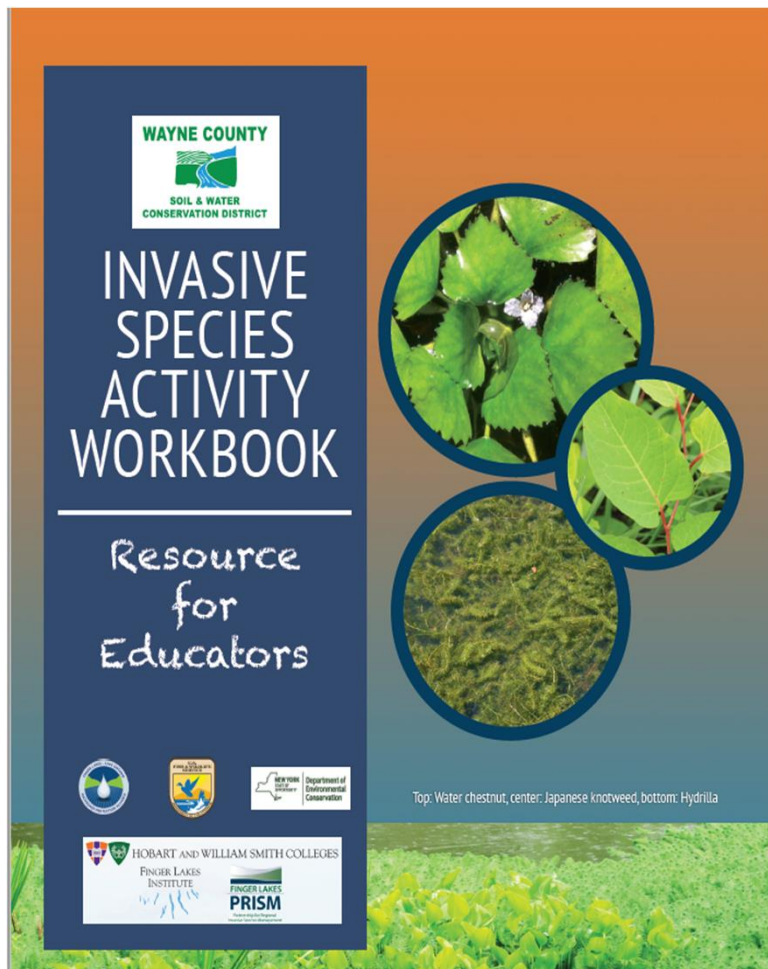


# Invasive Species: Resources for Educators



Nadia Harvieux  
Patty Wakefield-Brown  
**Finger Lakes Institute/Finger Lakes PRISM  
at Hobart and William Smith Colleges**

Drew Starkey  
Maxine Appleby  
**Wayne County Soil and Water  
Conservation District**



