Finger Lakes PRISM Trail Survey Part I

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FINGER LAKES PRISM Partnership for Regional Invasive Species Management

Today's Agenda

1. Overview of invasive species issues
2. Finger Lakes PRISM programs
3. PILOT Finger Lakes Trail Survey
4. Common invaders of the Finger Lakes
5. JOIN US- Part II- Thursday, June 11, 9am-11am Using iMapInvasives to map trails

Invading Landscapes

1) Invasive Species Overview

DEFINITION: Invasive Species

An invasive species is one that is **non-native** to the ecosystem under consideration and whose introduction causes, or is likely to cause, **economic** or **environmental** harm or harm to **human health**.

Economic:

Impacts on agriculture, recreation, wood/forest products, trade/shipping, tourism, utilities (power plants) and management costs.

Environmental:

Impacts on biodiversity, structural diversity, natural processes, aesthetics, ecosystem function and services.

Human Health:

Impacts on soil, water and air quality, flooding, injury, and disease/illness.

Characteristics of an invasive

- High fecundity- Lots of babies!
- Aggressive
  - Outcompetes more valuable native species
- No natural predators
- Little to no nutritional value
- Reduces or degrades habitat or food for native organisms
- Second largest threat to biodiversity
- Are the leading source of environmental and economic damage across NYS

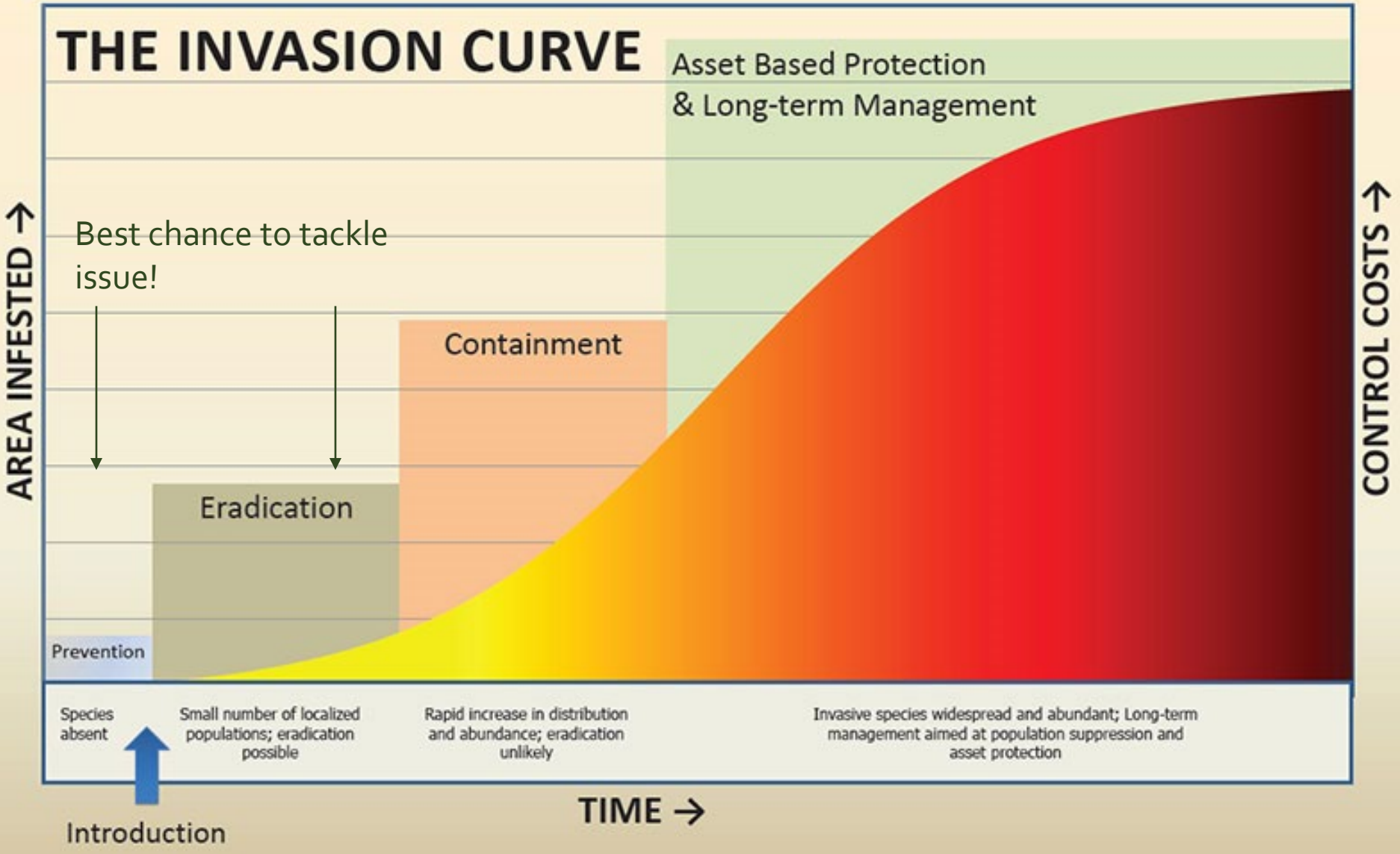

Photo credit: *LeRoy Rodgers, South Florida Water Management District*

HOW does a species to become invasive?

Brittany Lagaly

Lack of natural predators and diseases

Fast growth rate and high reproduction

Early leaf out + late senescence

Release from environmental controls on growth

Advantageous traits the native ecosystem has not evolved to deal with

The Ohio State University, Bugwood.org

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1) Invasive Species Overview

How did they get here?

