

Ask A Master Gardener Plant Clinic Shared Resources

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Plant Diseases Presentation	Page 2
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Invasive Insects Presentation	Page 104
Fruits & Veggie Diagnostics Presentation	Page 152
Bees & Wasps Presentation	Page 175
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Ask A MG Plant Clinic Training Resources

Links Shared:

[Ask an Expert](#)

[Bugs, Blooms, and Blights Facebook](#)

[Hornets from Hell | National Geographic](#)

[Asian Giant Hornet HGIC](#)

[The Giant Asian Hornet Scare Penn State Extension](#)

[Hornets | Washington State Department of Agriculture](#)

[Managing Insects and Mites on Woody Plants](#)

Dontbug.md@maryland.gov

[How to Use the Pest Predictive Calendar](#)

[Pest Predictive Calendar-Landscape/Nursery](#)

[Kaufman Field Guide to Insects of North America](#)

[Spotted Lanternfly](#)

[Pest Predictive Calendar-Landscape/Nursery](#)

[Phenology and Degree-day Models IPPC](#)

[Viburnum Leaf Beetle \(VLB\)](#)

[Maryland Grows Blog](#)

[Vegetable MD Online Cornell](#)

[Don't Bug Out: 2021 will see emergence of trillions of cicadas](#)

[Diseases of Stone Fruit](#)

[Pest Management Guide: Home Grounds and Animals, 2020](#)

[White Drupelets | NC State Extension](#)

[Soil to Fill Raised Beds](#)

[Straw Bale Gardening](#)

[Carpenter Bees](#)

[Leafcutter bees - Shrubs](#)

[Yellowjackets](#)

[Recommended Native Plants for Maryland](#)

[Native Plant of Maryland booklet Feb 05](#)

[Landscaping with Native Plants](#)

[Native Plant Center](#)

[Native Plant Sources](#)

[Hairy bittercress](#)

[Dock](#)

[Spiny Witch Hazel gall aphid | NC State Extension Publications](#)

[Chameleon Plant](#)

[Star of Bethlehem](#)

[NCSU Phlox divaricata](#)

[Rose Slugs - Shrubs](#)

[Pest Predictive Calendar-Landscape/Nursery](#)

[Black Knot- Trees](#)

[Azalea - Exobasidium Gall](#)

[Aphids](#)

[Cottony Camellia Scale - Shrubs](#)

2020 Statewide Diagnostic Master Gardener Plant Diseases Zoom Training



D.L. Clement
University of Maryland Extension
Specialist

International Year of Plant Health



INTERNATIONAL YEAR OF
PLANT HEALTH

2020

**PROTECTING PLANTS,
PROTECTING LIFE**



Bugs, Blooms, and Blights @horttips

- Home
- Events
- Reviews
- About
- Videos
- Photos
- Posts
- Jobs
- Community
- Info and Ads

Liked Following Share ... Learn More

See All

Suggest Edits

Bugs, Blooms, and Blights

Published by David Clement [?] · March 28 at 7:49 AM ·

One of the first diseases of spring, cedar-quince rust, *Gymnosporangium clavipes*, on juniper. This pathogen cycles between juniper and other hosts in the rose family, such as apple, hawthorn, and quince.



Page Transparency See More

Facebook is showing information to help you better understand the purpose of a Page. See actions taken by the people who manage and post content.

Page created - June 21, 2017

Team Members

Mary Kay Malinoski

- Pages Liked by This Page**
- University of Maryland Departme...
 - University of Maryland
 - Maryland Native Plant Society

YOUR PAGES

Bugs, Blooms, and Bli... 9

CONTACTS

- Wendy McGiffin Doring
- Mackenzie Underwood
- Christa Carignan
- Jimmy Hopkins
- Jessica Flores
- Northeastern Ipcenter
- Michael Andrew Creek
- Plant Trimming Topiary
- Heather Blackmore-V...
- Tom Fretz
- Russ Schmeiss

GROUP CONVERSATIONS

Create New Group

Search

Keys to Problem Identification

- Know the host plant
- Check for symptoms and signs
- Check for part of the plant affected
- Check for patterns
- Site history - ask questions!

What's Happening this Spring in 2020

- Carryover damage from 2018-2019 wet seasons followed by drought in fall 2109. (ex. oak decline and death across the state)
- Mild winter of 2019-2020 followed by cool wet spring with late frost damage to tender new plant growth. (ex. Frost damage to Japanese maples, hosta, boxwoods etc.)
- Extended cool wet conditions this spring in 2020 so far with prolonged bloom periods. (ex. Anthracnose fungal symptoms on shade trees such as sycamore, maple, oak, etc.)

Guidelines for Fungicide Recommendations

- Will not cure visible symptoms
- Preventative action only, not curative
- Require repeated applications on regular intervals
- Expensive
- Need thorough coverage of plant parts
- If intervals are skipped or lengthened control may be compromised
- Organic and biological options are limited and in some cases unpredictable

Root Zone Flooding of Established Oaks



Oaks Declining



Yews dying from poor drainage



'Helleri' Holly with Black Root Rot



Arborvitae Dieback



Arborvitae dieback



Paw Paw with Cold Damage



Cold Damage on Boxwood



Japanese Maple Cold Damage



Japanese Maple Cold Damage



Hydrangea Cold Damage



Hydrangea Cold Damage



Hosta with Cold Damage



Pansy with Cold Damage



Marigold Cold Damage



Cedar-Apple Rust on Juniper



Cedar-Quince Rust on Juniper



Cedar-Apple Rust on Crabapple



Cedar-Quince Rust on Crabapple



Brown Rot on Kwansan Cherry



Brown Rot on Kwansan Cherry



Elsinoe spot anthracnose on Dogwood Flower Bracts



Dogwood with Elsinoe Spot Anthracnose



Oak anthracnose



Oak anthracnose



Sycamore anthracnose



Examples of Pathogenic Fungi

Sycamore anthracnose



HGIC, MCE

Anthracnose canker



Beech Anthracnose



Beech Anthracnose



Photo:
Nancy
Gregory, U
Delaware

Cherry shot-hole symptoms



Cherry leaf drop



Pachysandra dieback from Volutella



Pachysandra with Volutella Blight



Pachysandra with Volutella Blight



Volutella Blight and Macrophoma Leaf Spot



Sclerotinia Blight on Forsythia



Sclerotinia Blight on Forsythia



Forsythia with Sclerotinia Blight



Photo: Heather Zindash,
IPM Scout

Rose Rosette Symptoms



Rose Rosette Symptoms



Rose Rosette Virus



Normal New Rose Growth Color



Black spot on Rose



Cercospora leaf spot on rose, common on blackspot resistant knockout roses



Powdery Mildew on Rose



Powdery Mildew on Euonymus



Powdery Mildew on Dogwood



Powdery Mildew on Dogwood late summer



Powdery Mildew Resistant Dogwood



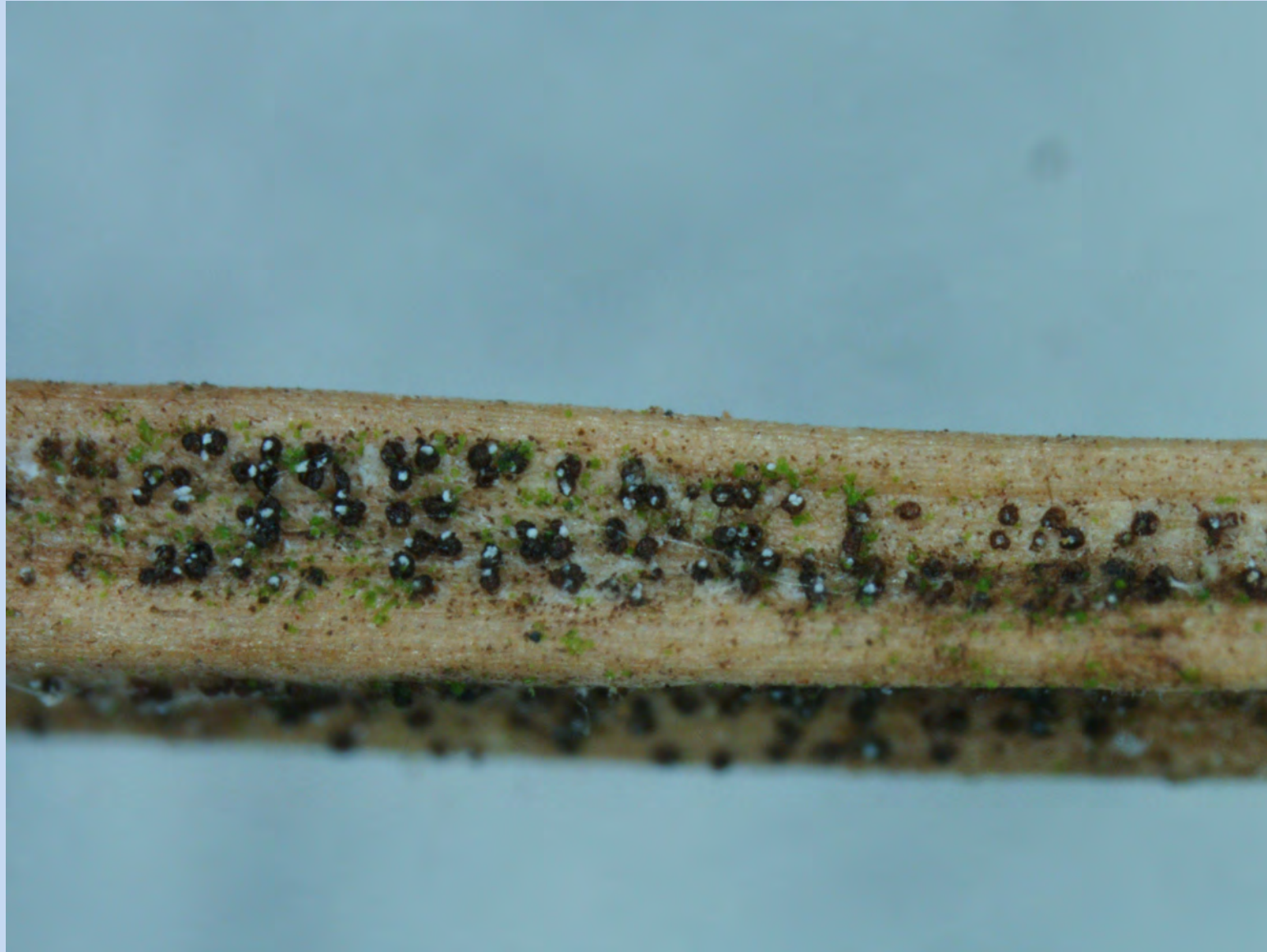
Powdery Mildew Management

- Resistant (*C. florida* cultivars)
 - Jean's Appalachian Snow
 - Karen's Appalachian Blush
 - Kay's Appalachian Mist
 - Appalachian Joy

Needle cast disease of blue spruce, *Rhizosphaera kalkhoffii*



Rhizosphaera kalkhoffii needle cast



Red Thread Disease on Turf



Red Thread on Turf





Plant Clinic Training – Weeds Update

Luke Gustafson | LNG@UMD.EDU



UNIVERSITY OF
MARYLAND
EXTENSION



ASK A MASTER GARDENER
PLANT CLINIC

A MASTER GARDENER PROGRAM 63

Outline

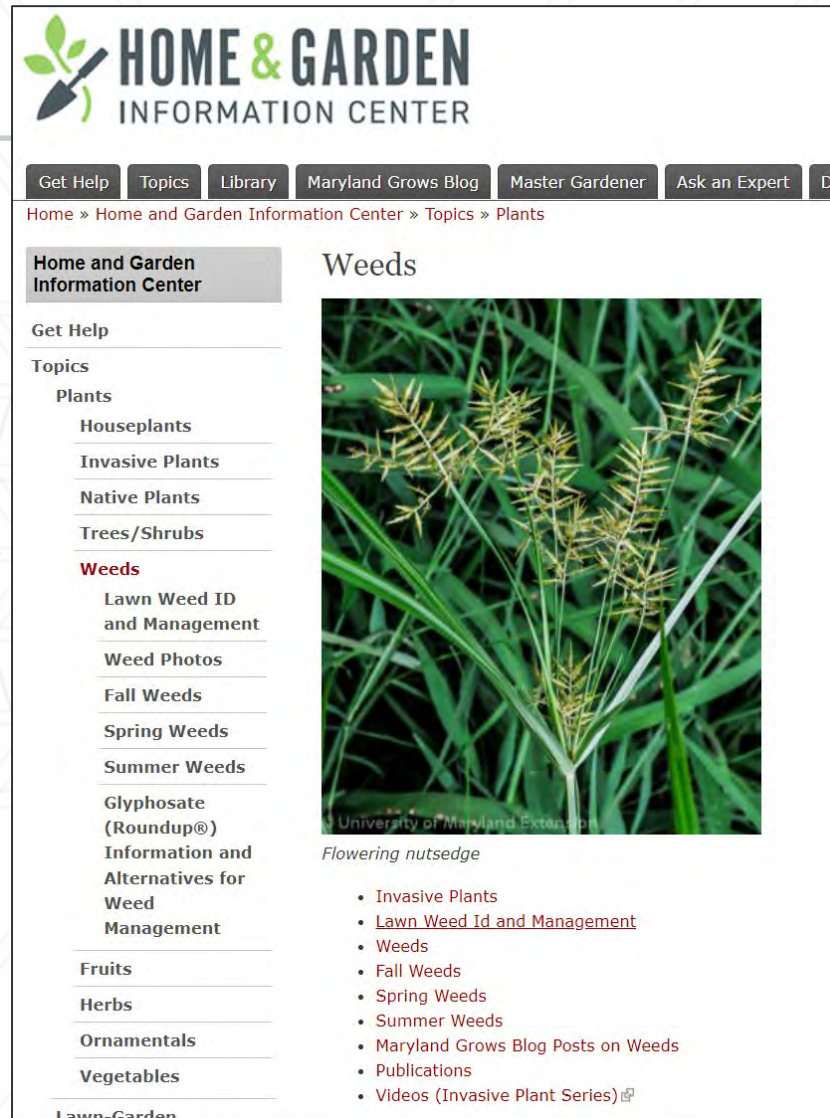
- Weed tips
- Recent conditions
- Current weeds & ID tips



Gary P Bell, Bugwood.org

Resources

- HGIC page



The screenshot shows the Home & Garden Information Center website. The header includes the logo and navigation links: Get Help, Topics, Library, Maryland Grows Blog, Master Gardener, Ask an Expert, and Do. The breadcrumb trail is Home » Home and Garden Information Center » Topics » Plants. The main content area is titled 'Weeds' and features a photograph of a flowering nutsedge. Below the photo is a list of related links: Invasive Plants, Lawn Weed Id and Management, Weeds, Fall Weeds, Spring Weeds, Summer Weeds, Glyphosate (Roundup®) Information and Alternatives for Weed Management, Fruits, Herbs, Ornamentals, and Vegetables. A 'Lawn Garden' link is visible at the bottom left of the page.

