Invasive Species in the St. Lawrence – Eastern Lake Ontario Region

Seasonal Employee Training Module

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SLELO-PRISM

St. Lawrence - Eastern Lake Ontario
SLELO PRISM
Partnership For Regional Invasive Species Management

Training Modules & Topics

- Module I
  - Introduction to the SLELO-PRISM
  - What Are Invasive Species
  - Invasive Species Quick Facts
  - Transport Mechanisms & Pathways
- Module II
  - Invasive Species Examples and Identification
  - Target Management Species
  - Prevention “watch-list” Species
- Module III
  - Early Detection Surveillance
  - Priority Conservation Areas
  - Using HPA’s
  - Rake Toss Method
  - Before setting afield
  - A Typical Days Work

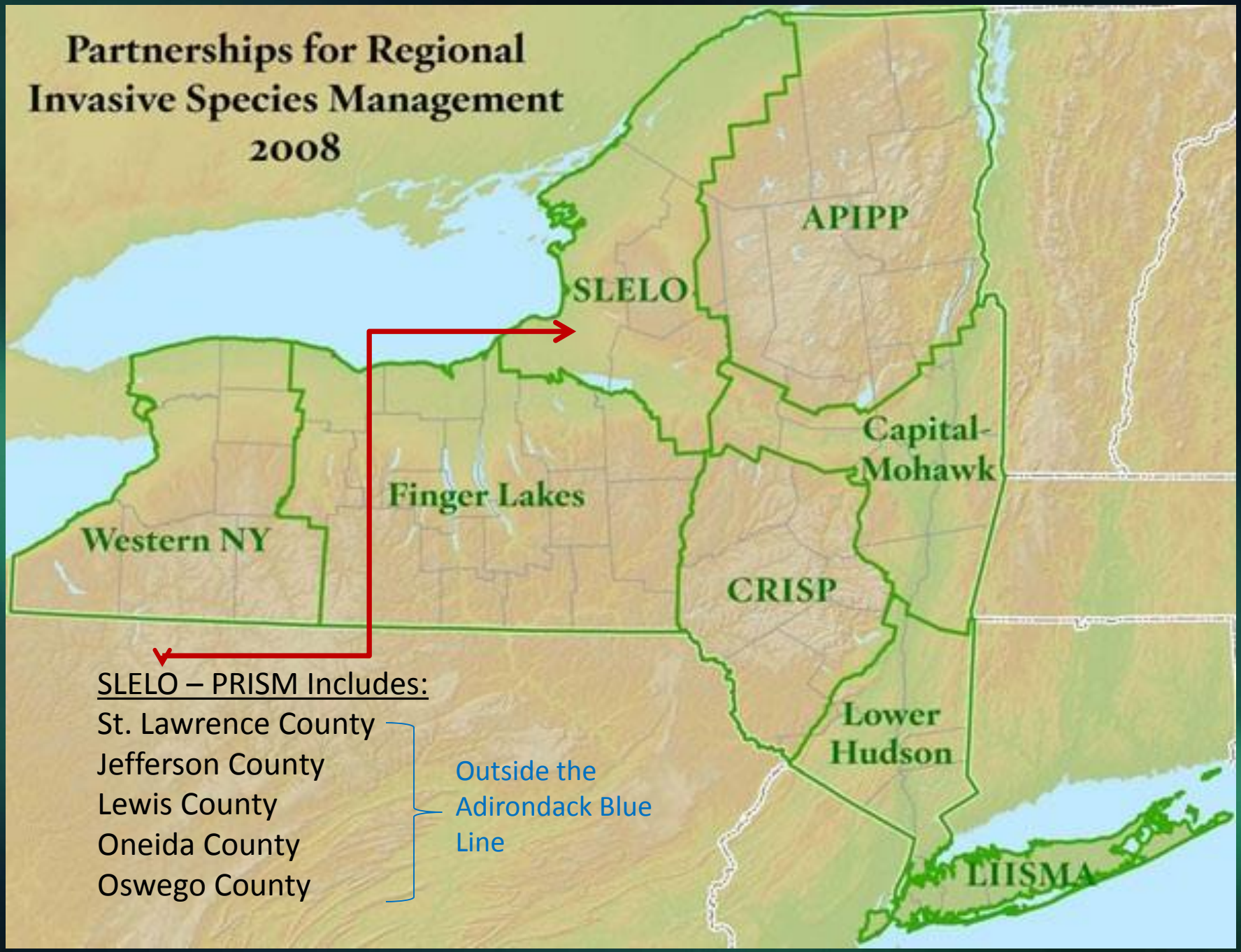
Training Module I

- Introduction to the SLELO-PRISM
- What Are Invasive Species
- Invasive Species Quick Facts
- Transport Mechanisms & Pathways

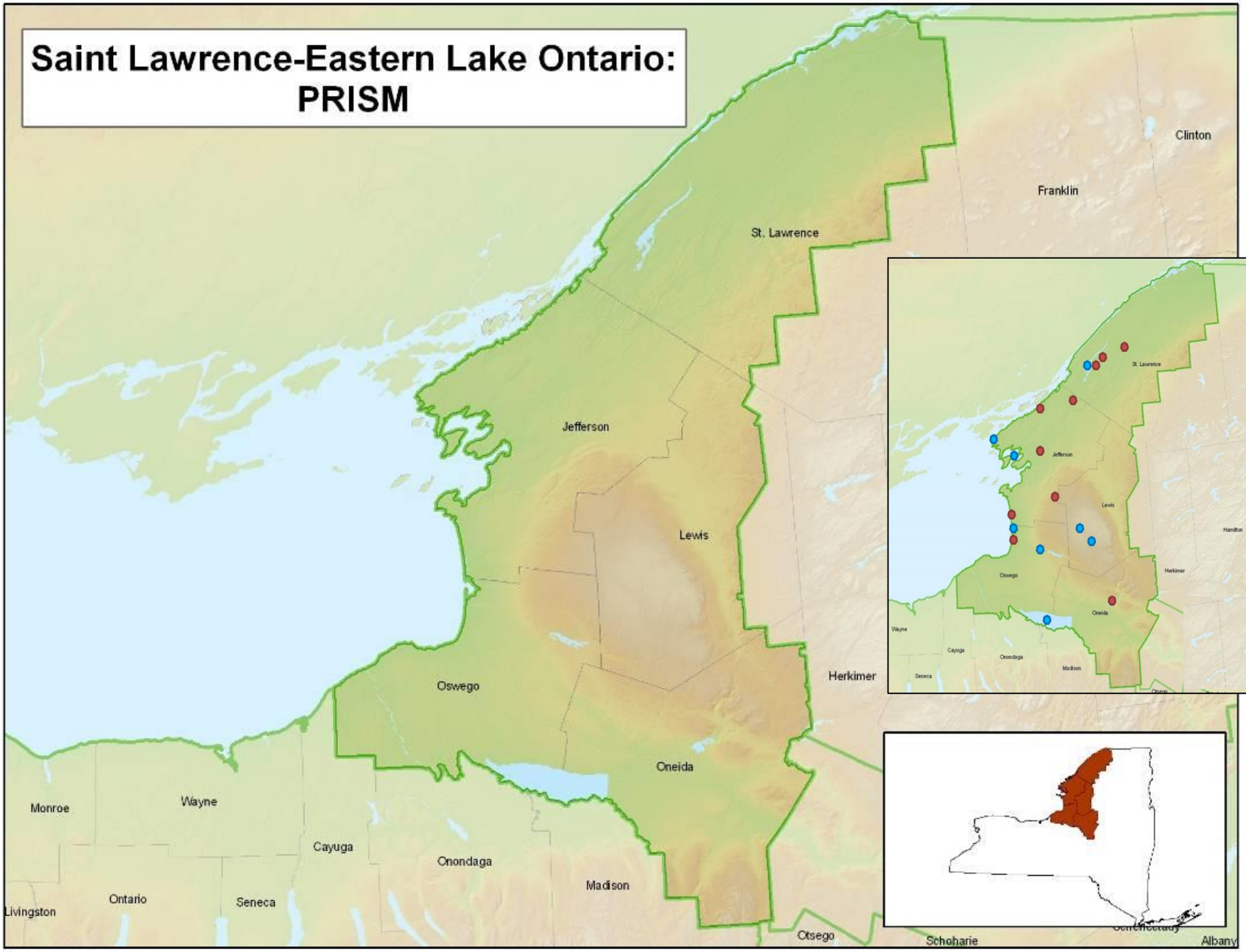
St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO-PRISM)

- One of eight planned PRISM's for New York.
- 4th PRISM to be approved by New York State.
- 5-Year Strategic Plan – which includes 5 counties.
- Annual Work Plans for Invasive Species

Linked to achieve goals & objectives


Partnerships for Regional
Invasive Species Management
2008
APIPP
SLELO
Capital-
Mohawk
Finger Lakes
Western NY
CRISP
Lower
Hudson
LIISMA
SLELO – PRISM Includes:
St. Lawrence County
Jefferson County
Lewis County
Oneida County
Oswego County
Outside the
Adirondack Blue
Line

Saint Lawrence-Eastern Lake Ontario: PRISM



Collaboration is Key To Our Success

- Cornell Cooperative Extension
- Tug Hill Tomorrow Land Trust & Tug Hill Commission
- Sea Grant New York
- Save The River Organization
- New York State Department of Environmental Conservation.
- New York State Office of Parks, Recreation & Historic Preservation.
- New York State Department of Transportation
- The Nature Conservancy
- Ducks Unlimited
- County Soil & Water Conservation Districts
- Fort Drum Military Installation
- Audubon, CNY

Together, we are the SLELO-PRISM

"Teaming Up To Stop The Spread of Invasive Species"

Our Goal…

To restore and protect the ecological integrity of the eastern Lake Ontario basin and the northern New York region from the threat of invasive species.

This includes; unique habitats and rare, threatened or endangered species.

Prairie Smoke (Geum triflorum)
Chaumont Alvar Barrens . SLELO-PRISM

SLELO PRISM Priorities

- Prevention: Preventing the introduction of new invasive species not currently found in the SLELO region
- ED/RR: Contain, suppress or eradicate species populations upon initial detection.
- Education & Outreach: Educating the general public on various Inv. Spp. issues.
- Community Preparedness: Helping communities be prepared to deal with invasive species.

What Are Invasive Species ?

- Invasive species are terrestrial and aquatic species of plants, animals, insects and microscopic organisms that;

Exotic,
Alien,
Non-native,
Non-indigenous

  - 1) Are non-native to the local ecosystem.
  - 2) May or will cause economic or environmental harm or harm to human health.
  - 3) Are a threat to biodiversity.

Invasive Species Quick Facts

- Invasive species almost always out-compete, damage or displace *more valuable* native species.
- Invasive species reduce agricultural crop yields and increase agricultural expenses.
- Invasive species are the second largest threat to biodiversity after habitat loss…..
- The economic impact of invasive species in the U.S. is estimated at 167 billion annually.(1)
- Invasive species are a factor in the decline of 49 percent of all threatened or endangered species. (1)

1(Pimentel 2004).

Invasive Species Quick Facts cont…

- Some invasive species cause serious human health impacts including death:
  - Giant Hogweed – toxic sap that burns the skin. Native to southern Russia introduced to US circa 1903.
  - West Nile Virus - West Nile encephalitis is an infection of the brain. First identified in Uganda in 1937, the virus is commonly found in Africa, West Asia, and the Middle East

Invasive Species Quick Facts cont…

- The number of seabirds being killed each year by the invasive brown rat on the island of Kiska (Circa 2002) are more than were killed by the Exxon Valdez oil spill!

(Rattus norvegicus)

The Exxon Valdez oil spill occurred in Prince William Sound, Alaska, on March 24, 1989, killing over 250,000 sea birds.

Impacts on Specialized Feeders

A Chickadee has evolved over eons to feed their young exclusively on caterpillars and needs to find 6000 to 9000 caterpillars within 50 meters of its nest or its chicks will starve.

If we replace the plants that support the caterpillars, chickadees loose their food source.

Let it hunt in the local parks you say? Wont work because surveys show that 1/3 of plants in parks and in natural areas consist of invasive (non-native) species.

Monarchs are dependent on the indigenous milkweed which are being replaced by swallow-wort. It takes eons to develop a taste for something else!

-Doug Tallamy

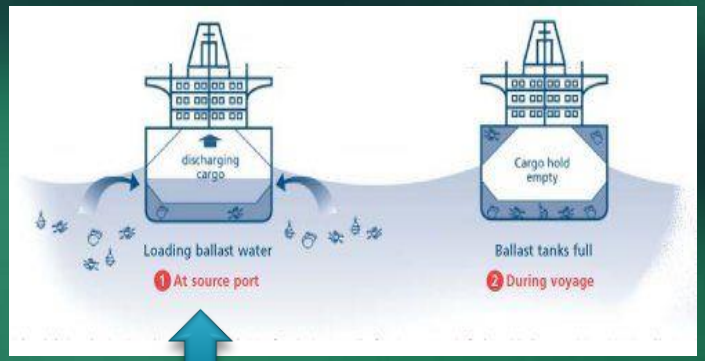
Transport mechanisms and Pathways: (*how do they get here & how do they spread?)*

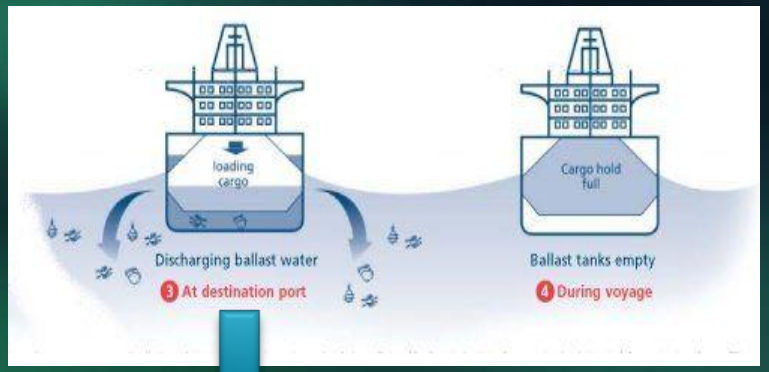
- **There are many ways that invasive spp. are transported – most are related to human activity; some are natural.**

- **Natural Pathways include:**
  - **Seed transport by migrating wildlife.**
  - **Carried by wind / wind dispersal.**

Cultural Transport Examples

- Ballast water from commercial shipping.





