Leaf-folder Caterpillar on Native Ferns

By: Stanton Gill

Native ferns have been a big selling item for the last 20 years. Unfortunately, an imported pest from Asia is attacking native ferns with increasing frequency. The fern moth, *Herpetogramma theseusalis*, is in the family Crambidae (crambid snout moths) and is causing damage on ostrich fern and royal fern.

In previous years, we have seen it feeding on sensitive ferns and royal ferns. Early feeding by this caterpillar causes tattered foliage. Eventually, the caterpillar rolls itself in the tips of the fronds where it pupates. We’re not sure of the life cycle of this species in Maryland and how it develops in greenhouse growing environments. In Maine, Douglas Morse, Brown University, has reported one generation outdoors and that it overwinters in the mid-instar larval stage. We have seen activity in early summer and again in late summer, so I suspect we may have two generations per year.
This heavy coating of sooty mold interferes with photosynthesis.

The adult moth is a night flyer. If you sample during the day, it flies in an zig-zag pattern for a short distance and then plunges into the canopy of fern foliage. Five years ago we conducted trials with a perennial nursery in controlling this pest. Acelepyrn worked well on this pest. Interestingly, we compared it to Acephate (Orthene). I thought the acephate would damage the fern foliage but it did not and it controlled the moth larval stage very well.

More on Crapemyrtle Aphid
By: Stanton Gill

I received several emails asking to expand on crapemyrtle aphids. For the last 20 years crape myrtle has grown in popularity in nurseries and in landscapes. It is being used heavily in cityscapes where it is hot and dry and they seem to perform pretty well. Many crape myrtles are being shipped in from southern nurseries to fill the demand from landscapers. Everything is wonderful in crape myrtle land. Or is it?

One of the biggest pests of crape myrtles is the crapemyrtle aphid, Sarucallis kahawaluokalani. Although native to Southeast Asia, crapemyrtle aphid was described by Kirkaldy from specimens collected in Hawaii. In the U.S., crapemyrtle aphids are monophagous and only feed on crape myrtle. This is not your typical aphid. Most aphid species only produce winged stages (alates) when they want to disseminate the population or there is environmental stress on the plant on which it is feeding. Not so with the crapemyrtle aphid. All adult crapemyrtle aphids bear wings. Adults can take flight whenever they want and spread to a new plant. Nymphs are pale to bright yellow with black spike or hair-like projections on their abdomen. Adults are also yellow and have black spots and two large black tubercles on the upper side of the abdomen.

Eggs overwinter on the stems. Some dormant applications of oil are an option for controlling crapemyrtle aphids. Since crape myrtles leaf out late you have plenty of time in the spring to apply dormant rates of oil. Eggs hatch in early spring when leaf buds break. There are multiple generations throughout the spring and summer.

If populations are heavy, sooty mold will be very noticeable. Black sooty mold can make plants look unsightly and interfere with photosynthesis. Heavy infestations can cause early leaf drop or complete defoliation of affected plants. Use of a systemic insecticide is an option, but select materials that do not negatively impact pollinators. Endeavour was one I mentioned last week. Altus from Bayer has good potential as a control material for this aphid.
One We Don’t Have and Don’t Want
By: Stanton Gill

A scary scale pest to watch for on crape myrtle that is being found in the south and has potential to spread to other states is *Eriococcus lagerostroemia*, which is common on the timber tree *Lagerostroemia indica* in Japan and China. In 2004, a report was received at the lab of Dr. Mike Merchant, Texas A&M, from a local landscape maintenance company concerning an unusual pest insect on crape myrtle that was proving exceptionally difficult to control. Initially, this insect was identified as an Eriococcid scale (Hemiptera: Eriococcidae), most likely the azalea bark scale, *Eriococcus azalea*. A sample of the scale was collected by Dr. Mike Merchant in 2008 and submitted for identification. It was still thought to be azalea bark scale. Because of the fact that azalea bark scale had never before been recorded on crape myrtle and they learned of a very similar species of Eriococcid scale that feeds on crape myrtle from China and Japan, they resubmitted scale samples in 2010 to Dr. Dug Miller (now retired), systematic taxonomist for scale insects with the USDA in Washington, DC. He concluded that it was very likely that this scale insect is a new introduction of *Eriococcus lagerostroemia*, the scale previously known only from Asia. He was unable to detect any physical differences between the crape myrtle scale and the azalea bark scale. DNA analysis is necessary to differentiate the two species.

