UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture — October 4, 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

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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)

Tea Scale

By: Stanton Gill

We are seeing another crawler period with the tea scale on camellia this week. This armored scale is usually found on the foliage of the plant. Distance or Talus can be applied now for control.

Check tea scale populations for the crawler stage this week

Indian Wax Scale

Jeff Lavrusky, Brightview, found Indian wax scale in Germantown and Frederick. He noted that he has been seeing a lot of it at different sites this year. The crawler period for this scale is mid June to mid July in this area.

Shriveling Trees

By: Stanton Gill

Last week I traveled to North Carolina to give a couple of talks. While in Asheville, I talked with North Carolina landscapers and visited a couple of sites. They are experiencing the same sunny, dry weather we have seen here for the last 9 weeks. Their landscape trees look as bad or worse as the ones in our Maryland landscapes. Last Sunday, I was driving through Olney, Maryland and saw a ½ mile long planting of London plant trees with 90 % of the foliage scorched and many dried up leaves on the trees and on the ground.

We are moving into one very dry fall, and it will affect the health of trees this fall and survival over the winter. For newly transplanted trees try to keep them watered until this dry period lets up. We might get some small relief on Monday but other than this it looks – dry, dry, dry! Make sure your customers water plant regularly that went into the landscape in the last 2 years or it will suffer badly. The good news is this is NOT boxwood blight type weather as we saw in the fall of 2018. Count your blessings.

Landscape trees in North Carolina are also struggling during an extended period of high temperatures and dry periods

Brown Marmorated Stink Bugs (BMSB)

If you are in an area with high populations of stink bugs, now is the time when we see them hanging out on buildings and entering into homes and offices. Elaine Menegon, Good's Tree and Lawn Care, found a large population in Hershey, PA on October 2. See the UMD Home and Garden Information website for more information on BMSB.

Sealing up cracks with caulk or weatherstripping around windows and doors can help keep these bugs out of buildings Photo: Elaine Menegon, Good's Tree and Lawn Care

Azalea Bark Scale

By: Stanton Gill

Mark Schlossberg, ProLawn Plus, Inc., sent in a sample from a large, old pieris plant. The bark was covered with a white waxy material. It was one of the best samples I have received into the CMREC lab this fall. It is azalea bark scale and one of the heaviest infestations I have seen in a long time.

This azalea bark scale on *Pieris* was in the crawler stage in May and early June.

The azalea bark scale, *Eriococcus azaleae* Comstock, can be found on a variety of hosts. We usually get this scale on samples of azalea and occasionally rhododendron. This scale also infests *Pieris* plants (Andromeda), hawthorn, poplar, and willow. In Oregon, it has been reported to infest blueberries. It can be found on the bark and stems and has a woolly or cottony appearance.

It usually produces crawlers in May and early June. As a female azalea bark scale matures, it secretes white, waxy threads, which become felted or matted into a thick covering over its entire body. As the female lays eggs, its body shrivels gradually, until the egg sac is almost completely filled. Eggs are laid in May, most years. They hatch in about 3 weeks. This new generation matures during the summer and produces eggs in September. Thanks Mark for a great sample.

Corrections and Comments

Gaye Williams, MDA, Linda Barker, Halcyon, Ted Moran, Master Gardener, and Alonso Abugattas, Arlington County Parks, pointed out the photo listed as a walking stick in last week's report is actually a Carolina mantid.

Alonso Abugattas responded to the mention of mantids eating hummingbirds occasionally in the September 20th. He noted "that this uncommon event happens with the nonnative Asian mantids who are larger, but do not happen with our smaller native Carolina mantid. The mention makes it sound like all of them do, when it is the nonnatives only that are to blame."

Beneficial of the Week

By: Paula Shrewsbury

Monarch butterflies are a biological wonder!

We are now into October and I still see Monarch butterfly adults flying in MD (and in RI this past weekend). I hope they all make it to their overwintering site in Mexico! Monarch butterflies, *Danaus plexippus* (family: Nymphalidae) are one of, if not, the most well-known butterflies in North America. There are few children who make it through school without learning the lifecycle of these beautiful and interesting iconic butterflies. There are Citizen Science projects and numerous other programs with the goal of monitoring and conserving monarchs. Everyone loves monarchs and rightly so! They have one of the most fascinating lifecycles and migratory behaviors of all insects. In addition, monarch adults provide pollination services and the caterpillars are food for other organisms. Given all of this I think they qualify as a "beneficial" even if the caterpillars make milkweed plants look a little ratty.