Critters released into destination waters

Cultural Transport Example

- Ports of entry
  - G.L. Shipping
  - Airports
  - Military Installations
  - Bridges

There are 13 Ports of Entry along the St. Lawrence River in New York Alone.

9 of which are within the SLELO PRISM

Cultural Transport Example

- Roads, Utility Corridors & Construction Sites
  - Roads and utility corridors that bisect the landscape move invasive species from one location to another. New road construction, re-construction and maintenance can contribute significantly to the spread of invasive species.

Cultural Transport Example

- Firewood

In NYS it is unlawful to transport firewood more than 50 miles from its source

- Shipping pallets

Must be Heat Treated and stamped “HT”

Cultural Transport Example

- Commercial / Retail

Some aquatic invasives can be linked to the commercial and retail industry. These include the aquarium industry, retail sales in live fish markets and ornamental garden plant sales. Often, these exotic plant and animals are released into ponds, lakes and streams when the owner no longer wants to care for them or the fish outgrow their surroundings.

Cultural Transport Example

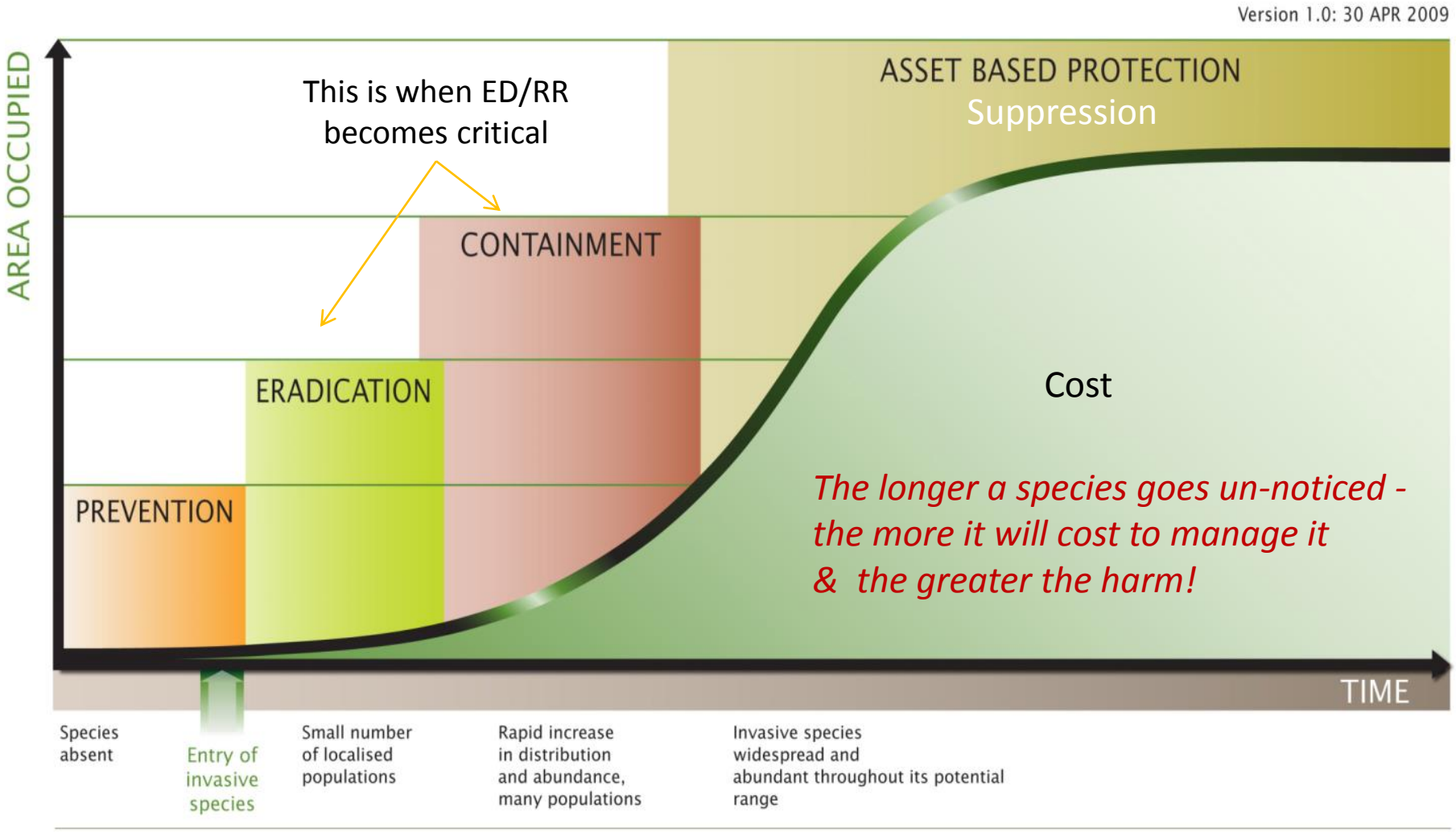
- Recreation

Seeds from invasive species can stow away on hiking boots, waiters, clothing, tires, bumpers, wheel wells or the underside of vehicles and equipment used in recreational activities. These seeds can be transported great distances before falling off in a new location.

Global Transport

Global transport by air and by sea….

GENERALISED INVASION CURVE SHOWING ACTIONS APPROPRIATE TO EACH STAGE



Training Module II

- Invasive Species Examples and Identification
- Target Management Species
- Prevention “watch-list” Species

Examples of Invasive Species

- Our PRISM has identified two categories;
  - Target Management Species: (TMS) These are the problematic species that are currently found within the SLELO region and our goal is to eradicate, contain or suppress them.
  - Prevention Species: (PS) These are species that are not found within the SLELO region and our goal is to “prevent” them from entering.

Swallow-wort (*Cynanchum spp.*)

TMS

NATIVE RANGE

Europe (Italy, France, Portugal, and Spain)

ECOLOGICAL THREAT

- Aggressively chokes out desirable native species.
- Interferes with forest regeneration.
- Allelopathic (releases toxin into the soil to suppress other species).
- Agricultural problem – can dominate hay fields.

DESCRIPTION

Long, slender leaves with conspicuous pointed seed pod.

Can produce 2,000 seeds per square yard.

Best Control: Herbicide application or hand dig.

Japanese Knotweed (*Polygonum cuspidatum*)

NATIVE RANGE

Eastern Asia

- **ECOLOGICAL THREAT**
- Spreads quickly to form dense thickets that exclude native species, reducing species diversity and diminishing an area's value to wildlife.
- Problematic in riparian areas. Does not spread well by seed – rather by fragmentation.

DESCRIPTION

Large - 6 inches long by 3 to 4 inches wide leaves, alternating on stem, broadly oval, pointed at the tip.

Flowers: small, greenish-white flowers in branched sprays in summer.

Best Control: Foliar Herbicide application or Cut-Stem or hand dig.

Glossy Buckthorn (*Rhamnus frangula*)

TMS

NATIVE RANGE

Eastern Europe

ECOLOGICAL THREAT

- Very aggressive in wet areas. It produces dense shade that eliminates other trees and ground species.

DESCRIPTION: thin, glossy, ovate leaves.
The upper leaf surface is shiny.
Leaf edge is smooth on Glossy – serrated on Common Buckthorn!

The seeds remain viable in the soil for two to three years.

Best Control: Cut-stump treatment using *20 – 25% Glyphosate* has been effective.

TMS

Hand-out

Giant Hogweed (*Heracleum mantegazziamum*)

- **ECOLOGICAL & HEALTH THREAT**
- Giant hogweed has two major impacts: ecological and human health.
- It suppresses growth of benficial native plants.
- Direct skin contact with giant hogweed induces extreme photosensitivity, which can lead to severe burns and scarring and may cause blindness if sap comes into contact with the eye.

History: -Native to southern Russia.
-In 1901 botanist's discovered the plant and brought seeds back to Europe.
-Seeds distributed to enthusiasts.
-Entered U.S. circa 1905.

Control: -Systemic herbicide application early in season.
-Cut stump just below the ground.

June 20 - 3 days post giant hog-weed exposure on right calf

June 22--it's getting bigger and it is very uncomfortable. Feels good bandaged up.

June 23 - and getting bigger

June 24 -- and bigger

June 25 and badder

June 26 - a little lighter

June 27 a.m. things are looking up!

June 28

June 29 it stings!

July 1 - it stings more!

July 5 getting there!

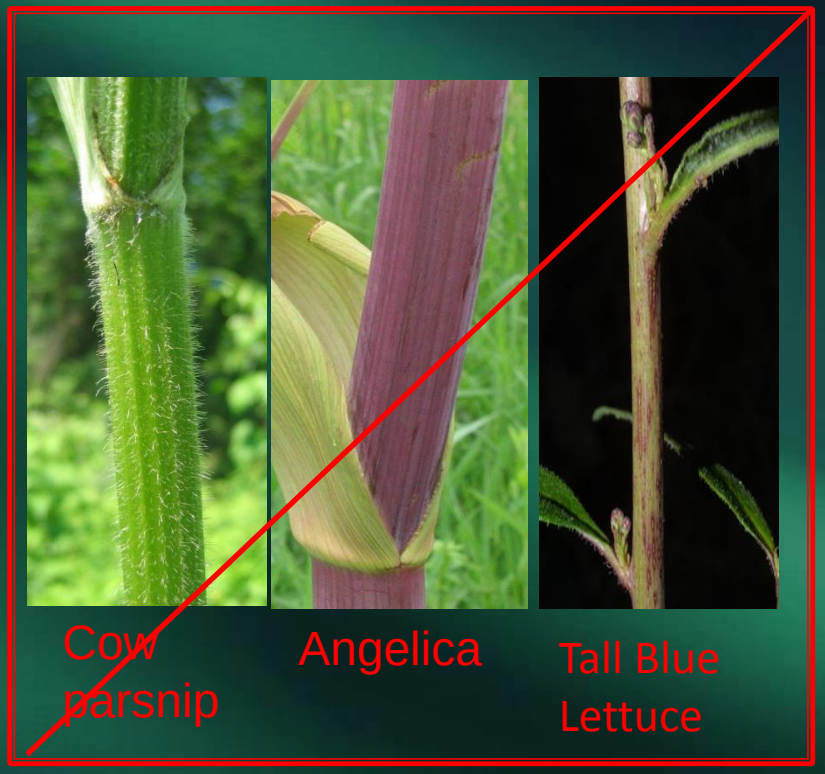
I was exposed to giant hogweed sap on my right calf on Thursday, June 17 We were handling the plants to get them out of an area frequented by children. Next time KEEP OUT tape will be called in to keep the kids away.
The blisters dripped fluid so copiously I had to wear a handkerchief around my ankle to keep the floor dry. July 4 there was still some fluid on the dressing but things are definitely looking up. I can think about wearing those hasmat suits again. Ugh.
Prednisone was very effetive at removing discmfort and abating symptoms. I wonder if the intense systemic itch I am experiencing is my body's allergy response system kicking in after being displaced by the prednizone.

Partners of the SLELO-PRISM continue to treat Hogweed sites in our region
Appx. 20% have been eradicated so far!

Photo credit: Bob Kleinberg

Giant Hogweed has <u>both</u> purple blotches & coarse hairs

Other look-a-likes have one or the other.



Aquatic Species

TMS

Water Chestnut *(Trapa natans)*

TMS

Hand-out

NATIVE RANGE

Europe, Asia

- **ECOLOGICAL THREAT**
  - This fast-growing, floating perennial herb forms large mats that completely dominate surface waters.
  - Renders open waters unavailable to recreation.
  - Shades out native aquatic vegetation.
  - Reduces oxygen levels for fish and encourages sedimentation by restricting silt movement.
  - Hard, pointy seeds can penetrate shoe leather.

Water Chestnut Permit

SPECIAL NOTE:

If you pull water chestnuts out by the root stem and disturb the sediment – you will need a permit.

If you reach beneath the rosette and snap off at the stem without disturbing the sediment – you do not need a permit.

Please use option II

PS

Prevention “Watch-List” Species

- These are species that are not currently found within the SLELO region and our goal is to “prevent” them from entering.

These are species we want you to pay the most attention to.