HOME & GARDEN
INFORMATION CENTER

Get Help Topics Library Maryland Grows Blog Master Gardener Ask an Expert Do

Home » Home and Garden Information Center » Topics » Plants

Home and Garden Information Center

Get Help


Topics

Plants

- Houseplants
- Invasive Plants
- Native Plants
- Trees/Shrubs
- Weeds**
 - Lawn Weed ID and Management
 - Weed Photos
 - Fall Weeds
 - Spring Weeds
 - Summer Weeds
 - Glyphosate (Roundup®) Information and Alternatives for Weed Management
- Fruits
- Herbs
- Ornamentals
- Vegetables

Lawn Garden

Weeds

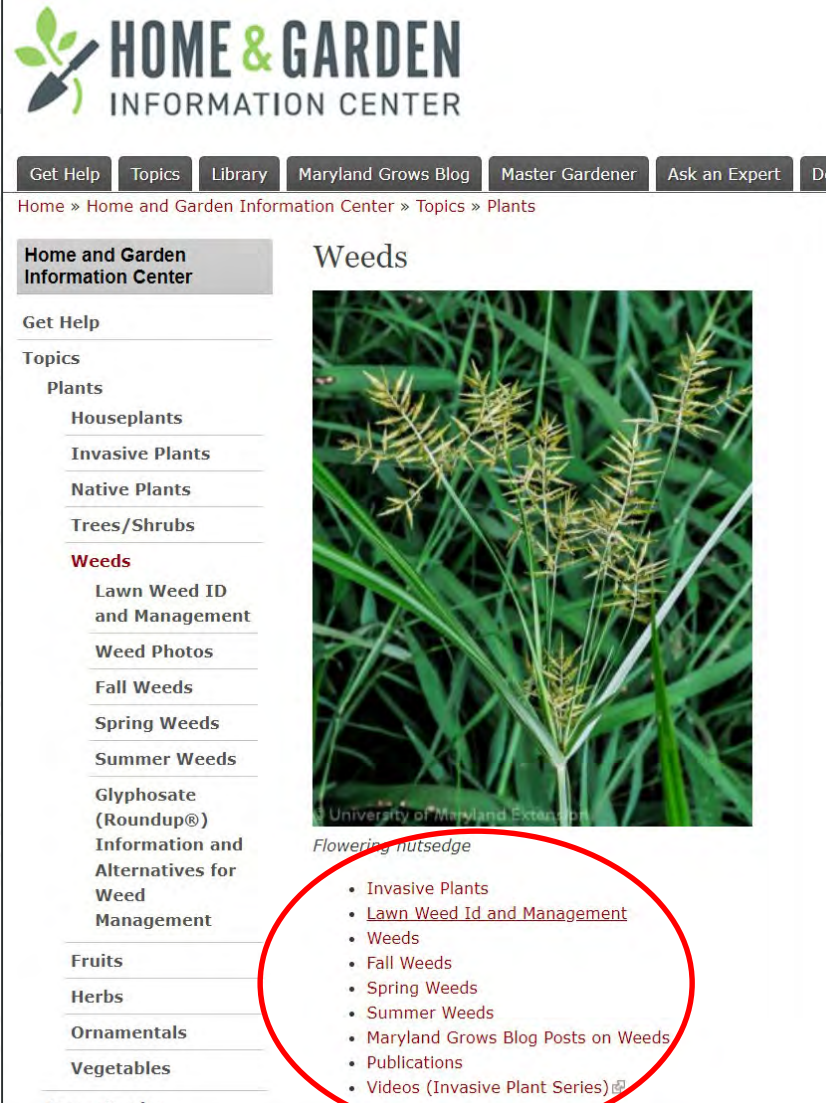


Flowering nutsedge

- Invasive Plants
- [Lawn Weed Id and Management](#)
- Weeds
- Fall Weeds
- Spring Weeds
- Summer Weeds
- [Maryland Grows Blog Posts on Weeds](#)
- Publications
- Videos (Invasive Plant Series) [↗](#)

Resources

- <https://extension.umd.edu/hgic/topics/weedspage>



The screenshot shows the Home & Garden Information Center website. The header includes the logo and navigation links: Get Help, Topics, Library, Maryland Grows Blog, Master Gardener, Ask an Expert, and Do. The breadcrumb trail is Home » Home and Garden Information Center » Topics » Plants. The main content area is titled 'Weeds' and features a photograph of a flowering nutsedge. Below the photo is a list of links, with the link 'Lawn Weed Id and Management' circled in red.

HOME & GARDEN
INFORMATION CENTER

Get Help Topics Library Maryland Grows Blog Master Gardener Ask an Expert Do

Home » Home and Garden Information Center » Topics » Plants

Home and Garden Information Center

Get Help


Topics

Plants


- Houseplants
- Invasive Plants
- Native Plants
- Trees/Shrubs
- Weeds**
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- Vegetables

Lawn-Garden

Weeds

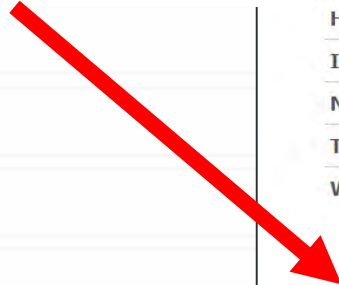


Flowering nutsedge

- Invasive Plants
- Lawn Weed Id and Management
- Weeds
- Fall Weeds
- Spring Weeds
- Summer Weeds
- Maryland Grows Blog Posts on Weeds
- Publications
- Videos (Invasive Plant Series) 

Resources

Learn a new weed each day!



Home » Home and Garden Information Center » Topics » Plants » Weeds

Home and Garden Information Center

Get Help

Topics

Plants

- Houseplants
- Invasive Plants
- Native Plants
- Trees/Shrubs

Weeds

- Lawn Weed ID and Management**
- Weed Photos**
- Annual bluegrass
- Bamboo
- Bermudagrass
- Crabgrass
- Dallisgrass
- Giant foxtail
- Green Kyllinga
- Japanese stiltgrass

Weed Identification Photos




Featured seasonal weeds: **Spring | Summer | Fall**

- Grassy Weeds
- Broadleaf Weeds
- Woody-Vining Weeds
- Lawn Weeds
- Invasive Plant Photos and Information**

Important Tips for Weed Control

- Identify the weed! And learn about its life cycle. This will help in control.
- Minimize soil disturbance. Digging and cultivating brings weed seeds to the surface and when exposed to light they will germinate.
- Do not let weeds flower and go to seed. At minimum cut them back or use a string trimmer.
- Pull weeds when the soil is moist. This will make the job easier!
- Cover bare soil with mulch or groundcovers. Bare soil is an invitation for weeds to move in.
- [Glyphosate \(Roundup®\) Information and Alternatives for Weed Management](#)

Key: * invasive

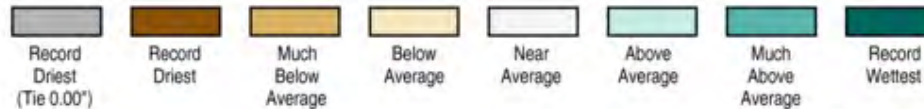
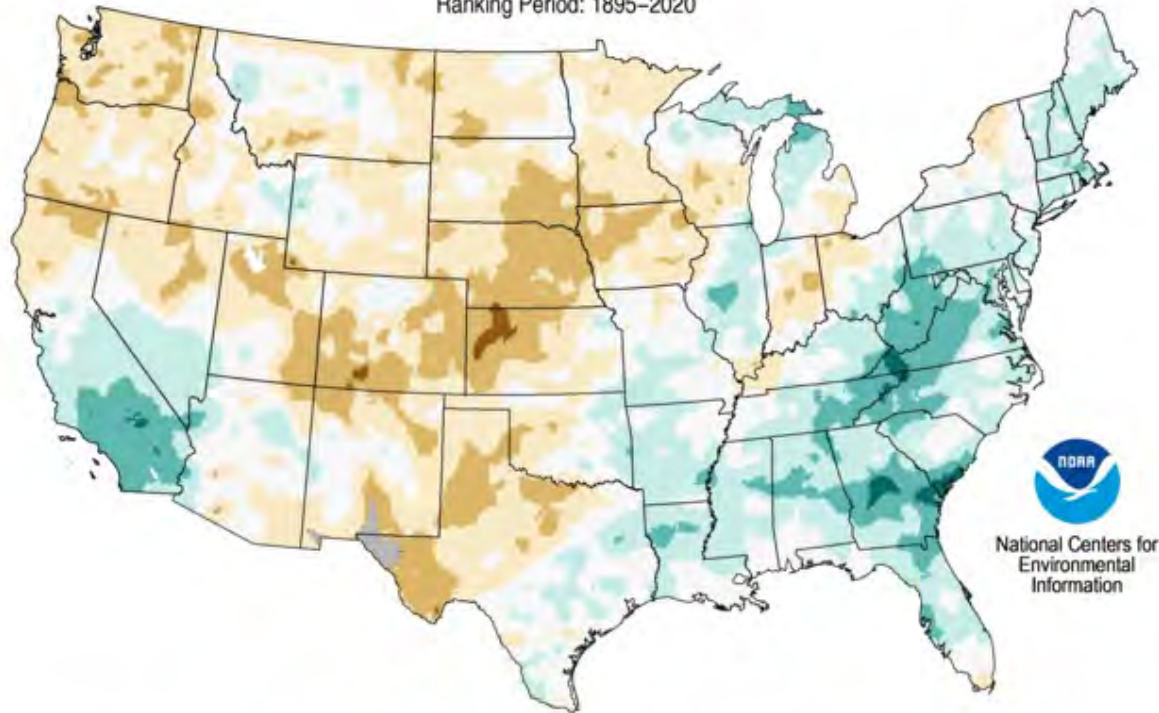
Grassy weeds and sedges			
	Annual bluegrass		Bermudagrass

Tips for Weeds

- ID & understand the weed
- Minimize soil disturbance
- Prevent seed formation
- Mulch & grow groundcovers
- Improve conditions for desired plants
- Pull weeds when the soil is moist
- Target herbicide
 - The label is the law

April Precipitation

Total Precipitation Percentiles
April 2020
Ranking Period: 1895–2020



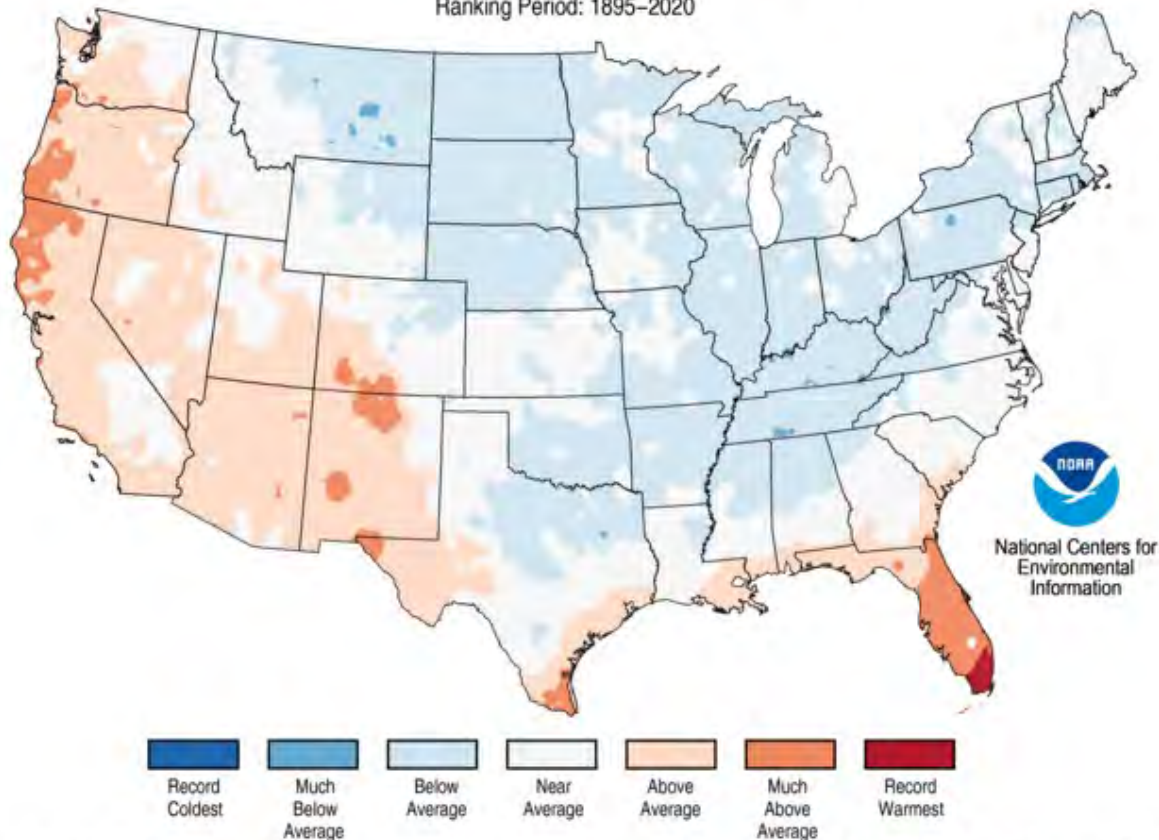
Created: Mon May 04 2020

Data Source: 5km Gridded Dataset (nClimGrid)

<https://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

April Temperatures

Mean Temperature Percentiles
April 2020
Ranking Period: 1895–2020



Created: Mon May 04 2020

Data Source: 5km Gridded Dataset (nClimGrid)

<https://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

Family: Commelinaceae

Asiatic dayflower (*Commelina communis*)



Asiatic dayflower (*Commelina communis*)

- Blue flowers
- Sprawling habit
- Annual
- Introduced



Family: Phytolaccaceae

Pokeweed (*Phytolacca americana*)



Pokeweed (*Phytolacca americana*)

- Reddish, pithy stems



Pokeweed (*Phytolacca americana*)

- Colorful berries
- Perennial
- Native



Family: Fabaceae

Common vetch (*Vicia sativa*)



Common vetch (*Vicia sativa*)

- Pea-like flowers
- Climbs w/tendrils
- Annual
- Introduced



Family: Rosaceae

Indian mock strawberry (*Duchesnea indica*)



Name *(Latin name)*

- Strawberry look-alike
- Running habit
- Perennial
- Introduced



Family: Oxalidales

Yellow woodsorrel (*Oxalis stricta*)



Yellow woodsorrel (*Oxalis stricta*)

- Heart-shaped leaf
- Perennial
- Native



Family: Plantaginaceae

Buckhorn plantain (*Plantago lanceolata*)



Buckhorn plantain (*Plantago lanceolata*)