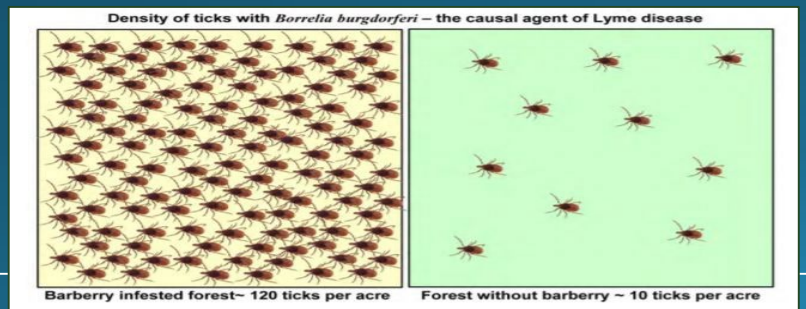
- Can be intentionally or unintentionally introduced
  - Landscaping plants
  - Food crops
  - Pet and aquarium trade
  - Ballast water
  - Hitchhikers on globally-traded products
    - Quarried stone,
    - Lumber,
    - Landscaping

Photo credit: http://www.hungrypests.com/how-they-spread/

1) Invasive Species Overview

Impacts of Invasive Species on Native Ecosystems

- Dense growth habits due to lack of predators and diseases.
- Exclude native species that provide food and habitat for wildlife
- Physical alteration of forest structure
- Chemical and physical alteration of soil properties
- Increased erosion and flooding
  - Excess nutrients in the watershed



PRISMs

- Finger Lakes-PRISM one of eight regional partnerships in NYS
- A great example of integrated approach to mgmt
- Addresses the threat of invasive species across NYS
- Allows partners to share and leverage limited resources
- Represents a highly-visible program that builds community awareness and participation
- Funding through the EPF via NYSDEC

PARTNERSHIPS FOR REGIONAL INVASIVE SPECIES MANAGEMENT

NEW YORK STATE OF OPPORTUNITY | Division of Lands and Forests

New York State PRISMs

Invasive species means a species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause harm to the environment, the economy, or the health of humans.

What are PRISMs?

Partnerships for Regional Invasive Species Management (PRISMs), comprising diverse stakeholder groups, were created to address threats posed by invasive species across New York State. PRISMs are key to New York's integrated approach to invasive species management. Partners include federal and state agencies, resource managers, non-governmental organizations, industry, recreationists, and interested citizens. The New York State Department of Environmental Conservation provides financial support, via the Environmental Protection Fund, to the host organizations that coordinate each of the eight PRISMs, resulting in statewide coverage.

What Do PRISMs Do?

- Plan regional invasive species management activities
- Implement invasive species prevention programs
- Conduct surveillance and mapping of invasive species infestations
- Detect new infestations early and respond rapidly
- Implement control projects
- Implement habitat restoration and monitoring
- Educate stakeholders on invasive species and their impacts
- Coordinate PRISM partners
- Recruit and train volunteers
- Support research through citizen science in collaboration with the Invasive Species Research Institute http://www.nyisri.org/
- Report observations to iMapInvasives http://www.nyimapinvasives.org/
- Act as regional communication hubs

If you are interested in helping NY "stop the invasion," PRISMs are a great way to get involved by volunteering for monitoring, outreach, or management projects. All are welcome to participate in statewide PRISM monthly conference calls to receive updates, hear excellent presentations and learn about upcoming events. Contact a PRISM leader for more information, or visit WWW.NYIS.INFO

STOP THE INVASION – PROTECT NEW YORK FROM INVASIVE SPECIES

A Division of the New York State Department of Environmental Conservation | www.dec.ny.gov

Prevention=Protection = $$ Saved

Invest in programs to prevent spread

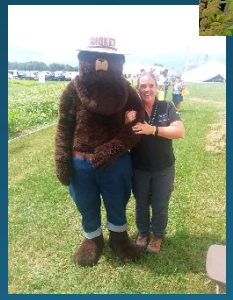
- Watercraft steward programs
- Education and outreach
- Early detection through surveys
- Leverage partnerships
  - Play, Clean, Go!
  - Wildlife Forever
  - Nationally recognized campaigns

Watercraft Inspections

Helping educate about the harm and impact

2) Finger Lakes PRISM Programs

Finger Lakes PRISM Education and Outreach Program



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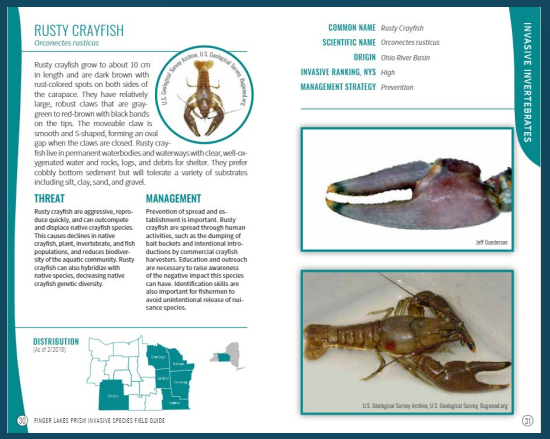
Partnership for Regional Invasive Species Management