Mile-A-Minute Vine (*Polygonum perfoliatum*)

NATIVE RANGE

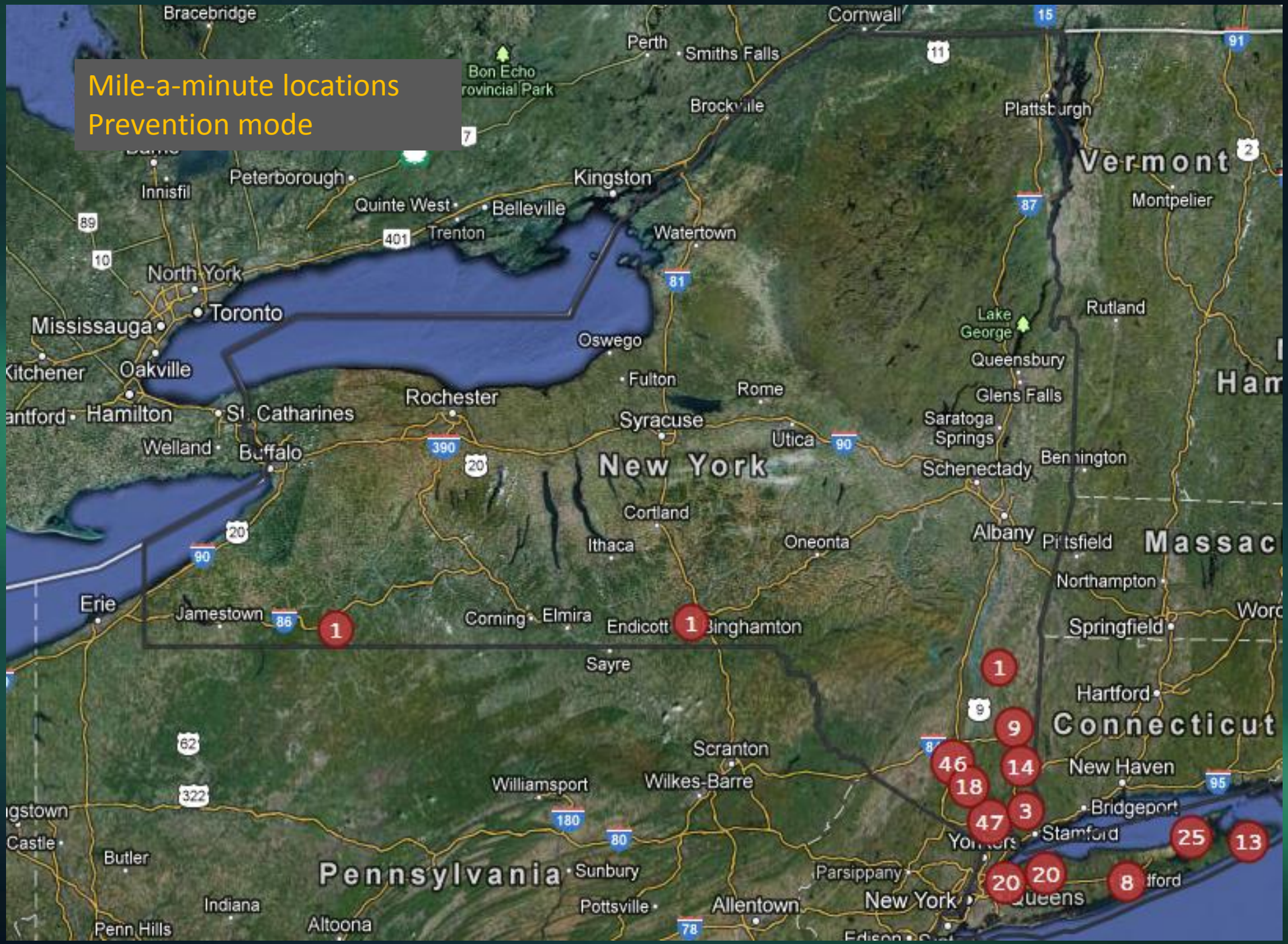
India to Eastern Asia, China

PS

- **ECOLOGICAL THREAT**
- The rapid rate of growth (up to six inches a day) allows this plant to climb over native plants, smothering them.
- Seeds of mile-a-minute are dispersed by birds, ants, small mammals, and by water, remaining buoyant for 7-9 days.

Control

Prior to seed development these vines can be removed by hand or treated with applications of herbicides containing glyphosate or clopyralid.


Mile-a-minute locations
Prevention mode
Bracebridge
Cornwall
Perth
Smiths Falls
Bon Echo Provincial Park
Brockville
Plattsburgh
Vermont
Peterborough
Innisfil
Kingston
Quinte West
Belleville
Trenton
Watertown
Montpelier
North York
Toronto
Mississauga
Oswego
Rutland
Lake George
Queensbury
Kitchener
Oakville
Fulton
Rome
Glens Falls
Hamilton
St. Catharines
Rochester
Syracuse
Saratoga Springs
Utica
Welland
Buffalo
New York
Schenectady
Cortland
Albany
Ithaca
Oneonta
Pittsfield
Massac
Northampton
Erie
Jamestown
Corning
Elmira
Endicott
Binghamton
Springfield
Sayre
Hartford
Connecticut
Scranton
Williamsport
Wilkes-Barre
New Haven
Bridgeport
Stamford
Butler
Pennsylvania
Sunbury
Parsippany
Indiana
Pottsville
Allentown
New York
Queens
Penn Hills
Altoona
1
1
1
9
46
14
18
3
47
25
13
20
20
8

Kudzu (*Pueraria lobata*)

PS

NATIVE RANGE

Southern Japan, China

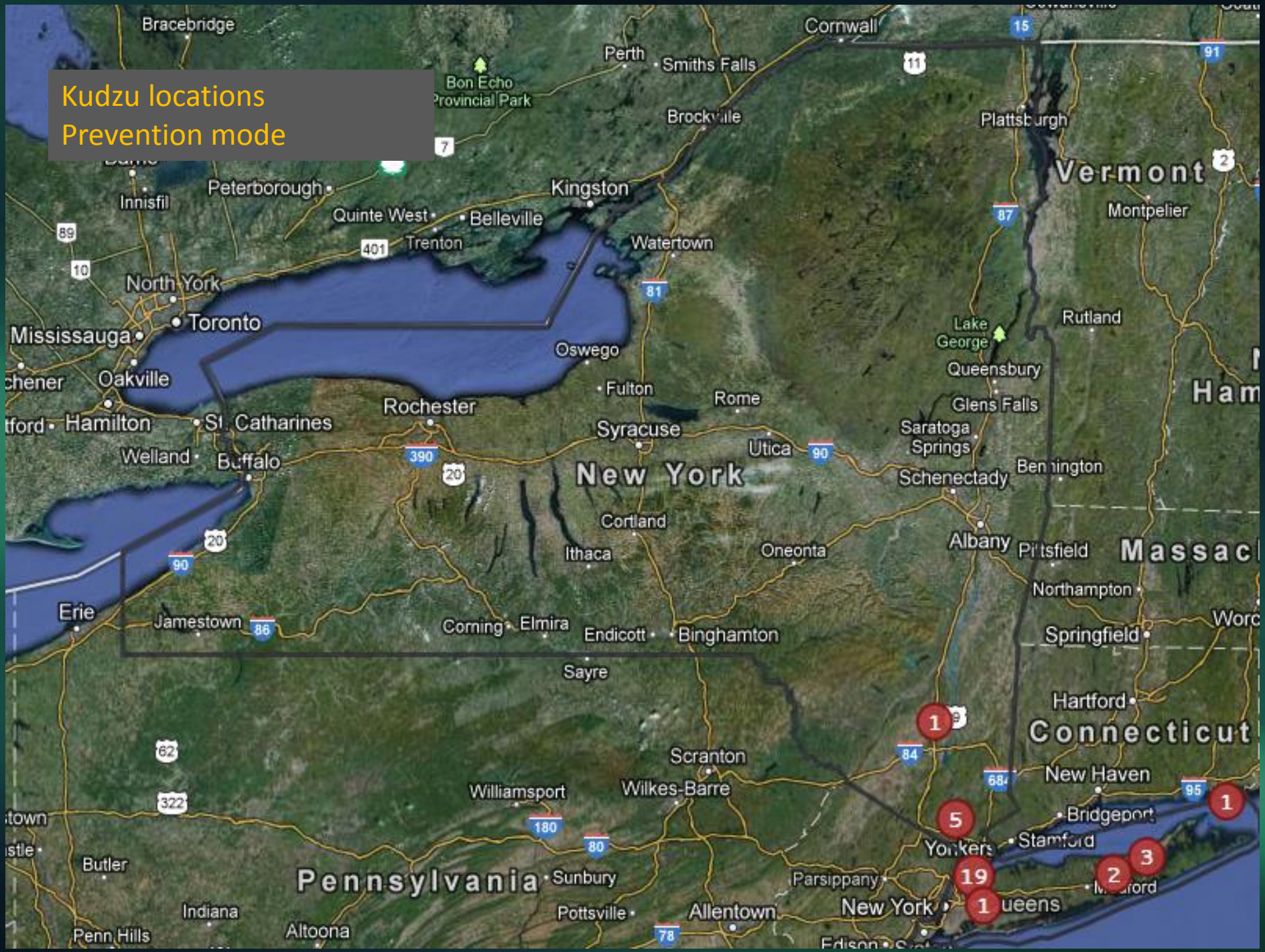
- **ECOLOGICAL THREAT**
  - This plant climbs over trees or shrubs and grows so rapidly that it kills them by heavy shading / smothering.

Kudzu leaves tend to have a lobe on one or both sides of the leaf – poison ivy looks similar with no lobes.

Control

Kudzu can be controlled with foliar applications of a systemic herbicide containing glyphosate or Triclopyr.

Kudzu can also be controlled with prescribed burning.


Kudzu locations
Prevention mode
Bracebridge
Cornwall
Perth
Smiths Falls
Bon Echo Provincial Park
Brockville
Plattsburgh
Vermont
Peterborough
Kingston
Innisfil
Quinte West
Belleville
Trenton
Watertown
Montpelier
North York
Toronto
Mississauga
Oswego
Rutland
Lake George
Queensbury
Oakville
Fulton
Rome
Glens Falls
Rochester
Hamilton
St. Catharines
Syracuse
Saratoga Springs
Utica
Welland
Buffalo
New York
Schenectady
Cortland
Albany
Ithaca
Oneonta
Pittsfield
Northampton
Erie
Jamestown
Corning
Elmira
Endicott
Binghamton
Springfield
Sayre
Hartford
Connecticut
Scranton
Williamsport
Wilkes-Barre
New Haven
Bridgeport
Stamford
Yonkers
Butler
Pennsylvania
Sunbury
Parsippany
Indiana
Pottsville
Allentown
New York
Penn Hills
Altoona
1
5
19
2
3
1

Slender False Brome
(*Brachypodium sylvaticum*)

PS

NATIVE RANGE

Europe, Asia and Africa

NYS Invasiveness Rank: Very high score of 86.6, Part 575 list

ECOLOGICAL THREAT:

- Suppresses forest regeneration, eliminates low growing herbs and pollinators, and degrade wildlife habitat.
- Easily invades a variety of habitats.
- High tolerance for shady and drought stricken areas.
- Prolific seed producer, easily dispersed, spreads quickly.

Grows in clumps

or clusters

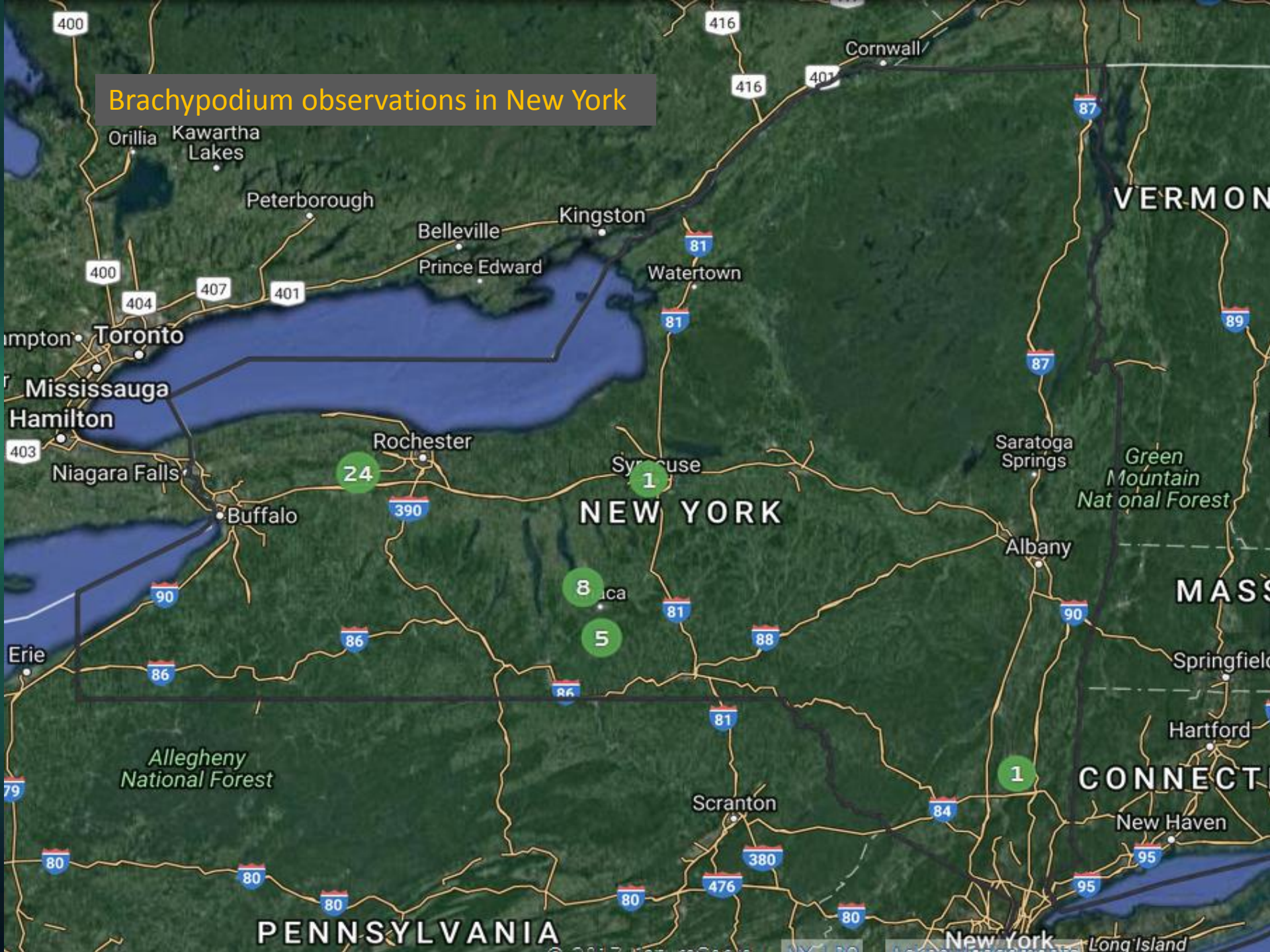

Commonly
found along
walking trails

Very long awns

Ribs or ridges on leaf blades

Very long culms

Very hairy stems


Brachypodium observations in New York
Orillia
Kawartha Lakes
Peterborough
Belleville
Kingston
Prince Edward
Watertown
Toronto
Mississauga
Hamilton
Niagara Falls
Buffalo
Rochester
Syracuse
Saratoga Springs
Albany
Green Mountain National Forest
NEW YORK
Erie
Allegheny National Forest
Scranton
Hartford
New Haven
PENNSYLVANIA
New York
Long Island
24
1
8
5
1
400
416
401
87
81
407
404
89
403
390
90
86
88
84
380
476
95
80
79

Porcelain Berry (*Ampelopsis spp.*)