As of the beginning of 2014, in Texas the crape myrtle bark scale has been observed infesting crape myrtles throughout the Dallas-Fort Worth-Denton-Rockwall area, and in Tyler, TX. In 2012 the scale was confirmed in Ardmore, OK and in 2013/14 it was confirmed in Houma and Shreveport, LA; Germantown, TN; and Little Rock, AR. In Texas, Dr. Merchant had a chance to test out several materials to try to control this new invasive scale. In addition to testing some newer neonicotinoid insecticides, they looked at applications of horticultural oil and of Malathion. The latter two treatments provided no significant suppression of scale activity; however they did see significant control with acetamiprid, clothianidin, dinotefuran and imidacloprid. When applied with a drench treatment to the plant root zone, they concluded that these products provide significant control of this scale.

Peachtree Borer and Cherry Laurel
By: Stanton Gill

I have not picked up adult peachtree borer in my baited pheromone traps, but in the next 2 weeks we should see activity. Since cherry laurel is being used everywhere because it is deer tolerant, there is plenty of food sources out there for peachtree borer to be active.

Peachtree borer (*Synanthedon exitiosa*) attacks plum, prune, cherry, almond, apricot, and nectarine, but it prefers peaches and its cousin cherry laurel. It is a native North American pest that can damage and kill plants. The adult is a clear winged moth with a 1 ¼ wingspan. The females are a dark, steel blue with a wide orange band and opaque front wings. The males are also steel blue, but they have several yellow bands,

Acelepyrn or Mainspring can be used for clearwing moth borers. They are both systemic Diamides but differ in their spectrum of activity. Mainspring has a slightly broader spectrum and can be used as a spray or drench. Another option is Onyx applied to the base of the plant to kill hatching larvae. Wait on this treatment until we report flight activity of the adults. Egg activity usually starts about 2 weeks after adult flight activity.
Japanese Beetles
We continue to receive reports of early Japanese beetle activity. Shane Pennington, Lawn Doctor of Cecil County, found Japanese beetles on June 20 in Elkton. Tony Murdock, Fine Pruning, saw his first Japanese beetles on June 22 in Adamstown. Christine Klass found them on her fuschia and kale in Baltimore County and Marie Rojas found feeding and mating on Regal Prince oaks in Montgomery County on June 22. We have also spotted a few here at the research center in Ellicott City this week feeding on wild grape.

Control: Stay on top of control early to prevent major damage. In trials, foliar applications of Acelepyrn and Mainspring gave control for 10 - 14 days at 8 oz/100 gal. We had longer control of 3 weeks at the higher label rates. Bacillus thuringiensis galleriae (Btg) gave 4 - 5 days of control at the higher rate of 100 oz/100 gal of water.

Bagworms
Shane Pennington, Lawn Doctor of Cecil County, found bagworms in Elkton on June 20. While the caterpillars are still small, the control options in mid to late June are many. Bacillus thuringiensis (Bt) is very effective on early instar bagworms, but use a sticker with the application. Another very safe choice is spinosad sold under several names including Conserve. These two materials have minimal impact on beneficial organisms (when used according to the label), but effectively control bagworms. Acelepyrn and Mainspring would both control bagworms, but at a much higher cost. Again, both materials have the least impact on beneficial organisms, but control the caterpillar. An older class of chemistry, acephate, will control bagworms, but there is a wider spectrum beyond the target pest of what it will also kill. In light infestations, hand picking off bags is an option.