- Perennial
- Introduced



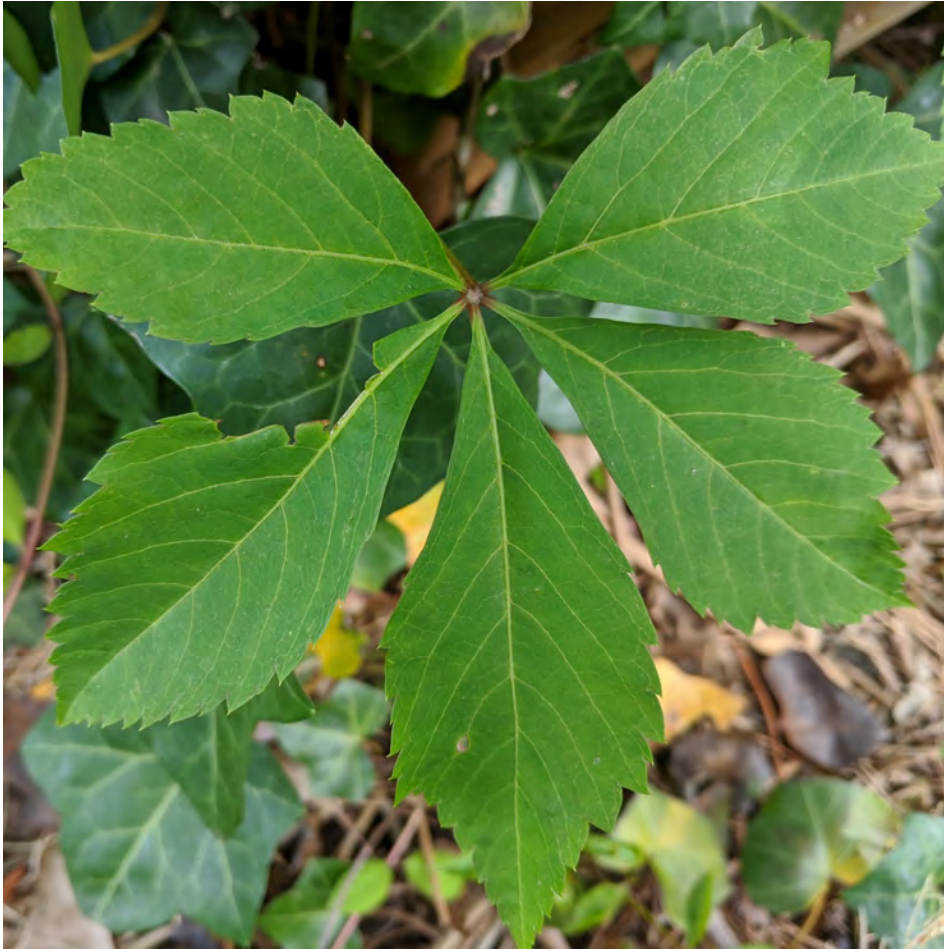
John D. Byrd, Mississippi State University, Bugwood.org



Sannse, CC BY-SA 3.0

Family: Vitaceae

Virginia creeper (*Parthenocissus quinquefolia*)



Virginia creeper (*Parthenocissus quinquefolia*)

- Confused with poison ivy
- 5-leaved
- Perennial
- Native



Family: Anacardiaceae

Poison ivy (*Toxicodendron radicans*)



Poison ivy (*Toxicodendron radicans*)

- “leaves of three, let it be”
- Perennial
- Native



Family: Altingiaceae

Sweet gum (*Liquidambar styraciflua*)



Sweet gum (*Liquidambar styraciflua*)

- Can have corky stem growths
- Perennial



Family: Sapindaceae

Red maple (*Acer rubrum*)



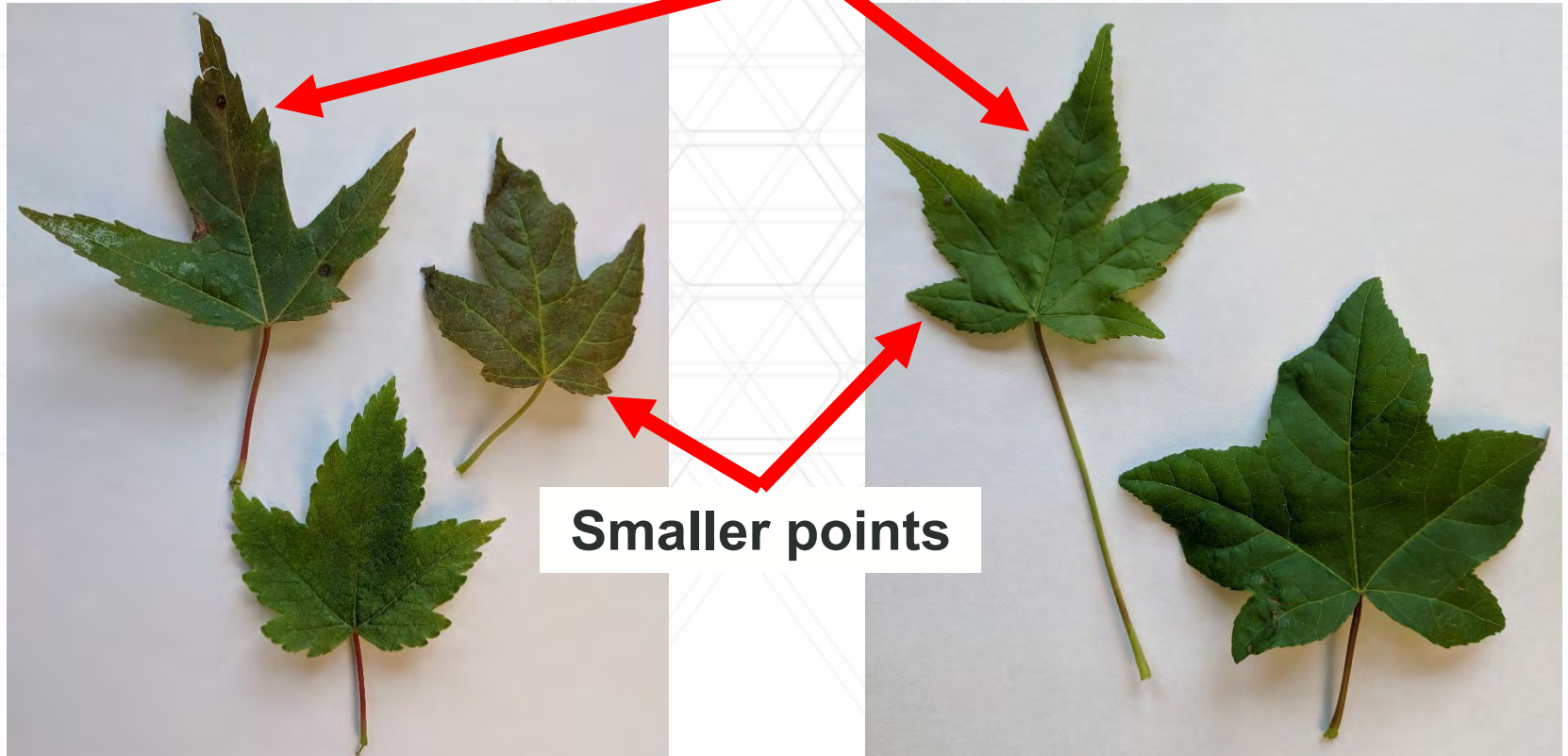
Key Differences

Red maple

vs.

Sweet Gum

Serration on central lobe



Family: Rosaceae

Callery pear (*Pyrus calleryana*)



Callery pear (*Pyrus calleryana*)

- Can be thorny
- Similar to cherry seedlings
- Perennial



Family: Moraceae

White mulberry (*Morus alba*)



White mulberry (*Morus alba*)

- Younger leaves often more lobed
- Perennial
- Introduced



T. Davis Sydnor, The Ohio State University, Bugwood.org

Resource for Nomenclature

- ITIS.gov (Integrated Taxonomic Information System)

Welcome to ITIS, the Integrated Taxonomic Information System! Here you will find authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world. We are a [partnership](#) of U.S., [Canadian](#), and [Mexican](#) agencies ([ITIS-North America](#)); other organizations; and taxonomic specialists. ITIS is also a partner of [Species 2000](#) and the [Global Biodiversity Information Facility \(GBIF\)](#). The ITIS and Species 2000 [Catalogue of Life \(CoL\)](#) partnership is proud to provide the taxonomic backbone to the [Encyclopedia of Life \(EOL\)](#).

Quick search on:

Any Name or TSN* Common Name Scientific Name TSN*

In Kingdom

* Taxonomic Serial Number (TSN)



[Go to Advanced Search and Report](#)

New & Edited Scientific Names this load: **2,197**

Monthly Export	Scientific Names (any rank, any usage)	Common Names
30-Apr-2020	834,985	131,219
25-Mar-2020	834,034	131,219

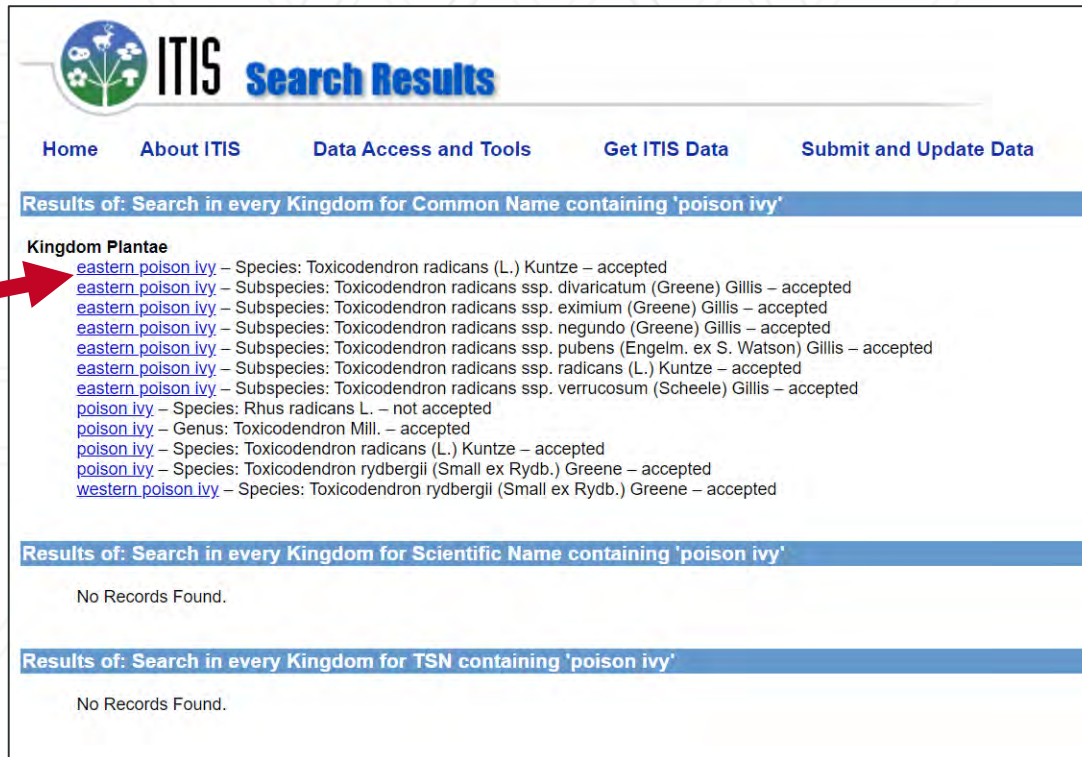
Last Modified: Friday, January 17, 2020
[Privacy statement and disclaimers](#)
[How to cite ITIS](#)
<https://www.itis.gov/>

In cooperation with

  Smithsonian Institution

Resource for Nomenclature

- ITIS.gov (Integrated Taxonomic Information System)



The screenshot shows the ITIS Search Results page. At the top, there is a logo for ITIS and the text "ITIS Search Results". Below the logo, there are navigation links: "Home", "About ITIS", "Data Access and Tools", "Get ITIS Data", and "Submit and Update Data". The main content area is titled "Results of: Search in every Kingdom for Common Name containing 'poison ivy'". Under this title, there is a section for "Kingdom Plantae" which lists several entries for "poison ivy" and its subspecies, including their scientific names and taxonomic status. A red arrow points to the first entry: "eastern poison ivy - Species: Toxicodendron radicans (L.) Kuntze - accepted". Below this section, there are two more search result sections, both titled "Results of: Search in every Kingdom for Scientific Name containing 'poison ivy'", both of which report "No Records Found."

ITIS Search Results

Home About ITIS Data Access and Tools Get ITIS Data Submit and Update Data

Results of: Search in every Kingdom for Common Name containing 'poison ivy'

Kingdom Plantae

- [eastern poison ivy](#) - Species: *Toxicodendron radicans* (L.) Kuntze - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *divaricatum* (Greene) Gillis - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *eximium* (Greene) Gillis - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *negundo* (Greene) Gillis - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *pubens* (Engelm. ex S. Watson) Gillis - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *radicans* (L.) Kuntze - accepted
- [eastern poison ivy](#) - Subspecies: *Toxicodendron radicans* ssp. *verrucosum* (Scheele) Gillis - accepted
- [poison ivy](#) - Species: *Rhus radicans* L. - not accepted
- [poison ivy](#) - Genus: *Toxicodendron* Mill. - accepted
- [poison ivy](#) - Species: *Toxicodendron radicans* (L.) Kuntze - accepted
- [poison ivy](#) - Species: *Toxicodendron rydbergii* (Small ex Rydb.) Greene - accepted
- [western poison ivy](#) - Species: *Toxicodendron rydbergii* (Small ex Rydb.) Greene - accepted

Results of: Search in every Kingdom for Scientific Name containing 'poison ivy'

No Records Found.

Results of: Search in every Kingdom for TSN containing 'poison ivy'

No Records Found.

Resource for Nomenclature

- ITIS.gov (Integrated Taxonomic Information System)

***Toxicodendron radicans* (L.) Kuntze**
Taxonomic Serial No.: 28821

Download TWB Download DwC-A ([Download Help](#)) *Toxicodendron radicans* TSN 28821

Taxonomy and Nomenclature

Kingdom:	Plantae
Taxonomic Rank:	Species
Synonym(s):	
Common Name(s):	poison ivy [English] eastern poison ivy [English]

Taxonomic Status:
Current Standing: accepted

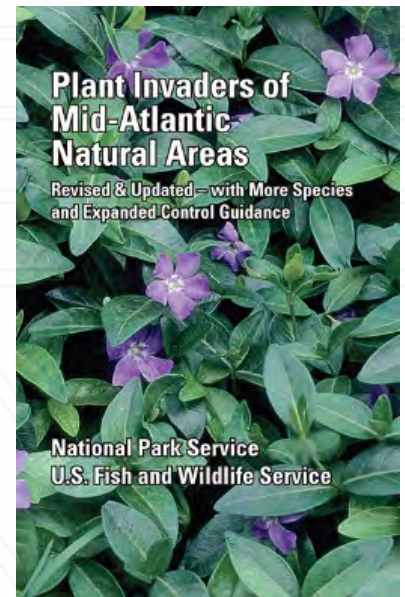
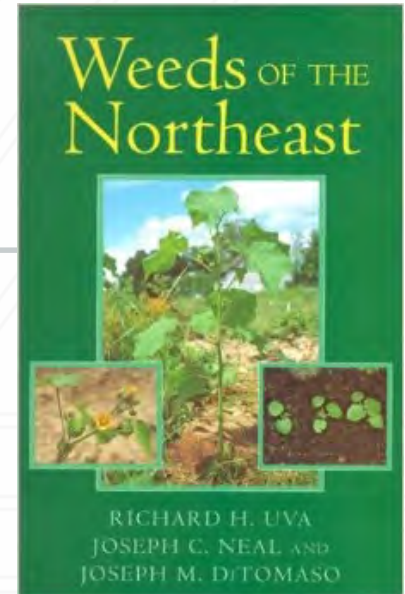
Data Quality Indicators:
Record Credibility Rating: verified - standards met

Taxonomic Hierarchy

Kingdom	Plantae – plantes, Planta, Vegetal, plants
Subkingdom	Viridiplantae – green plants
Infra kingdom	Streptophyta – land plants
Superdivision	Embryophyta
Division	Tracheophyta – vascular plants, tracheophytes
Subdivision	Spermatophytina – spermatophytes, seed plants, phanerogames
Class	Magnoliopsida
Superorder	Rosanae
Order	Sapindales
Family	Anacardiaceae – cashews
Genus	Toxicodendron Mill. – poison ivy, poison oak
Species	<i>Toxicodendron radicans</i> (L.) Kuntze – poison ivy, eastern poison ivy

