UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **September 11, 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

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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 (Retired Extension Educator)
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)

Weather and Plants

By: Stanton Gill

In 2019, we had extreme amounts of rain from March to the end of July, and then it went to drought conditions until October. As a result, the fall color was terrible. The end of this summer is all over the place. Southern Maryland had a flood of over 25" of rain in one week with areas of farmland looking like lakes. In western Maryland, the rains have been skipping over the mountains, leaving Washington County dry to the point that the soil is mainly dust. Plant material in these areas are stressed to a similar point we saw the rest of the state in 2019. In July, we had 21 days of record-breaking 90 °F plus temperatures followed by bouts of rains, but very spotty when the rain occurred.

We are now into nice sunny days this week with cool nights. This weather pattern translates into a situation where it will not be uniform on plant damage this fall. Southern Maryland is going to see a lot of root death and dieback showing up later this fall and next spring from the excessive moisture at one time. Western Maryland is going to see plant dieback from drought stress, and I suspect we are on track for poor fall color in some areas.

It could be worse – we could be like California. They are suffering through 100 – 112 °F weather this week with over 600 independent forest fires, many set by lightning strikes. In the mid-west, the temperatures went from the 90 °F to the 40 °F range in a very short time. This steep temperature change will shock plant material in the mid-west.

Climate change is resulting in more violent weather patterns, and our plant material often reflect these extremes. Just remember this weather pattern when you are trying to figure out why your customers' trees or shrubs are dying. It will be an after effect of these strange, extreme weather patterns.

New University of Maryland Extension Faculty Person Hired to Work in Montgomery County

By: Stanton Gill

Chuck Schuster retired last winter and moved to Emeritus status with the University of Maryland. Chuck is still working without our University Extension faculty but they have just filled the Extension position Chuck used to fill in Montgomery County. Kelly Nichols, who was previously working in Frederick County, will now be stationed and working in Montgomery county. We asked Kelly to write a short paragraph on herself so you can get to know her. We have invited her to be involved in educational outreach programs for the commercial horticulture industry.

Kelly Nichols is now an Ag Extension Educator in Montgomery County

Here is Kelly's bio and picture:

Kelly Nichols will begin as an Agriculture Extension Educator in Montgomery County on Monday, September 14. Kelly grew up on her family's dairy farm in Lebanon County, Pennsylvania. She received her Bachelor of Science degree in Soil Science with an Agronomy minor and her Master of Science degree in Agronomy/Weed Science from Penn State University. Her thesis research focused on the control of pokeweed in agronomic crops. After graduating, Kelly worked for Penn State Extension as an Agronomy Educator in Franklin County (south central PA). Most recently, she was an Agricultural Extension Agent in Frederick County, MD. In her role in Montgomery County, Kelly's focus will be on agronomy and horticulture. Kelly can be reached at kellyn@umd.edu or 301-590-9638.

Hibiscus Sawfly

By: Stanton Gill

Hibiscus flowers are large and showy and many people have been planting them in landscapes. We are entering the time of year when perennial hibiscus flowewrs start to fade, but we are receiving several pictures of hibiscus with damaged foliage. We have a native pest called the hibiscus sawfly*, Atomacera decepta,* which feeds on the foliage and creates large holes in the foliage.

Hibiscus sawfly larva

Adult activity and egg laying took place from late May through the growing season until the first frost. Females lay eggs in older leaves and hatch in about a week. Green, mottled, camouflaged larvae feed in groups on the undersides of leaves but leave the upper epidermis intact. As they get larger, all leaf tissue except the veins is consumed, which gives the leaf a lacy appearance. At this time of year, plants are full of leaves that are unattractive.

If you still find the larvae active in September, spinosad (Conserve brand name) can be applied to the foliage for control. We are hoping to set up a trial next year to look at Acelypryn and Mainspring applied early in the season for potential longterm control.

Seed Corn Beetle Damage on Golf Greens

By: P. Shrewsbury

About 2 weeks ago, I received images of damage (MANY small soil mounds, see image) on a golf green in southern MD and the insect (see image) that the consultant dug out of the soil. The soil mounds were extensive throughout the green (see image). After some searching through the web and other information, I identified the beetles as **seed corn beetles, *Stenolophus lecontei***, which are a type of ground beetle (family Carabidae). Carabid beetles are usually predators (insects) or omnivores (insects and seed). Seed corn beetles are predacious as adults and larvae feeding on other insects and snails; they have been reported to injure seed corn and sorghum planted in wet soils where germination is slowed. Seed corn beetles are about ¼" long and brown to reddish-brown with two black stripes on the wings.