Viburnum Leaf Beetle
By: Stanton Gill

Thanks for the input on viburnum leaf beetle activity. We got report in from damage occurring in Howard County and one in Washington County, Maryland and Lancaster County, PA so far. If you see the damage, shoot a good clear picture and send it to me at sgill@umd.edu.
Mild Winter Induces Three Vegetable Pest Problems
By: Jerry Brust, IPM Vegetable Specialist

There are three major pest problems attacking our vegetables this spring so far. These include striped cucumber beetles, leafhoppers, and twospotted spider mites. I think most of the problems we are having with these three comes from our mild winter as each has had an outbreak population after a mild winter sometime in the last 12 years.

So far this has been a particularly bad year for striped cucumber beetles in squash, cucumber, and watermelon, and when they are up pumpkins. The cool wet May we had slowed the emergence of the beetles from their overwintering sites. When you combine the delayed emergence of the beetles with the slow planting schedule of squash and cucumber because of the wet weather you end up with a massive movement of beetles into some places as soon as there are any cucurbit plants available. The beetles tend to mass on small plants where they eat, mate and defecate (fig 1). This type of frenzied activity where there are many beetles feeding on a few leaves or on a small plant leads to increased chances of bacterial wilt infection. The bacterium that causes bacterial wilt in cucurbits, *Erwinia tracheiphila*, is in the cucumber beetle’s feces. As the beetles defecate on the leaves where they are feeding the bacteria move into the open (feeding) wounds with the help of water that is in the form of precipitation or dew. The more beetles that are feeding and opening wounds on susceptible crops like cucumber, cantaloupe, and squash the greater the chance of bacterial wilt infection. In a few small cucumber fields I saw as much as 30% of the plants with bacterial wilt. One additional problem with these pests and why control sprays have not worked as well as they should have under some conditions is that the beetles are consistently hiding at the base of the plant where they are feeding on the stem. Sprayers are set up usually to cover the leaf canopy and often do not do a very good job of putting chemical down in the plant hole. This stem feeding can be severe enough to cause some wilting. It is hard enough to control cucumber beetles with a good cover spray, but when only small amounts of spray are reaching them down in the plastic hole they will not be controlled.

The second outbreak pest has been potato leaf hopper (PLH). When looking on the underside of leaf-scorched leaves (fig 2), I found many potato leafhopper, *Empoasca fabae*, nymphs (but no adults) (fig 3). Potato leafhoppers prefer warm, dry conditions and are commonplace in southern states where they overwinter; leafhoppers do not overwinter in our area, but the more mild the winter the better able they can overwinter close...
to us. PLH are generally first seen in late April or early May, but are arriving on average 7-10 days earlier in our area than just 20-30 years ago. Females lay 2-4 eggs per day in the leaf stems or veins of plants. In 7 to 10 days nymphs emerge. Nymphs undergo five instars and reach maturity in about 2 weeks. The newly emerged nymph is nearly colorless with red spots that fade. Nymphs then become yellow, finally changing to pale green in the third and later instars. There are 3-4 generations each summer. Leafhoppers are capable of very rapid population increases so scouting is important to control the pest to avoid damage to crops. Alfalfa and a few other forage legumes are the primary hosts for the potato leafhopper and once the first cutting of the forage is done, PLH will move into other susceptible crops such as grapes, potato, raspberries and hops.

Damage: The most obvious symptom of potato leafhopper feeding is hopper burn. Hopper burn is the yellowing of the leaf margin (fig 2). This damage is followed by leaf curling and necrosis. Hopper burn occurs because potato leafhoppers feed by sucking the juices out of leaf veins and blocking the veins with a toxin in their saliva. Once hopper-burn is seen the plant has been damaged.