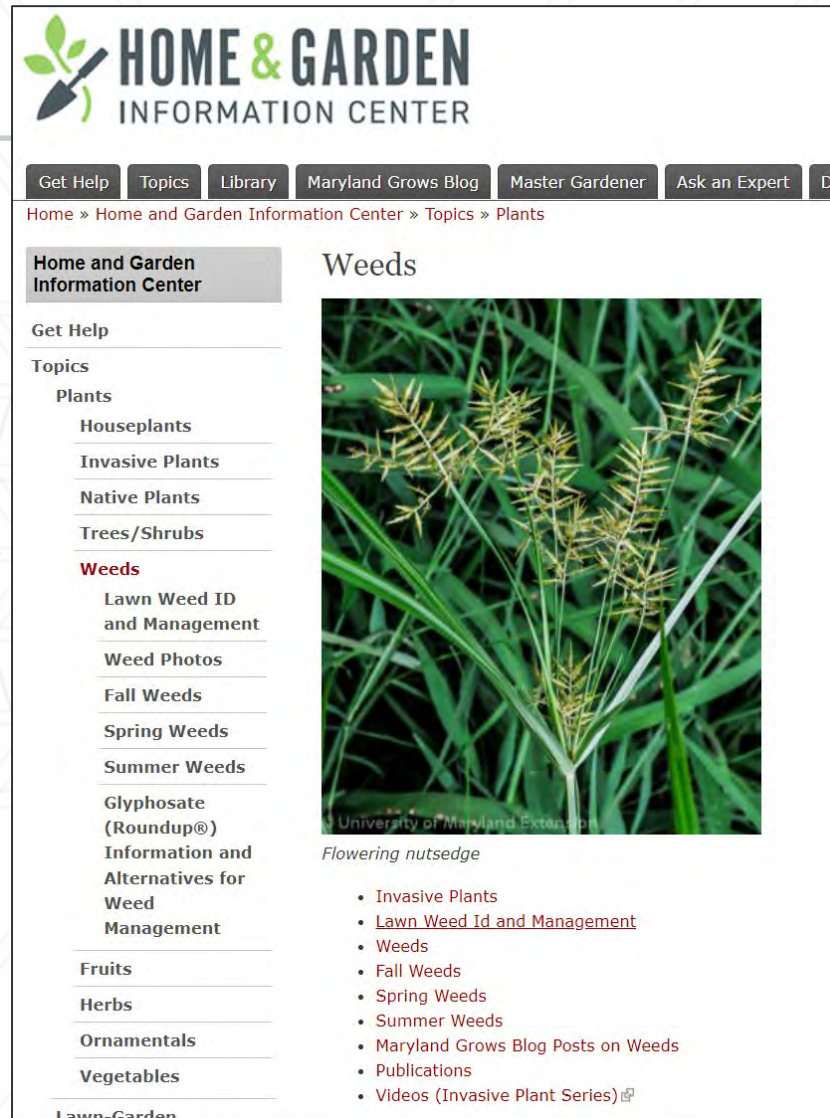
Resources

- Books:
 - Weeds of the Northeast by Uva, Neal & DiTomaso
 - Plant Invaders of Mid-Atlantic Natural Areas by USFWS
- images.bugwood.org
- NCSU Plant Toolbox
- HGIC
 - extension.umd.edu/hgic



Resources

- HGIC page



The screenshot displays the Home & Garden Information Center website. At the top, the logo features a green leaf and a shovel next to the text "HOME & GARDEN INFORMATION CENTER". Below the logo is a navigation bar with buttons for "Get Help", "Topics", "Library", "Maryland Grows Blog", "Master Gardener", "Ask an Expert", and "Do". A breadcrumb trail reads "Home » Home and Garden Information Center » Topics » Plants".

The main content area is titled "Weeds" and features a large photograph of a flowering nutsedge. Below the photo is the caption "Flowering nutsedge" and a list of related links:

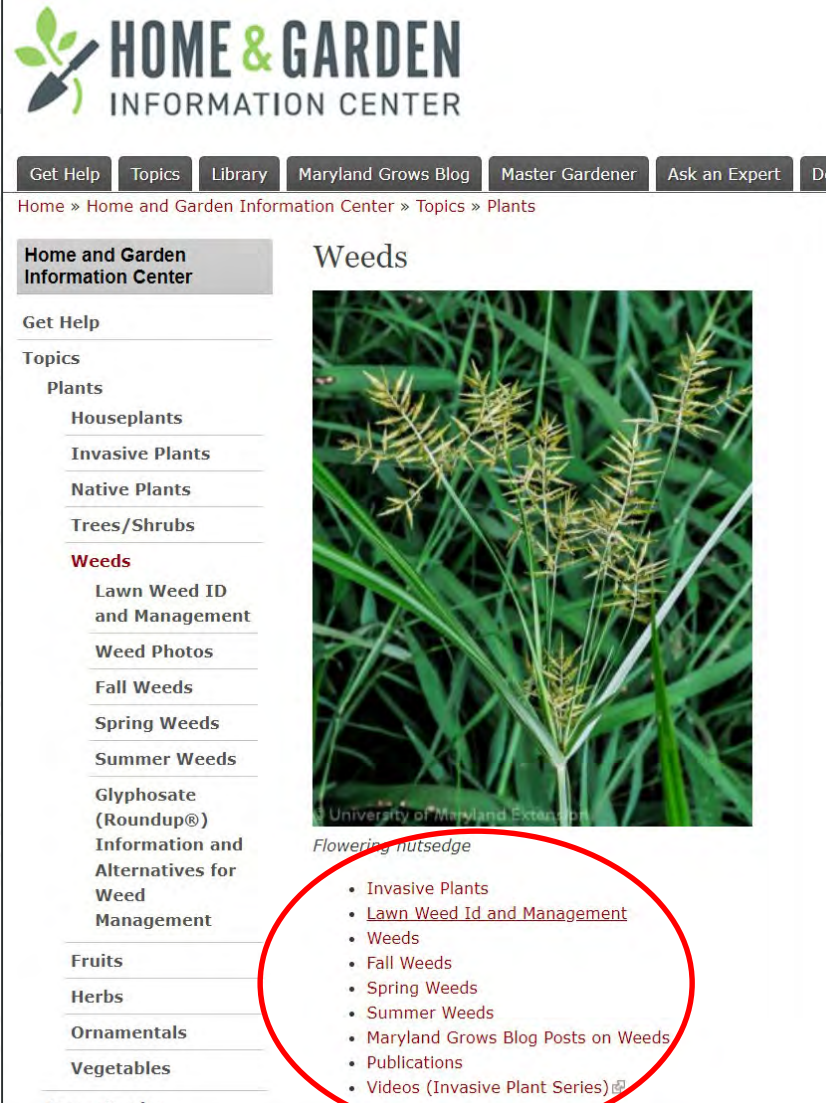
- [Invasive Plants](#)
- [Lawn Weed Id and Management](#)
- [Weeds](#)
- [Fall Weeds](#)
- [Spring Weeds](#)
- [Summer Weeds](#)
- [Maryland Grows Blog Posts on Weeds](#)
- [Publications](#)
- [Videos \(Invasive Plant Series\)](#)

On the left side of the page, there is a sidebar menu with the following categories:

- Home and Garden Information Center
- Get Help
- Topics
 - Plants
 - Houseplants
 - Invasive Plants
 - Native Plants
 - Trees/Shrubs
 - Weeds**
 - Lawn Weed ID and Management
 - Weed Photos
 - Fall Weeds
 - Spring Weeds
 - Summer Weeds
 - Glyphosate (Roundup®) Information and Alternatives for Weed Management
 - Fruits
 - Herbs
 - Ornamentals
 - Vegetables
- Lawn-Garden

Resources

- <https://extension.umd.edu/hgic/topics/weedspage>



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HOME & GARDEN
INFORMATION CENTER

Get Help Topics Library Maryland Grows Blog Master Gardener Ask an Expert Do

Home » Home and Garden Information Center » Topics » Plants

Home and Garden Information Center

Get Help


Topics

Plants


- Houseplants
- Invasive Plants
- Native Plants
- Trees/Shrubs
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 - Lawn Weed ID and Management
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- Ornamentals
- Vegetables

Lawn-Garden

Weeds

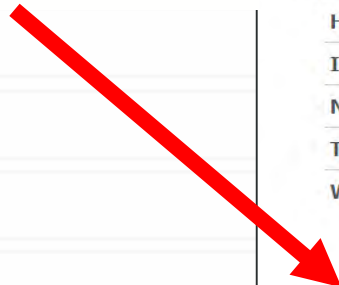


Flowering nutsedge

- Invasive Plants
- Lawn Weed Id and Management
- Weeds
- Fall Weeds
- Spring Weeds
- Summer Weeds
- Maryland Grows Blog Posts on Weeds
- Publications
- Videos (Invasive Plant Series) 

Resources

Learn a new weed each day!



Home » Home and Garden Information Center » Topics » Plants » Weeds

Home and Garden Information Center

Get Help

Topics

Plants

- Houseplants
- Invasive Plants
- Native Plants
- Trees/Shrubs

Weeds

- Lawn Weed ID and Management**
- Weed Photos**
- Annual bluegrass
- Bamboo
- Bermudagrass
- Crabgrass
- Dallisgrass
- Giant foxtail
- Green Kyllinga
- Japanese stiltgrass

Weed Identification Photos




Featured seasonal weeds: **Spring | Summer | Fall**

- Grassy Weeds**
- Broadleaf Weeds**
- Woody-Vining Weeds**
- Lawn Weeds**
- Invasive Plant Photos and Information**

Important Tips for Weed Control

- Identify the weed! And learn about its life cycle. This will help in control.
- Minimize soil disturbance. Digging and cultivating brings weed seeds to the surface and when exposed to light they will germinate.
- Do not let weeds flower and go to seed. At minimum cut them back or use a string trimmer.
- Pull weeds when the soil is moist. This will make the job easier!
- Cover bare soil with mulch or groundcovers. Bare soil is an invitation for weeds to move in.
- **Glyphosate (Roundup®) Information and Alternatives for Weed Management**

Key: * invasive

Grassy weeds and sedges			
	Annual bluegrass		Bermudagrass

Questions?



Luke Gustafson

9501 Crain Highway, #1, Bel Alton, MD 20611

301-539-3047

lng@umd.edu



Spotted Lanternfly and Asian Giant Hornet

Mary Kay Malinoski
Extension Specialist
University of Maryland Extension





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CONTACTS

- Liz Dragone
- Stanton Gill
- Annette Cormany
- Mari Wilson
- Heather Kiser Zindash
- Maureen Patching
- Mahan Hengemihle
- Kim Clement
- Jody Gangloff-Kauf
- Eileen Malinoski Tripodi
- David Carney
- Molly LeGath McElwee
- Debbie Ricigliano
- Kathleen Dale
- Siri Sværén

Turn on chat to see who's available.

Search

How do invasive pests get here?



5461415

Remember this face!





Key Points

- Last fall a single nest of Asian giant hornets (AGH) was found in British Columbia, Canada. Soon after its discovery, the nest was destroyed.
- Later in the fall, a dead specimen was found in Washington state. Authorities are carefully monitoring for any additional sightings.
- Its predominant native range is China, Japan, SE Asia.
- AGH is not present in the eastern U.S. However, we do have two look-alikes. The non-native **European hornet** and the native **cicada killer wasp**. Both are similar in size and coloration and, to the untrained eye, can be easily confused.
- The Maryland Department of Agriculture and USDA's Animal & Plant Health Inspection Service [APHIS] are surveying for this insect.

European Hornet



Cicada Killer Wasp



Asian Giant Hornet Behavior

- They pose a threat to honeybee hives in autumn and spring. Workers can raid a hive and kill large numbers of adult honeybees to feed to their own young. In Japan they are called sparrow hornets due to their large size. They are not referred to as “murder hornets.”
- Generally, they are not aggressive towards people but will defend their nest and sting if provoked.
- Queens can be 2 inches long. Workers which are all females measure about 1 1/2 inches.

Queen is at the top and worker is the bottom photo





Larvae in cells

A nest that has been “harvested”



The New York Times

In Japan, the 'Murder Hornet' Is Both a Lethal Threat and a Tasty Treat

Long before the insects found their way to American shores, some Japanese prized them for their numbing crunch and the venomous buzz they add to liquor.



They're not invading the U.S. But they are invading our headlines

There are no Asian Giant Hornets known to be living in the U.S. or Canada, according to a UC Riverside entomology expert called in to assess the problem.

Why it's not worth the buzz

Eating wasps and hornets in Japan

Fuelled by a fellowship to study entomophagy across the world, **Nora Mishanec** arrived in Japan just in time for the wasp festival, the hornet harvest, and last but not least, the following meal – wasps and hornets incorporated into a multi-course *kaiseki* feast – Japanese haute cuisine.

Chikara is a traditional *kaiseki* restaurant north of Ena, Japan. Head chef Ozeki prepared a special menu using **wasps** and **giant hornets**, but remaining faithful to traditional *kaiseki* aesthetics and techniques. While skeptical at first – he had never before cooked with hornets – he was a convert in the end, praising their versatility and flavour. The meal catered to a small but passionate group of hornet devotees, including Josh and Roberto of the **Nordic Food Lab** who were in town to learn more



Eating insects is nothing new – but it's also the future. Still, many of us find it disgusting. We're on a mission to find out more – not to sell you anything. Share our curiosity and join us in exploring a taste of insects!



Why should I eat insects?

Do they taste good?

Are they healthy?

Can they save the world?

► **Who eats insects?**



Who's bugging me?

5597687-PPT.jpg



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5570917-PPT.jpg



Show all



There is a hornet festival in Japan where they come up with new dishes for the larvae and adults

The giant hornet, along with other varieties of wasps, has traditionally been considered a delicacy in this rugged part of the country. The grubs are often preserved in jars, pan-fried or steamed with rice to make a savory dish called hebo-gohan. The adults, which can be two inches long, are fried on skewers, stinger and all, until the carapace becomes light and crunchy. They leave a warming, tingling sensation when eaten.

The hornets can also give liquor an extra kick. Live specimens are drowned in shochu, a clear distilled beverage. In their death throes, the insects release their venom into the liquid, and it is stored until it turns a dark shade of amber.

In Tokyo, the giant hornet is on the menu at more than 30 restaurants.



Additional resources for Asian Giant Hornet at
<https://extension.umd.edu/hgic/topics/asian-giant-hornet>

- **Penn State Extension**
- **The Ohio State University**, with good comparison photos to several other commonly encountered large wasp species.
- **Washington State University's extension fact sheet (PDF)**
- **Virginia Tech's AGH Fact Guide** (click the “similar species” tab for comparison photos)

Sizing up the Asian giant hornet



Sphex sp.
cicada killer



Sphex ichneumoneus
great golden digger wasp



Vespa crabro
European hornet
(does not occur in WA)



Cimbex americana
elm sawfly



Vespa mandarinia
Asian giant hornet



Vespa pensylvanica
western yellowjacket



Polistes dominula
European paper wasp



Apis mellifera
western honey bee



Dolichovespula maculata
bald-faced hornet



Tremex columba
pigeon tremex



Bombus flavifrons
yellow head bumble bee

This comparison chart of look-alikes for the Asian giant hornet is available in several size pdf's for download from the Washington Department of Agriculture:

<https://agr.wa.gov/departments/insects-pests-and-weeds/insects/hornets/size-comparisons>

Spotted Lanternfly, *Lycorma delicatula*



- Nymphs hatch mid April – early May
- Native to Southeast Asia
- Adults 1 inch long and very colorful
- Adults and nymphs feed by sucking sap from stems and leaves
- Adults lay eggs on just about any surface
- Attacks over 80 hosts including grapes, apple, hops, pines stone fruits, Tree of Heaven, and many shade trees.