# Invasive Species Activity Educators' Meeting

## April 15, 2020, Noon – 1:00pm

### **Agenda**

10 Minutes - Introductions & Invasive Species Overview - Patty

15 Minutes – Invasive Species Matching Game, Means & Modes, Gone with the Wind - Nadia

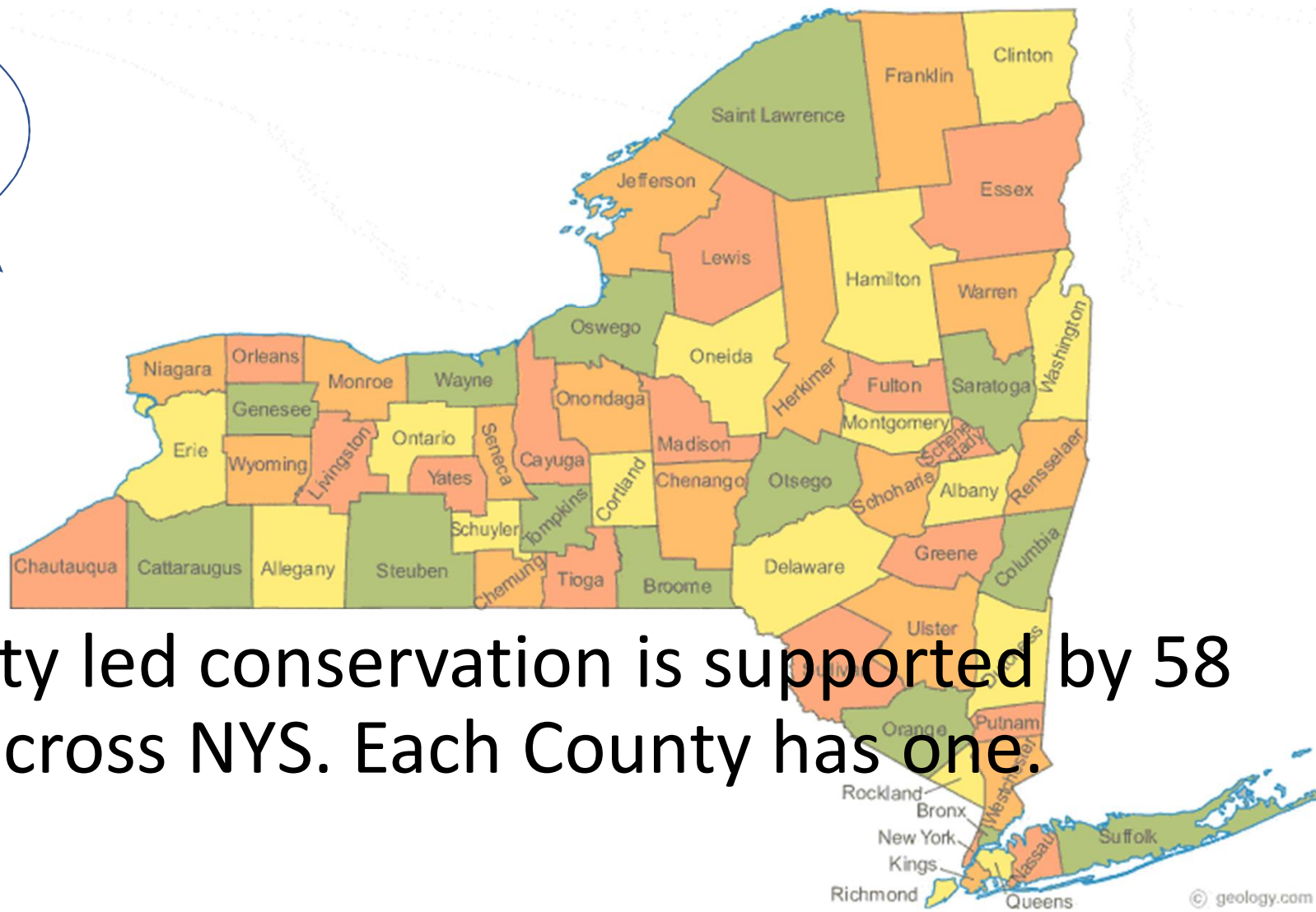
15 Minutes – Sticky Situations, Scavenger Hunt & Top 10 – Drew

5 Minutes – It's your Niche - Maxine

15 Minutes – Q & A – Continued Education Credits Information

**\*\*Throughout the presentation if you have a question, please use the Chat function and we will cover at the end of the program.**

58 Soil & Water Conservation Districts from 62 Counties



Community led conservation is supported by 58 Districts across NYS. Each County has one.



Soil and Water  
Conservation  
Committee

**WAYNE COUNTY**



**SOIL & WATER  
CONSERVATION DISTRICT**



**NEW YORK STATE  
CONSERVATION DISTRICT  
EMPLOYEES' ASSOCIATION, INC.**

Districts are created upon a finding by the county's legislative body that conservation of soil and water resources, control and prevention of soil erosion, and prevention of flood water and sediment damages are problems of public concern in the county.



