

Commercial Horticulture

August 20, 2021

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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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Box Tree Moth

By: Stanton Gill

The boxwood world is a-buzz with the box tree moth. The Boxwood Society sent out a report last week, which erroneously reported that box tree moth was found in Maryland. In emails with Kim Rice, MD Department of Agriculture, she confirmed that no box tree moths have been reported in Maryland.

Several growers are getting nervous about this new caterpillar pest of boxwood. This pest spread rapidly through Europe where they have native stands of boxwoods, which were left untreated. Many of the moths migrated from these native stands into boxwoods in landscapes in Europe. This combined with infested plants being shipped around Europe contributed to the rapid spread. Hopefully, nursery operators remain diligent, so we can keep this pest from moving about America so quickly.

I have been asked what have we at the University of Maryland Extension have screened in the way of the pesticides for controlling this pest. The answer is – we cannot test on something that is not here yet.

Since the box tree moth has been active in Ontario since 2019, I contacted Canadian entomologists to find an answer. Jennifer Llewellyn, reported that "the University of Guelph is conducting efficacy trials, Dr. Cynthia Scott-Dupree. In the landscape we can only use B.t. We have observed near perfect control using B.t. in residential gardens, even on the last instar just before they start to pupate. As long as larvae are feeding, B.t. works excellent."

We are developing a pest alert on the box tree moth in Maryland. Control options will be covered in the information sheet that will be posted to the IPMNET webpage. This pest alert will also be handed out at the MNLGA Field Day on September 16, 2021 at Fieldstone Nursery. Katie Shapiro, George Bridge Landscape, sent along a good link on the boxwood moth situation in Europe. Here is the website: <https://www.ebts.org/box-moth-and-caterpillar/>

Meanwhile, Tina MacIntyre, Virginia Department of Agriculture and Consumer Services, sent us 7 pheromone traps that I would like to place at nurseries growing boxwoods. We placed one at Acorn Nursery (Montgomery County) this week and at Country Springs Nursery (Howard County). I would like to have the traps set out in different parts of the state at nurseries that grow or sell boxwoods. If you are willing to put up a pheromone trap for trapping male box tree moths and are willing to check it weekly, let me know. Monitoring will involve reporting any finds (electronic photos sent into CMREC). Please contact me at Sgill@umd.edu. We will pass any finds along to MDA so they can keep tabs on activity in the State.



Pheromone trap for monitoring box tree moth

Spotted Lanternfly

By: Stanton Gill and Kenton Sumpter

Some misinformation went out this week in the news media implying there were spotted lanternflies found in Montgomery County, MD. This is what was published: "The Montgomery County Department of Environmental Protection announced an uptick in spotted lanternflies in the area. They are urging residents to report the insects if they are seen."

We want to emphasize this was not a report of lanternfly being found, but just a notice to be on the lookout for nymphs and adults at this time of year. No spotted lanternflies have been confirmed in Montgomery County at this point.

Grubs in Turf

Eric Wenger, Complete Lawn Care, found grubs in turf on August 18 in Rockville. We do not have an identification as to which species is present. Check turf for levels of Japanese beetle grubs to determine if treatments are necessary.



Monitor turf for scarab beetle grubs
Photo: Eric Wenger, Complete Lawn Care, Inc.

Castor Aralia Tree

George Birmingham, Montgomery County Parks, brought a plant sample for identification to the IPM Scouts' Diagnostic Session this week. The stem was covered in thorns and some of the petioles also had prickles. The sample was *Kalopanax septemlobus*. A few common names are castor aralia tree and prickly castor oil tree. The Maryland Invasive Species Council (MISC) has an article on it at <https://mdinvasives.org/iotm/sept-2011/>. The MISC article notes that it's not too widely available or planted, but because it spreads vegetatively and by seed, then it has the potential to become invasive. The Maryland Biodiversity Project (marylandbiodiversity.com) has records of this plant in Charles, Prince George's and Montgomery Counties.



Be careful when handling castor aralia tree because of the thorns on the stems and prickles on many of the petioles

Juniper Webworm

Kevin Nickle, Scientific Plant Service, found damage from juniper webworms, *Dichomeris marginella*, this week. Juniper webworm overwinters in the larval stage. There is one generation per year. Look to be sure larvae are present in the webbing on junipers before treating. Control options include Conserve (spinosad) and Acelepryn.



Browning of juniper foliage from the feeding of juniper webworms
Photo: Kevin Nickle, Scientific Plant Service

Crapemyrtle Aphids

Elaine Menegon, Good's Tree and Lawn Care, reports seeing large amounts of aphids on crape myrtles in the last 2-3 weeks in Hershey, PA. With overlapping generations throughout the summer, these aphids can reach high numbers quickly. They produce honeydew on which sooty mold grows. Altus, horticultural oil, and Endeavor are several options for control of this aphid.