They will lay eggs on just about anything



5544763



120

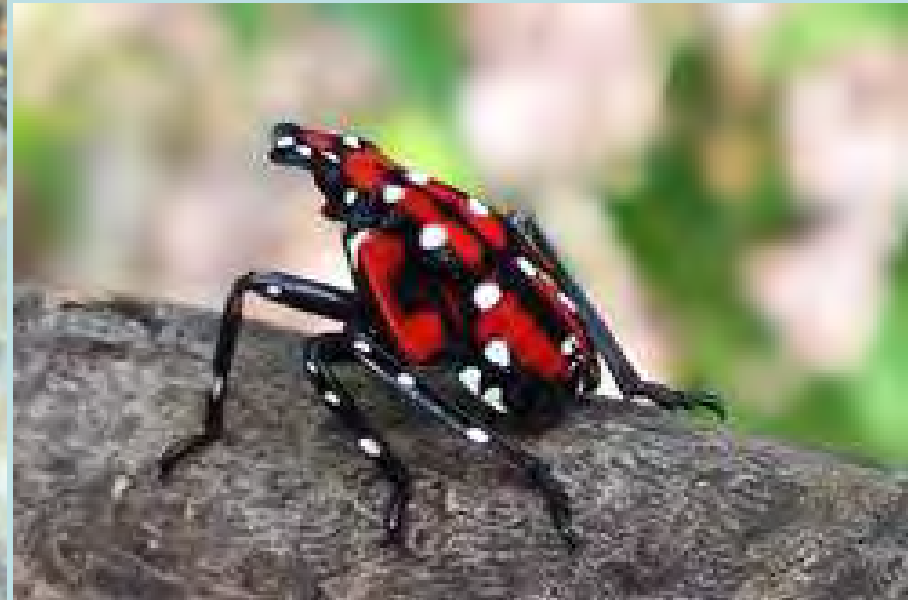
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Spotted Lanternfly nymphs can jump up to 3 meters!

First instar nymph 4 mm (photo credit Greg Hoover, Penn State)



Older nymph (12 mm) turning red, notice wing pads developing



All other spotted lanternfly photos: [Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org](#)



Young instars on brown paper sticky bands – used for monitoring. By-catch is an increasing problem.




Bug Barrier tree bands commercial bands that reduce by-catch (<https://www.treebands.com/home>)


://www.treebands.com

LISTSERV 14.5 Time Entry Menu -... Spotted Lanternfly Spotted Lanternfly Inbox (3) - mkmal@... ARES home page Spotted Lanternfly-...

Envirometrics Systems USA **BUG BARRIER TREE BAND** 800-379-9677

Home Pest Management Applying Bug Barrier Case Studies Where to Buy






We live in Fort Mill, SC, a suburb of Charlotte, NC. I took this photo yesterday. I know this is not the way they were designed to work against canker worm, but they are!

Michelle
11/7/14


Appealing



The BugBarrier Tree Band is designed to be attractive when installed.

The BugBarrier Tree Band is

Effective



Removed BugBarrier Tree Band in Charlotte, NC trapped 9000 egg laden fall cankerworms

The Bug Barrier Tree Band is





5573223



5539477

PA situation in 2017-2019

- Mass migration in the early fall and fly upwind
- SLF showed up in soybeans, alfalfa, corn, and massed on fruit trees and grape vines
- Killed hop vines
- Reduced quality of grapes from honeydew, sooty mold and lower sugar content and prevent fruit production the following season, death of new growth.
- New “hot trees” red maple among them
- Annoying everyone by its presence and extremely large numbers. You thought stink bugs were bad....just wait!



SLF on soybean



SLF on alfalfa

Spotted lanternfly nymphs feeding on basil on the left and cucumber below



5563437



130

5563443

Adults on wild grape vine





5563441



5573233



5563434



Spotted lanternfly on apple in Berks County, PA in October 2017.
Photo: Erica Smyers, Penn State

Female Ailanthus tree with seeds make it easy to identify



5574842



5544776

Local predators (insects and spiders) and birds have finally discovered that lanternflies are edible

Spined soldier bug



Praying mantis having a bite

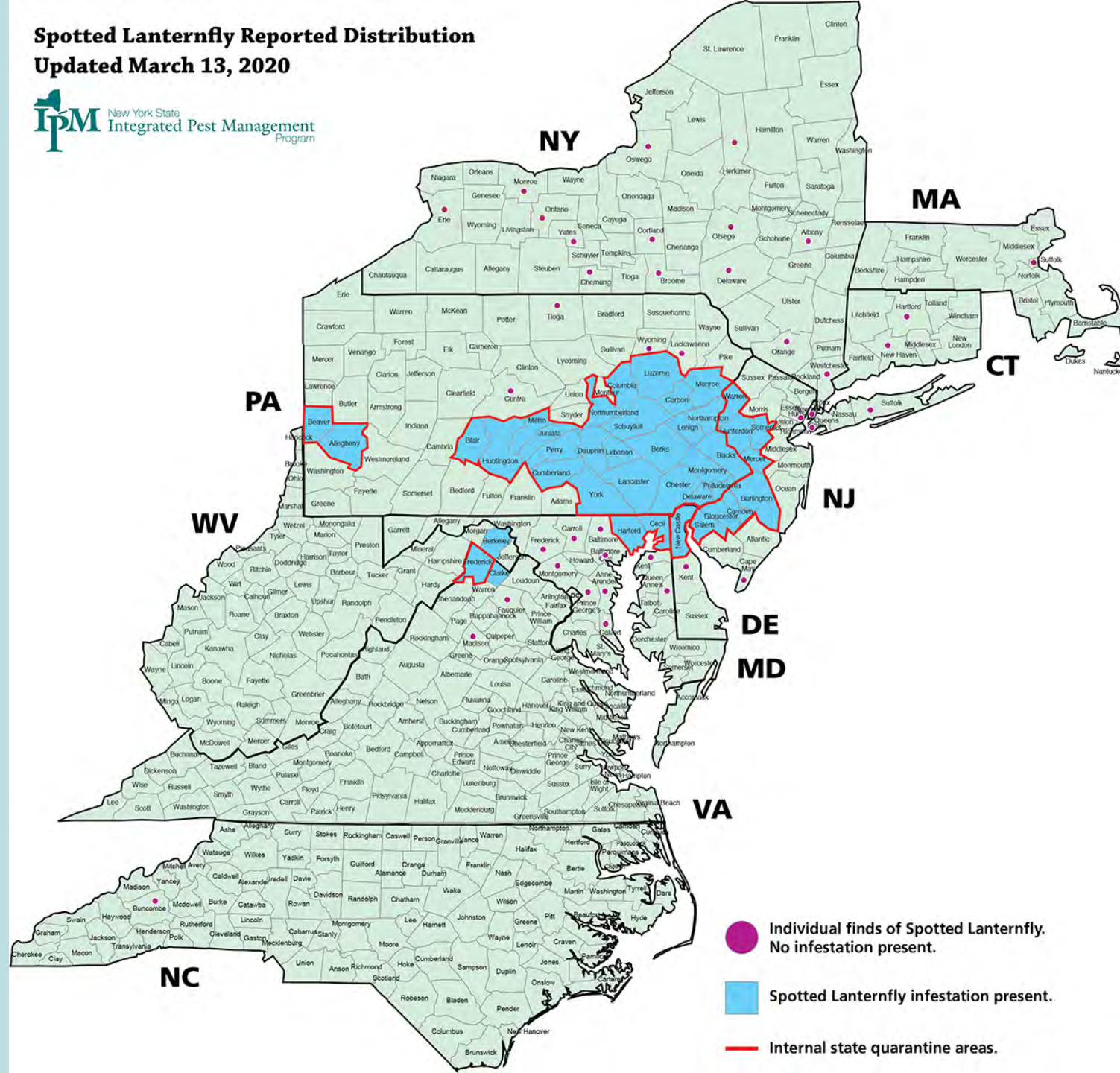


So Where are they now?

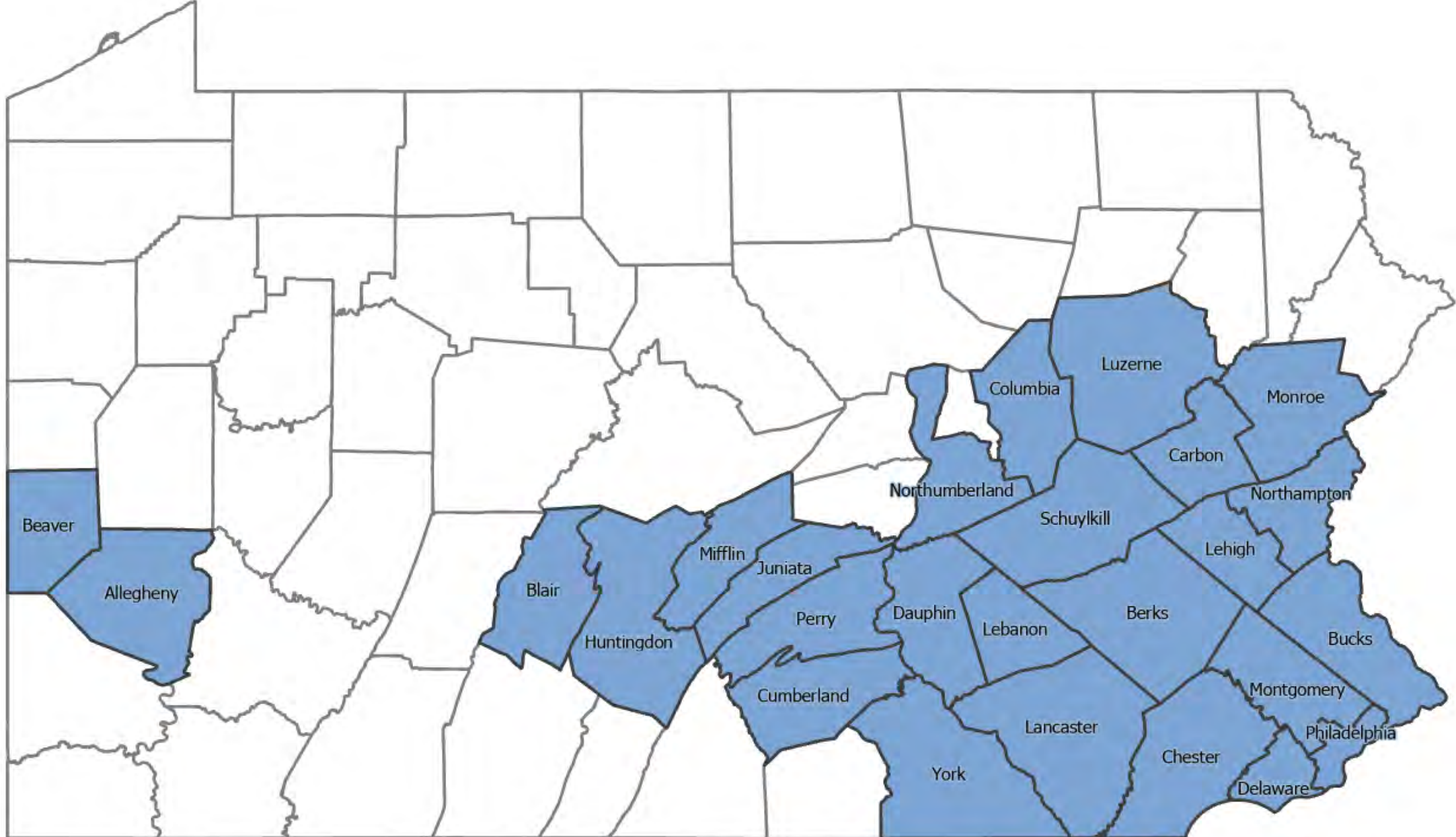
- Southeast Pennsylvania
- 3 counties in western New Jersey and spreading
- Winchester, Virginia (along both sides of Route 81) Spreading
- Delaware in New Castle county
- Cecil county Maryland
- Intercepted many times in New York state

Spotted Lanternfly Reported Distribution

Updated March 13, 2020



- Individual finds of Spotted Lanternfly. No infestation present.
- Spotted Lanternfly infestation present.
- Internal state quarantine areas.



Pennsylvania Spotted Lanternfly Quarantine

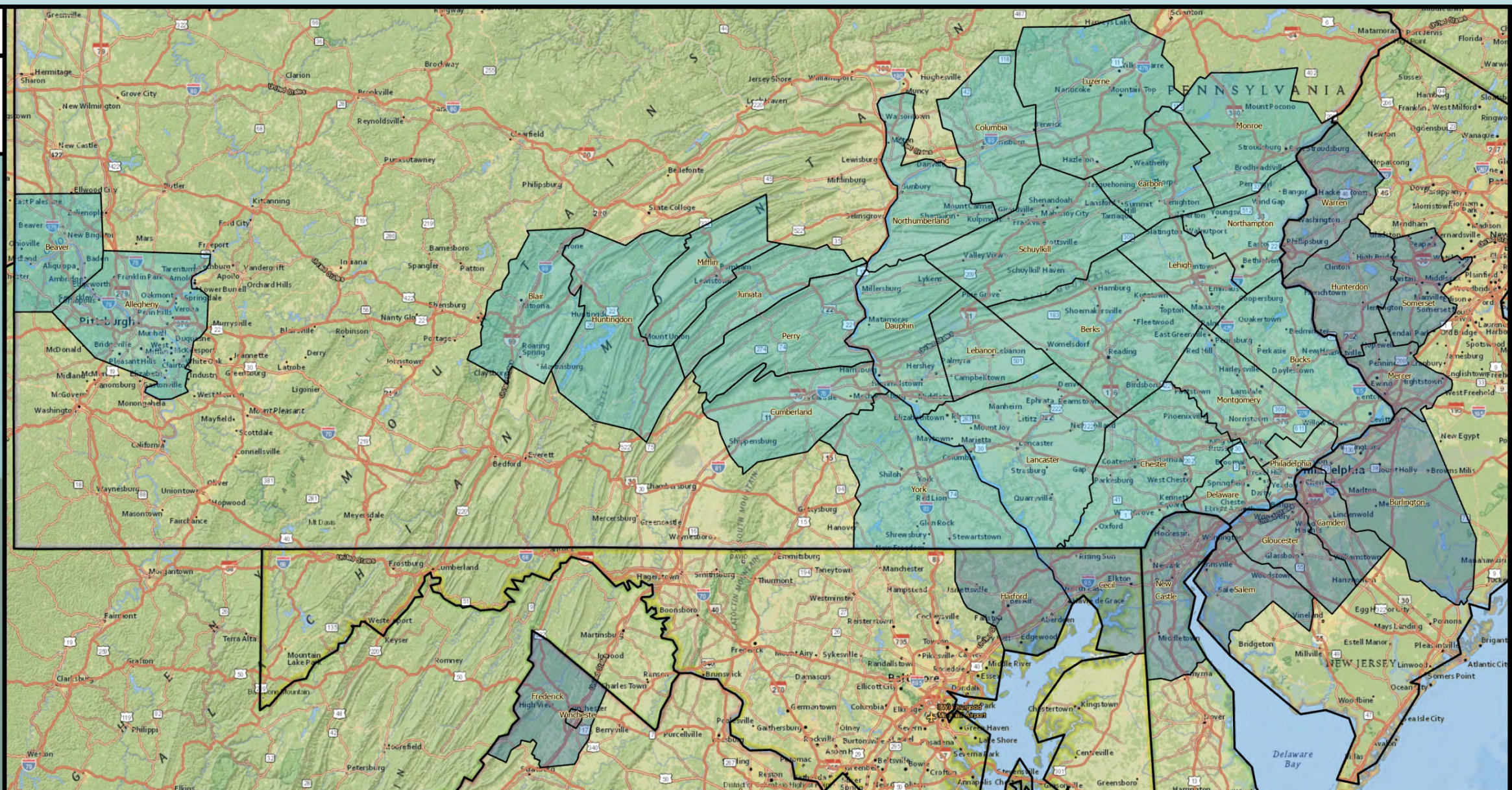
■ Quarantine



**Spotted Lanternfly
Mid-Atlantic Quarantine**

By State and County

- Pennsylvania Quarantine**
- Allegheny
 - Beaver
 - Berks
 - Blair
 - Bucks
 - Carbon
 - Chester
 - Columbia
 - Cumberland
 - Dauphin
 - Delaware
 - Huntingdon
 - Juniata
 - Lancaster
 - Lebanon
 - Lehigh
 - Luzerne
 - Mifflin
 - Monroe
 - Montgomery
 - Northampton
 - Northumberland
 - Perry
 - Philadelphia
 - Schuylkill
 - York
- Delaware Quarantine**
- New Castle
- Maryland Quarantine**
- Cecil
 - Harford
- New Jersey Quarantine**
- Burlington
 - Camden
 - Gloucester
 - Hunterdon
 - Mercer
 - Salem
 - Somerset
 - Warren
- Virginia Quarantine**
- Frederick
 - Winchester City



Scientific Journal Articles

A pair of native fungal pathogens drives decline of a new invasive herbivore. Eric H. Clifton, Louela A. Castrillo, Andrii Gryganskyi, and Ann E. Hajek. *Proceedings of the National Academy of Sciences*. April 22, 2019. <https://doi.org/10.1073/pnas.1903579116>.