**New York Association of Conservation Districts**



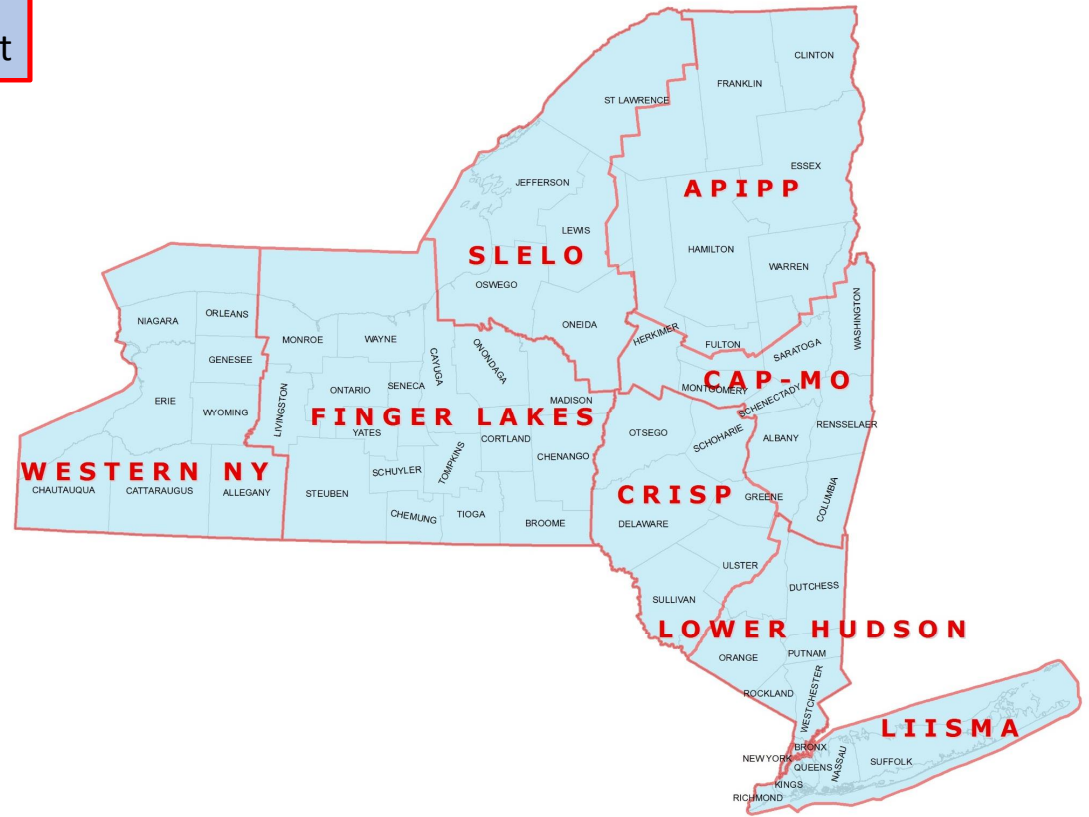


# Technical Assistance plays a key role in partnership

- “ Non- Regulatory assistance – mentoring, mediation
- “ Interpreter - speaking both languages (landowner/law)
- “ Field documentation assistance (site visits, photo perspective documentation, soils review)
- “ Permit Assistance to the Landowners
  - “ Mapping
  - “ Vegetation Verification
  - “ Surveys
  - “ Explanations of permitting requirements
  - “ Endanger Species reports and other required surveys(IPaC, SHPO)
  - “ Education & Community Awareness



**NYS PRISM Map**  
**P**artnership for **R**egional **I**nvasive **S**pecies **M**anagement



*Finger Lakes PRISM MISSION: To reduce the introduction, spread and impact of invasive species within the Finger Lakes PRISM region through coordinated education, detection, prevention and control measures.*



# Invasive Species Defined

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.



HOBART AND WILLIAM SMITH COLLEGES



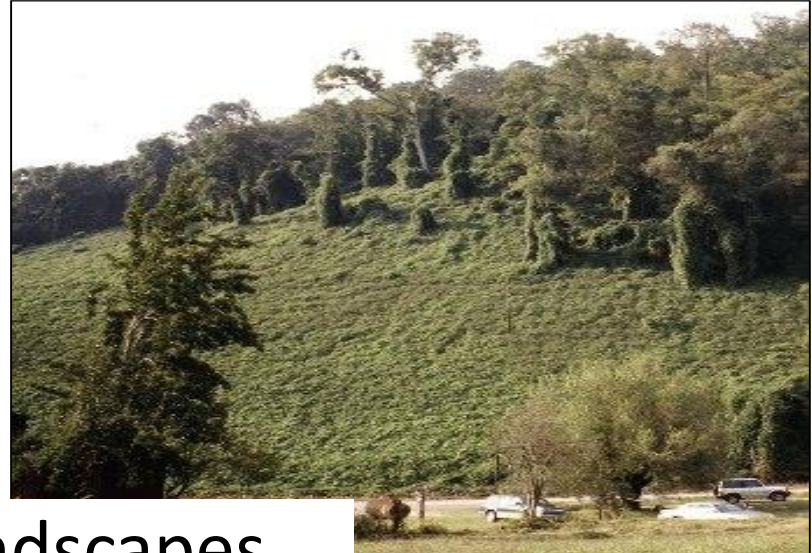
Invasive species have no natural enemies, a high rate of reproduction and great adaptations that help to increase survival in the harshest of conditions.



Invasive species effect biodiversity in ecosystems and threaten native species by outcompeting for food and habitat.