NATIVE RANGE

PS

Northeast Asia - China, Korea, Japan, and Russian Far East

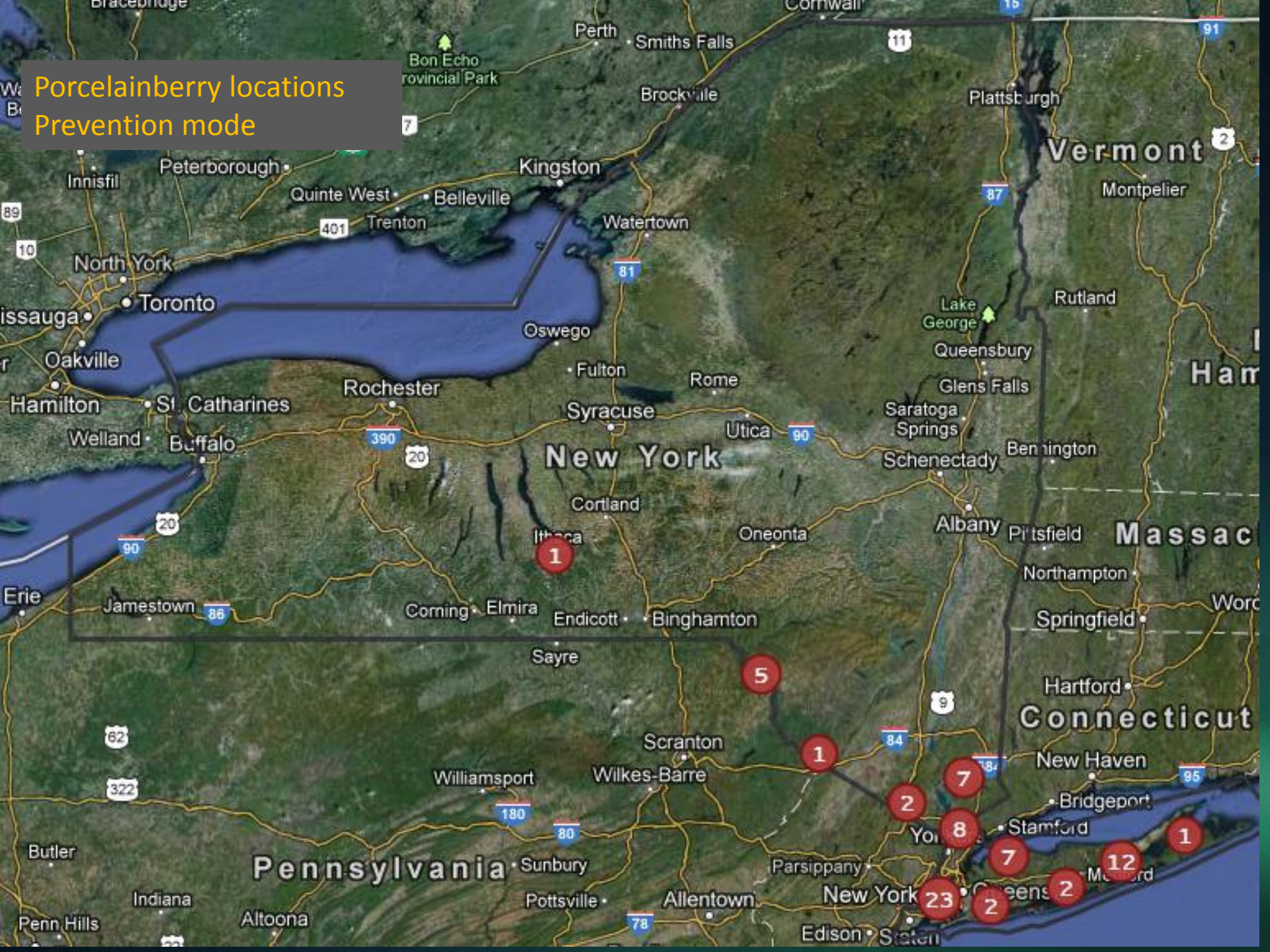
ECOLOGICAL THREAT

- Vigorously invades of open and wooded habitats.
- Grows and spreads quickly.
- Climbs over shrubs, fences and other vegetation, shading out native plants and consuming habitat.

DESCRIPTION

A deciduous, woody, perennial vine. It twines with the help of non-adhesive tendrils that occur opposite the leaves

Jamie Young, National Research Council, Washington, DC
Jil M. Swearingen, National Park Service, Washington, DC


Porcelainberry locations
Prevention mode
Perth
Smiths Falls
Bon Echo
Provincial Park
Brockville
Plattsburgh
Vermont
Montpelier
Peterborough
Kingston
Innisfil
Quinte West
Belleville
Trenton
Watertown
North York
Toronto
Lake
George
Rutland
Oswego
Queensbury
Oakville
Fulton
Rome
Glens Falls
Rochester
Hamilton
St. Catharines
Syracuse
Saratoga
Springs
Utica
Welland
Buffalo
New York
Schenectady
Cortland
Albany
Pittsfield
Massac
Ithaca
Oneonta
Northampton
Erie
Jamestown
Corning
Elmira
Endicott
Binghamton
Springfield
Sayre
Hartford
Connecticut
Scranton
New Haven
Williamsport
Wilkes-Barre
Bridgeport
Stamford
Butler
Pennsylvania
Sunbury
Parsippany
Indiana
Pottsville
Allentown
New York
Penn Hills
Altoona
Edison
1
5
1
7
2
8
7
12
1
2
23
2
15
91
11
87
2
81
90
20
390
86
84
95
180
80
78
322
62
9

Water Soldier (*Stratiotes aloides*)

PS

NATIVE RANGE

Europe and northwest Asia

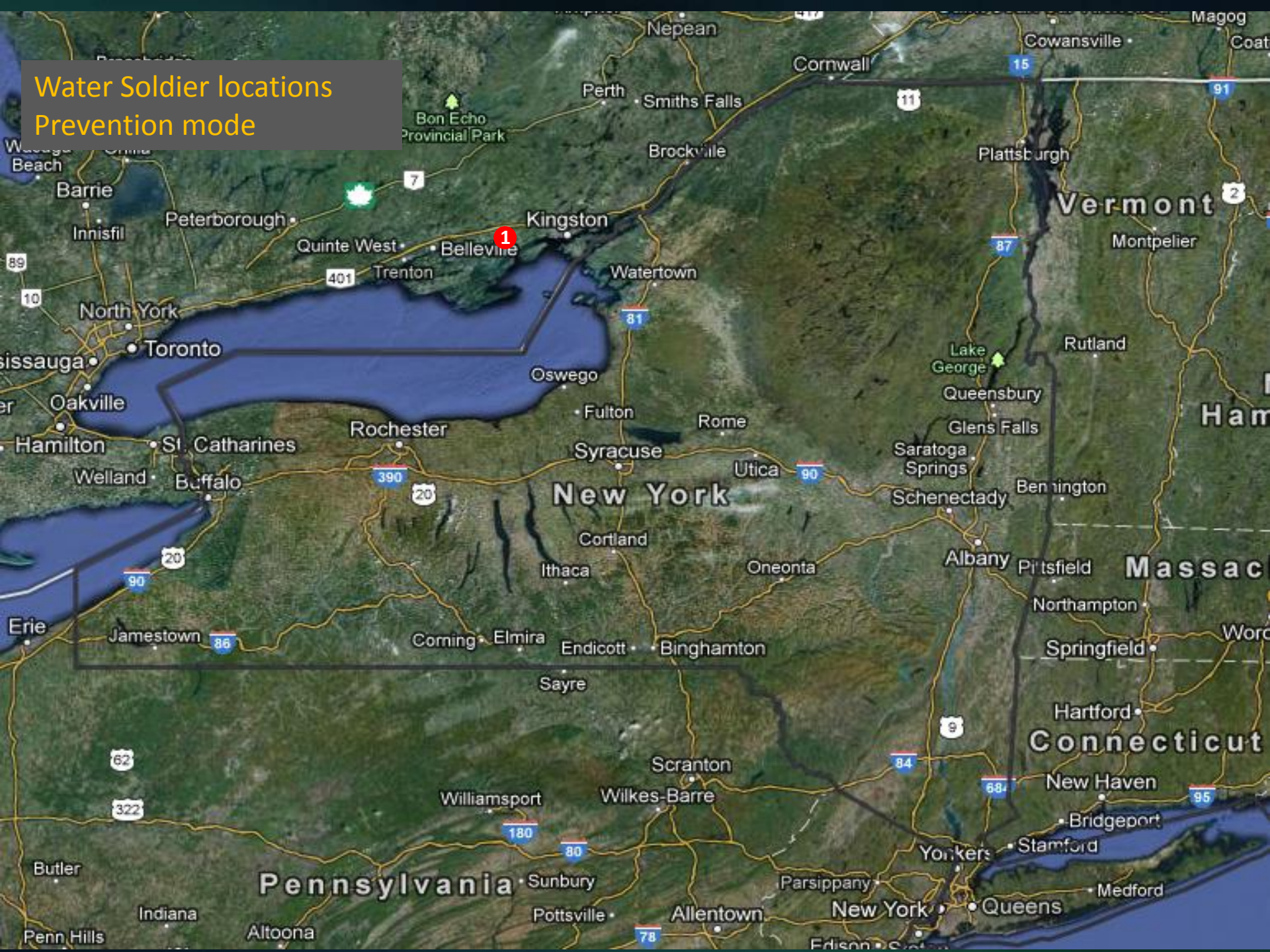
ECOLOGICAL THREAT

- Crowds native vegetation decreasing plant biodiversity.
- Can significantly hinder recreational activities, such as boating, angling and swimming.
- ***Sharp*** serrated leaf edges can cut swimmers and individuals.

DESCRIPTION

Similar in appearance to an aloe plant, spider plant c
the top of a pineapple

Courtesy – Ontario's Invading Species Program, Ontario Canada


Water Soldier locations
Prevention mode
1
Nepean
Cornwall
Cowansville
Magog
Perth
Smiths Falls
Bon Echo Provincial Park
Brockville
Plattsburgh
Barrie
Peterborough
Kingston
Vermont
Innisfil
Quinte West
Belleville
Trenton
Montpelier
Watertown
North York
Toronto
Rutland
Lake George
Oswego
Queensbury
Oakville
Fulton
Rome
Glens Falls
Rochester
Hamilton
St. Catharines
Syracuse
Saratoga Springs
Welland
Buffalo
Utica
New York
Schenectady
Cortland
Albany
Ithaca
Oneonta
Pittsfield
Northampton
Erie
Jamestown
Corning
Elmira
Endicott
Binghamton
Springfield
Sayre
Hartford
Connecticut
Scranton
New Haven
Williamsport
Wilkes-Barre
Bridgeport
Stamford
Butler
Pennsylvania
Sunbury
Parsippany
Medford
Indiana
Pottsville
Allentown
New York
Queens
Penn Hills
Altoona

Hydrilla (*Hydrilla verticillata*) PS

NATIVE RANGE

Africa, Australia

ECOLOGICAL THREAT:

- Aggressively spreads and dominates native, beneficial, aquatic plants.
- Renders surface waters unusable for passive recreation and fishing.
- Winter dieback may reduce dissolved oxygen levels.

Hydrilla

Hydrilla has 4 or more leaves per whorl and visable serrated leaf margins and tubers.

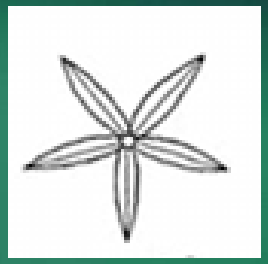
Look alike!

Elodea has 3 leaves per whorl, no serrations and no tubers.