Two North American fungal pathogens caused a coepizootic leading to localized collapse of an outbreak population of the newly invasive planthopper pest, the spotted lanternfly (*Lycorma delicatula*), in the eastern United States. The pathogens partitioned the habitat, with the majority of *L. delicatula* on tree trunks killed by *Batkoa major*, while cadavers of *L. delicatula* killed by *Beauveria bassiana* were usually on the ground. The future will show whether these pathogens will be drivers in boom–bust cycles or will result in recurrent low population densities of this new invasive species.

Resources

- **PA Dept. of Ag.** : www.agriculture.pa.gov/spottedlanterfly
- **Penn State Extension:** extension.psu.edu/pests/spotted-lanternfly
- **Delaware:** <https://agriculture.delaware.gov/plant-industries/spotted-lanternfly/>
- **VA Coop. Ext.** : <https://ext.vt.edu/agriculture/commercial-horticulture/spotted-lanternfly.html>
- **New Jersey Dept. of Ag.:**
<https://www.state.nj.us/agriculture/divisions/pi/prog/spottedlanternfly.html>
- **Maryland Dept. of Ag.:** <https://mda.maryland.gov/spottedlanternfly>
- **Northeastern IPM Center Spotted Lanternfly Working Group:**
<https://www.northeastipm.org/working-groups/spotted-lanternfly/#resources>
- **West Virginia Extension:** <https://extension.wvu.edu/lawn-gardening-pests/pests/spotted-lanternfly>



LEARN HOW TO STOP THE INVASIVE SPOTTED LANTERNFLY >

CORONAVIRUS: INFORMATION, RESOURCES, AND UPDATES FOR THE EXTENSION COMMUNITY >

The invasive insect spotted lanternfly threatens the U.S. economy and environment. Businesses operating in quarantine zones must have permits to move equipment and goods within and out of the zones.

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Spotted Lanternfly Permit ... ▾

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Pests and Diseases


APHIS protects the United States agricultural interests related to non-native plants, animals, insects and diseases as well as monitoring and managing existing agricultural pests and diseases. The list below comprises a large set of the pests and diseases we regulate, monitor, or manage. You can search or filter the list by selecting one of the terms below.



or view **By Type**

- All (77)
 - Animal Disease (26)
 - Insects and Mites (27)
 - Mollusks (1)
 - Nematodes (2)
 - Plant Disease (14)
 - Plant Pest (30)
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- Wildlife Program (6)

African Swine Fever



Animal Disease, Swine

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Asian Citrus Psyllid



Plant Pest, Insects and Mites, Citrus

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Asian Gypsy Moth



Plant Pest, Insects and Mites, Trees

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Asian Longhorned Beetle



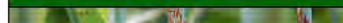
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Avian Influenza




Black Stem Rust



Boll Weevil



Bovine Spongiform Encephal...



PEST ALERT

Spotted Lanternfly

Spotted lanternfly, *Lycorma delicatula* (Hemiptera: Fulgoridae) is a non-native invasive insect from Asia that has recently arrived in the Mid-Atlantic region of the United States. The insect was first discovered in a Berks County, Pennsylvania stone yard in 2014. However, based on pest numbers and egg masses, experts believe it had been established in the area one or two seasons prior. The pest has since spread, resulting in a quarantine imposed on multiple counties in Pennsylvania. Spotted lanternfly (SLF) has now been found in several other states throughout the region, including Delaware and Virginia. As this insect has limited mobility, its spread is occurring primarily by human-assisted travel. The arrival of this new pest could have a significant impact on Maryland and U.S. agriculture.

Lifecycle

Adult SLF are large (approx. one inch long), strikingly colored insects, with grayish spotted front wings and red, white, and black patterned hind wings. The body is yellow and black banded (Fig. 1 – Adult SLF). However, the insect dramatically changes appearance throughout its life cycle. The tan eggs, 30-50 per egg mass, covered with a grey waxy coating, are laid on any vertical surface from late September until frost (Fig. 2 – Eggs; Fig. 3 – Eggs on barrel). Eggs hatch from late April to early May, into tiny white-spotted angular black nymphs (Fig. 4 – Young nymphs) and begin feeding by sucking the juice from host plants. As they grow older, nymphs molt and become bright red and black with white spots (Fig. 5 – Full-grown nymphs). Adults first appear around mid-July to feed, mate, and lay eggs (Fig. 6 – Cluster of adults).

Photo Credit: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org



Fig. 1 - Adult Spotted Lanternfly



Fig. 2 - Egg Mass



Fig. 3 - Egg Mass on barrel



Fig. 4 - Young Nymph



Fig. 5 - Full-grown Nymph



Fig. 6 - Cluster of Adults

Feeding Behavior

Nymphs have been found feeding on an ever-expanding list of plants, including apples, apricots, blueberries, cherries, grapes, hops, nectarines, peaches, oak, pine and poplar, among many others. Adults prefer—and may need—to feed on tree-of-heaven (*Ailanthus altissima*), another non-native invasive species.

Potential Damage

Damage from SLF feeding with its piercing-sucking mouth parts can cause stunted growth, reduced yields, and death of the host plant. As the insects feed, they excrete a sugary honeydew that collects and can attract other insects, as well as supporting growth of black sooty mold fungus that blocks sunlight from the leaves.



How to Help

You can help prevent the spread of SLF in several ways. Learn the insect's unique appearance and inspect plants in your area for adults, nymphs or eggs. You can place 'sticky-bands' around tree-of-heaven trunks to trap nymphs during their daily up and down migration.

If you see a suspect insect, trap or photograph it and contact Maryland Department of Agriculture at DontBug.MD@maryland.gov.

Collected dead specimens of any stage can be mailed or delivered to:

**Maryland Department of Agriculture
Plant Protection & Weed Management
50 Harry S. Truman Parkway
Annapolis, MD 21401**



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Look Before You Leave

SPOTTED LANTERNFLY, *LYCORMA DELICATULA*

Adult with Egg Masses | Eggs: October - May



Adults on *Ailanthus*



Egg Masses | Eggs: October - May



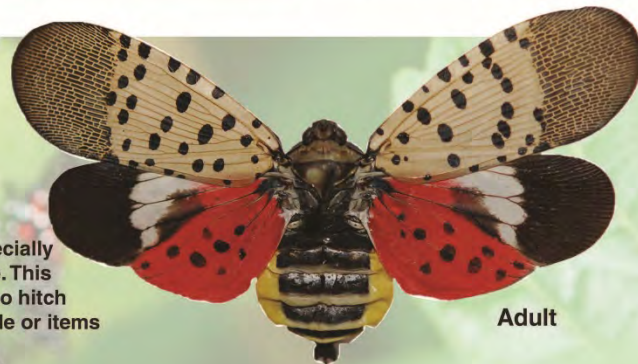
Early Nymph | May - June



Late Nymph | June - July



Spotted lanternfly threatens the Pennsylvania agriculture industry. The Pennsylvania Department of Agriculture and the United States Department of Agriculture (USDA) are asking for your help in the eradication efforts of this pest. Look for the insect before leaving a quarantined area, especially after walking or parking near a tree line. This insect is not a strong flier, but may try to hitchhike a ride on your clothing, your vehicle or items sitting outdoors. For more information and the current quarantine, please visit:



Adult

WWW.AGRICULTURE.PA.GOV/SPOTTEDLANTERNFLY

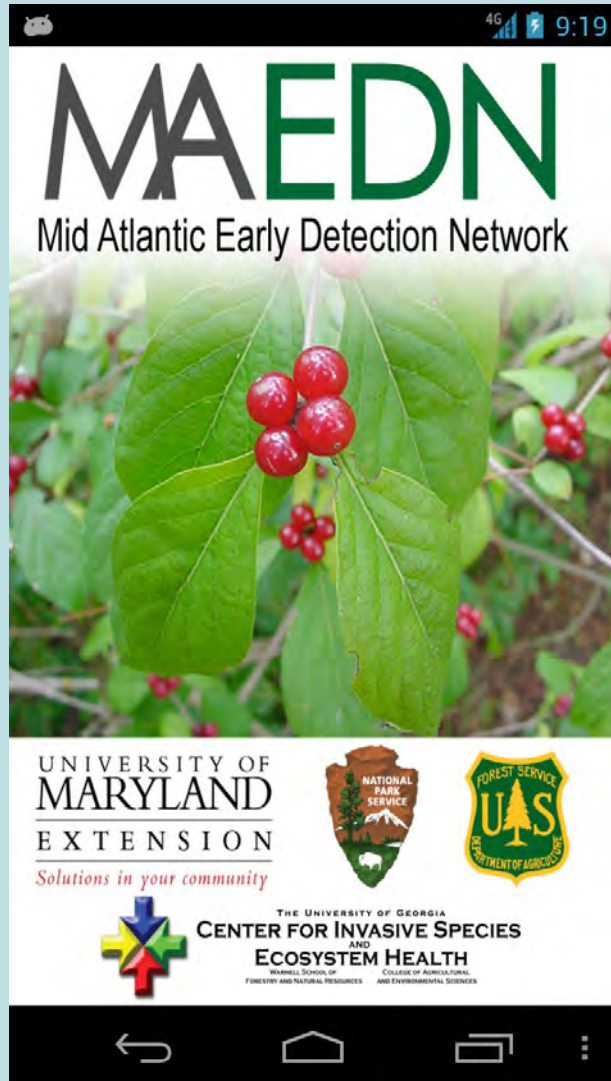
SPOTTED LANTERNFLY



Lycorma delicatula

Photo: Ennelle Swackhamer, Penn State University, Bugwood.org

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THREATENING
MARYLAND**



Take photos with your cell phone.

Download the **MAEDN** app from Google Play or Iphone app store.

Can send up to 3 photos (geotagged), put in contact information

Where to report SLF in Maryland

- MDA's Page on SLF: <http://mda.maryland.gov/spottedlaternfly>
- Phone: 410-841-5920
- email: DontBug.MD@maryland.gov

Our contact information:

Mary Kay Malinoski, mkmal@umd.edu,
410-531-5568

David Clement, clement@umd.edu,
410-531-5558



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Vegetable & Fruit Update

May 20, 2020

Jon Traunfeld jont@umd.edu

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- Many new food gardeners in response to COVID-19 pandemic.
- Great opportunities for online and, eventually, hands-on education
- HGIC seeing an increase in questions

Planting Vegetables in May

Posted on [May 1, 2020](#) by [Maryland Grows](#)

[7 Comments](#)

Maybe April is the cruelest month (especially this year) but early May can be tough on vegetable gardeners who are raring to go. You've got your spring crops in the ground and growing; maybe if you got an early start you're even harvesting. But what about all those delicious summer veggies? If you're lucky, you have some tomato plants, maybe some peppers or eggplant; you've got bean seeds and squash seeds and more. And you have well-prepared soil to plant them in. But when is it safe?



The Maryland Grows blog has been featuring articles for new vegetable gardeners

[View this email as a webpage](#)

UNIVERSITY OF
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HOME & GARDEN
INFORMATION CENTER

NEWSLETTER



FOOD GARDENING: SPECIAL EDITION

During this time of sheltering in place, starting a food garden is a great way to connect with nature and stay productive and healthy.

Grow It Eat It is a University of Maryland Extension (UME) signature program that has helped thousands of Maryland residents start and improve their food gardens since 2009. The UME Home & Garden Information Center (HGIC) and Master Gardener program are here to help you start or improve your food garden. Learn how to grow food organically in small spaces and get tips for preserving the harvest.

HGIC's special newsletter directs new and experienced gardeners to online resources

Hello! I am starting my second attempt at gardening and recently purchased the raised garden kits... After assembling I realized a potential miscalculation - the beds are 7 inches and 10.5 inches deep and I used a weedblocker under both of the garden beds. What can I do to prevent this endeavor from wilting away before anything is even planted?




April/May Cold Weather Injury

- Fruits, shoots, twigs, and foliage injured- plum, cherry, peach, apple; significant across most portions of the State
- Early-planted vegetables- potato, tomato, cucumber, bean



Problem: managing overgrown transplants (caused by following 6-8 week recommendation)

Solution: sow tomato seeds 4-5 weeks before last frost

Seeded on 4/2;  potted up into 4 in. containers on 4/19; photo taken on 5/13



What's going on with these romaine lettuce leaves?