Seed corn beetle, *Stenolophus lecontei*, that causes soil mounding damage to golf greens.
Photo from https://turf.purdue.edu/

Soil mounds from tunneling activity of seed corn beetle, *Stenolophus lecontei*, on a golf green.
Photo from https://turf.purdue.edu/

Golf green in southern MD showing the density of soil mounds caused by tunneling of seed corn beetles, Stenolophus lecontei
Photo: R. (Chappy) Chapman, Genesis Turfgrass, Inc.)

Occasionally, they cause damage to golf turf. Only the adults are found in golf greens where they tunnel into the soil making small mounds (up to 1"). At first they might be confused for castings of earthworms or soil mounds from solitary bees, but they are not. The beetles do not appear to cause any direct

damage to turf but their soil mounding is a nuisance and disruptive. Why so MANY at the golf course? It is likely conditions are optimal for these beetles. Seed corn beetles are highly attracted to lights, which they fly to at night, and moisture. We have had lots of rain this past month, which would provide a moist habitat for the beetles.

What can be done to reduce seed corn beetle densities and their associated tunneling and soil mounds? Try to make the habitat less favorable. Reduce / turn off any lights that might be on at night near the greens, and hope the rain stops. Insecticides can be applied to the turf but this may not be overly effective since the beetles will fly in from other locations.

White Grubs

Mark Schlossberg, ProLawn Plus, Inc., found active first instar white grubs in Owings Mills this week. Grubs that damage lawns are the larvae of Japanese beetles, May or June beetles, masked chafer beetles, or Oriental beetles. In the August 3, 2018 IPM Report, Paula Shrewsbury, covered the digger wasp, *Scolia dubia*, which mainly feeds on Japanese beetle and green June beetle grubs. Apply registered materials if control is needed.

Monitor turf for white grubs
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Caterpillars

We are receiving a wide variety of reports on caterpillar activity this year. Marie Rojas, IPM Scout, is continuing to see young fall webworms feeding on *Cercis canadensis* and *Sophora* 'Millstone'. She found them in Gaithersburg on September 8. The following are reports of late season caterpillars:

Red-humped oakworm caterpillars are active on *Liquidambar* 'Rotundiloba' in Gaithersburg
Photo: Marie Rojas, IPM Scout

This American dagger moth caterpillar was found on a fence under a Norway maple this week. It is another caterpillar that have hairs that cause a stinging sensation on individuals.
Photo: Connie Bowers, Garden Makeover Company

Hibiscus-leaf moth caterpillars (*Rusicada privata*) were feeding heavily on a rose of Sharon in Jarrettsville on September 6.
Photo: Todd Armstrong, The Davey Tree Expert Company

The green form of the imperial moth caterpillar was found on a 'Bloodgood Japanese maple in Frederick this week
Photo: Greg Kenel, Creative Landscapes by Gregory

This checkered-fringe prominent caterpillar is feeding on a Kindred Spirit hybrid oak. It resembles a dead, curled over leaf edge.
Photo: Marie Rojas, IPM Scout

Mimosa Webworm

Marie Rojas, IPM Scout, found mimosa webworm on honeylocust in Laytonville this week. The mimosa webworm feeds primarily on the leaves of mimosa and honeylocust trees. There are two generations of this pest in Maryland. In some years, there is a partial third generation. Females lay eggs on the terminal leaves and small twigs. Larvae will be active into early September. Pupae overwinter inside cocoons within the web or in bark crevices.
Control: It is late for control. Monitor trees next season. Control options include Acelepyrn, Mainspring, or Spinosad (Conserve) applications.

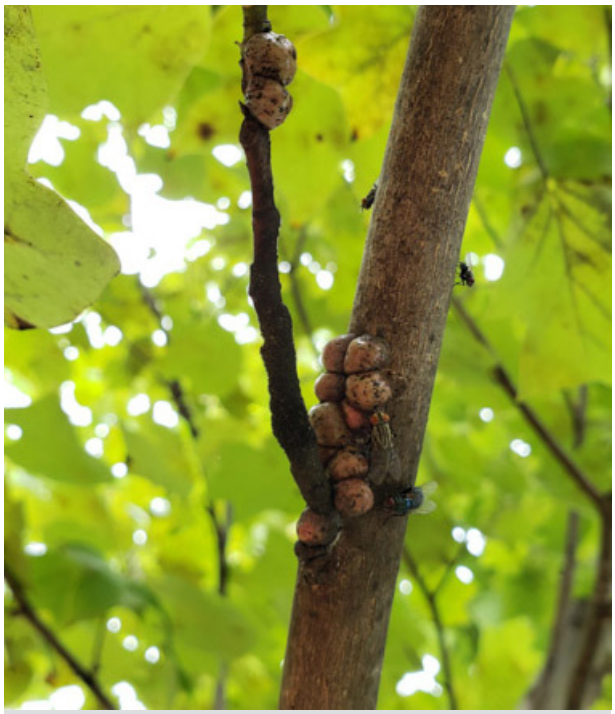
If you see webbing on honeylocust trees, look for mimosa webworm caterpillars
Photo: Marie Rojas, IPM Scout