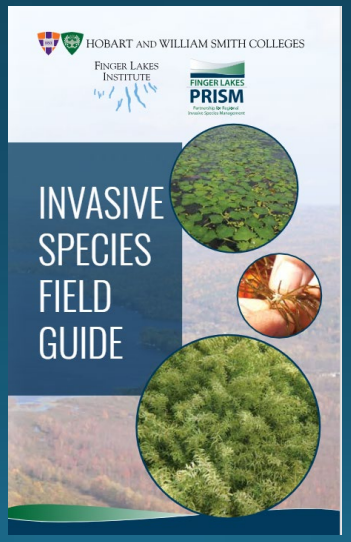
Other Programming

Field Guide and Fact Sheets



SIGNS:

57 bootbrush stations



2) Finger Lakes PRISM Programs

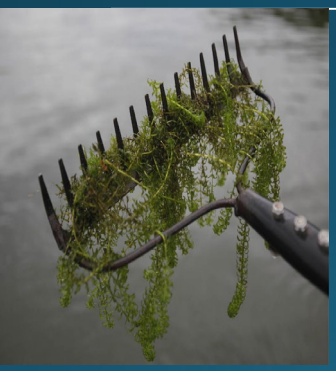
Macrophyte Survey Program

Goal: learn to survey, identify, and report high priority invasives:

- Hydrilla (*Hydrilla verticillata*)
- Water Chestnut (*Trapa natans*)
- Starry Stonewort (*Nitellopsis obtusa*)

How?

- Sample bi-weekly from June – October
- Identify and report plants in samples
  - Data entry (paper or google form)
  - Take pictures and send to flxplantid@gmail.com
  - Bag and tag specimens



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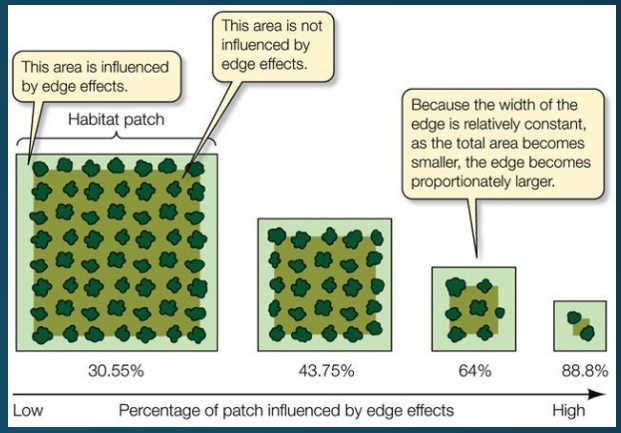
2) Finger Lakes PRISM Programs

Why Survey Trails?

Edge Effect and Invasive Species

Forest edges have very different environmental conditions than interior habitat

- Higher temperature, less moisture, more wind desiccation, more light
- Native forest species are adapted to low light, little wind, high or moderate soil moisture and lower temperatures (shaded conditions)
- Under natural conditions, weedy species move in and occupy disturbed area until shaded out by tree saplings, at which point competitive advantage shifts to forest species
- Invasive species out-compete native weedy species and hinder seedling germination and growth, retarding natural succession



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Finger Lakes Trail Survey

- **GOAL:** Identify, survey for, and report invasive species in the #FLX
- **WHO CAN PARTICIPATE:** Anyone with a smart phone or tablet
- **WHERE DOES IT TAKE PLACE:** A trail near you! Your choice.
- **HOW WILL WE COLLECT DATA:** Volunteers are asked to survey three times: June, July, and August for 25 common invasive species

3) Pilot Survey Program

How Does the Trail Survey WORK?

- Pilot program for 2020 season
- Pick a trail that is your favorite or one you can walk three times
  - June- 13 species
  - July- 18 species
  - August- 19 species
- Use the iMapInvasives platform- Finger Lakes PRISM survey team
- Survey every ~50feet (@23 paces)
- Look for invasives present

3) Pilot Survey Program

List of species	June	July	Aug
Autumn olive	X		
Black swallowwort		X	X
Bull thistle			X
Canada thistle			X
Common barberry		X	X
Buckthorn spp.		X	X
Common periwinkle	X		
Common reed	X	X	X
Garlic mustard	X		
Japanese barberry		X	
Japanese knotweed	X	X	X
Knapweed spp.			X
Lesser celendine	X		
Shrub honeysuckle	X		
Mile-a-minute	X	X	
Multiflora rose	X	X	X

Avoid Poison Ivy!

Can be ground cover, a vine, or a shrub!

Ohio State Weed Lab , The Ohio State University, Bugwood.org

3) Pilot Sur ey Program

Be Safe, Pack Right

- Practice social distancing or wear a mask!
- Pick a trail you are familiar with and know where to park, where it starts, how it ends
- Bring water, sunscreen, bug spray, and appropriate footgear and clothing
- BEWARE of ticks! Stay on trails and avoid tick-prone areas. Complete a tick check after you return from the trail
- https://nysipm.cornell.edu/whats-bugging-you/ticks/
- Bring a friend or let someone know where you are going and when you plan to return

