical cues (semiochemicals) to locate their host caterpillar.**
Photo: Justin Bredlau, Virginia Commonwealth University

Click here to see a video of wasp larvae emerging from a saddleback, and if you look closely, you can see the larvae making their silken cocoons.
Click here to see a video of a *Cotesia* adult "stinging" or depositing an egg into a saddleback caterpillar.

Plant of the Week

By: Ginny Rosenkranz

Matteuccia struthiopteris or ostrich fern is a native fern that prefers to grow in cool areas and is cold tolerant from USDA zones 3-7. Ostrich fern grows best in full to part shade and constantly moist, rich soils. It can reach heights of 3- 6 feet tall, spreading 5- 8 feet wide. They spread by underground rhizomes and can form a dense colony if grown in the right conditions. The fern fronds are dimorphic which means that they are either male or female fronds. The males are the tall, showy, ostrich wing-shaped fronds made up of finely dissected leaflets that emerge from the base of the clumps in the spring as fiddleheads which uncurl to the 3-6 feet. They are a vibrant dark green all summer, but in the autumn they begin to lose their leaflets and go dormant during the winter months. Young fiddleheads are prized as a delicacy and are listed as the state vegetable of Vermont. The female fronds grow in a dark brown rigid spike 18 inches tall that emerge in mid-summer and remain upright all winter, giving color and texture to the woodland gardens. Springtime is when the dust-like spores are released as the male fiddleheads have expanded. Ostrich ferns can be planted in shady gardens along streams, wet areas, or beside ponds. They grow well with other spring natives like trilliums, trout lilies, and bloodroot which will be dormant by the time the ferns start spreading. No serious pests are listed and plants are tolerant of rabbits and deer.



Ostrich ferns are good choices for moist, shady locations
Photo: Ginny Rosenkranz

Degree Days (as of September 11)

Abingdon (C1620)	3468
Annapolis Naval Academy (KNAK)	4193
Baltimore, MD (KBWI)	3770
College Park (KCGS)	3478
Dulles Airport (KIAD)	3569
Frederick (KFDK)	3587
Ft. Belvoir, VA (KDA)	3732
Gaithersburg (KGAI)	3428
Greater Cumberland Reg (KCBE)	3113
Martinsburg, WV (KMRB)	3300
Natl Arboretum/Reagan Natl (KDCA)	4127
Salisbury/Ocean City (KSBY)	3721
St. Mary's City (Patuxent NRB KNHK)	3968
Westminster (KDMW)	3838

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 calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95Calculation type: simple average/growing dds Start: Jan 1

CONFERENCES

December 4, 2019
Trees Matter Presents: Green Cities Summit
Location: Kellog Conference Center, 800 Florida Ave NE
For more information

December 6, 2019
Pest Management Conference
Location: Carroll Community College, Westminster,

December 17, 2019
Biocontrol Conference
Location: Maritime Insitute, Linthicum Heights, MD

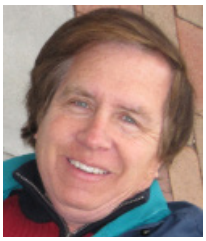
Advanced IPM PHC Short Course
Monday, January 6 - Thursday, January 9, 2020
Location: University of Maryland, College Park, MD
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911, umdentomology@umd.edu
Registration Information: https://landscapeipmphc.weebly.com/
Recertification credits will be posted on the website

January 17, 2020
FALCAN Pest Management Conference
Location: Frederick Community College, Frederick, MD

February 13, 2020
2020 Pesticide and Fertilizer Recertification Conference
Location: Rockville, Maryland
Organized by and registration through LCA

February 19 and 20, 2020
Chesapeake Green: A Horticulture Symposium
Location: Maritime Institute, Linthicum Heights, MD
Organized by and registration through MNLGA

CONTRIBUTORS:



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