This catalpa caterpillar has been parasitized by wasps
Photo: Marie Rojas, IPM Scout

This tobacco hornworm caterpillar found in Towson has been parasitized by braconid wasps
Photo: Chad Tipton, Maxalea, Inc.

Scale Insects

Marie Rojas, IPM Scout, found tuliptree scale on *Liriodendron* on September 9 in Laytonsville. If crawlers are present, now is a good time to apply either Talus or Distance. Elaine Menegon, Good's Tree and Lawn Care, found white prunicola scale on Pagoda dogwoods in Hummelstown PA. Now is the time to look for third generation crawlers on plants. Talus or Distance can be used on crawlers for control.



Check tuliptree infestations to see if crawlers are active.
Photo: Marie Rojas, IPM Scout

Beneficial of the Week

By: Paula Shrewsbury

Lots of tachinid flies buzzing around… and that's a good thing

Last week Sam Bahr (Horticulturist,UMD) sent me pictures of a good size (larger than a house fly), black, hairy fly that was visiting the flowers on wingstem (*Verbesina alternifolia*) in the Knight Hall Pollinator Garden on campus. It was a **white-faced fly, *Archytas metallicus*** in the family Tachinidae. Last year about this time (October) some of the students in a class I was teaching collected and submitted a beautiful royal walnut moth caterpillar and a leaf-footed bug, both with tachinid fly eggs on their bodies. Lots of tachinid fly activity at this time of year.

A white-faced fly (*Archytas metallicus*, Tachinidae) feeding on the floral resources provided by wingstem (Verbesina alternifolia) flowers is also know to feed on a diversity of flower species. This demonstrates that "if you grow the right plants, natural enemies will come". Note the bristly hairs on the abdomen that are characteristic of tachinid fly adults.
Photo: S. Bahr, UMD

Tachinid flies are true flies (Diptera) in the family Tachinidae. There are over 1,500 known species of tachinid flies and they can vary in size (3-14 mm) and color (black, grey, and orange). In general, most tachinid flies are robust and have stout hairs on their abdomen. At first glance, some species look similar to the common housefly (minus the stout hairs) but they are very different insects. Although there are other flies that are also parasitoids, Tachinid flies are one of the most important families of parasitic flies providing biological control of numerous insects that are pests in ornamental, turfgrass, and agricultural systems. Tachinids are parasitoids of many caterpillars, sawfly larvae, beetle adults and larvae, earwigs, grasshoppers, and some true bugs. We know that tachinid eggs are not uncommon to find on Japanese beetle adults (see image). The feather-legged tachinid fly (see image) attacks brown marmorated stink bug. This kills the stink bug but unfortunately the tachinid does not successfully develop in this exotic brown marmorated stink bug. Unfortunately, some tachinid fly species attack monarch caterpillars. The **white-faced fly** is just over ½", has a white face, red eyes, and stout black bristles sticking out of its reddish-black abdomen (see image). Adult white-faced flies feed on nectar from flowers. They lay their eggs on the underside of a caterpillar host. The egg hatches and the larvae burrow into the caterpillar, consuming the insides and killing it. They parasitize caterpillars such as fall armyworm, tent caterpillars, fall webworms, cutworms, corn earworm, tomato fruitworm, giant leopard moth or giant wooly bear, and Angus's Datana.

Tachinid flies have interesting and variable egg laying strategies. In some species, eggs are laid on foliage near a host insect, the eggs hatch and the very tiny maggots (larvae) are consumed, unknowingly, by the herbivorous host insect when it feeds on the foliage, then the maggots feed on and develop inside the host insect – of course killing the insect. In other species, tachinid females have long ovipositors that they use to pierce the skin of the host insect and insert her eggs into the host's body. In yet other species, the adult tachinid glues her eggs somewhere on the outside body of the host, eggs hatch, and the maggots penetrate through the insects cuticle

into the host's body where it then consumes and kills the insect. This strategy is the most common strategy we see for tachinids that attack Japanese beetle adults (see the image). Click here to see a video on Tachinid flies. When monitoring for pest insects and damage, we should always look for signs of natural enemies, which includes the white eggs (<1mm) of tachinids attached to the outside of the body of Japanese beetle adults or other insects.