Monarch butterflies often are thought to occur only in North America. However, their range also includes Central America, northern South America, Australia, New Zealand, Spain, Hawaii and some Oceanic islands.

Other species of *Danaus* butterflies occur in other parts of the world. The Monarch's wingspan is about 8-10 cm and males are slightly larger than females. The upper-side of the wings are orange with black veins and margins and white spots are located in the black margins. In males, the black veins in the hind wings are narrower than those of females with a dark spot, called a stigmata, on a vein in each hind wing (see images of male and female adult monarchs). The underside of the Monarch is similar to the upperside in color but paler. The Viceroy butterfly looks similar in color and pattern to the monarch. These butterflies are an example of Műllerian mimicry. Both species share similar predators, both are toxic and both present similar warning coloration patterns of orange and black. This mimicry is a form of protection from predators. Since both species are toxic, predators learn twice as fast that orange and black butterflies taste bad! Other orange and black butterflies that look like Monarchs, but are not toxic, present Batesian mimicry. Larvae vary in color patterns as they molt from 1st to 5th instar. In general, they are very bright and striped with transverse bands of yellow, black, and white. They have 2 pairs of black "stink horns", one pair on the thorax (segment behind the head) and the other near the end of the abdomen (see image). The chrysalis or pupa looks jewel-like with a jade-green color trimmed in gold and metallic appearance (see image). You can actually find jewelry made from the monarch chrysalis.

This Monarch butterfly female was seen foraging on nectar from flowering plants in a meadow in MD.
Photo: M.J. Raupp, UMD

Monarch adult males have thinner veins on their hind wings than females, and males have a black spot (stigmata) on each of the hind wings, females do not.
Photo: Kenneth Dwain Harrelson, BugGuide

Adult monarchs are generalists, feeding on nectar from a wide range of native and non-native flowering plants. They often feed on the nectar of plants in the Asteraceae family but are often seen feeding on a wide diversity of nectar sources. However, monarch larvae (caterpillars) are specialists feeding only on milkweed (*Asclepias* spp.). There are several species of milkweed that occur in the wild or that are produced commercially for their ornamental value. Some species used by monarch caterpillars include common milkweed (*A. syriaca*), butterfly weed (*A. tuberosa*), and swamp milkweed (*A. incarnata*). Monarchs and their caterpillar host have an interesting relationship. Milkweeds contain cardenolides (used to slow down heart rate) which are sequestered by the monarch caterpillar when they consume the milkweed. This gives the caterpillars a chemical defense, also retained by the adult butterfly, in the form of a nasty taste that deters many predators from eating them. Over time some predators have evolved mechanisms to overcome these toxins and are able to consume Monarchs.

Monarchs have an amazing lifecycle that involves multiple generations and migration across miles. In North America (NA), in general, there are three populations. There is the eastern NA population that overwinters in Mexico, and in the spring begins its seasonal migration to the north toward southern Canada traveling a few thousand miles. Monarchs undergo multiple generations during this long journey to Canada. In the late

summer to fall months monarchs begin their migration back to their overwintering habitat in Mexico. So basically, the adults that return to the overwintering roost in Mexico at the end of the season are several generations later than those that began the journey (ex. their great, great,… grand-butterflies). Around mid-March the overwintering butterflies begin their migration northward. There is also a western NA population (west of the Rockies) that similarly migrates between sites in California and Canada. They overwinter or roost in coastal regions of California, migrate to Canada, and back again to California to overwinter. A third, more recently founded population that is non-migratory, is in Florida and Georgia. A few winters ago in December, I was fortunate enough to visit one of the overwintering roosts of monarch adults in Monterey, CA. A truly AMAZING site that I recommend you all put on your bucket list to experience.