Monitoring and Management: Because potato leafhoppers can have very rapid population surges, it is important to scout and control them before major damage occurs. While there is no agreed upon threshold for leafhoppers in several of our crops such as eggplant, raspberry or hops, most recommendations have a threshold at 2-3 PLH per leaf. Scouted fields weekly by checking the undersides of 5-10 leaves per 10–20 plants. If the average number of leafhoppers per leaf is at or above the threshold, then a control is needed. Because hops are a newer crop in our area states may differ in what they allow to be used, so be sure to check the label to see what your state will allow to be used on hops for PLH control. In general, neonicotinoids, pyrethroids, or spinosyns could be used. Organic growers could use spinosad or pyrethrins that are OMRI approved for potato leafhopper management. If PLH are more of a consistent problem for you one suggestion is to plant red clover in drive rows (do not mow) as potato leafhoppers prefer to feed on the red clover than most of our vegetables.

The third pest problem is twospotted spider mites (TSSM) Tetranychus urticae. Even in May after all that rain there were reports of mite infestations on a few crops which included hops, yes not a good year for hops. Spider mites overwinter as adults in the soil or leaf litter, although they may remain somewhat active in high tunnels through the winter. The light yellowish eggs are pearl-like in appearance and are attached to the undersides of leaves or stems (fig 4). The most difficult thing to accomplish for good TSSM control is getting adequate spray coverage. Many of the spray applications do a good job of covering the top of the leaves, but do a poor job of reaching the underside of the leaves. Good coverage is essential. One grower used a leaf blower-like back pack sprayer and applied two sprays of 1% (by volume) horticultural oil 7-10 days apart. He got excellent spray coverage on the underside of his leaves and consequently excellent control of the mites that were present. By using two applications about one week apart it was possible to control not only the adults and nymphs, but the eggs as well. Oil is a good management tactic to use at this time of year as plants are smaller. An added benefit of the oil is that it is rather inexpensive. Using oils now also will greatly reduce any development of mite resistance to other chemicals over the course of the season. If miticides are needed Kanemite, Acramite and Portal are all excellent miticides.
Beneficial of the Week
By: Rebeccah Waterworth and Paula Shrewsbury, University of Maryland

Green assassins

My technicians and I were scouting for stink bug egg masses this past week in an apple orchard when one tech excitedly shouted “Oh, cool!” Of course, I dropped what I was doing and ran over to see what was happening. All of us watched a female pale green assassin bug (Order Hemiptera, Family Reduviidae, *Zelus luridus*) ovipositing (or laying eggs) on an apple leaf (Fig. 1). I have often seen the egg masses of *Zelus* on the undersides of leaves while working in the nurseries, but I have never caught a bug in the act of laying eggs. Egg masses are small, (~ ¼” in diameter) with the entire mass looking like a cone or a tiny flat-topped volcano (Fig. 2). Females will lay 20 to 50 eggs in a mass by gluing the eggs to the leaf and to each other. In her lifetime, a female green assassin bug will lay up to 10 egg masses!

Adult females of pale green assassin bugs will lay eggs from now until August. Nymphs pass through five instars, and it is the late instar nymphs that overwinter in protected places such as fallen leaves and emerge in the spring to feed and develop. After molting to adults, bugs mate in the late spring. There is only one generation per year. They commonly occur on deciduous trees and shrubs, and among their favorite prey are small flies, wasps, and sawflies, and they have been known to stalk caterpillars.

Assassin bugs are voracious predators that readily ambush prey that is their size or larger. An unsuspecting victim just has to walk or fly too close to these bugs, and wham! The forelegs swing down and the bug’s piercing-sucking mouthparts insert before the prey even knows what hit it. Predation events are very exciting to watch, so please check out this video [here](https://www.youtube.com/watch?v=6bfUpaaEKcQ) of a wheel bug (a specific kind of assassin bug) stalking a caterpillar.