Regardless of the egg laying strategy, all tachinid flies are internal parasitoids of their hosts as larva and they exit the host body to pupate. If you ever see a Japanese beetle adult that looks like it abdomen has been "blown out", it was likely killed by a tachinid fly. Tachinids can have one to multiple generations a year. Some tachinid species have been introduced in classical biological control programs to control exotic pest species such as Japanese beetles. At this time, there are no commercially available Tachinids for use in Augmentative biological control. Adult tachinid flies have sponging-lapping mouthparts that they use to feed on sweet liquid such as nectar from flowers and honeydew from aphids and soft scales. This adult food resource (nectar) suggest Conservation biological control efforts to build Tachinid populations can be used. In our studies on using conservation strips of flowering plants to conserve beneficial arthropods, we frequently observe tachinid fly adult activity on flowers, as Sam did in his pollinator garden. Keep working towards conserving natural enemies to help the beneficial insects suppress Japanese beetle and other pest species.

Feather-legged tachinid fly adult. This tachinid species usually attacks true bugs (Hemiptera: Heteroptera), including squash bugs, leaf-footed bugs, plant bugs, shield-backed bugs, and stink bugs. Note the orange abdomen and large yellow-orange halteres (pair of structures in place of hind wings of true flies).
Photo: Aaron Schusteff; From BugGuide.net

Note the white tachinid fly eggs glued to the beetle's pronotum (section behind the head) by an adult tachinid female. Eggs will hatch and larvae will burrow into the Japanese beetle and feed on its insides resulting in its death.
Photo: V.J. Hickey, BugGuide.net

Weed of the Week

By: Chuck Schuster

Weather has been very changeable this week. Soils contain more moisture than they have in many weeks, with reserves being built back up. Turf is growing quickly with the moisture and the slightly cooler temperatures.

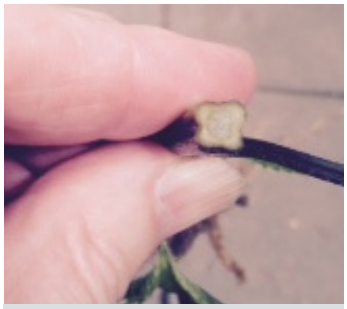


Photo 1- Square stem, Courtesy of Chris Sargent, UMD

A local homeowner noted this plant was showing itself in the landscape and never had noticed it before. Maybe this is true, maybe it is that we now have more time to notice what is going on around us. We seem to be looking more critically at our surroundings. Beefsteak plant, *Perilla frutescens*, is also called common perilla, purple perilla, purple mint, shiso, Chinese basil, wild basil, blueweed, Joseph's coat, wild coleus, or rattlesnake weed, A member of the Mint family, it is a native of Asia and a traditional Asian crop used in cooking. It is an herbaceous **annua**l invasive found in Maryland and some surrounding states in turf edges near wooded areas or in landscapes.

Photo 2 Diffuse root system, Courtesy of Chris Sargent, UMD

Beefsteak plant has opposite leave that are green to purple in color, oval (ovate) in shape occurring with a toothed margin, two to five inches in length, and one and one half to four inches in width. The stem is square (photo 1). It will have a distinct mint-like odor when handled. The flowers are white and purple, bell-shaped, with fine hairs, the upper portion is three-toothed, and the lower portion is two-toothed. The flowers will occur in terminal clusters between July and October. Beefsteak plant has a fibrous root system (photo 2), and its seeds spread by wind or water movement. It is very similar to basil and coleus, but the distinctive odor will help identify it. Beefsteak plant will grow to twenty-four inches in height.

Control of beefsteak plant can be done using manual removal, mowing to prevent seed production. Preventing seed production will be a start, but seeds can remain viable for several years in the soil. In landscape areas where herbicides can be used, using non selective translocated herbicides that will include glyphosate products, can be considered. Other products that are effective will include Non translocated products including Prizefighter (Ammonium Nonanoate) and Avenger d-Limonene) can be used on the young plant successfully. Dicamba is a selective herbicide that can be used in combination with other products (2,4D) to control both annual and perennial broadleaf weeds. Dicamba does have the potential of volatilization, caution must be used when using near desired plant species. Early season identification and control is very useful.