Elodea

Bottom Line on Hydrilla

Leaves in whorls of 4 or more



D

Leaf serrations visible to the naked eye

D

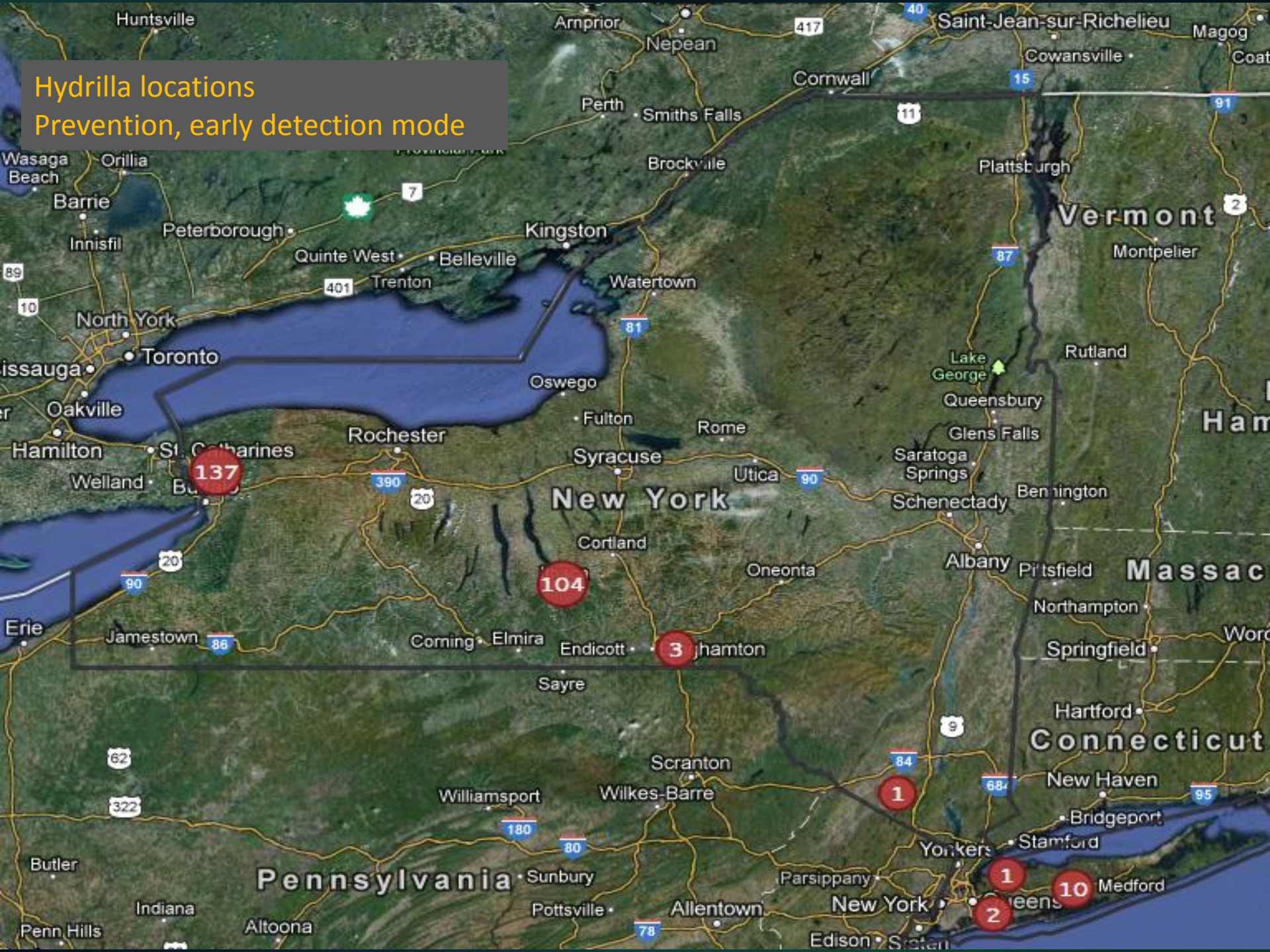
White rhizome & tuber

=

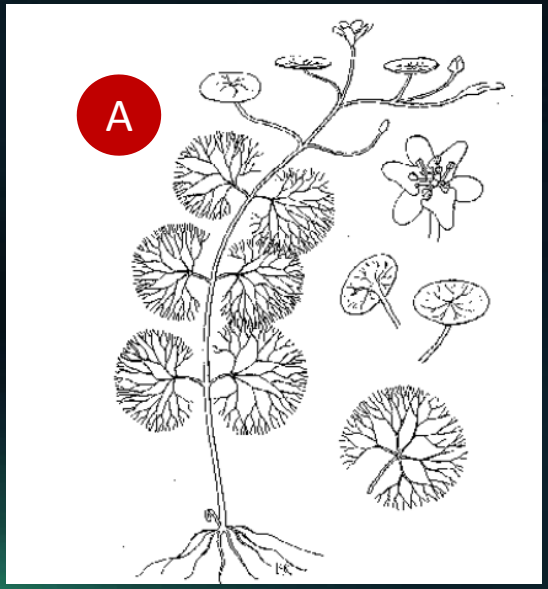
Hydrilla

If you think you have found Hydrilla

1. Note the location preferably with a GPS waypoint.
2. Get a sample, take close up photos on white background.
3. Try to obtain a root sample – tuber.
4. Notify your local PRISM representative for positive ID and next steps.

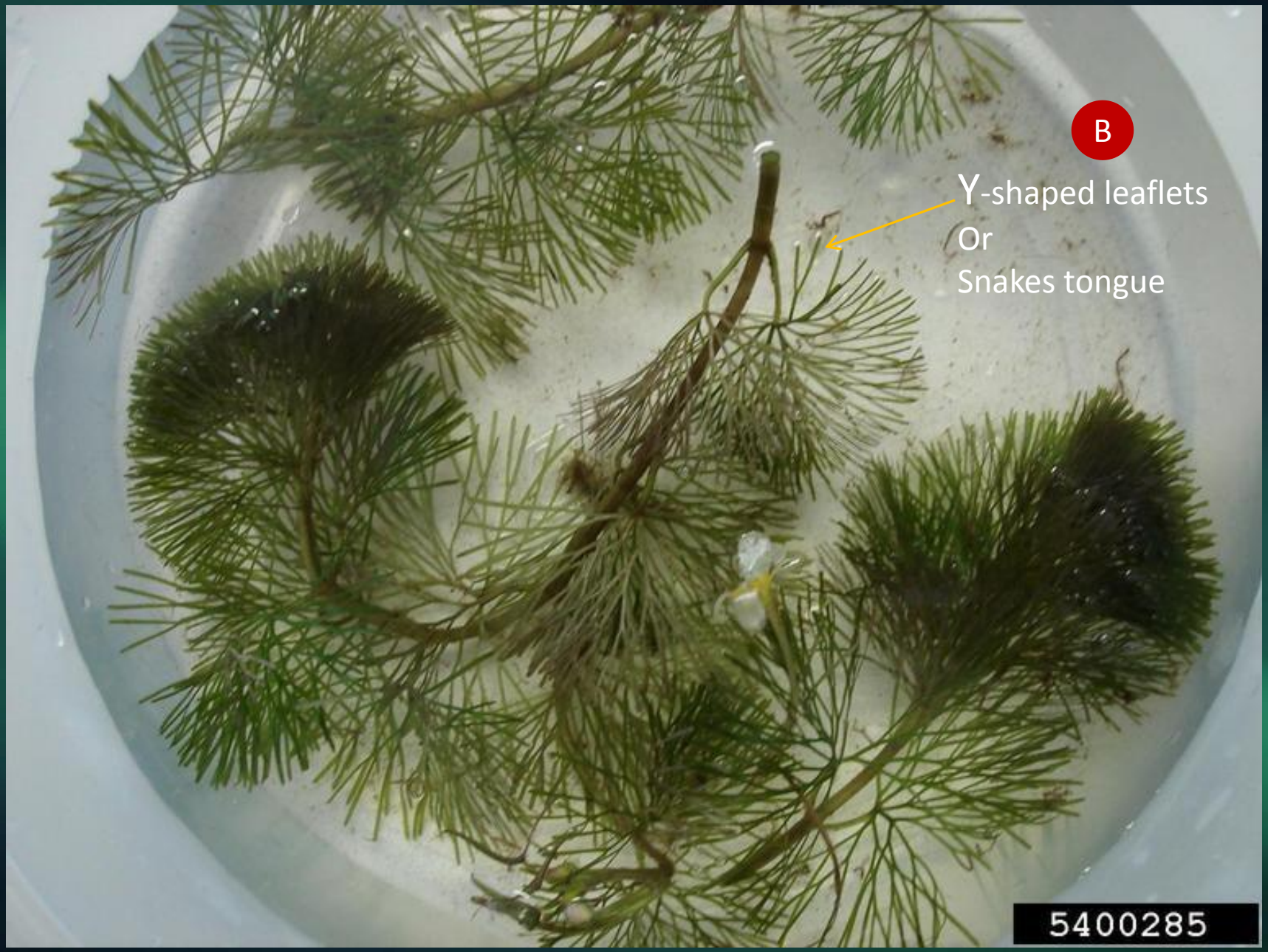

Hydrilla locations
Prevention, early detection mode
137
104
3
1
1
10
2
Huntsville
Arnprior
Nepean
Saint-Jean-sur-Richelieu
Magog
Cowansville
Cornwall
Perth
Smiths Falls
Brockville
Plattsburgh
Wasaga Beach
Orillia
Barrie
Peterborough
Innisfil
Kingston
Quinte West
Belleville
Trenton
Watertown
Vermont
Montpelier
North York
Toronto
Oswego
Lake George
Rutland
Queensbury
Oakville
Fulton
Rome
Glens Falls
Hamilton
Rochester
Syracuse
Saratoga Springs
Utica
Schenectady
New York
Welland
Cortland
Albany
Pittsfield
Massac
Oneonta
Northampton
Erie
Jamestown
Corning
Elmira
Endicott
Springfield
Sayre
Hartford
Connecticut
Scranton
New Haven
Williamsburg
Wilkes-Barre
Bridgeport
Yonkers
Stamford
Butler
Pennsylvania
Sunbury
Parsippany
Medford
Indiana
Pottsville
Allentown
New York
Penn Hills
Altoona
Edison

Fanwort (*Cabomba caroliniana*)
Identification



- ✓ Native to South America.
- ✓ Macrophyte, mostly submersed sometimes floating.
- ✓ Perennial with rhizomes.
- A Leaves are finely divided and arranged in pairs opposite on the stem.
- B The ends of the leaflets are often split or shaped like the letter Y or similar to a snakes tongue. (*NEXT SLIDE*)

Fanwort *continued……..*

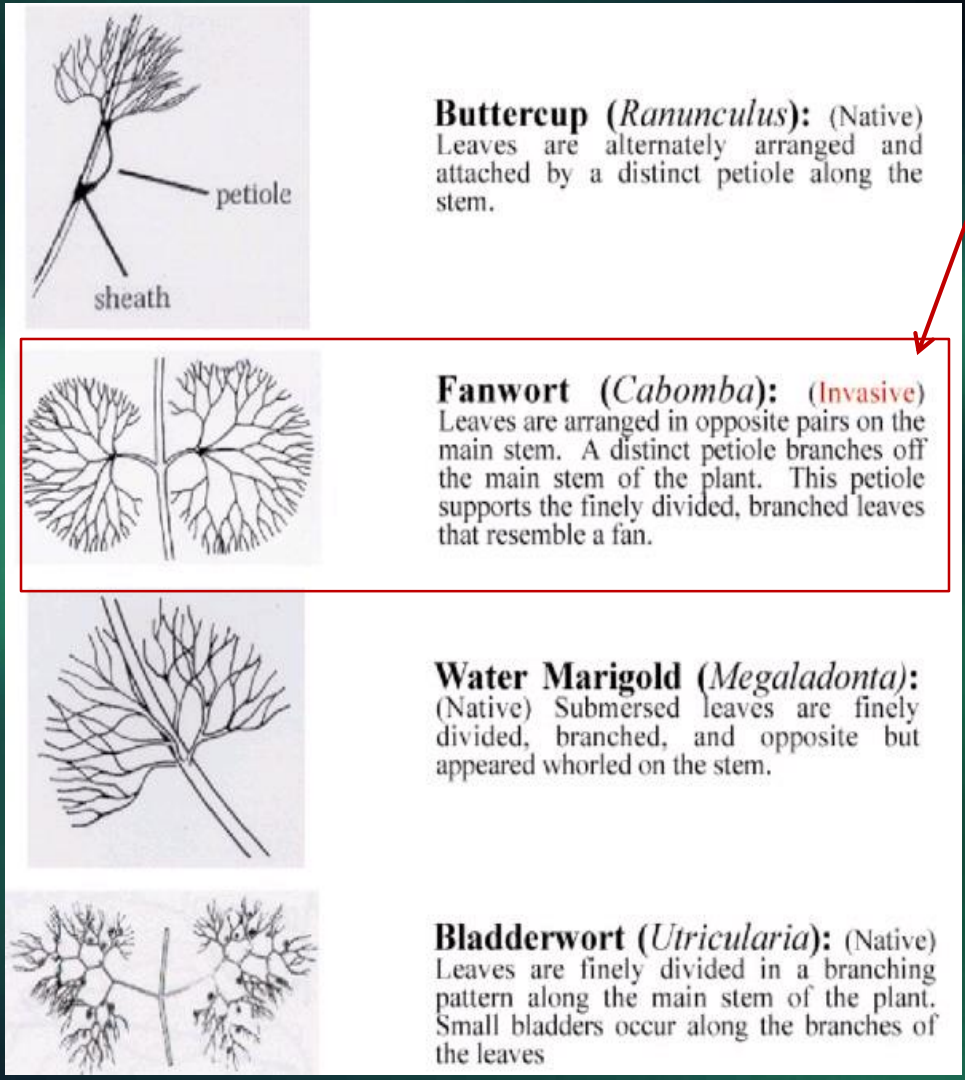


Fanwort *continued.....*

Flowers are white and small (less than 1/2 inch in diameter), and they float on the water surface

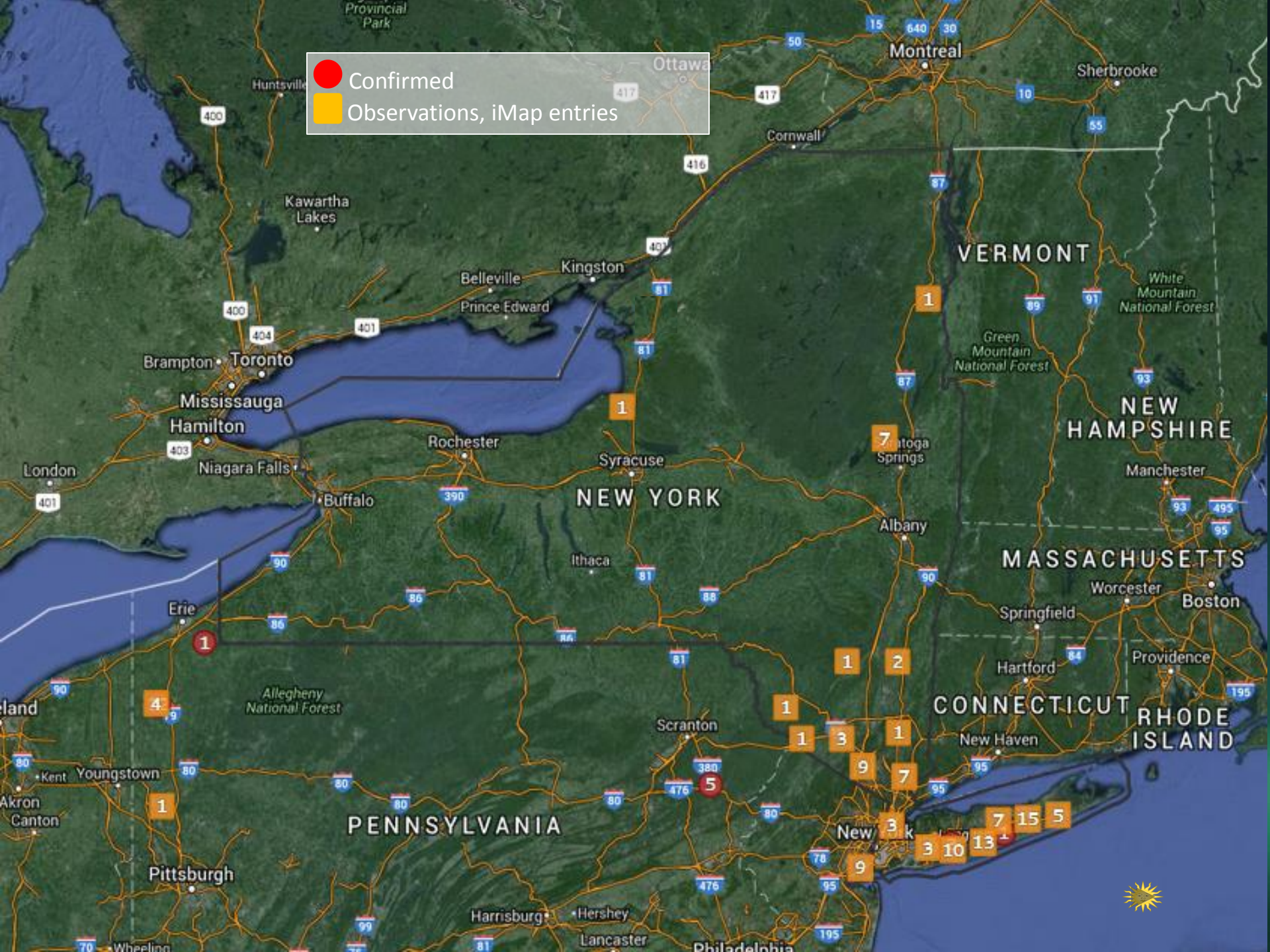
Capable of highly dense growth

Fanwort Lookalikes!