Invading Landscapes



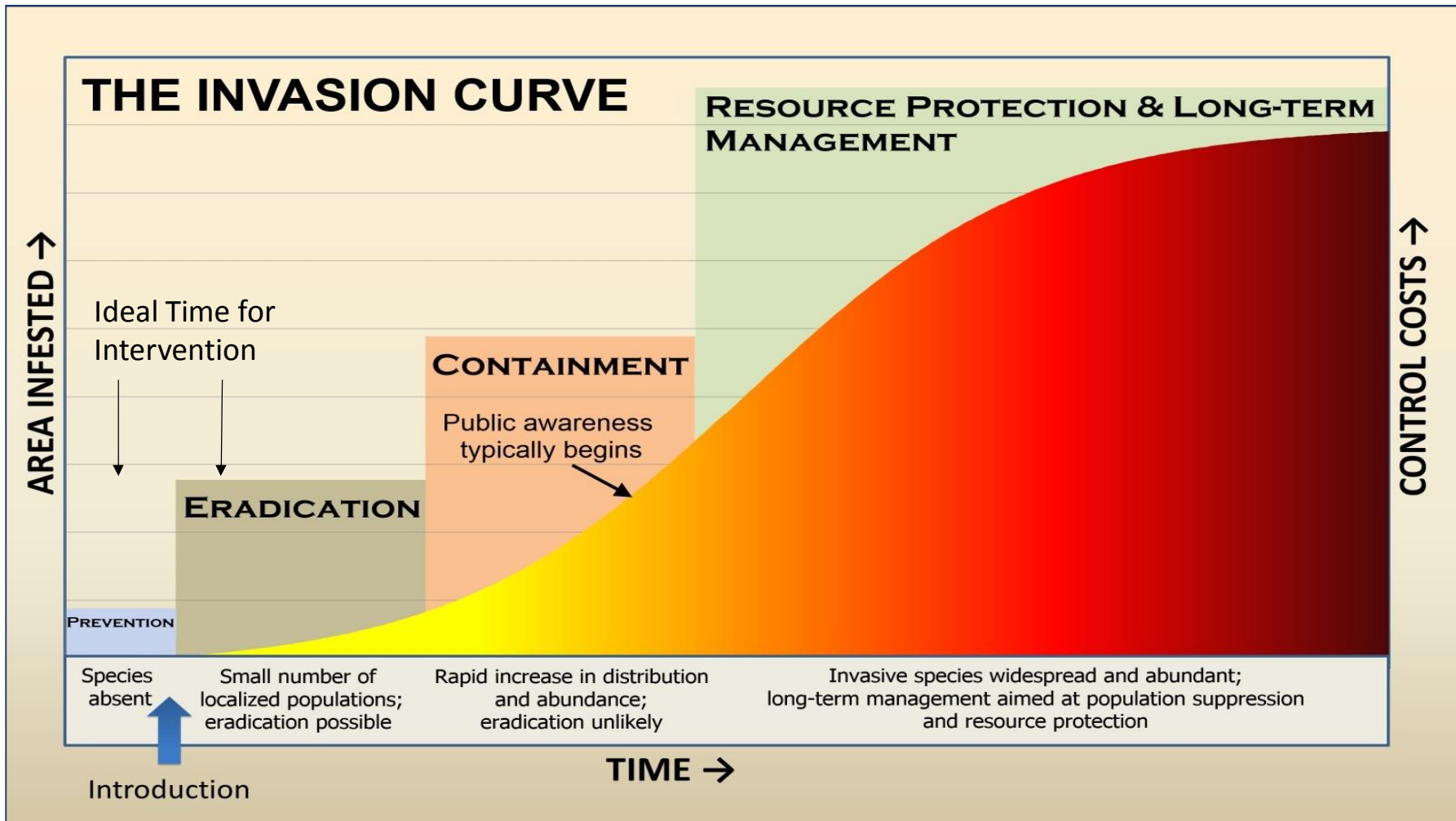




Bullying Waterways







Management and Early Detection

# Pathways of Invasion (Vectors) and Prevention Practices



## Vectors

People  
 Animals  
 Transportation  
 Pet Trade  
 Recreation  
 Shipping




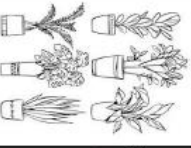

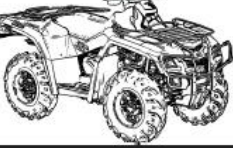




## Prevention

Clean-Drain-Dry  
 DON'T Move Firewood  
 Dispose of Bait Properly  
 Boot Brushes  
 Laws and Regulations  
 Education



# Invasive Species Matching Game (p. 3-5 in activity guide)

**Invasive Species + Method of Spread = MATCH!!!**

Hydrilla (Aquarium)			Aquarium (Hydrilla)
Japanese Barberry (Plant Nursery)			Plant Nursery (Japanese Barberry)
Swallow-wort (All-Terrain Vehicle)			All-Terrain Vehicles (Swallow-wort)
Mile A-Minute (Work Boots)			Work Boots (Mile A-Minute)
Giant Hogweed (Backhoe Loader)			Backhoe Loader (Giant Hogweed)





# Invasive Species Matching Game

Hand out cards and find your match!

Great  
Icebreaker!





# Means and Modes (p. 7-8 in activity guide)



## Vectors

People  
Animals  
Transportation  
Pet Trade  
Recreation  
Shipping



Understanding how  
invasives spread!

# Means and Modes

Team  
Building!





# Gone with the Wind (p. 21-24 in activity guide)



Dandelion



Maple

# Gone with the Wind



Native Milkweed



Invasive Swallowwort



# Gone with the Wind

Engineering  
Design!