Sooty mold significantly reduces the aesthetic value of the plant and reduces the plant's ability to photosynthesize
Photo: Elaine Menegon, Good's Tree and Lawn Care

Pawpaw

By: Stanton Gill

We are moving toward September when pawpaws will start to ripen. A relatively new book (2019) by Michael Judd called "For the Love of Paw Paws", a mini-manual for growing and caring for pawpaws from seed to table, is a good read on the subject. In the book, Judd mentions there are now over 40 known cultivars of pawpaws in the nursery trade. A resourceful Maryland brewery started offering pawpaw beer three years ago and reports strong sales.

Fungi Mycelium to Replace Plastic?

By: Stanton Gill

We are creating a sea of plastic that just is not going away. Is there a replacement for plastic through Mycology? Check out this video to see how fungi mycelium is being used to create a plastic substitute.

<https://www.youtube.com/watch?v=cApVVuuqLFY>

Dagger Moth Caterpillar

David Barylski found a dagger moth caterpillar on August 16. Late summer into fall is when we see a wide variety of caterpillars. Most often, control is not necessary.

Dagger moth caterpillars have a wide woody plant host range
Photo: David Barylski



Fall Webworms

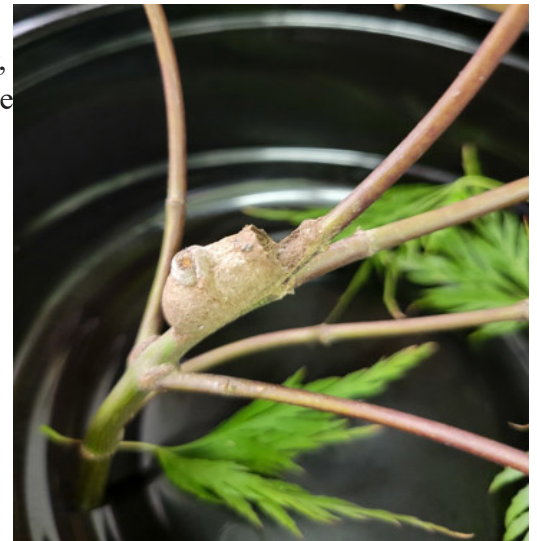
Marc Vedder found fall webworms on native persimmon in Georgetown, Washington D.C. this week. Spinosad and Bt can be used for control. Look for predators and parasites that help keep caterpillars below damaging levels. Paula Shrewsbury discussed paper wasps and other predators of fall webworms in [last week's IPM report](#).



The second generation of fall webworms is still active
Photo: Marc Vedder

White Flannel Moth Cocoon

While pruning a Japanese maple, Katie from East Coast Garden Center, found a white flannel moth cocoon on the stem. The caterpillars of these moths have stinging hairs.



A white flannel moth cocoon on stem
Photo: Katie, East Coast Garden Center

Wavyleaf Basketgrass

William Wilson, Naturalawn of America, found wavy leaf basketgrass in Eldersburg this week. This invasive plant can take over wooded areas. It thrives in similar habits to the invasive Japanese stiltgrass. Maryland Department of Natural Resources has [more information](#) on their website. If you have small areas of this weed, handpulling before seed set is a good management option.



Wavyleaf basketgrass was first found in Maryland in the 1990s in Patapso Valley State Park
Photo: William Wilson, Naturalawn of America

Beneficial of the Week

By: Paula Shrewsbury

Monarch butterflies are a biological wonder!

Over the past few months, I have been seeing a few monarch adults every now and then feeding on nectar from a variety of flowering annuals and perennials. I thought this would be a good time to discuss monarchs and their amazing life history.

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 life cycle 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 life cycles and migratory behaviors of all insects. In addition, monarch adults provide pollination services and the caterpillars are food for other organisms. Given all of these traits, 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 upper side in color but paler. The viceroy butterfly looks similar in color and pattern to the monarch. These butterflies are an example of Müllerian mimicry where 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. Monarch larvae (caterpillars) vary in color patterns as they molt from the 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 “horns”, one pair on the thorax (segment behind the



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 a vein in each of the hind wings, females do not.
Photo: Kenneth Dwain Harrelson, BugGuide

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.

Adult monarchs are generalists, feeding on nectar from a wide range of native and non-native flowering plants. They frequently 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 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 life cycle 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, around mid-March, 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 – 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). 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 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. A third, more recently founded population that is non-migratory, is in Florida and Georgia.

Many ask “*Why do Monarchs migrate?*” and “*How do the Monarch butterflies know where to go?*”. To answer the *why...*



Early instar monarch caterpillar (~0.5” long) on the underside of a milkweed leaf found about 3 weeks ago.

Photo: P.M. Shrewsbury, UMD



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

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 roost (congregate) in a few isolated forests, the oyamel fir forests, at an elevation of 2,400 to 3,600 meters. 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. Next week, I will discuss the status of and threats to monarch populations and things that we can do to help conserve monarchs.