3) Pilot Survey Program

Survey

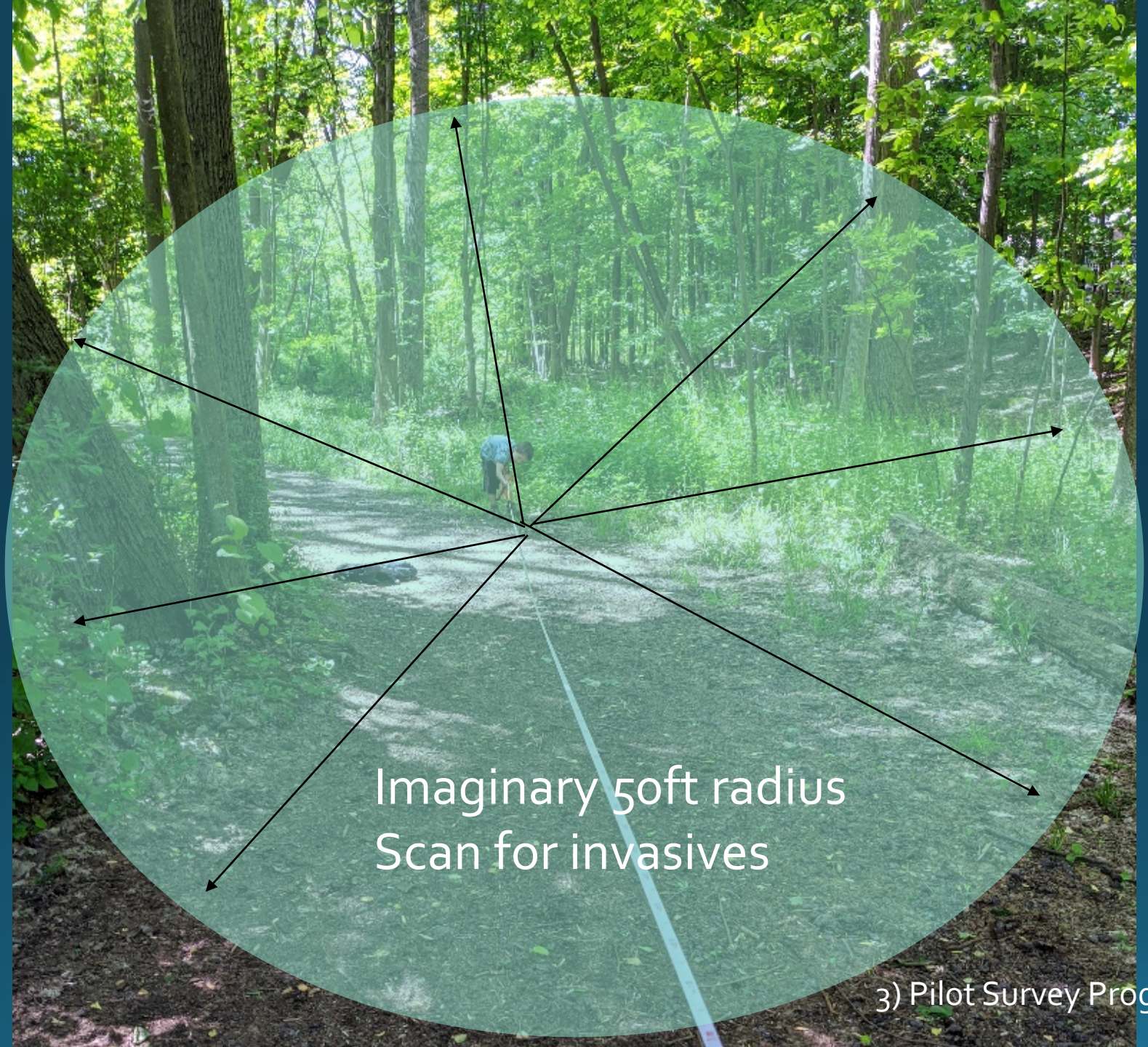
Start at beginning of trail or desired start point

Use an imaginary circle with a radius of 50ft

Identify and map the invasive species in the area (i.e., multiflora rose, buckthorn, honeysuckle)

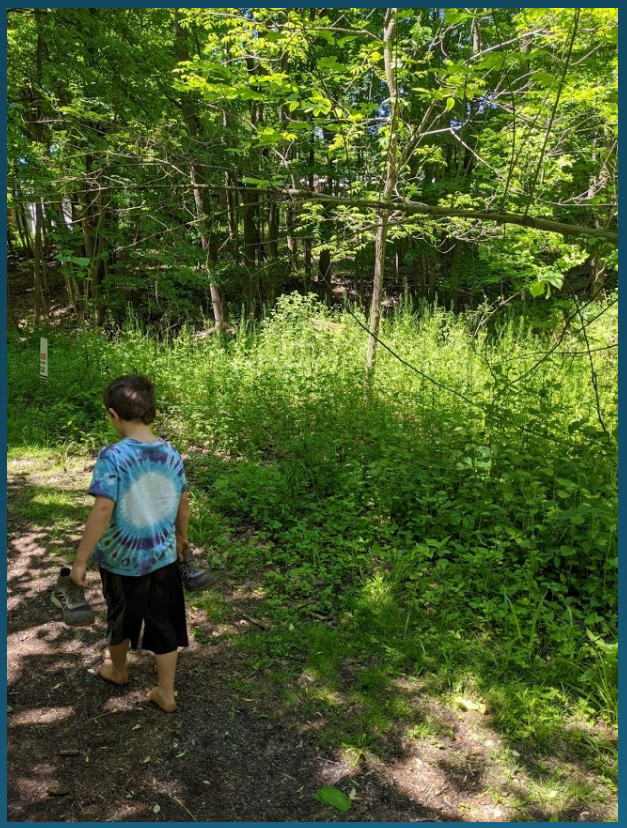
Using the iMapInvasives reporting tool, report size of infestation (up to 10sq ft., up to 0.50acr, up to 1acre, more than 1acre) and distribution (trace, sparse, dense, monoculture, linearly scattered)