Design your own seed!

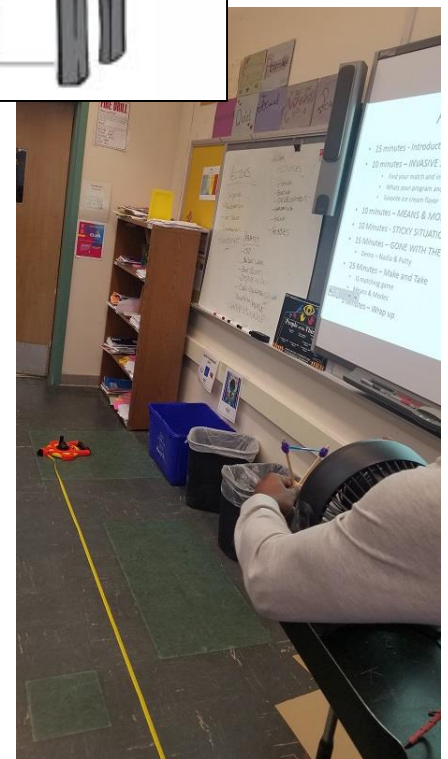
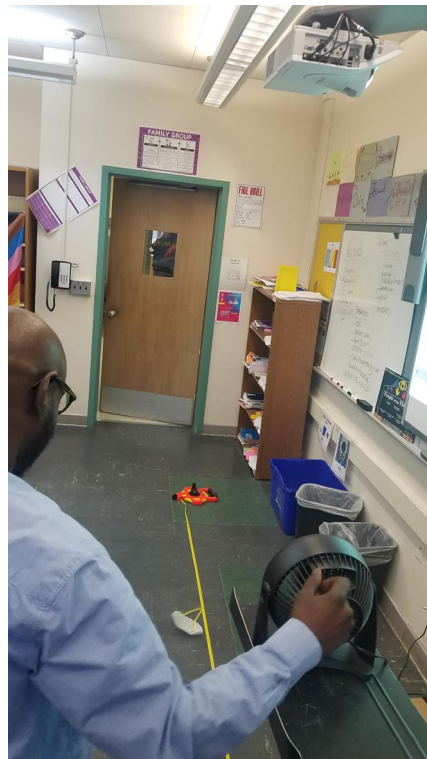
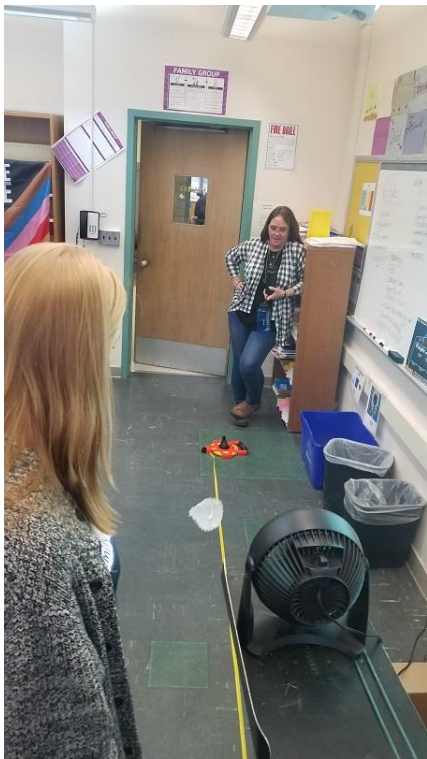
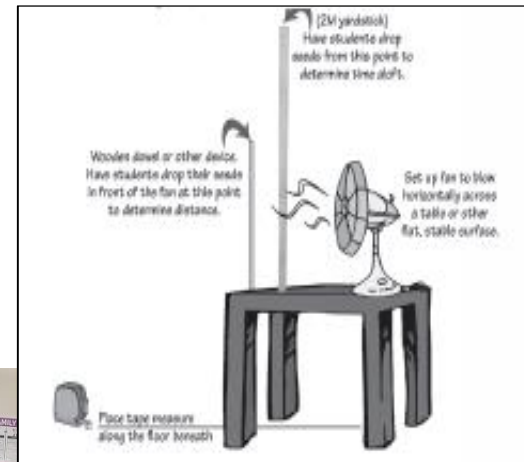


Use any supplies you have!



# Gone with the Wind

## Put your seeds to the test!



- 15 minutes - Introduction
- 10 minutes - ANALYSIS
  - Find your group and...
  - Measure your program and...
  - Measure your program and...
- 10 minutes - MEANS & MED
- 10 minutes - SPICY SITUATION
- 10 minutes - SOME WITH TIME
  - Some - Heels & Tally
- 10 minutes - Make and Take
  - Practice your...
  - Sign & Photo...
- 10 minutes - Wrap up

# Sticky Situations (pages 10-14)

## Sticky Situation 6

Your family likes to joke that you knew how to fish before you could walk. While you prefer lures, you enjoy experimenting with live bait. But at the end of the day, you are never quite sure what to do with leftover worms, larvae, crayfish, or minnows. One friend just dumps them in the water. What will you do?