All assassin bugs in the genus *Zelus* have an extra trick to help them catch prey. They have their own sticky trap! After the first instar or developmental stage, bugs produce their own sticky material from glands on part of their front leg. Once this sticky material starts to exude, it collects on special “sundew setae.” However, a first instar nymph of *Zelus* assassin bugs does not yet possess the sticky glands. These young bugs are in luck, however, because their mother left behind some sticky “goo” on the eggs. Shortly after hatching, nymphs spend some time smearing the sticky material all over their front legs (see this video at [here](https://www.youtube.com/watch?v=GmDRDyBVT6Q)). If you look closely at green
Weed of the Week

By: Chuck Schuster, University of Maryland

Weeds are even confused this year with their timing. I am seeing many plants come into flower earlier than normal. The warmer than normal winter has many things confused. This week, thoroughwort pennycress, *Microthlaspi perfoliatum*, was brought in. While not much earlier than normal, the stand was prolific. It is a winter annual that can be found in the southeastern United States, and with the recent winter is being found even more so in this area. Thoroughwort pennycress is a plant that can be found in landscapes, turf and nursery settings. It forms a basal rosette; the leaves are oblong in shape and without hairs. Leaves found on the flower stalk clasp the stem and become smaller as they move toward the top. Rosette leaves are lobed. The white small flowers with yellow anthers are found on the upper portion of the terminal stem or inflorescence and are made up of four petals. This plant is very similar to shepherd’s purse, but the fruit of shepherd’s purse is larger and is more heart shaped. The leaves of shepherd’s purse do not clasp the stem as they do on thoroughwort pennycress.

Control of thoroughwort pennycress can be obtained using dicamba mixed with 2,4D or triclopyr in turf settings, and for pre emergent in landscape use oxadiazon (Ronstar). Use extreme caution with herbicides that can volitilize, the 2, 4D and Dicamba family are known for drying and potentially becoming gaseous later and moving to another area.
Plant of the Week
By: Ginny Rosenkranz, University of Maryland Extension

*Osmanthus heterophyllus* ‘Goshiki’ or variegated false holly looks a lot like a holly, but has its leaves placed opposite on the branches rather than alternately like a true holly. Its leaves are evergreen like a holly, it has male and female plants like a holly and the flowers look and smell very similar to a holly – but it’s not. ‘Goshiki’ in Japanese means 5 colors and when the new foliage comes out it is red that fades to pink then a bright green with creamy white and yellow spots and swirls. The leaves are tipped with sharp spines at each node on this *Osmanthus* and the plants can grow 10 feet tall and 8 feet wide. The waxy, cream colored 4 petal flower blooms in fall and is very fragrant, but the blue berries are usually hidden by the dense foliage by the time they ripen. It grows best in USDA zones 6-9 and can thrive in full sun, light shade in moist but well drained soils and once established ‘Goshiki’ is usually drought tolerant. In the landscape, *Osmanthus heterophyllus* ‘Goshiki’ can be used as a specimen plant to brighten up an area, or as a bright light hedge. Pests include aphids and scale.

### Phenology

<table>
<thead>
<tr>
<th>PLANT</th>
<th>PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Asclepias tuberosa</em> (butterfly weed)</td>
<td>First bloom</td>
<td>Clarksville (June 18)</td>
</tr>
<tr>
<td><em>Commelina communis</em> (Asiatic dayflower)</td>
<td>First bloom</td>
<td>Ellicott City (June 20)</td>
</tr>
<tr>
<td><em>Pycnanthemum tenuifolium</em> (narrowleaved mountain mint)</td>
<td>First bloom</td>
<td>Ellicott City (June 22)</td>
</tr>
<tr>
<td><em>Saururus cernus</em> (Lizard’s tail)</td>
<td>First bloom</td>
<td>Ellicott City (June 22)</td>
</tr>
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### Degree Days (As of June 21)