Go to this link for a good overview of the eastern monarch and its amazing life, including great video of them roosting in Mexico. <https://youtu.be/AN8-pNnvJ5s>

Weed of the Week

By: Chuck Schuster

Dodder can be noticed this time of year in some locations. Found in a variety of sites, it is a weed that deserves attention and control. Dodder, *Cuscuta* spp., is an unusual weed that can be found in landscapes, nurseries, and vegetable fields. Unlike most other plants, it is a parasitic vine that is able to derive its nutrients from other plants. The seeds will germinate in the soil and will live five to ten days, growing to about one foot in height. At this point, if they find a suitable host plant to attach to they will continue to live by wrapping or twining around the host plant and then insert the haustoria, a modified advantageous root into the stem of the host plant. If the dodder plant does not find a host plant, it will die. The host plant will then supply all of the needed water, minerals, and nutrients for survival. Dodder has a weak photosynthetic ability and relies on the host plant. It can only survive a few days away from a host plant. It does not have the ability to penetrate tree bark, but will attach itself to leaves of trees and shrubs. Dodder vines continually attach to the host plant as it grows and will move to new host plants that are in close proximity. This will allow the plant to form a dense mat of yellow to reddish-brown vining stems that twine in a counterclockwise direction. The plant will appear with small, almost unnoticeable leaves and will produce a white to pink cluster of flowers. Each flower produces between two and four seeds. The seeds are extremely hard and require some form of scarification before germinating in soils once temperatures reach 60 °F. Seed is often spread by human contact, plant movement, and sometimes water. Seeds are viable in the soil for many years.



Dodder covering plants in the landscape
Photos: Chuck Schuster, UME

Control of dodder starts with proper identification. The dodder plant may have roots for a few days after germination until it can find a host plant. The use of mechanical removal will require several attempts, as seed can germinate over a long period of time. Biological control can

be utilized using disease organisms that are known to infect and damage this plant. They include *Altenaria alternata* and *Geotrichum candidum*, which attack field dodder (*C. pentagona*). Post emergent herbicides are not suggested as they generally will also damage the host plant. Pre-emergent herbicides can be effective if applied in the *early spring* where infestations have been noted in previous years. Trifluralin (Treflan) and Kerb (pronamide) do provide good control. Both require incorporation by irrigation or rainfall. Watch the site for several years as seeds will remain viable for long periods of time. Once in nursery pots, it can be spread to a customer's location if care is not taken in control.

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 **2476 DD** (Martinsburg WV) to **3203 DD** (Reagan National Airport). 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.

- Euonymus scale – crawlers / 2nd instar – (2nd gen) (2235 DD)
- Japanese maple scale – egg hatch / crawlers – (2nd gen) (2508 DD)
- Fall webworm – egg hatch / active caterpillar tents (2nd gen) (2793 DD)
- Fern scale – egg hatch / crawlers (2nd gen) (2813 DD)
- White prunicola scale – egg hatch / 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 these pests.

Degree Days (as of August 18)

Aberdeen (KAPG)	2505
Annapolis Naval Academy (KNAK)	2873
Baltimore, MD (KBWI)	2981
Bowie, MD	2999
College Park (KCGS)	2727
Dulles Airport (KIAD)	2805
Ft. Belvoir, VA (KDA)	2839
Frederick (KFDK)	2708
Gaithersburg (KGAI)	2687
Greater Cumberland Reg (KCBE)	2495
Martinsburg, WV (KMRB)	2476
Natl Arboretum/Reagan Natl (KDCA)	3203
Salisbury/Ocean City (KSBY)	2896
St. Mary’s City (Patuxent NRB KNHK)	3072
Westminster (KDMW)	3032

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

Conferences

Diagnostic Sessions

We will be holding one more plant diagnostic session for nutrient problems, diseases, and insects on **September 22nd** at the Central Maryland Research and Education Center (11975 Homewood Road, Ellicott City, MD 21042) from 12:30 – 3:30 p.m. We encourage participants to bring samples of nutrient disorders and insect and disease problems for diagnosis by David Clement, Karen Rane, Stanton Gill, and Andrew Ristvey, University of Maryland Extension.

Urban Tree Summit

Dates: September 8, 9, 16, and 23, 2021

Montgomery County Parks and Casey Trees, Washington D.C., present the tenth annual conference — Urban Tree Summit. Presentations will focus on the health and welfare of trees in our increasingly developed landscapes. Learn from some of the country's leading experts about innovative efforts to plant, protect, and preserve trees in urban and suburban settings.

Registration Link: <https://www.eventbrite.com/e/urban-tree-summit-tickets-155804456323>

Cut Flower Tour

September 14, 2021

Locations: Castlebridge Cut Flower Farm, Ellicott City, and Rolling Ridge Horse and Cut Flower Farm, Laytonsville, MD

[For more information and to register](#)

MNLGA Nursery Field Day

September 16, 2021

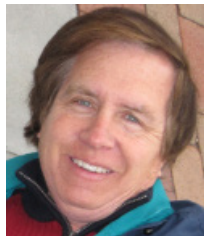
Location: Fieldstone Nursery, Parkton, MD

Go to the MNLGA website for [program and registration information](#)

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