*If your friend jumped off a bridge, would you do that too? First, think about where you got the live bait. If you caught it yourself in the spot where you are fishing, it's ok to return it to the water. If you bought the bait at a bait shop or collected it from any other body of water, then you should dispose of any leftover bait in the trash. Never dump leftover worms on the ground. Improper disposal of live bait is one way that invasive species are spreading.*

Non-native Invasive Species Learning III - United States Forest Service - Eastern Region

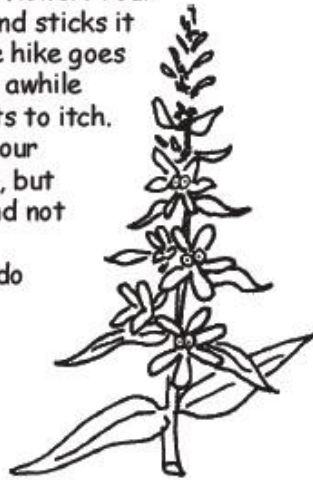
**INIS**  
Non-native Invasive Species



# Sticky Situations

## Sticky Situation 8

You and your family are taking a long hike into the forest. Dad parks at the trailhead and everyone gets ready to go. Just off the parking lot, there is a beautiful purple flower. Your mom picks one and sticks it in your hair. The hike goes great, but after awhile the flower starts to itch. You carry it in your hand for a while, but it's all droopy and not that beautiful anymore. What do you do with it?



*If you guessed that the weed might be purple loosestrife, you could be right. You don't know for sure. It could be invasive; it could be endangered. However, invasives are a lot more common around parking lots where the soil has been disturbed and there is a lot of human activity. Now that you are far from the source, don't drop it on the ground and spread its seeds. Put it in a bag and throw it in the trash when you get home. Remember: It would be best not to pick any wildflower. Period.*


Non-native Invasive Species Learning Kit - United States Forest Service - Eastern Region

**NNIS**  
Non-native Invasive Species

# Invasive Species Scavenger Hunt (pages 19 & 20)

**Scavenger Hunt**


INVASIVE SPECIES SCAVENGER HUNT  
Page 1 of 2



## INVASIVE SPECIES SCAVENGER HUNT

Can you identify these invasive species? **Ok, here's the plan**

1. Students will identify invasive plant species in a given site boundary, area such as a backyard, park or around school.
2. Students will discuss the effects of invasive species on the land and water.
3. Students will explain how invasive plant species spread.
4. Students will use a GPS device or the IMap Invasives app to make the GPS location and add the information



iMap Invasives

# Invasive Species Scavenger Hunt



Name: \_\_\_\_\_

GPS Location: \_\_\_\_\_

Site Boundary Area \_\_\_\_\_



Name: \_\_\_\_\_

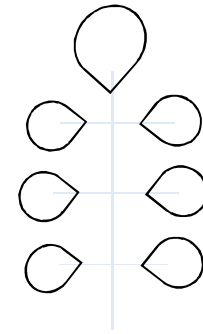
GPS Location: \_\_\_\_\_

Site Boundary Area \_\_\_\_\_



# Multiflora Rose - *Rosa multiflora*

- **Curved Thorns** – single or clusters of 2
- Clusters of dime sized **Red Berries** at end of green/red stem
- Compound Leaves
- Dense shrub up to 12' tall



# Japanese Barberry – *Berberis thunbergii*



- “ Tic-Tac Sized glossy **Red Berries**
- “ Straight **Thorns** along reddish brown young shoots and smaller stems
- “ Small, green leaves with red margin
- “ Commonly planted as an ornamental
- “ Grows to 5 - 7' tall



# Garlic Mustard - *Alliaria petiolata*



“ Lower leaves are kidney shaped with wavy edges which grow in basal rosette

“ Dark Purple petioles (leaf stems) and newly emergent leaves





# Japanese Knotweed - *Fallopia japonica*

- “ Bamboo like, brittle, multi-stemmed shrub, up to 10’ tall
- “ Dead, wispy, flowering structures present at top of zig zag stems
- “ Forms “vase” like shape when alone, dense thicket when established



# Common Reed - *Phragmites*



- “ Road side ditches, pond edges, parking lots, drainage
- “ Wispy, feathery, paint brush-like flower at top of stem
- “ Tall, Dense stands, up to 18’ tall
- “ Looks similar to cat tails (corndogs)
  - “ Cat tails much shorter (6’ tall)