- *Key Features (Fanwort)*
  - Fanlike shape leaves that are Y-shaped (snake tongue)
  - Opposite on stem
  - Distinct Petiole
  - Purplish stem
- *How Lookalikes Differ*
  - Buttercup- alternate leaves & extended Petiole
  - Water marigold- no Petiole
  - Bladderwort- no fan and distinct bladders

S. Kishbaugh


Confirmed
Observations, iMap entries
Provincial Park
Huntsville
Ottawa
Montreal
Sherbrooke
Cornwall
Kawartha Lakes
Belleville
Kingston
Prince Edward
Brampton
Toronto
Mississauga
Hamilton
Rochester
Syracuse
Niagara Falls
Buffalo
London
NEW YORK
VERMONT
White Mountain National Forest
Green Mountain National Forest
NEW HAMPSHIRE
Manchester
Albany
Ithaca
MASSACHUSETTS
Worcester
Boston
Springfield
Providence
Hartford
CONNECTICUT
RHODE ISLAND
New Haven
Erie
Allegheny National Forest
Scranton
Youngstown
Kent
Akron
Canton
PENNSYLVANIA
Pittsburgh
Harrisburg
Hershey
Lancaster
Philadelphia
New
1
2
3
4
5
7
9
10
13
15

Asian Carp (*Ctenopharyngodon spp.*)

PS

- **ECOLOGICAL THREAT**
  - There are three species of Asian carp that are considered invasive and a threat to the Great Lakes, the bighead, silver and black carp.
  - Bighead and silver carp are voracious eaters. They consume plankton—algae and other microscopic organisms—stripping the food web of the key source of food for small and big fish. Asian cap can grow to 110+ pounds

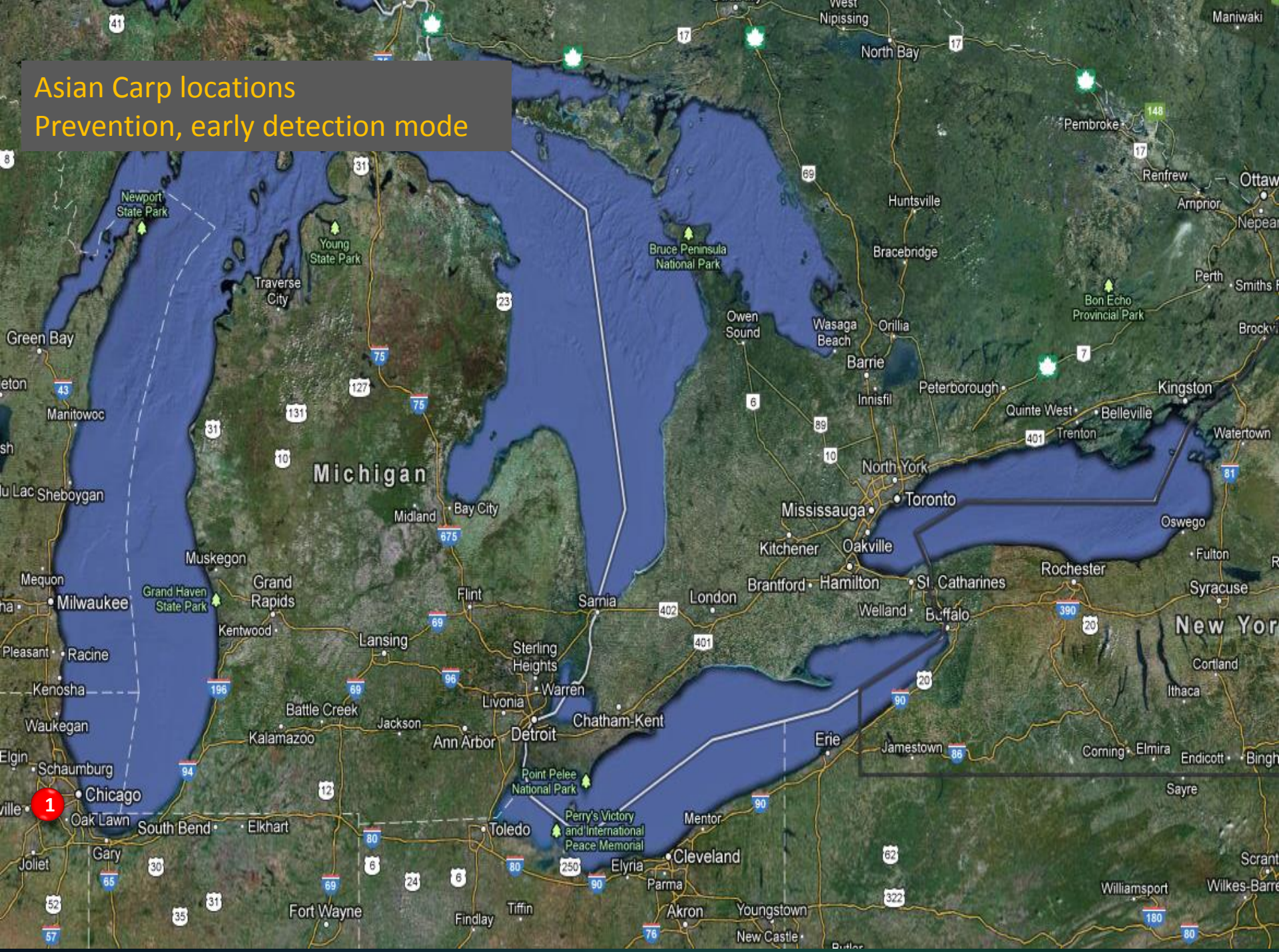
Note:

eyes located in lower half of the head.

Silver

Bighead

Black

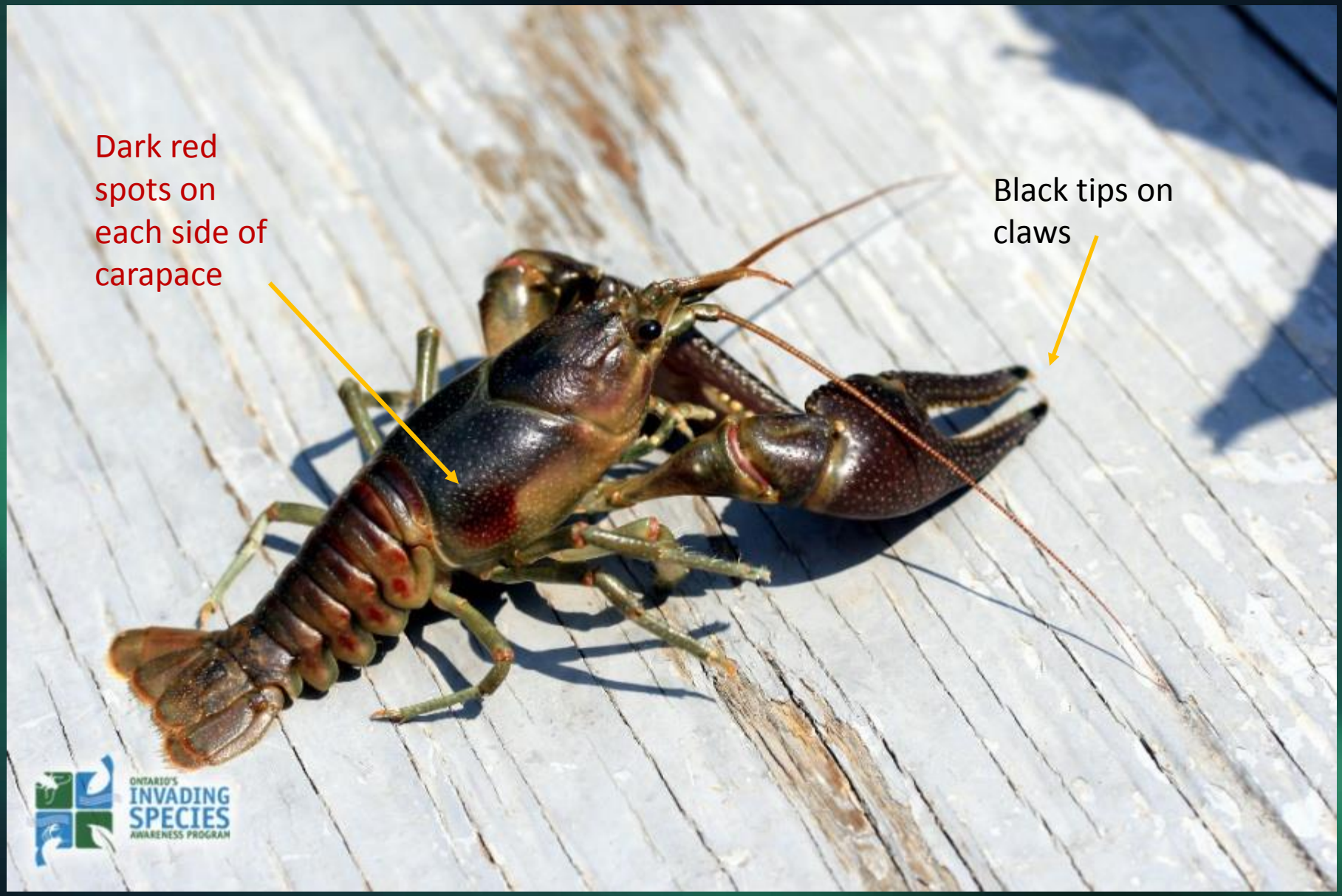

Asian Carp locations
Prevention, early detection mode
Michigan
Chicago
Detroit
Toronto
Cleveland
Milwaukee
Green Bay
Grand Rapids
Lansing
Flint
Sarnia
Kitchener
Oakville
Hamilton
Buffalo
Rochester
Syracuse
Erie
Toledo
Fort Wayne
Akron
Youngstown
Mississauga
North York
Barrie
Kingston
Peterborough
Owen Sound
North Bay
Sudbury
Huntsville
Bracebridge
Muskegon
Grand Haven State Park
Newport State Park
Young State Park
Traverse City
Bruce Peninsula National Park
Bon Echo Provincial Park
Point Pelee National Park
Perry's Victory and International Peace Memorial
Sheboygan
Manitowoc
Milwaukee
Racine
Kenosha
Waukegan
Gary
South Bend
Elkhart
Battle Creek
Kalamazoo
Jackson
Ann Arbor
Livonia
Warren
Sterling Heights
Midland
Bay City
Owen Sound
Wasaga Beach
Orillia
Innisfil
Brantford
London
Welland
St Catharines
Niagara Falls
Oswego
Watertown
Kingston
Belleville
Quinte West
Trenton
Pembroke
Renfrew
Arnprior
Perth
Brockville
Ottawa
Cortland
Ithaca
Elmira
Corning
Jamestown
Williamsport
Wilkes-Barre
Scranton
Sayre
Endicott
Binghamton
Mentor
Parma
Elyria
Findlay
Tiffin
New Castle
1

Rusty Crayfish (*Orconectes rusticus*)

Native range: Ohio River Basin

Spread: Rusty crayfish are probably spread by non-resident anglers who bring them along to use as fishing bait.

Impacts: Displace native crayfish.
Reduces the amount and diversity of aquatic plants.
Decrease the density and variety of invertebrates.


Dark red spots on each side of carapace
Black tips on claws
ONTARIO'S INVADING SPECIES AWARENESS PROGRAM

Water Hyacinth *(Eichhornia crassipes)*

Native to: South America (Zhang et al. 2010)

Spread: Ornamental sales

Impact: Forms dense colonies that block sunlight and crowd out native species.