Late instar Monarch caterpillars feeding on milkweed foliage. Photo: P.M. Shrewsbury, UMD

Late instar Monarch caterpillars often move away from milkweed to other plants or locations to form their chrysalis and transform into beautiful adult butterflies. Photo: M.J. Raupp, UMD

Many ask "*Why do Monarchs migrate*?" and "*How do the Monarch butterflies know where to go?*". To answer the *why*… In the spring they likely migrate northward "tracking" the emergence of milkweed plants for their caterpillars, and more floral resources for the adults. They likely migrate south, not for warmth and food, but for optimal overwintering climatic conditions. Monarchs need cool but not frosty temperatures (they are not freeze-tolerant), moisture, and protected habitat to survive the winter. They find these conditions in the mountainous regions of central Mexico where millions of Monarch butterflies congregate in a few isolated forests in the mountain valleys of Mexico. Interestingly, they congregate on small patches of forest in these areas where they cluster together by the thousands, often covering an entire tree. As for *how* Monarchs know where to go no one knows for sure. Scientists think they use the position of the sun, along with an innate circadian rhythm, and the earth's magnetic field to determine north and south directions. They also use the wind and thermals to help them glide for long distances, using less energy than flying. There is still much to learn about what regulates the Monarch's migration behaviors and patterns.

You have likely heard discussion regarding monarch decline. Anecdotal observations and monitoring data indicate there has been a long term decline in monarch populations since about the mid to late 1990's. Monarch populations in their overwintering habitat in Mexico are now at their lowest numbers since data started to be collected and recorded about 20 years ago. There has been much effort towards identifying causes of monarch decline. Like most of these situations it does not appear to be just one factor. Factors include destruction of overwintering habitat, the adoption of herbicide (glyphosate) tolerant crops that ultimately reduce milkweed abundance, infection by the disease *Ophryocystis elektroscirrha*, and parasitism by a tachinid fly, *Lespesia*

archippivora. There is some evidence that suggests the use of tropical milkweed, *A. curassavica*, may also play a role in monarch decline.

There are numerous environmental and conservation groups who implement projects to monitor and conserve monarch populations. A quick search of the internet can direct you towards these groups. You may want to learn more about monarch decline and participate in activities towards the conservation of monarchs. One of the more straight-forward practices you can do to conserve monarchs is to plant flowering plants for the adult monarchs and milkweed (*Asclepias* spp.) for the caterpillars in your landscapes. Monarch larvae prefer some species of *Asclepias* to others so be sure to do a little research before purchasing and planting milkweed. Planting flowers and milkweed in your garden provides you and your children / grandchildren the opportunity to watch for the first siting for the season of a Monarch butterfly, and to search the milkweed for Monarch eggs, caterpillars, and then pupae. Remember, when you plant milkweed you should plan on it being damaged by caterpillar feeding and feeding from several other milkweed herbivores. Smile when you see the defoliation because it means you are doing your part to conserve these biological wonders!

For more detailed information on monarch butterflies and their conservation go to: http://www.monarchwatch.org/

Weed of the Week

By: Chuck Schuster

Common Yellow Woodsorrel

A sample of this plant came into my office this morning. A retired public servant (police officer) wanted to know what was taking over the lawn. An easy identification, this person wanted to know if the lawn had a chance. Common yellow woodsorrel (*Oxalis stricta*) is a weed common to the northeast. It is often found in shaded areas and grows primarily as an annual or on some occasions a weak perennial lasting several years. It appears late in the season as it is a late germinating weed. This plant is a low growing plant and roots at nodes. It produces seed and can spread by way of rhizomes. The flowers are yellow, with five petals. The leaves are alternate, smooth, palmately compound and are divided into three heart-shaped leaflets. When stressed, the leaves may take on a red to purplish color. The seed pods will bend distinctly upright on the stalks, thus the name stricta, meaning more in an upright fashion. Each leaflet has a center crease allowing the leaf to fold upward in half. The plant will fold its leaves at night and reopen them in the morning. Each seed pod has 5 separate capsules with about ten seeds per capsule. They will dehisce, or explode when touched sending the seed up to ten feet away.

