UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **September 18, 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:
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)

Hibiscus Sawfly

By: Stanton Gill

We had several requests for information on control materials for hibiscus sawfly. I spoke with Nancy Rechcigl at Syngenta and she suggested a soil drench of Acelepyrn at 8 oz/100 gallons of water, applying 1 gallons of solution per in-ground plant, in April. This should give 12 weeks of control. The other option is to use Mainspring at the same rate applied in early May. It takes less time for the Mainspring to be taken up by the plant. In the spring of 2021, we will be working with a nursery to evaluate these materials with various rates for efficacy again hibiscus sawfly.

Cicadas

Gaye Williams, MDA, reports hearing a single *Magicicada septendecim* male in Bowie, singing most of the day on Sunday, September 13, 2020, high in a streetside tree. Because of their tremendous populations at this location, several to many, periodical cicadas are noted each year. However, this is her latest calling record ever, they are usually done mid-end of June.

Barberry Webworms

By: Stanton Gill

Last week while diagnosing plant problems at a greenhouse, the owners asked me to look at some plant material outside of the greenhouses. The plants had these really ugly tip branches in which a leafroller caterpillar had been feeding. It is likely damage from barberry webworms. Reports of the damage show up late in the summer.

Look for the barberry webworm caterpillar in webbed cases covered with fass and leaves. It is a dark caterpillar with many small, white spots. Japanese barberry, one of its host plants, is invasive in Maryland woodlands and forests.

Webbing and frass produced by barberry webworms make plants look unsightly

Tuliptree Scale Actively Feeding This week

By: Stanton Gill

We continue to see tuliptree scale, *Toumeyella liriodendri*, females taking in huge amounts of sap this week and excreting copious amounts of honeydew. On a heavily infested container grown deciduous magnolia here at the research center, ants and wasps are harvesting the sugary honeydew. We also saw crawlers in late August. Normally, most come out at this time of year. Maybe the unusual weather pattern has been extended crawler activity. Please let me know if you are seeing crawlers in your area.

Monitor your customers' tulip trees, magnolias, and lindens. This soft **scale** insect is so prolific that it can cover twigs and branches. At this time of year, it is quite large and you cannot miss it on the branches. Female scales are oval, convex, and have a distinct flange around the margin of its protective waxy cover. It is one of the largest of the soft scales and I can even see them without my reading glasses. The waxy cover of a mature female varies from light grayish green to pinkish orange mottled with black.

Ants are tending female tuliptree scales that are secreting honeydew

Recouping After Herbicide Injury

By: Stanton Gill

Jeff Goldman sent in this email: "If a tree has been damaged by Herbicides, is it a good idea to fertilize it? If not; what's the best way to get the tree healthy again? The Herbicides in question are: Glyphosate, 2-4-D, Dicamba, Mecoprop, MCPA, Triclopyr, and Cheetah Pro."

We asked Dr. Jeff Derr, Weed Specialist, with the Virginia Beach Experiment Station to comment. Here is what Jeff said:

"Fertilization will not alleviate herbicide injury. Iron and nitrogen addition can mask some of the chlorosis caused by herbicides, though. If a soil test shows a nutrient is deficient in the soil, or if the site has not received any nitrogen in the past 6 months, I would fertilize to reduce that stress to assist with plant recovery.

As to what to do about herbicide-damaged plants, maintain optimum growing conditions (irrigation, disease and insect control, etc.). Prune off and haul away damaged shoot tips as well as fallen damaged leaves as this removes some of the herbicide from the site. Otherwise, trees and shrubs will outgrow low levels of exposure over time, but weeks or months may be required depending on the dose and the herbicide. A decision about whether to remove the plant will need to be made if the recovery time will be too long or if shoot dieback destroys the desired shape/appearance of a tree or shrub."

Lace Bug Damage

Elaine Menegon, Good's Tree and Lawn Care, reported that she heavy lace bug damage on azaleas around Harrisburg, Pennsylvania. Elaine noted that new growth looks ok, but the rest of the plant does not. Severe infestations can cause azalea foliage to turn white. Look on the undersides of leaves for black fecal spots and the different life stages. Azalea lace bugs overwinter in the egg stage. There are four generations per year in Maryland.