# Purple Loosestrife - *Lythrum salicaria*

- “ Common in Roadside ditches, wet meadows
- “ Opposite or alternate branching stems
- “ Small flowers/seeds heads still present at tips





# DEC TOP 10 (pages 27 & 28)



**Common Buckthorn** (*Rhamnus cathartica*)-

**Leaves:** Alternately arranged along the stem, oval shaped and deeply veined

**Stem:** Gray bark is covered with dimple like marks, inner bark is a bright orange color, stem tips often crowned with sharp thorn

**Flower:** Yellow-green in color

**Fruit:** Plant produces many round shiny purple-black berry-like fruits  
Aug-Sept

*Citation: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org*



**Mugwort** (*Artemisia vulgaris*)-

**Leaves:** Alternately arranged, pinnately veined, oval shaped, and deeply lobed.

**Stem:** Greenish-white in color, smooth.

**Flower:** Greenish in color and inconspicuous.

*Citation: Steve Young, New York State Natural Heritage Program*

# DEC TOP 10



## **Honeysuckle** (*Lonicera spp.*)-

**Leaves:** Oppositely arranged, oval shaped.

**Stem:** Hollow stem with shredding bark.

**Flower:** Fragrant delicate flowers are typically white, yellow, or light pink, with long slender stamens.

**Fruit:** When fruiting, many small red berries are produced in pairs along stem.

*Citation: John M. Randall, The Nature Conservancy, Bugwood.org*



## **Oriental Bittersweet** (*Celastrus orbiculatus*)-

**Leaves:** Alternately arranged along the stem, and often teardrop shaped

**Stem:** Sprawling vine climbs along other woody plants/trees, bark is rough and brown

**Flower:** Small and green with 5 petals, forms clusters of 3-7

**Fruit:** Form clusters of 1-3 along the stem, and are typically bright red, can persist through winter

*Citation: James R. Allison, Georgia Department of Natural Resources, Bugwood.org*

# Have Fun - Be Creative - What's Your Niche? (page 25)

Students will define habitat and create business cards for native, non-native, and invasive aquatic species.

- Review habitat, where can this species be found, where do they live? Let students know the habitat will be the address.
- Talk about roles in the environment, what makes an invasive species good at its job?  
( Reproduces fast, pushes out natives, eats everything)
- Talk about the neighborhood the students live, everyone has an address and people have jobs. What job/role might that species have in the community they live? That role is called an ecological niche. What happens if they are not there? It includes such things as where and how it gathers its food; its role in the food chain; what it gives and does for the community; its habits, periods of activity, etc. It can also be described as what an animal does for a living. What if something else replaces that niche? (round goby is a good example of displacing native species)
- Allow students time to research and time to choose a species. They should find out its niche and choose one thing this animal does well.
- Their assignment will be to create a business card for that animal advertising its job in the community.

## Materials

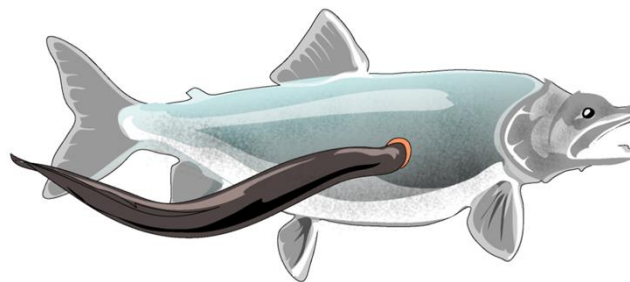
- ~ 3"x5" blank index cards
- ~ Coloring materials
- ~ Animal ID guides/posters/internet
- ~ \*Large paper

To help them, you may want to bring in a few real business cards to look at.

## Sea Lamprey as a niche species



Blood sucking



Latches on to salmon



Found in the Great Lakes



Business cards should include name of animal, job title, company name, address, phone number, slogan and illustration or symbol for business.



**T.F.M. Lamprey**  
*Plasma Collection*  
*Services*

1905 Lake Ontario Way  
Salmon City, NY

*Once we latch,  
we finish the job!*

Call 1-800-we-slurp

# Display the business cards, Whose Niche?

- “ Discuss the ecosystem students have created.
- “ How do invasive species play a role?

Suggested Display: Eco system disruptions wall? Life Cycle Tree?