Once you have recorded the invasives, move to next 50ft location

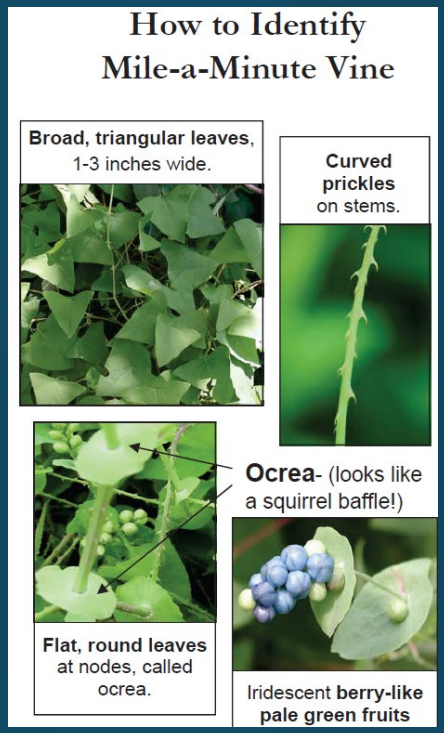


3) Pilot Survey Program

Invasive Species ID



Mile-a-minute Vine



Mile-a-Minute Vine

Persicaria perfoliata

Native To: India and Eastern Asia

Means of Introduction: Accidental

Identification: herbaceous annual vine with alternate, light green leaves, 4-7cm long and 5-9 cm wide and shaped like a triangle. Vines are narrow and delicate becoming woody and reddish with time. The vines and underside of leaves are covered with recurved barbs

Impact: decrease native vegetation and habitat in natural areas impacting plants and wildlife. Major pest in Christmas tree plantations and young forest stands

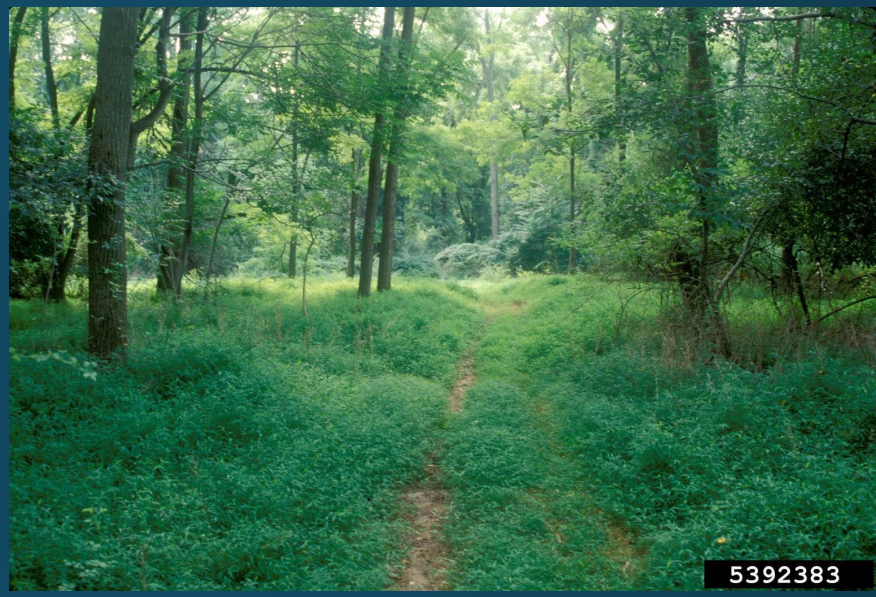
Mile-a-minute weed Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Mile-a-minute fruiting spike, ocreae, and barbs. Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese Stiltgrass

Microstegium vimineum

- Impacts: replaces native vegetation in a wide range of ecosystems, reduces biodiversity
- Control: mechanical control effective for small populations, chemical control using systemic herbicides