Heavy infestations of azalea lace bugs cause foliage to turn white
Photos: Elaine Menegon, Good's Tree and Lawn Care

Good Time to Check For Root Knot Nematode in Vegetables

Jerry Brust, UME

As this growing season winds down and for the next few weeks it is a good time to examine vegetable roots for root knot nematode (RKN). I would be suspicious of having RKN if my vegetables seemed to need more water than normal or wilted during the heat of the day and recovered later or plants had nutrient deficiency symptoms and the addition of fertilizers did not seem to alleviate the deficiency symptoms. Other symptoms to be suspicious of include some plants appearing stunted with either lower yields or poorer fruit quality. If these vegetable problems were noticed in spots that seemed to follow down a row, there is a chance you have RKN and you should check your vegetable roots for galls.

When you are done harvesting your field dig—do not pull up-- your plants that are having problems and some of the plants that border these problematic plants. If the ground is moist when you dig it makes the whole process much easier. Wash the roots with water or dip plant roots into a barrel of water and gently swish the roots around. Inspect the roots of the plants for the tell-tale symptoms of RKN, i.e., galls on the fine and larger roots of a plant (fig. 1b) vs uninfected roots being smooth and thin (fig. 1a). At other times entire roots can become swollen and appear 'lumpy' and rotted with other roots being much thinner (fig. 2).

Root-knot nematodes start out as eggs that develop into J1 or first-stage juveniles, when J1s molt they become J2 nematodes. The J2 stage is mobile and is the only stage that can start infections. They attack the root tips and enter roots behind the root cap where they initiate a feeding site by injecting secretions that cause the cells to greatly enlarge. The male RKNs eventually leave the roots, but the females stay in the root and lay their eggs in a jelly-like mass that reaches into the soil.

A B

Fig. 1 Tomato roots without (a) and with galls (b) from root knot nematode infection
Photos: G. Burst, UME

Soil fumigants or nematicides can be effective in reducing RKN damage to vegetable roots, but they will not eliminate the pest from the soil and populations will still be high at the end of the season, but roots will be protected long enough for a crop to be produced. More information on fumigants and nematicides can be found in the 2020-2021 Mid-Atlantic Commercial Vegetable Production Recommendations guide.

There are other options that can be used to reduce RKN populations. One of these options is using certain cover crops that can decrease RKN severity and crop damage. Rapeseed (relative of canola) is one of these cover

crops that is planted in late September early October in Maryland at 800,000-900,000 seeds per acre and letting it grow throughout the fall, winter and early spring and then tilling it under in mid-March through mid-April. Rapeseed crops have a high sulfur requirement, so be sure you have adequate levels of sulfur in your soils for this cover crop. The key is getting a good solid stand of the cover crop so that weeds do not grow along with the crop as many weed species can act as hosts for RKN.

Fig. 2 Lumpy rotted roots of a cucumber plant caused by RKN infection
Photo: G. Brust, UME

In the summer, a good cover crop to use is sorghum-sudangrass that can be planted following an early season vegetable crop such as cucumber, pea or snap bean. Planting seed at 200,000 seeds/a or 20 lbs/a in mid to late July produces enough biomass to reduce RKN populations. For best control, the sorghum-sudangrass crop should be chopped while green into smaller pieces and incorporated into the soil by mid-October. Well incorporated sorghum-sudangrass can be as effective as fumigation. Adding poultry litter or poultry litter compost into the sorghum-sudangrass biomass produces the most effective reduction in nematodes.

Pestalotiopsis Tip Blight

By: Karen Rane

Every year we receive samples from landscape arborvitaes showing brown discoloration of current year foliage and young shoots due to infection by the fungus Pestalotiopsis. This fungus attacks a number of conifer hosts, including junipers, *Chamaecyparis*, and *Cryptomeria*. Infection usually starts on the tips of newly expanding young foliage and progresses toward the base of the young shoot. Infected foliage changes color from green to yellow, then brown (Figure 1). Dark spore structures can be seen in the discolored foliage (Figure 2), and under conditions of high humidity, tendrils of dark spores emerge (Figure 3). During wet weather the spores are splashed dispersed to healthy plant tissue, initiating new infections. The fungus can also invade twigs and small branches through pruning wounds, causing cankers and death of small branches. Like most foliage diseases, high humidity, rainfall and long leaf wetness periods favor infection. Pestalotiopsis is an opportunistic pathogen, infecting trees and shrubs that are under stress from other factors (such as drought, transplant stress, winter injury, senescence or insect feeding damage). The fungus is also known to be an endophyte, which means it can live within plant tissues without causing disease symptoms.