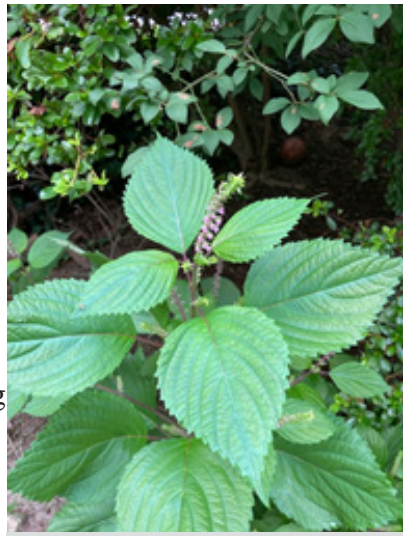


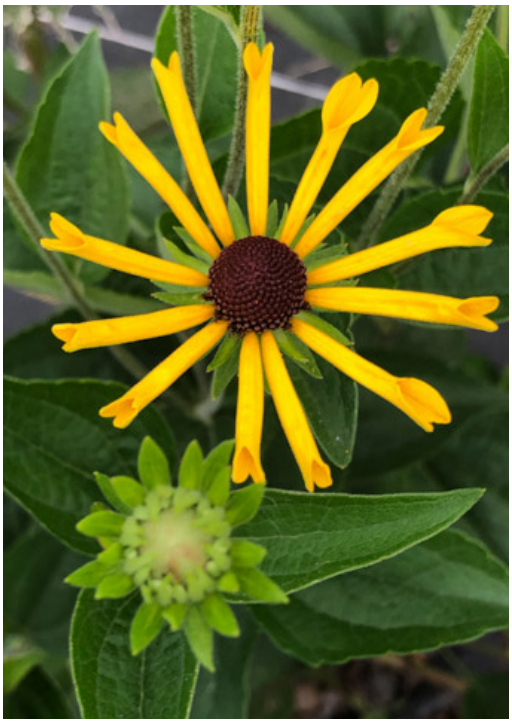
Photo 3, Photo courtesy of Avi Chertock

Photo 4, Photo courtesy of Avi Chertock

Plant of the Week

By: Ginny Rosenkranz

Rudbeckia subtomentosa 'Henry Eilers' or sweet coneflower is a tall native herbaceous perennial that had been found growing along streambanks and moist meadows in the mid-west. It also fits well into the Maryland landscapes by tolerating our hot and humid summers and the occasional drought. *R.* 'Henry Eilers' is a cultivar that thrives to frame landscapes by growing sturdily and branched at 3-5 feet tall, 1-2 feet wide and blooming profusely from July into September. It is cold hardy from USDA zones 4-8, and thrives in full sun and moist but well drained soils. The foliage is dark green with the upper leaves lance- shaped and the lower basal clump of leaves are lobed. The fragrant leaves have downy hairs on the underside. The blossoms have bright butter yellow ray flowers that are rolled from the brown dome-shaped center disk to about 2/3 towards the ends where it flattens out like a spoon. The flowers are also sweetly scented with the fragrance of anise. Good air circulation will reduce the possibility of powdery mildew. Plants can be planted in a mass planting for framing, in a rain garden, and in native and cottage gardens. It is also grown as a cut flower. It is mostly pest free with powdery mildew the only disease listed, and a resistance to deer foraging.



***Rudbeckia subtomentosa* 'Henry Eilers' blooms from July into September**
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 2856 DD (Cumberland) to 3789 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 / settled 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 pests.

Degree Days (as of September 9)

Aberdeen (KAPG)	3030
Annapolis Naval Academy (KNAK)	3387
Baltimore, MD (KBWI)	3506
Bowie, MD	3580
College Park (KCGS)	3271
Dulles Airport (KIAD)	3351
Frederick (KFDK)	3294
Ft. Belvoir, VA (KDA)	3453
Gaithersburg (KGAI)	3190
Greater Cumberland Reg (KCBE)	2856
Martinsburg, WV (KMRB)	3045
Natl Arboretum/Reagan Natl (KDCA)	3789
Salisbury/Ocean City (KSBY)	3476
St. Mary's City (Patuxent NRB KNHK)	3660
Westminster (KDMW)	3493

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: 95 Calculation type: simple average/growing dds Start: Jan 1

IPM Diagnositic Session at CMREC

September 22 and 23, 2020 - only sign up for one day since it is the same program each day. Only one space left on September 23rd.
For more information

Turf Field Day Webinar

September 25, 2020
8:00 a.m. to 1:00 p.m.
To register

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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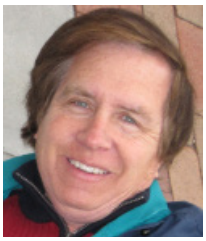
CONTRIBUTORS:



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Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery, Landscape, and Greenhouse 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.