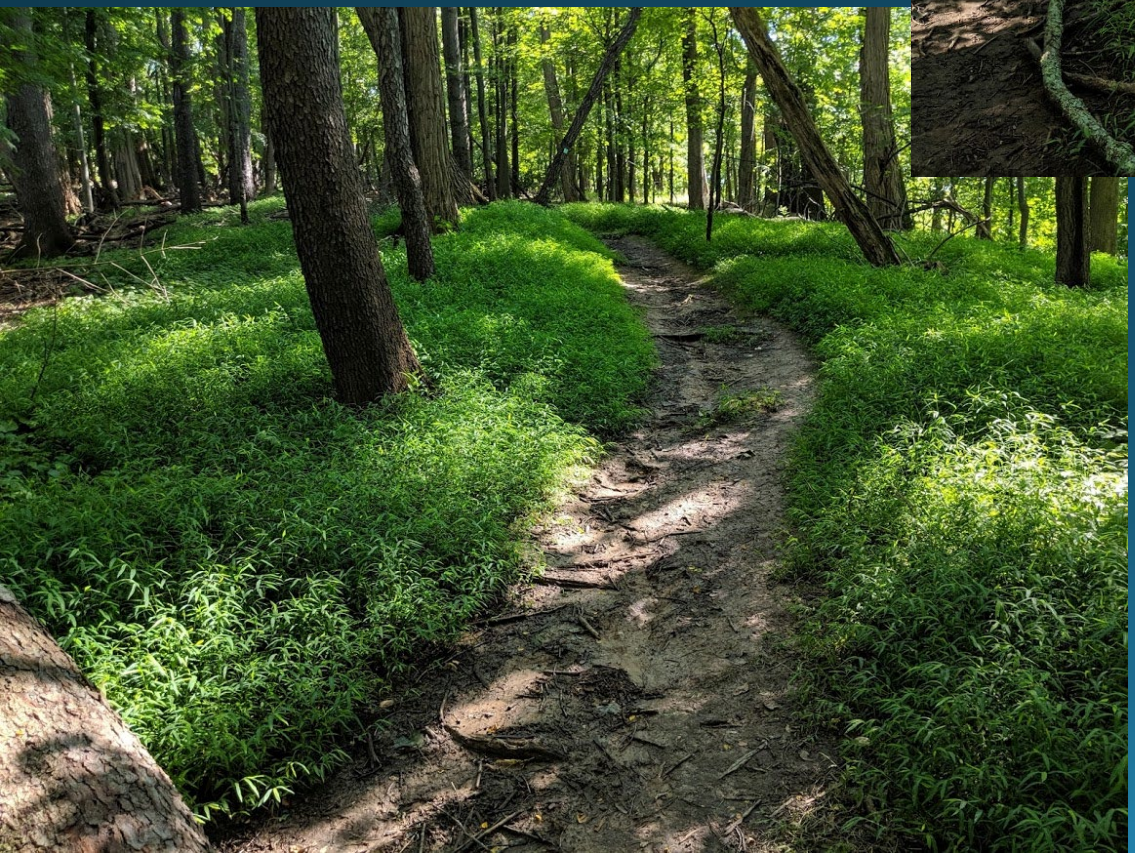


Access road and clearing invaded with Japanese Stiltgrass John M. Randall, The Nature Conservancy, Bugwood.org

Rebekah D. Wallace, University of Georgia, Bugwood.org

Japanese stiltgrass in a wooded understory. Chris Evans, River to River CWMA, Bugwood.org

Japanese Stiltgrass



4) Invasives ID

Slender False Brome

(*Brachypodium sylvaticum*)

IDENTIFICATION

- Perennial clump grass.
- Grows up to 2 ½ feet tall.
- Leaf blades arching, flat, bright green, 0.25 – 0.3 inches wide.
- Leaves hairy, with hairs along margins.
- Stems hairy and hollow
- Flowers July/August, 5 – 10 spikelets on short pedicels

MANAGEMENT (we think…)

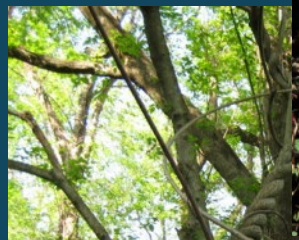
- Small Infestations.
  - Manual removal
    - Dig out entire plant and root.
    - Dispose of plant material in landfilll-bound trash.
- Large Infestations
  - Mechanical -suppression only, cut many times/year.
  - Herbicide- demonstrated high effectiveness

Porcelain berry

- Woody vine, similar to grape
- Alternate lobed leaves, with heart-shaped base
- White berries, turning purple on the outside

Oriental Bittersweet

- Woody vine, often climbing up trees
- Alternate toothed leaves
- Red berries with orange capsule



Black and Pale Swallow-wort

Cynanchum louiseae and *rossicum*

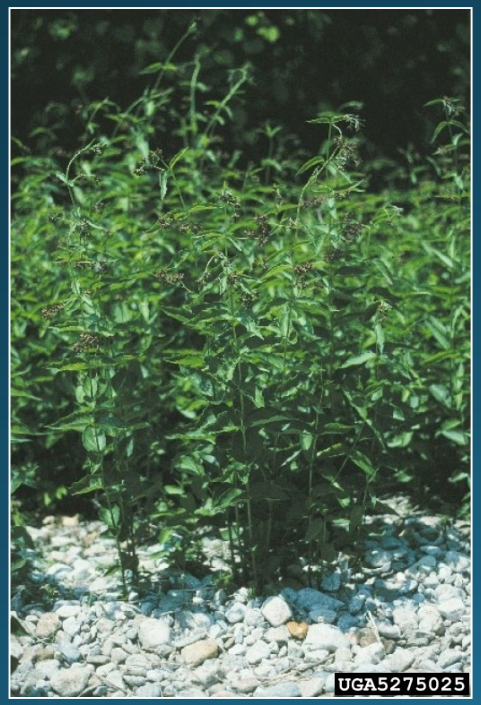
Native To: Europe

First Observed in NY: 1890

Means of Introduction: Cultivation, natural spread

Impact: Changes composition of soil; Dangerous to Monarch butterfly colonies

Control: handpull when infestations are low, pod removal, chemical controls, and prescribed burn



Japanese Knotweed

Polygonum cuspidatum

Native To: Eastern Asia

First Observed in NY: 1893

Means of Introduction: Ornamental; Erosion control and landscape screening

Impact: Dense thickets exclude native vegetation

Control: mechanical control depending on soil conditions and root development, chemical control (glyphosate to freshly cut stems or foliage)

Garlic Mustard

Alliaria petiolata

Native To: Europe

First Observed in NY: 1860s

Means of Introduction: Food & medicinal purposes

Impact: Outcompetes native plants; allelopathic, Extirpations of some butterflies

Control: manual removal (best in spring when soil is soft), chemical application of a glyphosate-based herbicide

Photos courtesy of: Britt Slattery, USFWS

Japanese Honeysuckle

Lonicera japonica

Native To: eastern Asia

First Observed in NY: 1806

Means of Introduction: Ornamental; For erosion control, wildlife forage and cover

Impact: Few natural enemies; Outcompetes natives

Control: mechanically when populations are small, herbicides used in heavy infestations

Purple Loosestrife

Lythrum salicaria L.

Native To: Eurasia

First Observed in NY: 1800s

Means of Introduction: Ballast water and as an ornamental and medicinal plant

Impact: Crowds out native species

Control: digging, handpull, and cutting in areas with low infestation, chemical controls, and biological controls available

Common Buckthorn

Rhamnus cathartica L.