Figure 1. Arborvitae tip blight, caused by Pestalotiopsis.
Photo: Michael Morgan, Heartwood Landscaping

Keeping plants healthy through good cultural can help reduce infection by this opportunistic fungal pathogen. Make sure the site is suitable for optimum growth - arborvitaes grow best in full sun and well-drained soils. Proper plant spacing will help keep foliage drier after rain events by encouraging air circulation through the canopy. Irrigation

applied to the root zone during drought conditions will help reduce stress. Pruning dead twigs during dry weather will reduce the amount of spores in close proximity to new growth within the affected shrub, and help to reduce new infections.

Figure 2. Close-up of infected foliage, showing dark spore structures of Pestalotiopsis (circled)
Photo: Michael Morgan, Heartwood Landscaping

Figure 3. Dark spore tendrils of Pestalotiopsis on infected juniper needles
Photo: Lorraine Graney, Bartlett Tree Experts, Bugwood.org

Chinch Bugs

By: Stanton Gill

Mary Parr sent in something I have not seen before. It is a chinch bug, *Blissus* species, possibly *B. leucopterus,* on the aquatic grass, *Spartina alterniflora*. I sent pictures to Michael Skvarla, Penn State, and he thought it could be hairy chinch bug. Susan Halbert, FDAC in Florida, replied: "It looks like a chinch bug to me. *Blissus* is a taxonomic mess. Some enterprising student with taxonomic interest probably could sort them out with molecular help." It is interesting that chinch bugs attack aquatic grasses. We know these bugs are in the genus, *Blissus*.
We just need to figure out which species it is that is doing the damage.

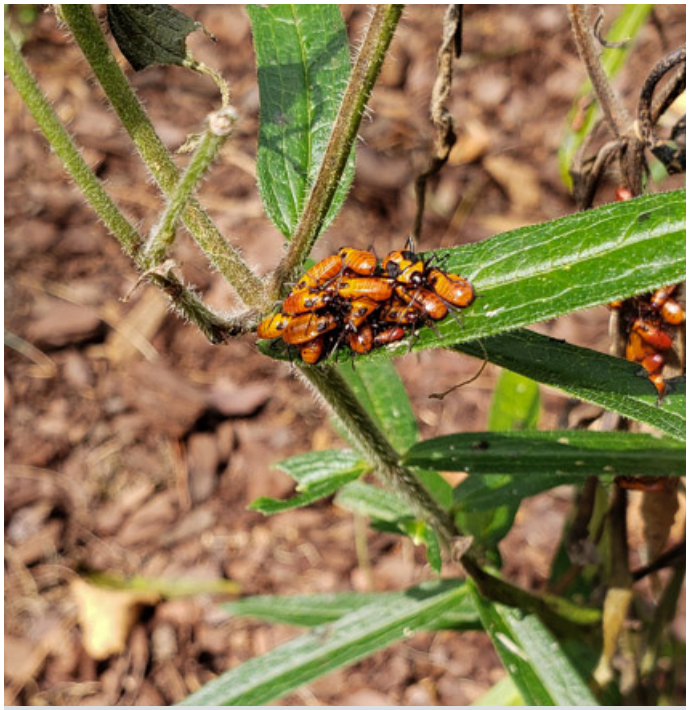
Chinch bug nymph

Chinch bug adult (above) and damage (below)
Photos: Mary Parr

Scouting Report

Marie Rojas, IPM Scout, is finding insects active this week in residential landscapes. At this time of year for many insects, control is not necessary.

Oleander aphids are common on plants in the milkweed family, including this *Gomphocarpus physocarpus*.
Photo: Marie Rojas, IPM Scout



These milkweed bug nymphs are active on *Asclepias tuberosa*.
Photo: Marie Rojas, IPM Scout

In the last molt, the larvae of dogwood sawflies will beocme yellow and black before dropping to the ground to find a place to pupate. The white, waxy larva in the photo was found on *Cornus sericea*.
Photo: Marie Rojas, IPM Scout

A Mantid Feeding on a Spotted Lanternfly

Matthwe Rozanski saw this mantid feeding on a spotted lanternfly adult while inspecting a street tree in Philadelphia. He noted that he hasn't seen many predators of the pest other than spiders. Matthew Rozanski, Philadelphia Water Department

Beneficial of the Week

By: Paula Shrewsbury

The crab spider and the flies

This crab spider camouflages against a yellow flower, which allows it to remain unnoticed by an unsuspecting honeybee. Photo: P. Shrewsbury, UMD

In the last few weeks as I observe plants for insect activity, I have seen a number of crab spiders (order Araneae; family Thomisdae) in the heads of flowers where they are foraging for their next meal. They are also called flower spiders of flower crab spiders. When you look at the front two (of 4) pair of legs of a crab spider and watch it move, it is easy to understand where it gets its name from. The two front pair of legs are long and curve towards the front. They can walk sideways and backward in a crab-like manor. Like all spiders, crab spiders have simple metamorphosis where the young look similar to the adult and they shed their skin as they develop. Most crab spiders have one generation per year although some species have multiple generations per year. There are over 2,000 species of crab spiders worldwide, with about 200 species in North America.