Water hyacinth
Eichhornia crassipes
Photo by A. Murray
Copyright 2001 Univ. Florida

- Floating plants with large, succulent, round to oval, shiny green leaves.
- Leaves are held upright so they act like sails.
- The leaf stalk (petiole) is thick and spongy and helps to keep the plant buoyant.
- A mass of fine roots hang in the water underneath the plant.
- The flowers are large (2-3 inches) and attractive. They are blue-purple or lilac-colored sometime with a with a yellow spot

Asian Clam (*Corbicula fluminea*)

PS
Hand-out

- **ECOLOGICAL THREAT**
  - Fouling of complex power plant and industrial water systems.
  - Alters benthic substrates and competes with native species for limited resources.
  - Economic: In the USA, has caused millions of dollars worth of damage to intake pipes used in the power and water industries

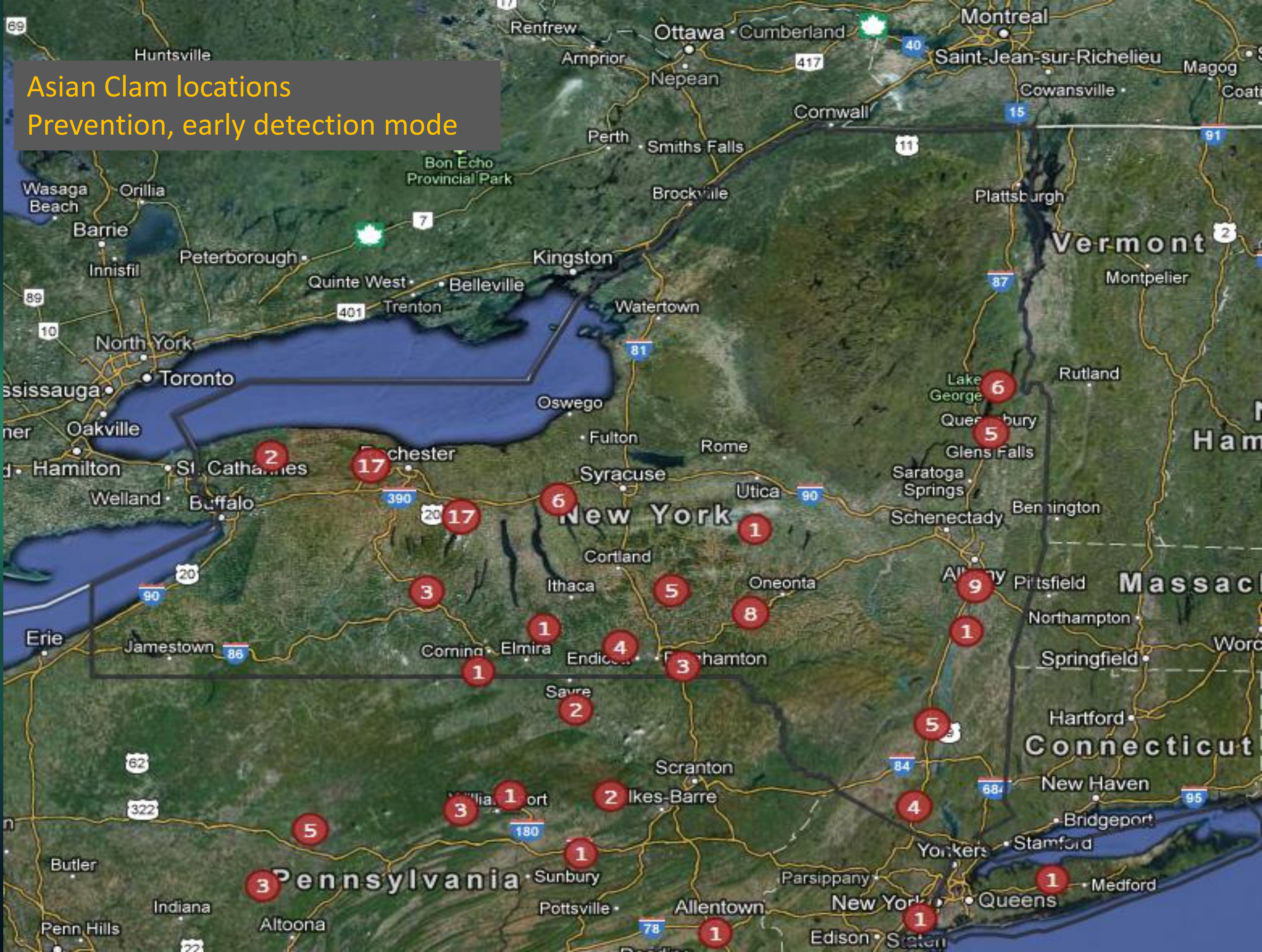
* Small, no bigger than a dime.
* You can feel the ridges on the shell.

Found In
Otisco Lake
Owasco Lake
Lake George
NY.

Control:

1. Spread prevention.

Asian Clam locations
Prevention, early detection mode



Hemlock Wooly Adelgid (*Adelges tsugae*)

NATIVE RANGE

Asia

ECOLOGICAL THREAT

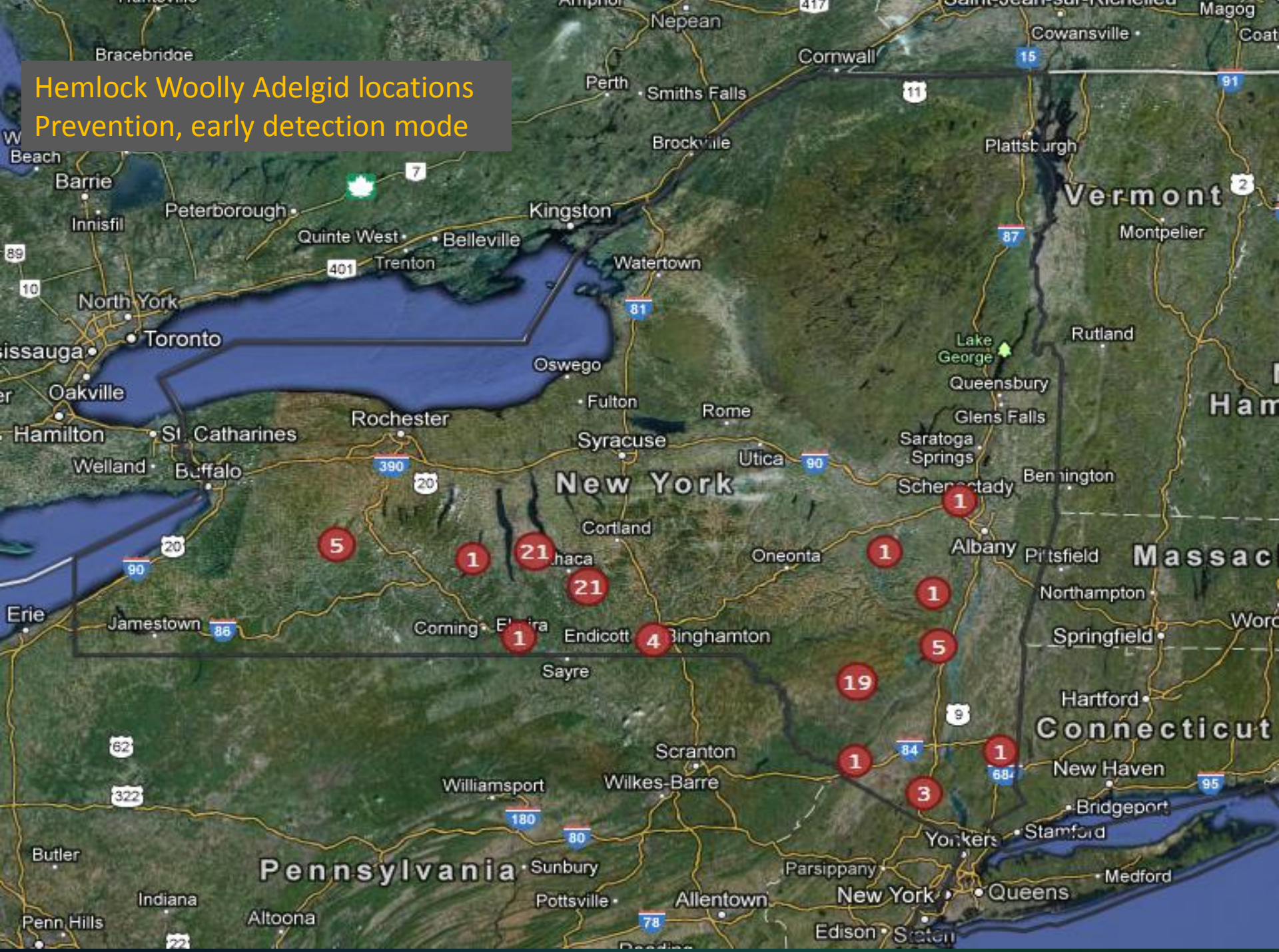
- May have significant impacts on hemlock trees. Hemlock decline and mortality typically occur within 4 to 10 years after infestation.

What to look for:

White, powdery egg sacks on the underside of hemlock needles.

Heavy infestation

Light infestation


Hemlock Woolly Adelgid locations
Prevention, early detection mode
Nepean
Cowansville
Magog
Bracebridge
Cornwall
Perth
Smiths Falls
Brockville
Plattsburgh
Barrie
Peterborough
Kingston
Vermont
Innisfil
Quinte West
Belleville
Trenton
Montpelier
Watertown
North York
Toronto
Rutland
Lake George
Oswego
Queensbury
Oakville
Fulton
Rome
Glens Falls
Hamilton
St Catharines
Rochester
Syracuse
Saratoga Springs
Welland
Buffalo
Utica
New York
Cortland
Albany
Oneonta
Pittsfield
Massac
Northampton
Erie
Jamestown
Corning
Endicott
Binghamton
Springfield
Sayre
Hartford
Connecticut
Scranton
Williamsport
Wilkes-Barre
New Haven
Bridgeport
Stamford
Butler
Pennsylvania
Sunbury
Parsippany
Medford
Indiana
Pottsville
Allentown
New York
Queens
Penn Hills
Altoona
Edison
1
5
21
21
1
1
1
1
5
4
19
1
3
1

Hand-out x 5

2-Forest Pests
1-found In the SLELO Region
1-is not (yet)

Not in region

Asian Long-horned Beetle (ALB)

(Anoplophora glabripennis)

Prevention Spp.

Management Spp.

Pass Around Samples

In region

Emerald Ash Borer (EAB)

(Agrilus planipennis)

What to look for !
Asian Long-horned Beetle

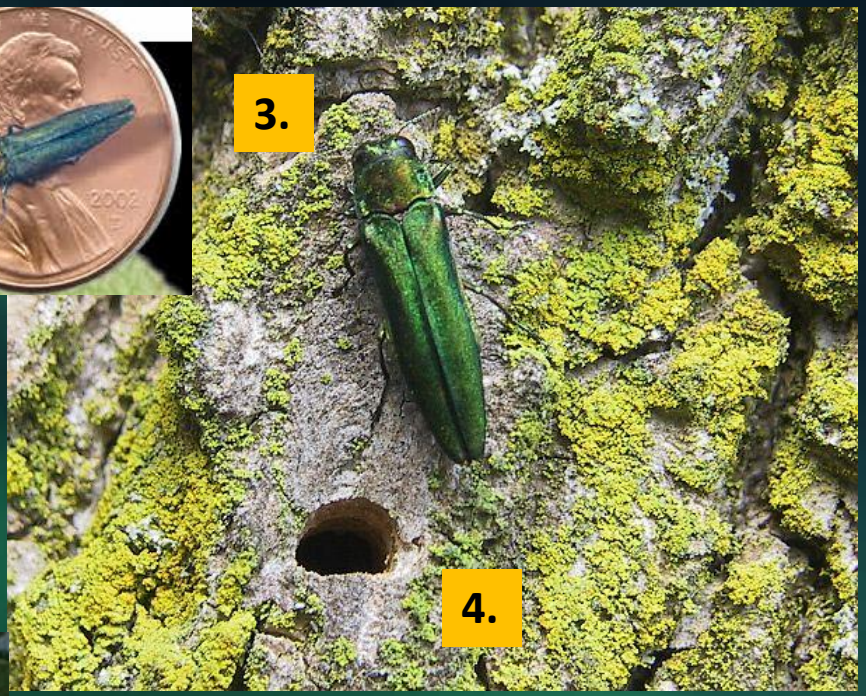
What to look for !
Emerald Ash Borer

* Identify Ash trees.
* Opposite Branching.
* 5-11 Leaflets
* Pronounced Diamond Pattern Bark

1.

2.

3.



4.

1. Ash trees
2. Epicormic growth with dying tree tops.
3. The actual insect
4. D-shape exit holes
5. Field glasses & purple traps

EAB continued....

Training Module III

- Early Detection Surveillance
- Priority Conservation Areas
- Using HPA's
- Rake Toss Method
- Before setting afield
- A Typical Days Work

Early Detection & Rapid Response

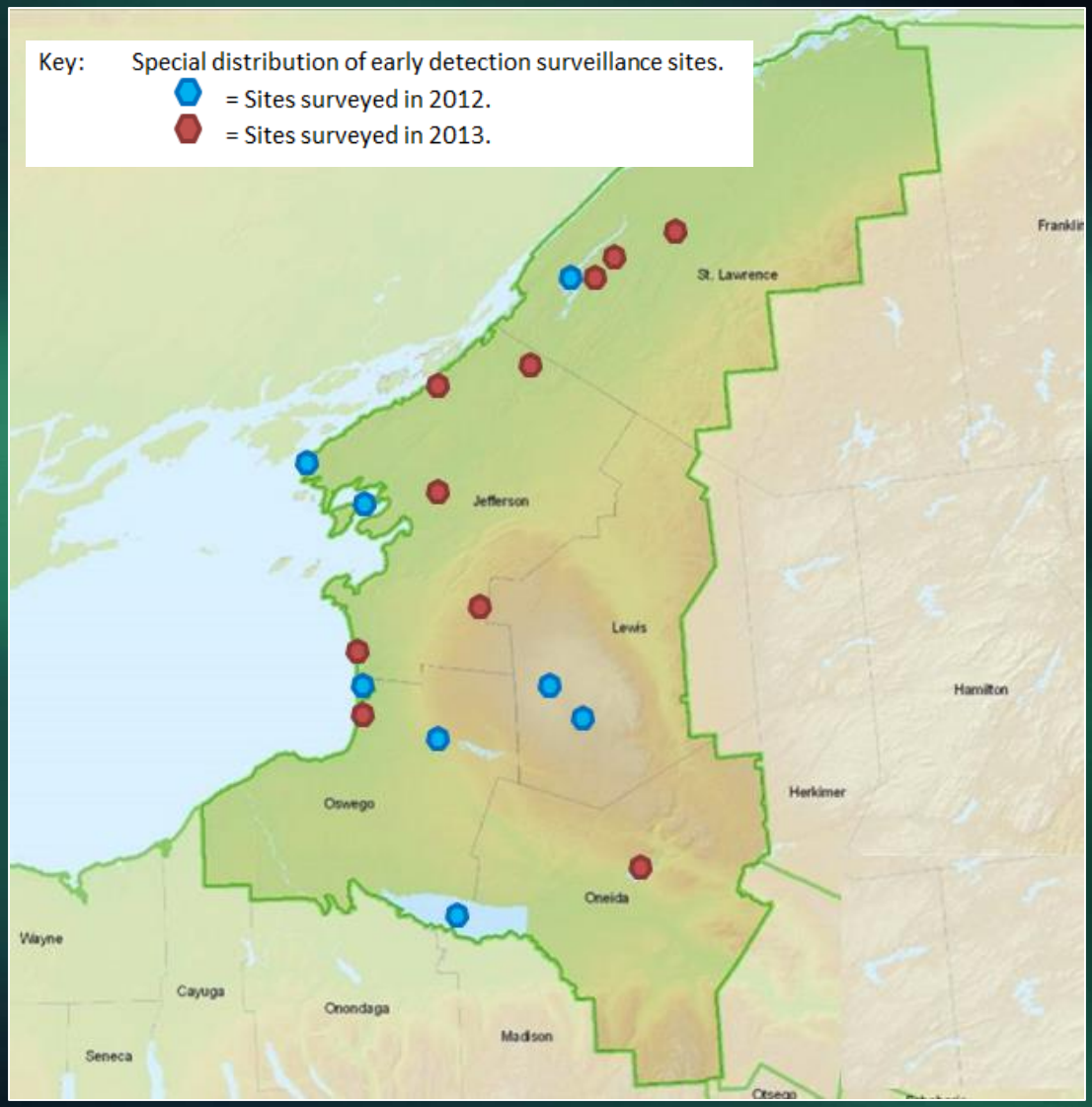
Early detection surveillance is the ability to detect new and recent invaders before they become established and cause harm.