Common yellow woodsorrel roots at the nodes
Photo: Chuck Schuster

Cultural control of this weed can be obtained by leaving fewer bare spots from spring weed control. As a late germinating weed this plant takes on the opportunity provided by a bare area in the lawn. Hand pulling can be used. Control can be obtained through the use of post emergent broadleaf weed control products including 2,4D, MCPP, and carfentrazone combinations (Speedzone), 2,4D, MCPP and dicamba (Trimec, Weed-B-Gone and others)and other combination products. if used early in the season, and through the use of glyphosate as a post emergent herbicide. Products that include

Prizefighter, Fiesta and Burnout can be used where the desire is to be organic. Pre emergent suppression can be obtained using Prodiamine, pendimethalin and dithiopyr products which are often used in the spring for other weed control. Organic pre emergent do not work well on this weed. Mechanical cultivation and mulching are also effective in the control of this prolific weed in landscapes.

When stressed, leaves of common yellow woodsorrel may take on a reddish color
Photos: Chuck Schuster

Plant of the Week

By: Ginny Rosenkranz

From spring flowers (and bracts) to bright red fall fruit on *Cornus florida* (flowering dogwood)
Photos: Ginny Rosenkranz

Cornus florida or our native flowering dogwood loves to live on the edge – the edge of the woods that is. It prefers to grow in organically rich, moist, but well drained soils that are slightly acidic like the soil you would find on the edge of a woods. Plants grow best with morning sun and afternoon shade, but if planted in full sun, the owner will need to deep water the plant 2-3 times a week when the high heat of summer could scorch the foliage. An inch of mulch is necessary to keep the roots moist. The flowering dogwood is a small deciduous tree, growing 15-30 feet tall and wide with the horizontal branches spreading outwards. The flowers are actually very small and yellow, but are surrounded by 4 large petal like bracts that

come in pure white, light pink or red. The 3-4 inch bracts seem to float over the branches and cover the tree for 2- 4 weeks, but once they are finished the dark green foliage emerges. The leaves are oval-shaped and can expand 3-6 inches, turning shades of red and burgundy in the late summer and early fall. The true flowers mature into bright red fruit in the autumn and are delectable to our native birds. The dark bark is broken into blocks, making the flowering dogwood with its lovely horizontal branches and decorative bark in the winter, the large, beautiful blooms in the spring and the glossy green summer foliage that colors up in the autumn, a wonderful 4 season plant. There are a number of cultivars of the flowering dogwood including some that are resistant to dogwood anthracnose and powdery mildew. 'Cherokee Brave' and 'Cherokee Sunset' are resistant to anthracnose while 'Jean's Appalachian Snow', 'Karen's Appalachian Blush' and 'Kay's Appalachian Mist' are all resistant to powdery mildew. Pest diseases include dogwood anthracnose, powdery mildew, leaf spot, canker, twig blight, bacterial leaf scorch, septoria leaf spot. Insect pests include calico scale, dogwood borer, dogwood sawfly, Japanese maple scale, leafhoppers and oystershell scale.

Degree Days (as of October 2)

Abingdon (C1620)	3905
Annapolis Naval Academy (KNAK)	4721
Baltimore, MD (KBWI)	4265
College Park (KCGS)	3927
Dulles Airport (KIAD)	4035
Frederick (KFDK)	4057
Ft. Belvoir, VA (KDA)	4208
Gaithersburg (KGAI)	3874
Greater Cumberland Reg (KCBE)	3557
Martinsburg, WV (KMRB)	3728
Natl Arboretum/Reagan Natl (KDCA)	4676
Salisbury/Ocean City (KSBY)	4175
St. Mary's City (Patuxent NRB KNHK)	4470
Westminster (KDMW)	4330

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

October 30, 2019
FALCAN Truck and Trailer Safety Seminar
Location: Urbana Volunteer Fire Hall
To Register

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

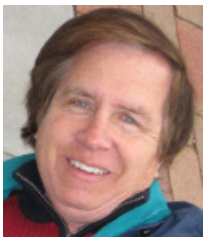
January 20 and 21, 2020
MAA Safety and Pesticide Recertification Seminar
Location: Turf Valley, Ellicott City, MD

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

February 28, 2020
Manor View Farm & Perennial Farm 21st Annual Education Seminar
Location: Shepard Pratt Conference Center, Timonium, MD

CONTRIBUTORS:



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Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery and Landscape Association, Professional Grounds Management Society, and FALCAN for your financial support in making these weekly reports possible.

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