Native To: Eurasia

First Observed in NY: 1800s

Means of Introduction: Ornamental; Fence rows & wildlife habitat

Impact: Crowds and shades out native plants, host for the crown rust fungus (oak), leaf litter can increase pH of soils

Control: mowing, excavation, cutting, burning, and chemical means (glyphosate)

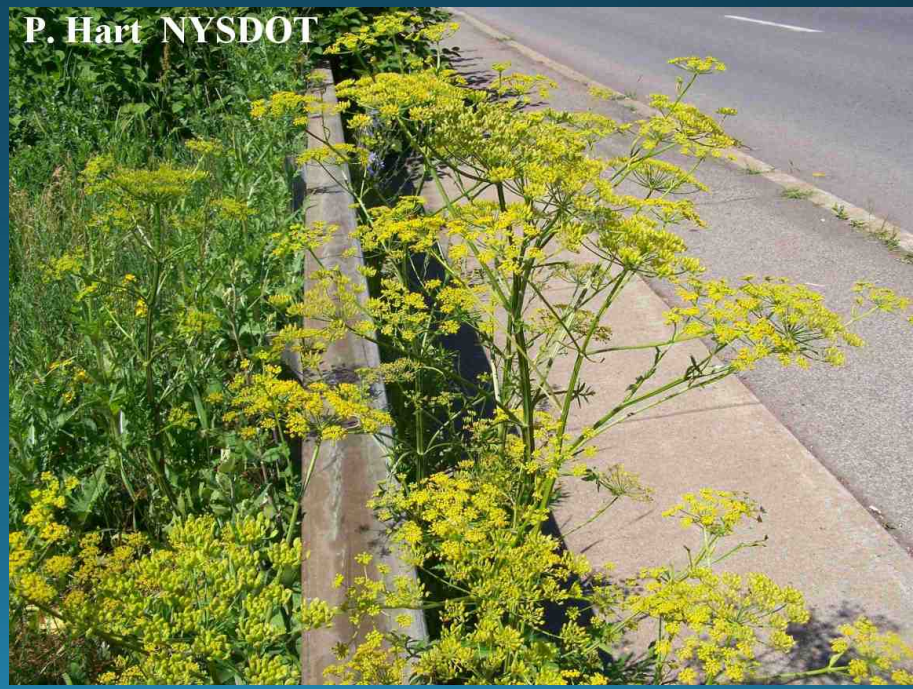
Wild Parsnip

Pastinaca sativa

Among the first to green up in the spring and first year rosettes remain green until frost- all stages of plant are toxic when eaten or in dried hay

Invades and modifies disturbed open habitats- forms dense stands

Control: mechanical (parsnip predator shovel) before seeds set, or use glyphosate spot application



Common Reed

Phragmites australis

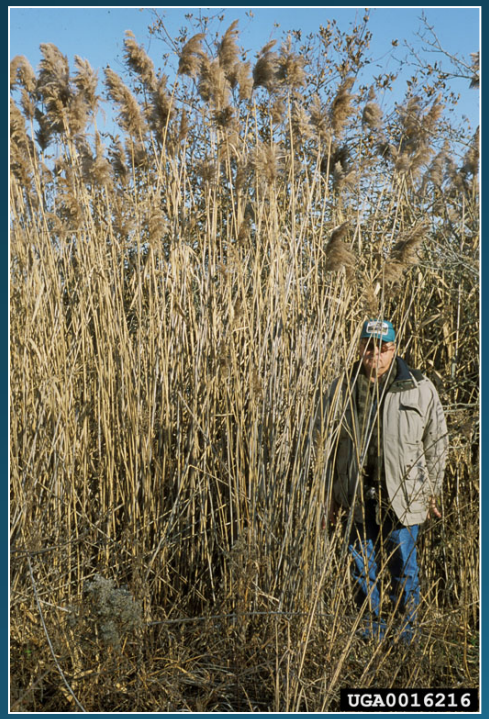
Native To: Native to U.S., but invasive strains originated in Europe

First Observed in NY: early 1900s

Means of Introduction: Accidental; Increased disturbances, urbanization

Impact: Decreases native biodiversity and quality of wetland habitat

Control: mechanical mowing, manipulating water levels, chemical treatments, and fire



Credit: John M. Randall, The Nature Conservancy, Bugwood.org

Japanese Barberry

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

(*Berberis thunbergii*)

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Multiflora Rose

Rosa multiflora

Native To: Japan, Korea, and eastern China

First Observed in NY: 1860s

Means of Introduction: Ornamental; For erosion control and as a living fence

Impact: Crowds out native species

Autumn Olive

Elaeagnus umbellata

Native To: China, Japan, and Korea

First Observed in NY: 1830s

Means of Introduction: Ornamental; Cultivated

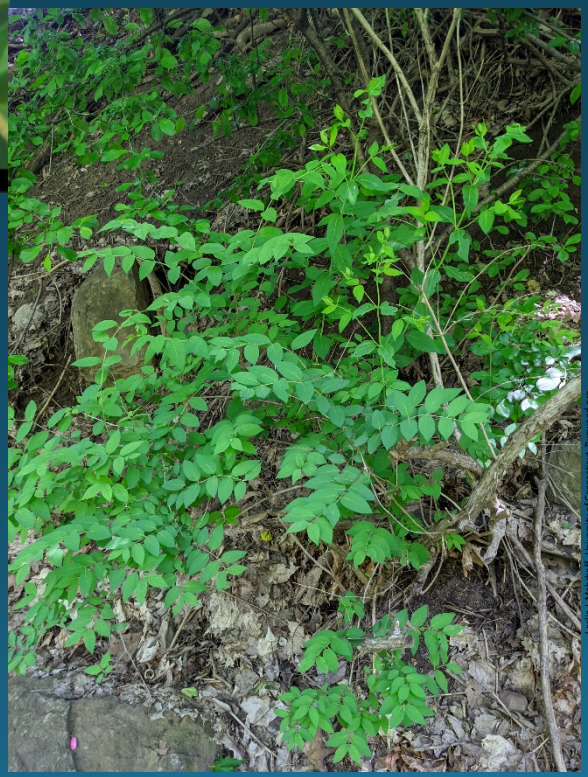
Impact: Crowds out native species

Privet species

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Karan A. Rawlins, University of Georgia, Bugwood.org