*Adapted from the “Aquatic Invasive Education Project”: Michigan DEC, Michigan DNR, Michigan Ag & Rural Development, Great Lakes Restoration Funds*



# Invasive Species Activity Workbook & Educator Meeting

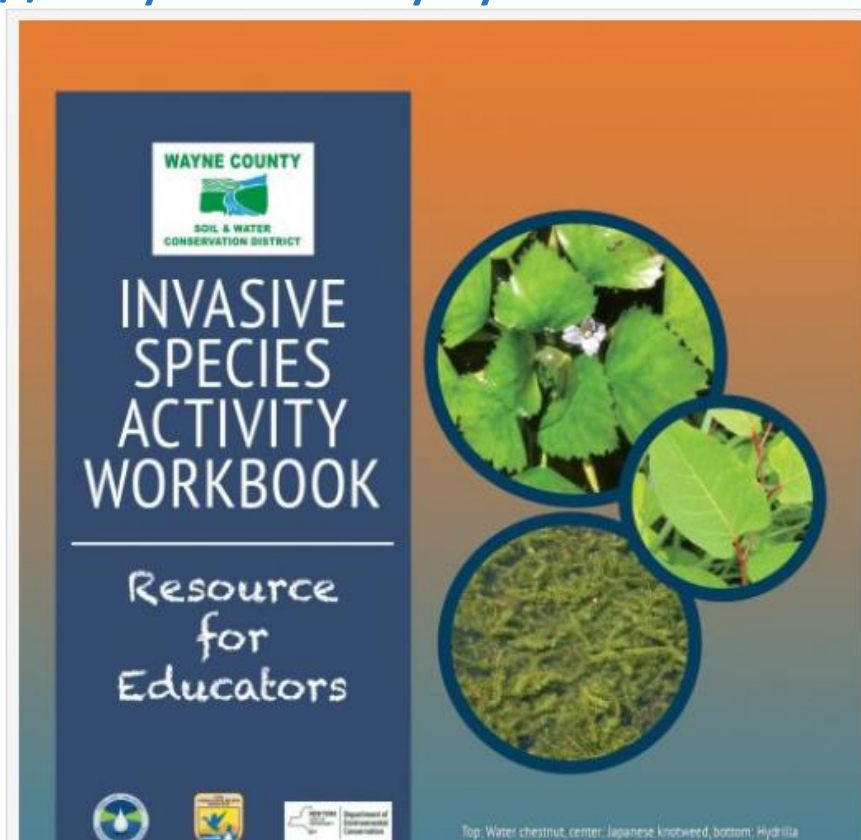
Continue the adventure @ <https://waynecountynysoilandwater.org/is>

Join us for a FREE Educator Meeting on  
April 15th Noon to 1:00 P.M.

⊕ Meeting Login Information

## TABLE OF CONTENTS

- [Finger Lakes PRISM Mission](#)
- [What is an Invasive Species?](#)
- [The Invasion Curve](#)
- [Invasive Species Matching Game](#)
- [Invasive Species Crossword Puzzle](#)
- [Means and Modes](#)
- [Invasive Species Word Search](#)
- [Sticky Situation](#)



# Thank you!

Q & A via chat:

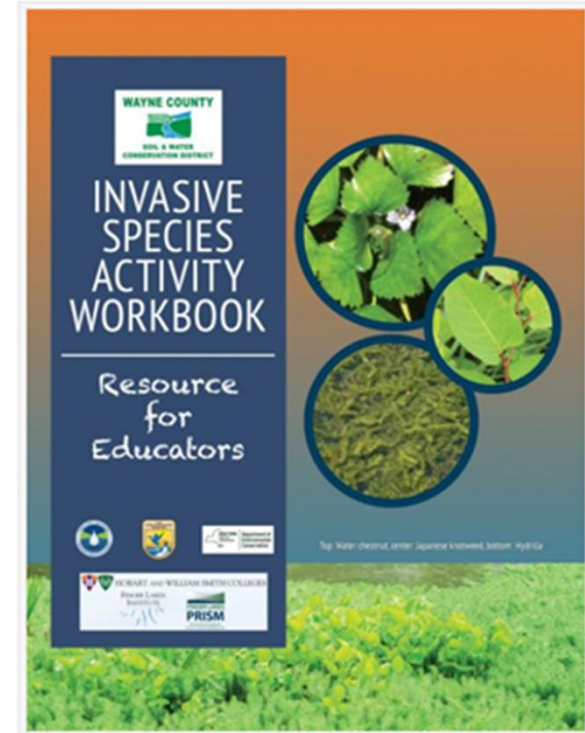
Special requests may be emailed to:

Patty Wakefield-Brown: [Wakefieldbrown@hws.edu](mailto:Wakefieldbrown@hws.edu)

Nadia Harvieux: [Harvieux@hws.edu](mailto:Harvieux@hws.edu)

Drew Starkey: [Drew@wayneNYswcd.org](mailto:Drew@wayneNYswcd.org)

Maxine Appleby: [Maxine@wayneNYswcd.org](mailto:Maxine@wayneNYswcd.org)



**Slide 37**

---

**SGL1** SW- Gerstenslager, Lindsey, 4/14/2020