<table>
<thead>
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<th>Location</th>
<th>Degree Days</th>
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<tbody>
<tr>
<td>Annapolis Naval Academy (KNAK)</td>
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<tr>
<td>College Park (KCGS)</td>
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<tr>
<td>Ellicott City (E247)</td>
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<tr>
<td>Frederick (KFDK)</td>
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<td>Gaithersburg (KGAI)</td>
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<td>Natl Arboretum.Reagan Natl (KDCA)</td>
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<tr>
<td>Salisbury/Ocean City (KSBY)</td>
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<td>Westminster (KDMW)</td>
<td>1407</td>
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Baltimore, MD (KBWI) 1321
Dulles Airport (KIAD) 1375
Fairfax, VA (D4092) 1495
Greater Cumberland Reg (KCB) 1265
Martinsburg, WV (C1672) 1212
Rockville (C2057) 1527
St. Mary’s City (St. Inigoes, MD-KNUI) 1534

**Important Note:** We are now 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
Thresholds in: Fahrenheit F
Calculation type: simple average/growing dds

Select Degree-day calculator
Lower: 50
Upper: 95
Start: Jan 1
Mark Your Calendars!

University of Maryland Turfgrass Research Field Day

Come get pesticide and professional fertilizer applicator recertification credits while seeing cutting edge university research.

Wednesday July 12, 2017 from 12PM to 5PM
Paint Branch Turfgrass Research Farm
395 Greenmead Drive
College Park, MD 20740

Registration is Free to Members of the Following State Organizations

http://psla.umd.edu/news/university-maryland-turfgrass-research-field-day

Get a jumpstart on education credits for the next year and share a great meal with friends and colleagues

- 8 - MD Pesticide Credits (Categories 3A, 3C, 6, and 10)
- 2 - MD Professional Fertilizer Applicator Credits
Operator Certification (FTC) for Writing Nursery Nutrient Management Plans for Nursery, Greenhouses and Controlled Environments
June 28, 2017
9 to 3:30 PM
University of Maryland, Central Maryland Research and Education Center
11975 Homewood Road
Ellicott City, MD 21042

Nursery Operator Certification (FTC) for writing nursery nutrient management plans will be offered to growers who are interested in attaining Farmer Training Certification for writing nutrient management plans. This training program will assist you in writing a nutrient management plan for your nursery or greenhouse operation. You must write a nursery nutrient management plan if you use fertilizers and you gross $2500 or more per year in sales. With this certification, you will be able to sign-off and submit your own plan and annual implementation reports.

The program consists of a Training Day and an Exam/Signoff Day. The Training Day, Wednesday, June 28th, will consist of learning the plan-writing process. After the Training Day you will have 3 weeks, during which time you will study the Nursery Nutrient Management Training Manual and develop your plan. The Exam/Signoff Day on Wednesday July 19th will be at the Maryland Department of Agriculture. This will also be for going over your newly developed plan (or renewing your old plan). Nutrient Management Consultants interested in learning nursery plan writing can attend and receive 6 CEUs.

The process is relatively simple for small (or low-risk) operations, so if your operation size is less than 5 acres, we would strongly encourage you to think about becoming a certified operator. If your operation is larger than 5 acres, we would still encourage you to become a certified operator, even though the nutrient management process may be a little more complicated.

The cost for this program is $30.00 per person and should be paid on the first day of the program (June 28th). Checks can be written to University of Maryland. If you wish to register, please send an email to mike.webster@maryland.gov. In the email, state that you are registering for Nursery FTC. Give your name, business and contact information.

Contact Andrew Ristvey at 410-827-8056 x113 or aristvey@umd.edu if you have any questions.

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MDA Pesticide Container Recycling Program
The 25th year of the pesticide container recycling program will run from June through September. There are 24 collection days at 6 different sites. See the brochure for dates and locations in 2017. Be sure to properly rinse the pesticide containers before taking them for recycling. The Agricultural Container Recycling Council provides a chipper to grind the plastic containers into flakes, which are then transported to a contractor for recycling. For additional information, or to schedule a chipping date at your site, contact Rob Hofstetter, special programs coordinator, Pesticide Regulation Section, Maryland Department of Agriculture, at 410-841-5710.
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