Privet Species
(*Ligustrum* species)



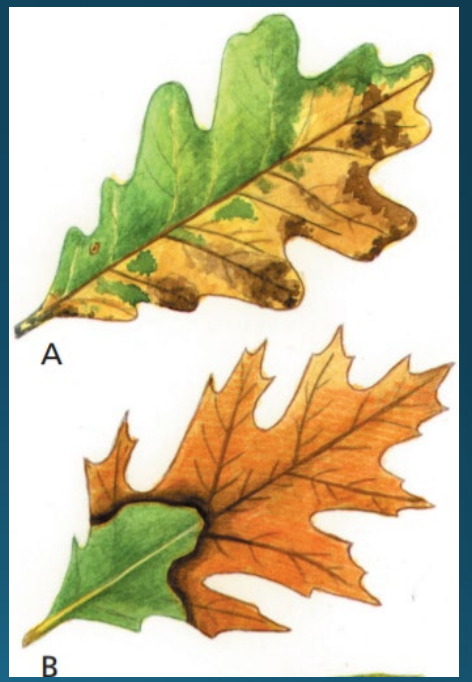
Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Oak Wilt
Ontario County, NY

- Systemic, lethal fungus in sapwood- prevents uptake & movement of water
- SYMPTOMS:
  - Noticeable in canopy first
  - Outside of leaves turn bronze, brown, or dull at top
  - Leaves drop as soon as symptoms first develop
- SPREAD: Sap beetles feed on fungal mats under bark and carry spores, underground root grafts between trees, or infested firewood
- RESPONSE: NYSDEC Forest Health survey and removal

Foliar symptoms (Fred Baker, Utah State University, Bugwood.org)



DON'T MOVE FIREWOOD.org

Red oak most severely affected (die in 2 mo), white oaks die slowly (several yrs)

4) Invasives ID

Spotted Lanternfly

Lycorma delicatula

Native To: China, S. Asia

First Observed in NY: Not Yet Here! Found in PA

Means of Introduction:

Impact: A huge agriculture pest- especially for grapes, feeds on 65 different spp of plants (fruit vines, fruit trees, and maples)

Control: within quarantine areas, scrape egg sacs from host, soak in ETOH and thrown away

Spotted Lantern Fly, Lycorma delicatula, adult. [*Photos: Holly Raguza, Bugwood.org*]

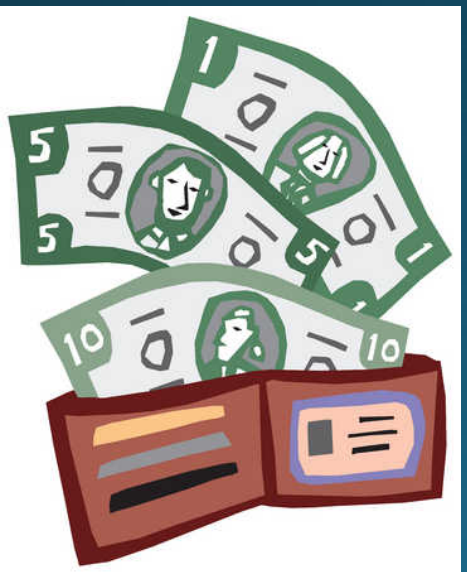
Lantern fly egg mass. [*Photo: Holly Raguza, Bugwood.org*]

SLF Identification

- Nymphs: black with white spots, turn red before transitioning into adults
- Adults: 1 inch long, ½ inch wide at rest, beautiful wings

Take Away

- 1. COST of Invasive species management is a huge burden
- 2. PLANNING for invasive species management needs to be built into any campaign, assessment, planning, design plan – IF we KNOW where invasives are!
- 3. VOLUNTEERS are critical to our program to prevent the spread and impact of invasive species



Citizen Science & Invasive Species Management

Mapping Training on June 11, 9am

iMap Invasives: imapinvasives.org

When: Jun 11, 2020 09:00 AM Eastern

Register in advance for this meeting:

https://hws.zoom.us/meeting/register/tJIpdOiqrTsuH9dIgsU3NoZqiu4BDlm3_gJo

After registering, you will receive a confirmation email containing information about joining the meeting.

5) iMapInvasives

Online Field Guides

- Northeast Aquatic Nuisance Species Panel Online Guide http://www.northeastans.org/online-guide/
- PA Sea Grant Field Guide to Aquatic Invasives Species http://www.anstaskforce.gov/Documents/AIS_Field_Guide_Finalweb.pdf
- Invasive Plants of Michigan http://mnfi.anr.msu.edu/invasive-species/aquaticsfieldguide.pdf
- iMap Invasives- Imapinvasives.org
- Weeds Watch Out- Cayuga County http://www.cayugacounty.us/Departments/Water-Quality-Management-Agency/Weeds-Watch-Out/Invasive-Aquatic-Plants

Questions?