Answer: edema



Black bean aphids on rhubarb



Manage the major fungal leaf spot diseases of tomato

- Space plants at least 2 ft. apart
- Remove lower leaf branches and excess suckers
- Water at plant base
- Good garden sanitation
- Fixed copper fungicides



Early blight

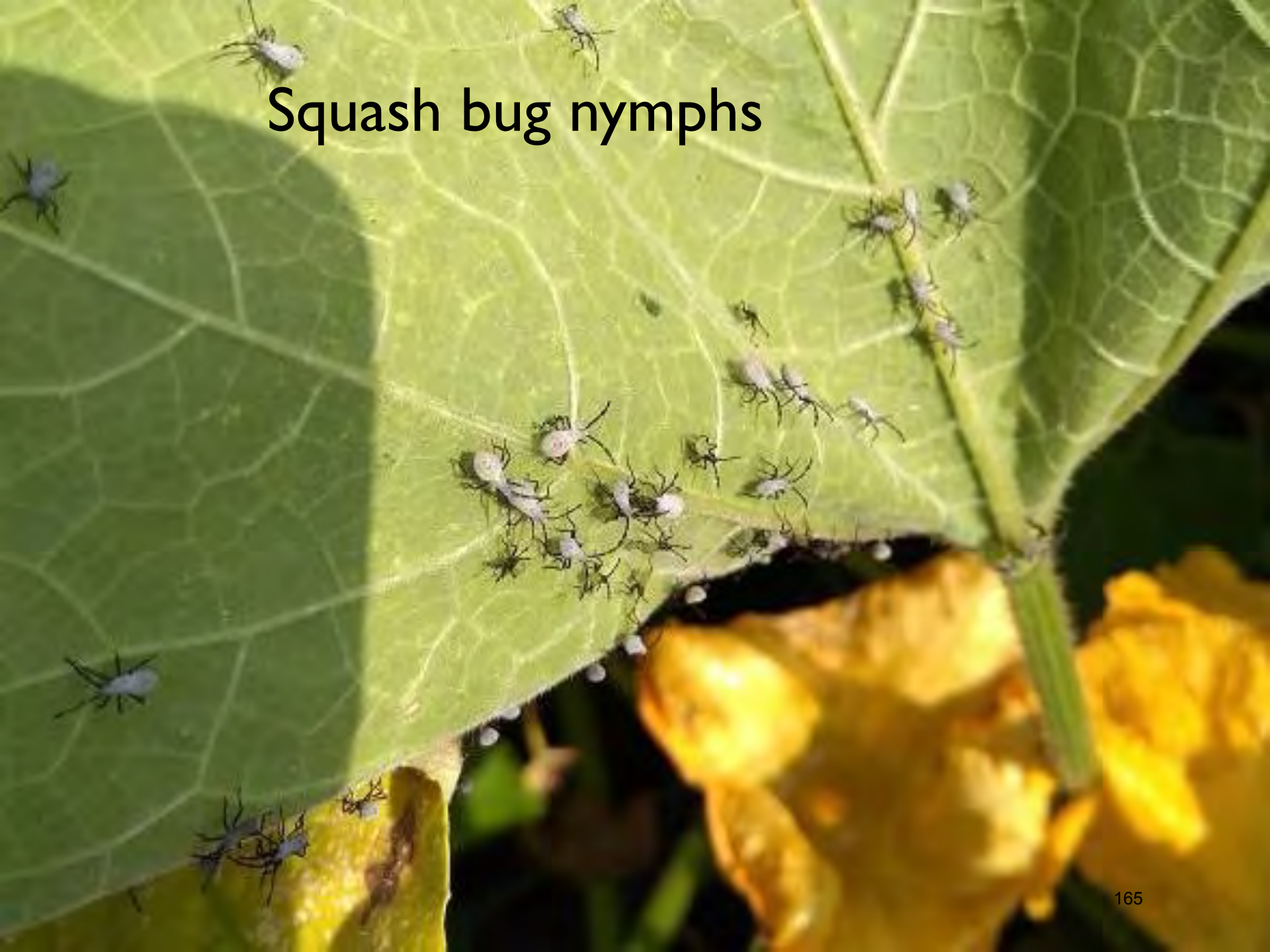


Septoria leaf spot



Pick all fruit with color

Squash bug nymphs

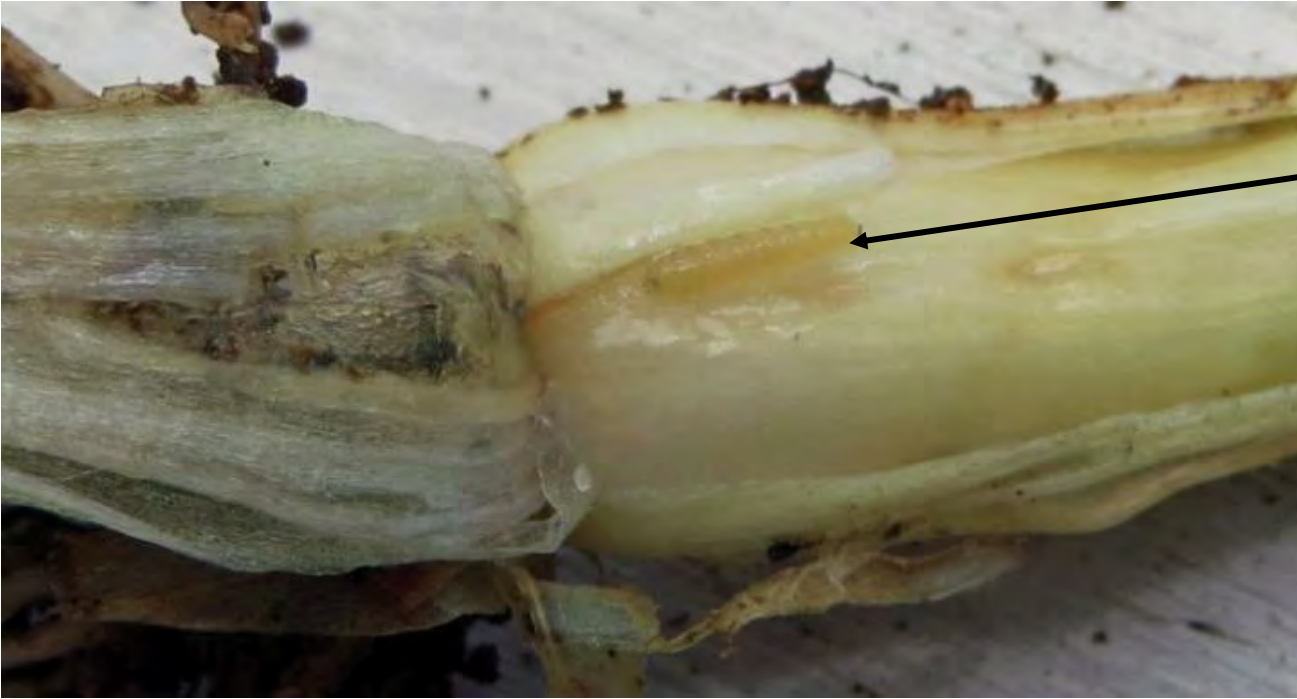




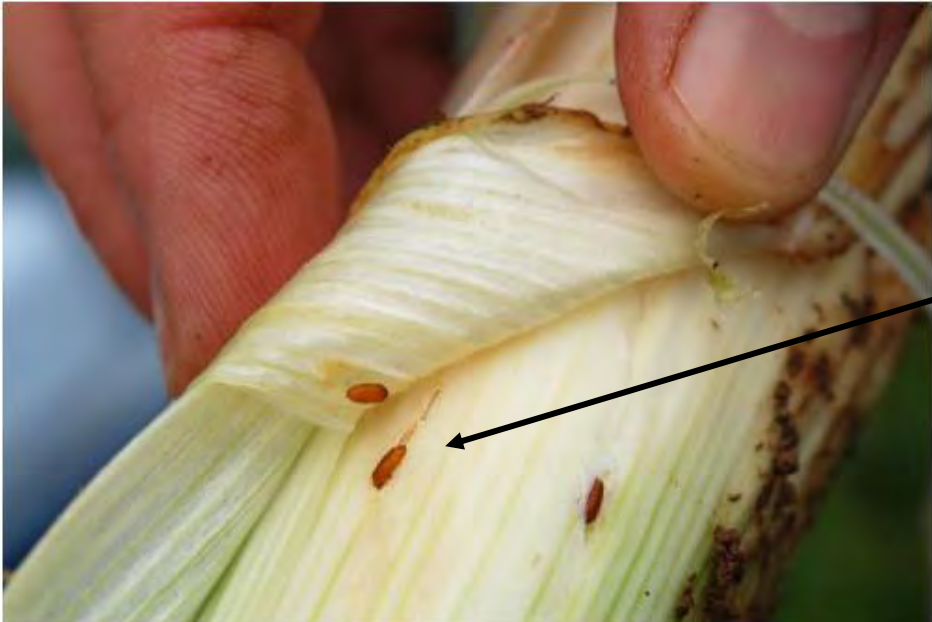
What caused this symptom
in alliums this spring?

Answer: allium leafminer





Larva-
1/3 in.



Pupae



Cultivars resistant to basil downy mildew:
'Prospera,' 'Devotion,' 'Obsession,' 'Passion'

'Amazel' is seed-sterile; available only as plants



Tulle instead of bird netting

What caused these symptoms in peach this spring?

Peach leaf curl





Tree fruits are vulnerable to many pests and diseases.

- Start with small fruit
- Learn about fruit you want to grow
- Prevent and manage problems from the start

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Home Fruit Preventative Spray Schedule

[View](#)[Edit](#)[Revisions](#)

The link below will take you to the Virginia Tech **Home Fruit Disease and Insect Management Guide**. The close proximity to Maryland, the similar disease and insect problems experienced by fruit growers in both regions and the timely information should provide guidance in managing fruit problems.

For weed control, we recommend cultural practices such as cultivation, hand-weeding, and mulching and not using herbicides.

(PDF) [Virginia Tech Cooperative Extension Pest Management Guide: Home Grounds & Animals 2019 - Home Fruit \(1MB\)](#)

Broken link? [Contact the Webmaster](#)

Section: [Home and Garden Information Center](#)

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Home

About:

Our Vision: People gardening and managing land in harmony with nature.

Our Mission: Develop and deliver science-based, sustainable gardening and integrated pest management education for better human and environmental health.

[Staff directory](#)

Contact Us

Home and Garden Information Center
12005 Hillwood Road
Baltimore City, MD 21042

Phone: (410) 521-5556

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ASK



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from Maryland Certified Professional Horticulturists.
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FEATURED POST

Winter Sowing: How I Get a Jump Start on My Summer Flower Garden [\(1/23/2018\)](#)

PARTICIPATE



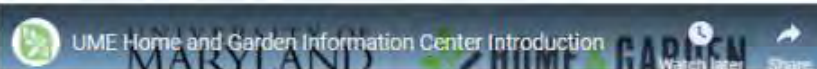
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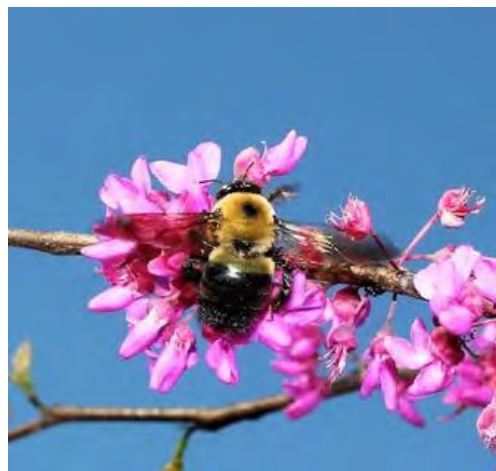
Happy National Bee Day!

Emily Zobel
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Carpenter Bees

- Important pollinators
 - buzz pollination
- Solitary bees
- Non aggressive
- 1 generations per year

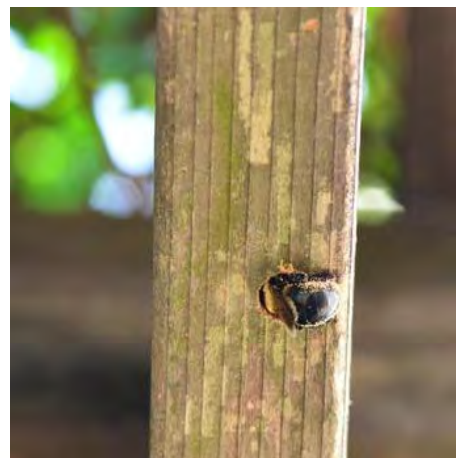


Carpenter Bees



Carpenter Bees

- Control is not necessary unless they are damaging wooden structures
 - Multiple tunnels
 - Repeated use
- Painted or stain wood
- Replace wood
- Treat with an insecticide and sealing of the tunnel



Leaf Cutting Bee

- Black and furry
- Solitary
- Pollinators of native plants
- Active in late-June and July
- One generation per year
- Non aggressive



Leaf Cutting Bee



Bee Fly

- Not a bee – fly
- Brown and furry
 - Only two wings instead of four, large eyes, skinny long legs and very short antennae
- Pollinators
 - Desert environments
- ‘Parasite’ of ground bee



Yellowjackets

- Social wasps
- Build paper nests underground in aerial nest
- Overwinter Queen
- Predatory
 - Caterpillars
- Seldom aggressive when away from nests



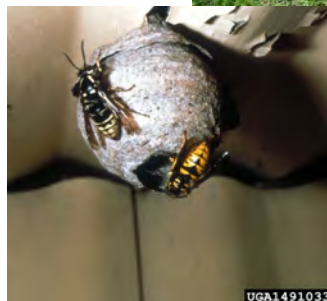
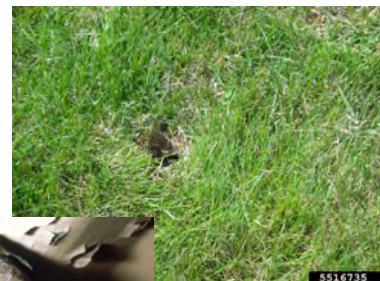
Yellowjacket Party Crasher

- Late Summer
 - Sweet
- Sanitation
 - Don't leave food sitting out
 - Cup or bottles
 - Clean up
 - Trash can – lids
- No Repellents
- Don't use traps



Yellowjacket

- Sting
 - Allergic reactions
- Nest
 - low-traffic area – leave them alone
 - Pest control company



Bee Friendly Garden

- Native plants
 - Spring and fall bloom
 - Grasses
 - Group of 3-5
- Water – shallow dish with marbles/ stone



Scaping with Native Plants
Maryland Native Plant Society

THE GARDEN HOES PODCAST

ASK THE GARDEN HOES

Submit questions or participate live in an "Ask the Garden Hoes" webinar to address real-life questions.

JUNE 24TH | WEDNESDAY
11 AM TO 12 PM

JULY 22ND | WEDNESDAY
11 AM TO 12 PM

Feel free to submit your questions and photos ahead of time online:
[SUBMIT HERE](#)

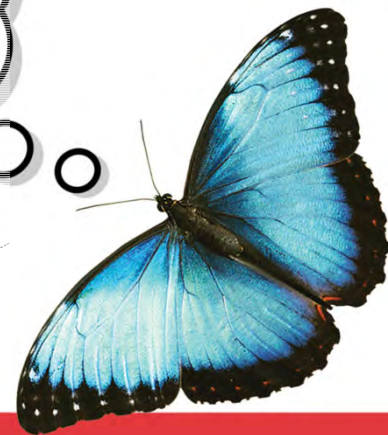
The Garden Hoes will also provide Q&A live for participants.

Free and open to public, but registration required:
<https://go.umd.edu/askgardenhoes>

UNIVERSITY OF MARYLAND EXTENSION MASTER GARDENER

[@GardenHoesPodcast](#)
<https://www.buzzsprout.com/687509>

Emily Zobel
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Sweat Bees

- Ground nesting
- Generalists
- Solitary, communal, semi-social or eusocial
- Larvae - grub like
- Attracted to salts found in human perspiration
- Non aggressive
 - Mild sting



Plant Samples

Photos submitted by Master Gardeners Prior to Training



Sage
Herb
Cold damage



Unknown
Weed
Pull?