As seasonal employees you will be conducting early detection surveillance.

Rapid Response is the capacity to eliminate all individuals within a specific area before they become established and cause harm.

We implement different types of responses using different resources. As seasonal employees you may get involved with level 1 or level 2 responses.

Priority Conservation Areas



You will be working only on priority sites scheduled for this season.

- **Lots of canoeing and hiking.**
- **Using GPS**
- **Preparing field reports.**
- **Having fun in the great outdoors.**

Highly Probable Areas, HPA's

HPA's are areas where there is an increased probability that an invasive species will be introduced.

Examples of Terrestrial HPA's

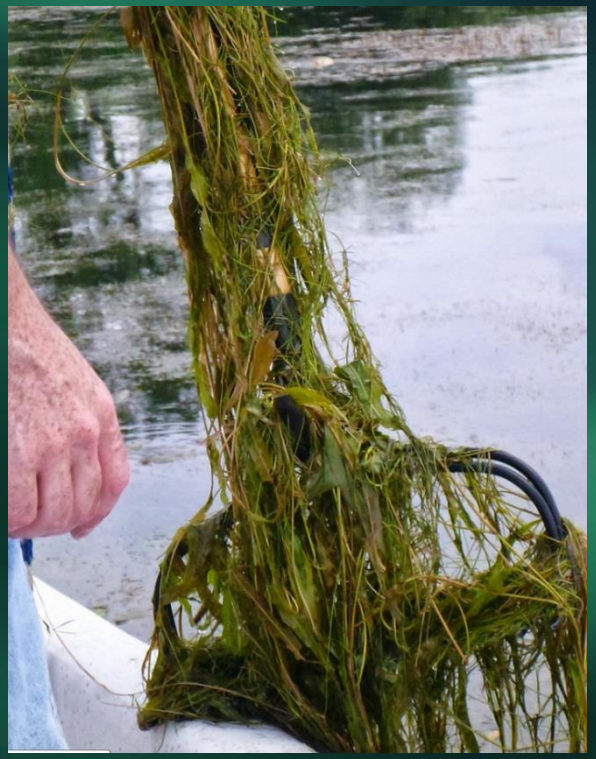
- Trailheads & trails.
- Parking areas.
- Logging staging areas.
- Campgrounds and campsites.
- Disturbed areas (land disturbance).
- Homogenous stands of trees (Ash or Hemlock).

Examples of Aquatic HPA's

- Public boat launch sites/areas.
- Public fishing access sites.
- Fishing hot spots.
- Marinas
- Quiet coves and shallow calm waters.

Methods

- Visual observations
  - Look closely for invasives within the HPA's.
- Macro photography
  - Our digital camera can take close-ups!
- Collect Samples
  - If unsure of what you have found - bring a sample back to the office
- Rake Toss Method (aquatic benthic sites)
  - Two tosses per site
  - One toss on each side of the boat/canoe.
  - See separate protocol sheet.



Plant Identification Resources

Aquatic & Terrestrial

- www.sleloinvasives.org
- https://gobotany.newenglandwild.org/
- www.bugwood.org

When in doubt….

- Take close-up, CLEAR photos of the plant and its parts, stem, leaves, flowers, etc.
- Take a “step-back” photo showing the population from various distances.
- Collect a Sample (if possible) bag it and bring it back to the office for a positive ID
- If it is an aquatic specimen use a zip-lock back with water or a jar to put the specimen in.

Before Setting Afield

Safety:

- ✓ Use the buddy system.
- ✓ Life jackets.
- ✓ First Aid Kits.
- ✓ Know where you are going and orient to the site and conditions.
- ✓ SPOTS (use on Tug Hill) – satellite transponders.

Tools:

- ✓ GPS
- ✓ Boots
- ✓ Camera/batteries
- ✓ Field guides & handbooks
- ✓ Pan & magnifier
- ✓ Cell phone & wet bag
- ✓ Field glasses
- ✓ Canoe/Paddles
- ✓ Note pad
- ✓ Lunch
- ✓ Water

GPS 101

Global Positioning System

- We have several to choose from each with varying degrees of complexity.
- We have teachers.
- Or feel free to use (*at your own risk*) the compass on your smart phone which includes latitude and longitude.

A typical day.....

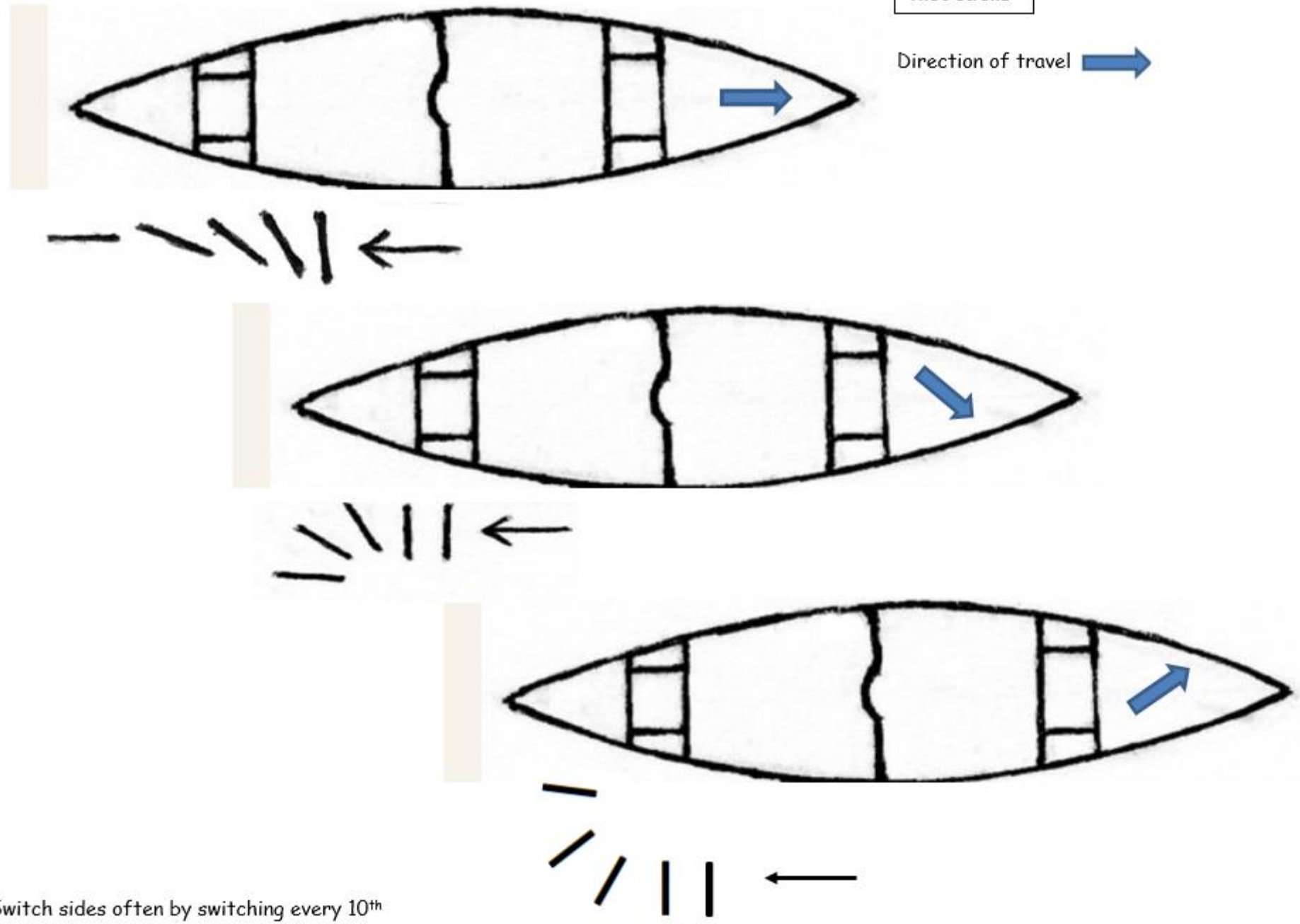
- Meet at the office.
- Plan your trip, HPA's etc.
- Pack your gear – don't forget your lunch & water!
- Secure canoe to vehicle.
- Go for a nice hike or canoe trip *(we want you to enjoy nature).*
- Record your observations.
- Head back to the office.

- *Prepare field reports after finishing each priority conservation area.*

Canoeing 101

The J-Stroke

Direction of travel



Switch sides often by switching every 10th stroke or when the driver says "switch"

Rainy Day Work

- Prepare Field Reports
- Enter data into master spreadsheet or iMap
- Prepare PowerPoint for partner meeting
- Clean & organize field equipment (sterilize canoes with 10% bleach)
- Plan your next PCA and identify HPA's

Decontaminating a canoe

Why decontaminate:
To prevent the spread of invasive species to other waterbodies.

When to decontaminate:
After leaving one waterbody with the expectation of traveling to another waterbody.

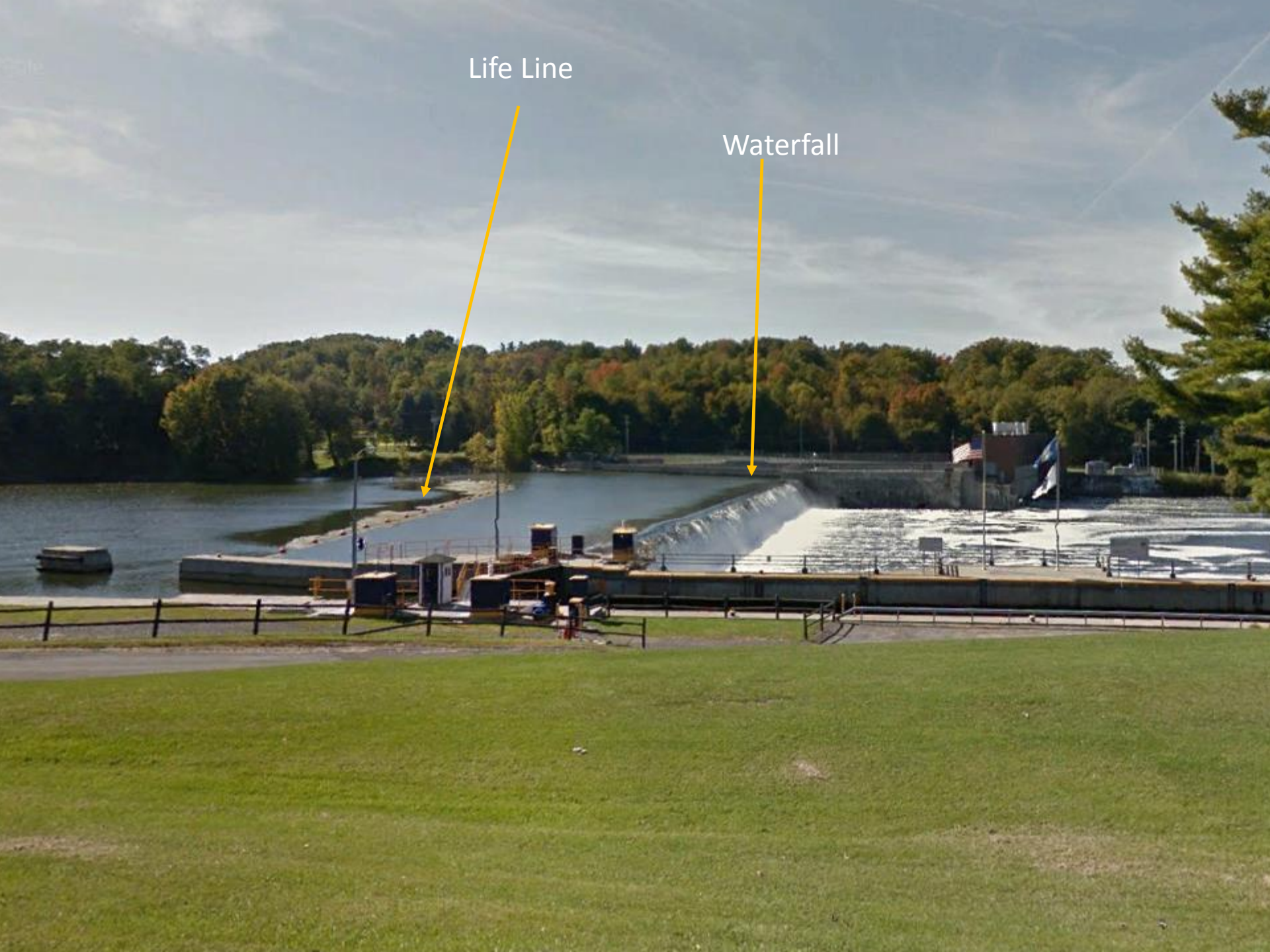
How to decontaminate:
Wash with 10% bleach solution – refer to separate handout.

SAFETY FIRST

- **Be prepared:**
  - **Wear your life jacket**
  - **Know your surroundings**
    - ✓ **Cliffs**
    - ✓ **Quick sand**
    - ✓ **Waterfalls**
    - ✓ **Bees nests**
  - **PPE (personal protective equipment)**
    - ✓ **Gloves, Inhalers, Epi-Pen, etc.**
  - **Dry Bags**
  - **First Aid Kits**
  - **Sunscreen**
  - **Bug Spray**
  - **Don’t take risks**
  - **Don’t fool around especially in canoes**
  - **Don’t panic**

Impoundments – Fish Creek / Kasoag Lake


Life line
Oswego River - Minnetto


Life Line
Waterfall

Emergency Contacts

SLELO PRISM Contacts:

SPOT	satellite transmitter (Tug Hill)
911	911
NNY F.O	315.387.3600
Rob	315.297.5634
Mary	315.427.1182

Water Cat Team Contacts:

911	911
Joe Chairvolotti – Cell	_____ ?
Joe's Office – 315.592.9663	

Open dialog.....