Crab spider, Misumena vatia, camouflages nicely on the flower of a mint plant while it sits and waits for its food to land nearby Photo: P.M. Shrewsbury, UMD

Crab spiders are what we describe as sit-and-wait or ambush predators. They do not build webs. Many species camouflage amongst the flowers, plant bark, or foliage. Some species such as *Misumena vatia*, can change color to match their background. It may take a few days but *M. vatia* can appear white, yellow, or green with two reddish lines running down its sides. Crab spiders sit very still and wait for a bee, fly, moth, mosquito, beetle, caterpillar or other unsuspecting insect to come within its reach. The crab spider then speedily grabs its prey with its front clav-like legs, bites it with fangs that contain venom killing the prey, and then secretes digestive enzymes that liquefy the insect and creates an appealing meal for the crab spider – yum. Research has shown that some crab spiders will also feed on nectar so a flower head is a good place to catch prey and sip on nectar for these spiders.

I saw an interesting dynamic on a potted mint plant in my yard. The mint was in flower and one day I started to see numerous (30-40) blowflies (Calliphoridae) on the inflorescences of the mint. As I was observing the flies, I noticed that many dead flies appeared "stuck" to the flower. It seemed the flies were attacked and killed by an insect-killing pathogen, likely an entomopathogenic fungus. Some species of insect killing fungus can

change the behavior of insects resulting in what are sometimes referred to as "zombie" insects. For instance, I wonder if the fungus attracted the flies to the mint plant to take advantage of them as a food resource. In addition, many of the dead flies were in the higher parts of the plant. The higher the fly, the further the reproducing spores will disperse from the dead flies. BUT to make the story better, there was large (~10mm) crab spider, likely *Misumena vatia*, sitting on the one of the flower spikes of the mint. It was white with traces of purple and camouflaged nicely with the mint flowers. The crab spider was having a feast on all the flies that were active on the mint flowers. I would say a wise choice of hunting grounds for that crab spider.

A dead blow fly (Calliphoridae) on the tip of a mint flower killed by an entomopathogenic fungi as indicated by the white fungal spores on its body.
Photo: M.J. Raupp, UMD

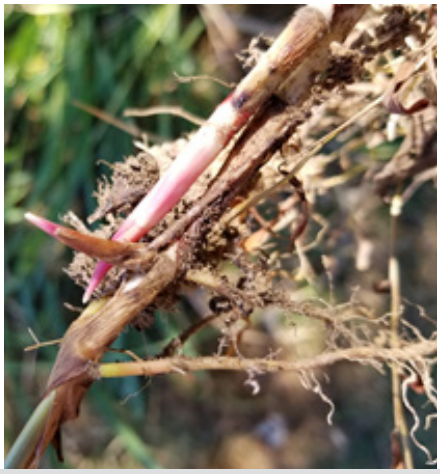
Take some time and observe these beautifully colored spiders. Watch them as they patiently ambush their prey. Crab spiders are just one predator in the complex of many that forage on plants and help to reduce herbivore abundance and the likelihood of populations reaching damaging levels. Plant flowers and add landscape diversity to attract these little crabs and other beneficials. You never know what interesting dynamics you might see.

Weed of the Week

By: Chuck Schuster

Johnsongrass seems to be rather abundant this year. Is it from the very mild winter? This plant is found in the southwest in more arid areas, which may be allowing it to flourish locally this year with the hot and dry July that was noted in this region. Maryland Weed Control, in a discussion on another weed issue, reminded me that many need to be aware of this weed that is being found in many settings right now.

Johnsongrass, *sorghum halepense*, is showing its ugly seed head in many areas now. This perennial weed can reach six feet or more in height, has a dense rhizome (photo 1 and 2) and produces a large number of seeds. For these reasons, this plant is regulated causing it to be on the Maryland Noxious Weed list. These plants are regulated by Maryland and property owners **must** prevent them from producing seed. Native to Asia and Noth Africa, it will also be found in the southwest. In the southwestern United States, it has been used as a forage, but when moved to the east this plant became a noxious weed