Unknown Tree Insects





Unknown
Shrub
Insect, Abiotic



Echinacea purpurea



A. Milligan

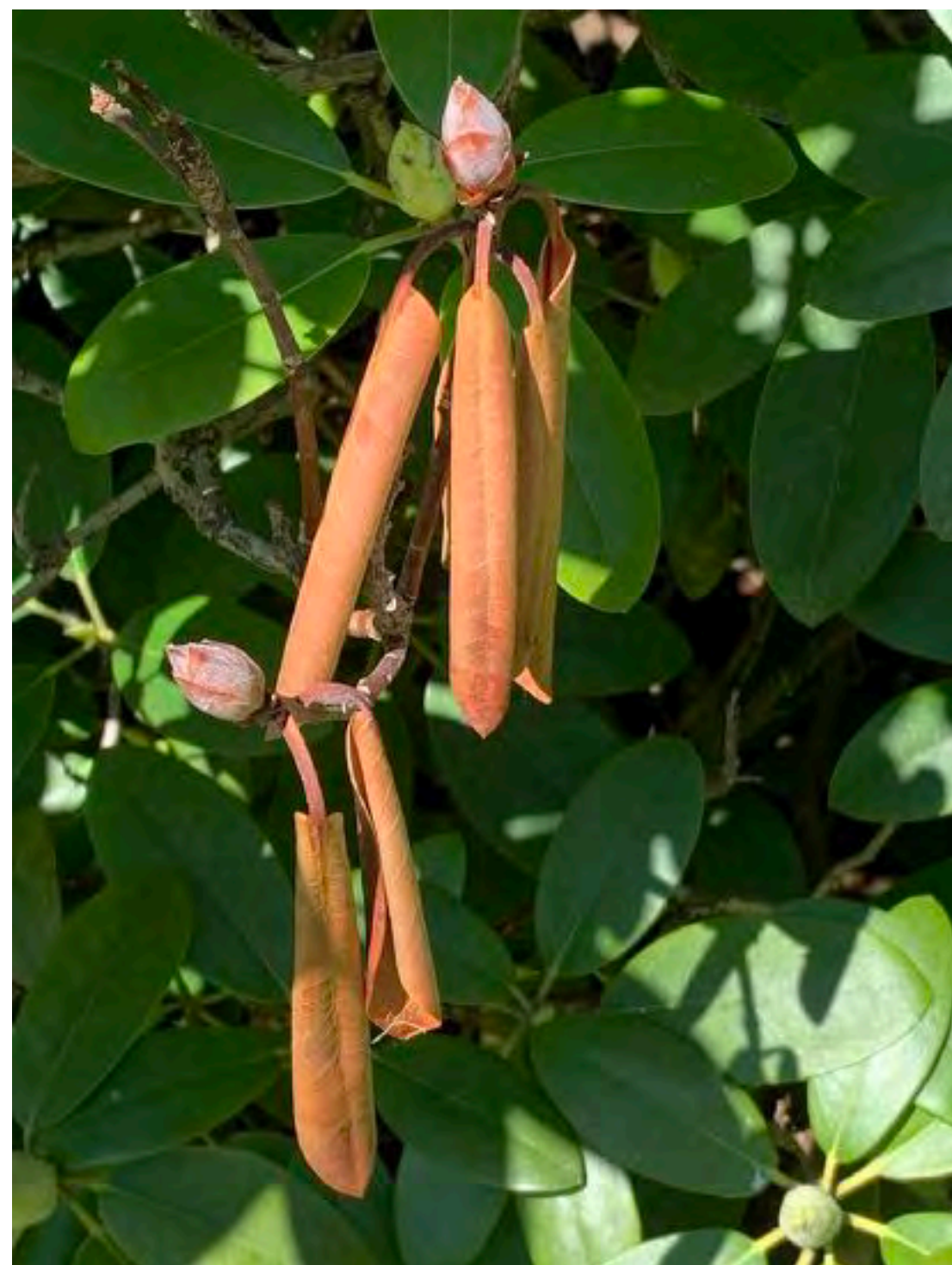
Echinacea purpurea

Perennial
Disease

In full sun in AA Co



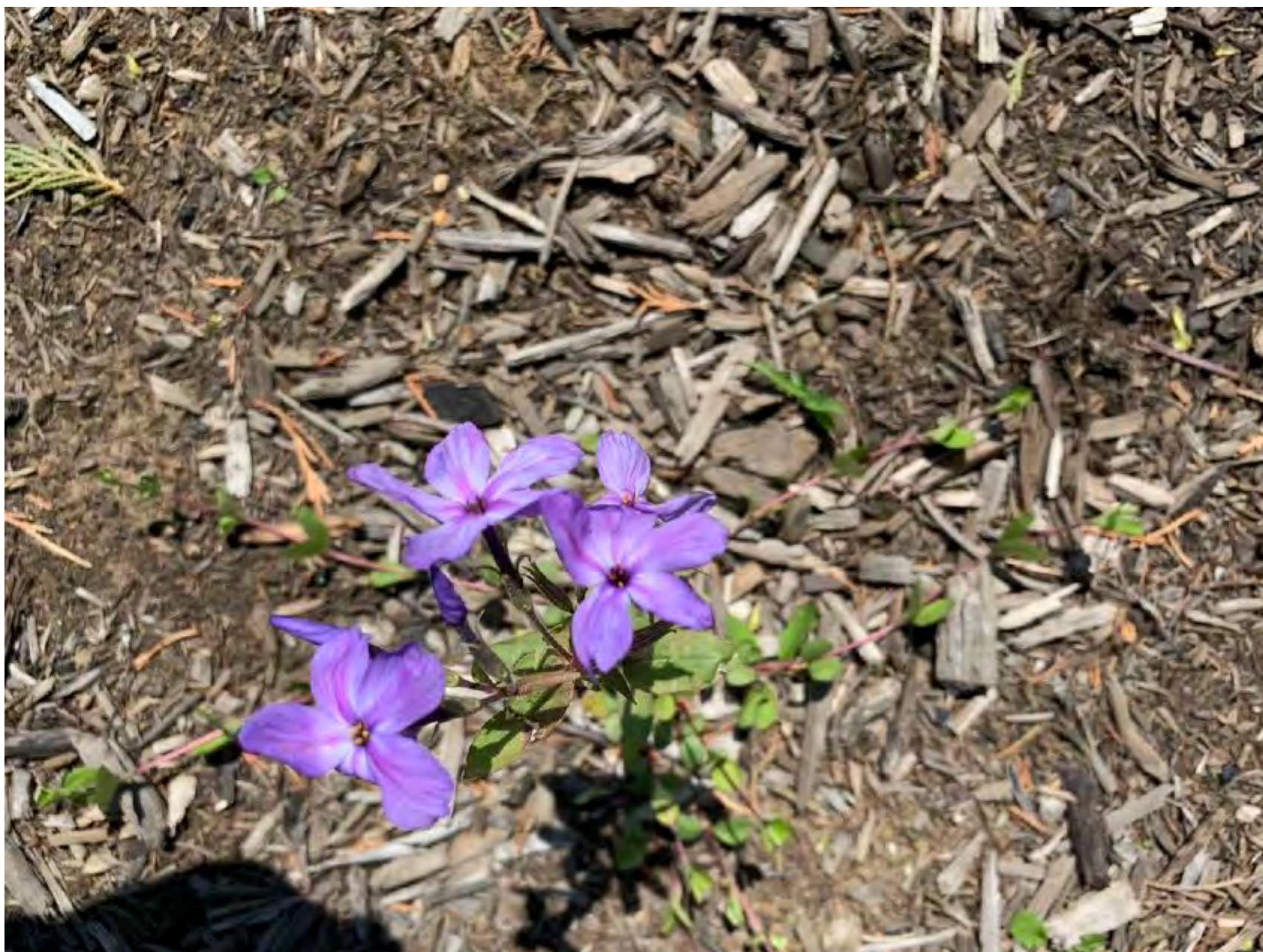
Unknown
Perennial
Invasive



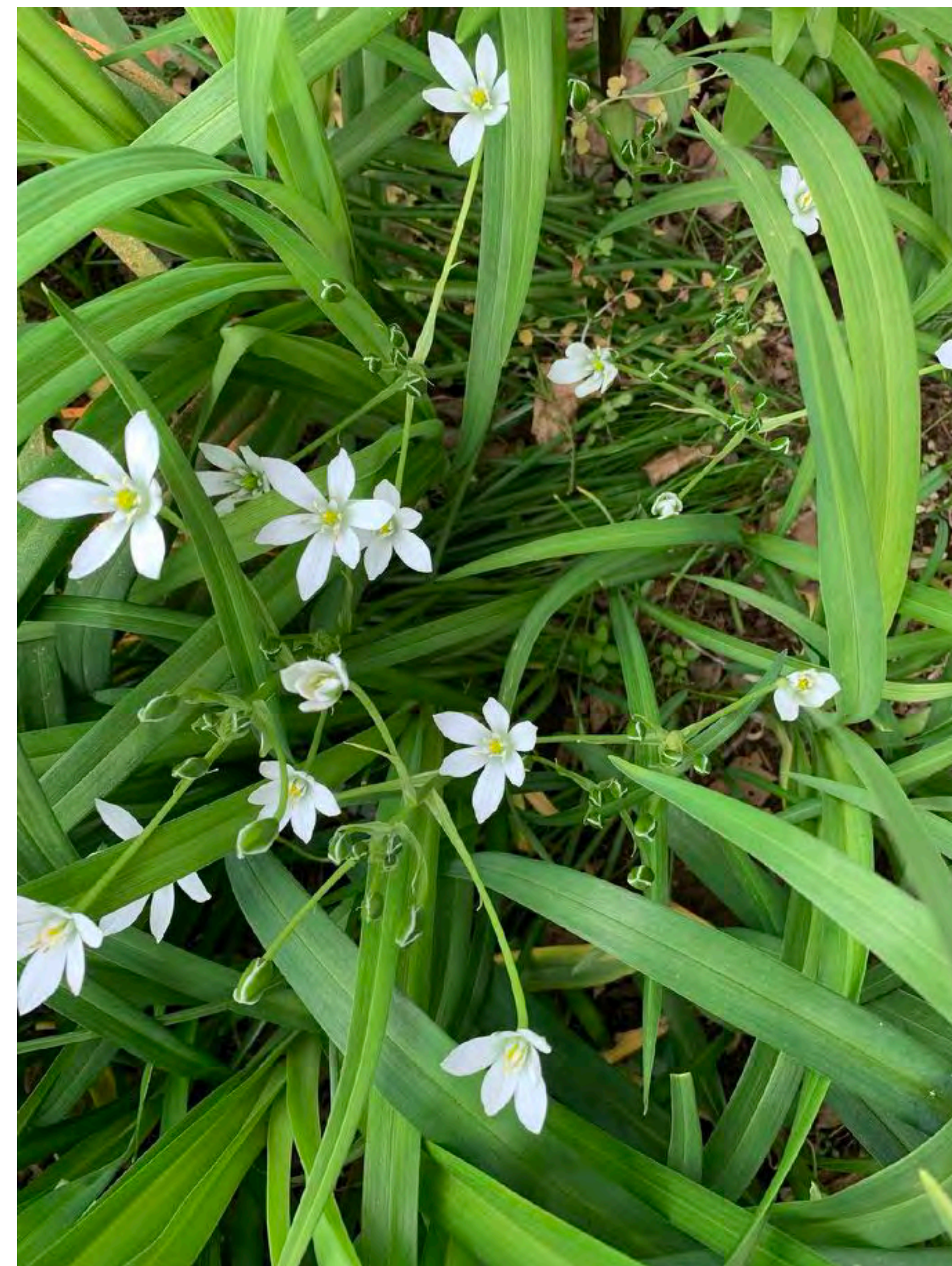
Rhododendron

Shrub

Insect & Disease



Unknown
Weeds
Pull?





Unknown
Tree
Abiotic



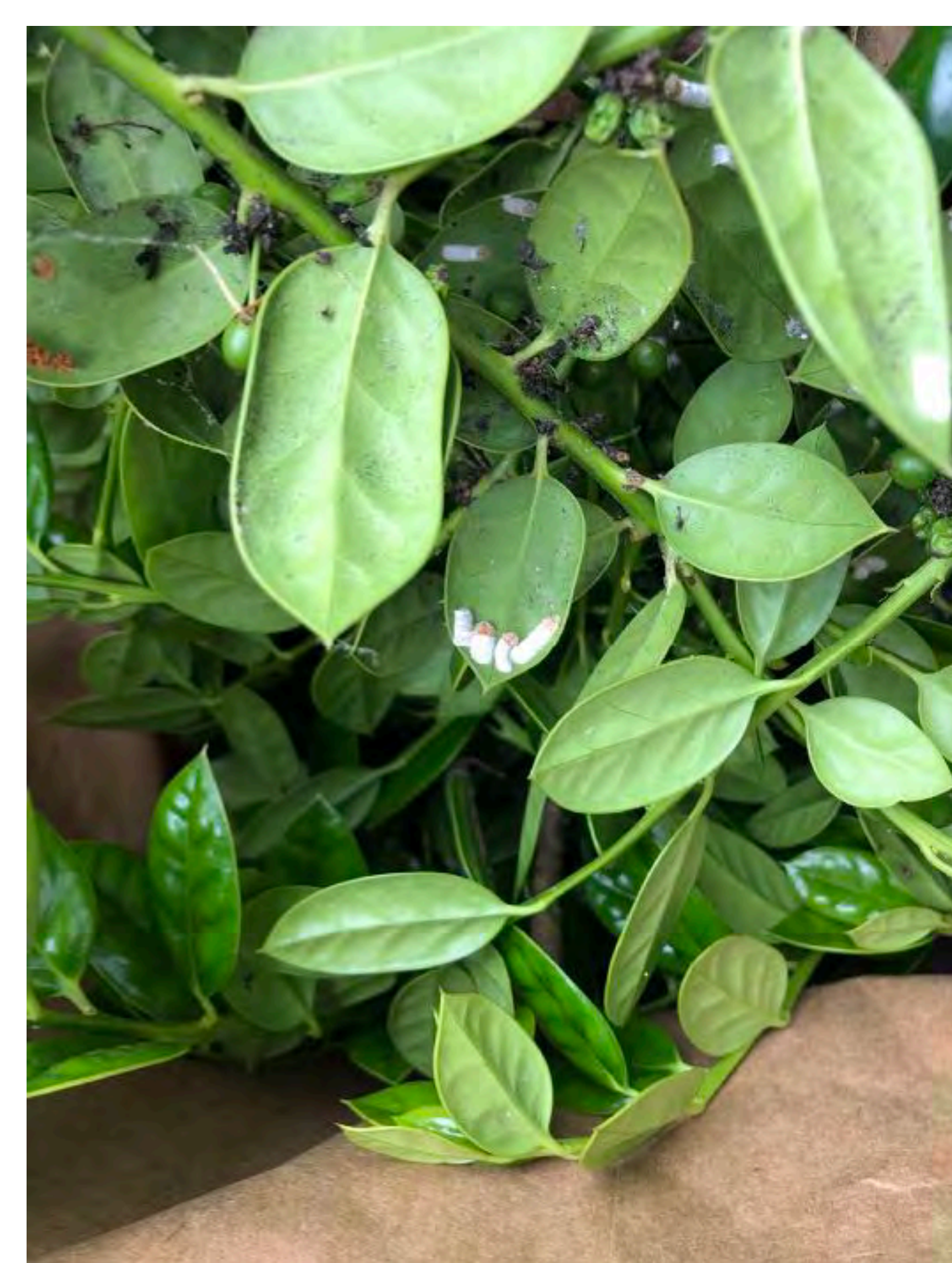
Unknown Shrub Disease

Roses

Shrub

Disease





Plant Name
Shrub
Insect

Unknown
Shrub
Insect, Disease





Unknown
Tree
Insect



Camelia
Shrub
Unknown



Roses

Shrub

Insects



Holly Tree Insects