1. Johnsongrass has a dense rhizome
Photos: Chuck Schuster

quickly in our more moist soils. Found to be very tolerant of many soil conditions, it will thrive in both low and high fertility settings. It can tolerate a wide array of moisture conditions and most all pH conditions found in this region. It will survive regular mowing, but this will prevent seed head production. Found throughout the United States in agronomic, horticultural settings, and in fringe areas of lower management, it does require management. For identification purposes, start looking at the growing plant. The leaves are rolled in the shoot and are without auricles. Each leaf blade can reach twenty inches in length and up to three quarters of an inch in width, with a prominent white mid vein (photo 3). Leaf blades are without hairs, but some may be found at the base of the leaf blade. Johnsongrass has a jagged-edged and membranous ligule. The stems are round, but may be flattened, sheaths will be green to maroon in color. The plant has a fibrous root system with a dense thick rhizome (photo 1 and 2), and the rhizome will have an orange scales. The flowers/seed head will be a large open panicle with a reddish to purple color. Seeds are oval and dark red in color. Similar to barnyardgrass and fall panicum. Johnsongrass will not have hairs on the lower leaf blades as fall panicum does. Also johnsongrass has a membranous ligule and neither of the two others do. It may also look like shattercane, but shattercane does not have rhizomes. When purchasing seed, always look at the label carefully to determine if the seed contains any amount of noxious weed seed. Remember, it is legal in some parts of the United States, but not Maryland.

Control of johnsongrass can be achieved using several different products. From seed only prodiamine (Barricade, Factor) (be cautious with some varieties of turf). Post emergent control using a glyphosate product can achieve control, but monitoring for seed production the following year is important. Culturally, johnsongrass can be *managed* using proper mowing, preventing it from going to seed. Products including Burnout, Prizefighter and Pulverize will reduce the stand but because of the strong rhizome system this plant displays may never actually eradicate the plant. Because this plant is on the Maryland Noxious Weed list it can be controlled using synthetic products that otherwise are not allowed to be used.

3. Johnsongrass has a prominent, white mid-vein
Photo: Chuck Schuster

4. Look for the seed head of johnson-grass
Photo: Chuck Schuster

Plant of the Week
By: Ginny Rosenkranz

Liriope muscari 'Variegata' or variegated lily turf is an excellent grass like evergreen groundcover that grows in part to full shade. Plants prefer to grow in moist, well drained soils but are very tolerant of full to partial sun and dry to moist soils. Cold tolerant from USDA zones 5-10, they are very tolerant of heat, drought and high humidity that is common in Maryland. The bright arching evergreen foliage is banded on the outside with a creamy white boarder. Plants grow in clumps 1-1 ½ feet tall and expand slowly by short stolon to 2 feet wide. Unlike it cousin, *Liriope muscari* 'Variegata' maintains the clump form for years. In late September *Liriope muscari* 'Variegata' send up flower spikes 10-12 inches tall that are covered with whorled tiers of bright purple – violet flowers which bloom from August into September. Later in the autumn the flowers mature into dark purple berries which provide color in the garden through the winter. Plants can be used as edging along woodland or cottage paths to formal sidewalks. Spring flowering bulbs can be planted among liriope plants in cottage gardens, and the fading foliage of the spring bulbs can be camouflaged by the bright green and white foliage of the Liriope. There are a number of cultivars including 'Silver Dragon' which is bright white and green, Marc Anthony® Liriope which is green, white and yellow, and 'Silver Sunproof', bright green and pure white. Pests include scale, slugs, snails, leaf and crow rot, and deer. Every 3=5 years the old foliage should be cut down in early spring, before the spring flowering bulbs emerge.


Liriope muscari 'Variegata' grows in part to full shade
Photos: Ginny Rosenrkanz

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 2971 DD (Cumberland) to 3938 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 / settled 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 16)

Aberdeen (KAPG)	3149
Annapolis Naval Academy (KNAK)	3532
Baltimore, MD (KBWI)	3646
Bowie, MD	3720
College Park (KCGS)	3392
Dulles Airport (KIAD)	3486
Frederick (KFDK)	3414
Ft. Belvoir, VA (KDA)	3589
Gaithersburg (KGAI)	3312
Greater Cumberland Reg (KCBE)	2971
Martinsburg, WV (KMRB)	3166
Natl Arboretum/Reagan Natl (KDCA)	3938
Salisbury/Ocean City (KSBY)	3631
St. Mary's City (Patuxent NRB KNHK)	3818
Westminster (KDMW)	3627

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

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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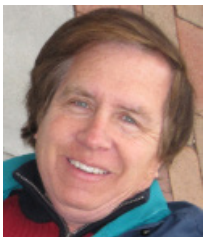

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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.