Invasive Plant Challenges in Northern New York- Education is the Key!

Sue Gwise
Cornell Cooperative Extension
Jefferson County

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

History

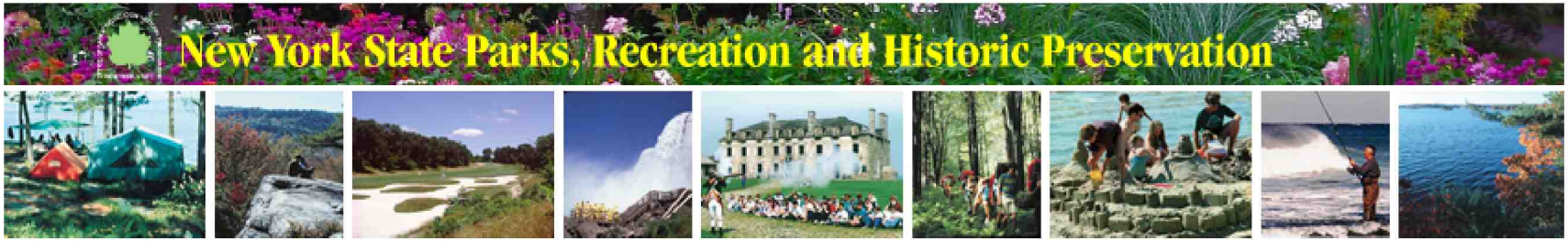
- SLELO-PRISM developed as a direct result of the pale swallow-wort infestation in western Jefferson County

SLELO-PRISM

- Formed January 2006- Began as a WMA
- Memorandum of Understanding
- Made up of Principal and Cooperating Partners
- Decisions made by consensus
- Includes Jefferson, Lewis, Oswego, Oneida and St. Lawrence Counties
- 2007-PRISMS mandated by NYS.

NRCS

Sea Grant
New York



MOUNTAIN

www.ducks.org

NYS SWCC

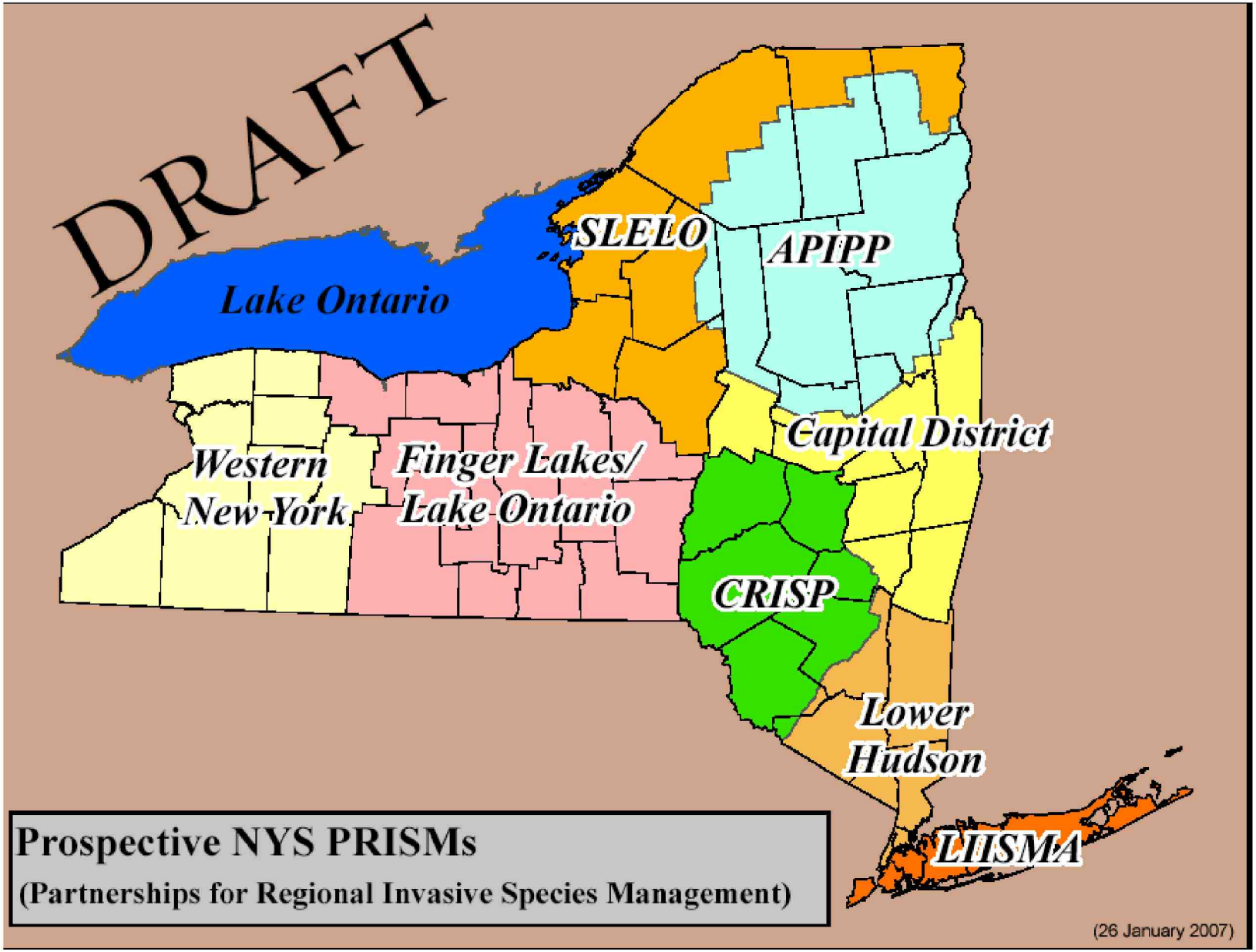
NYS Department of Environmental Conservation

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

New York State Department of Transportation

Cornell University
Cooperative Extension

LAKE BONAPARTE CONSERVATION CLUB



SLELO's Approach to Invasive Species Management through Education

Example: Swallow-wort

Education Strategies:

Raise public awareness

- Public meetings in affected areas
- Educational meetings offering DEC pesticide credits
- Brochures, handouts, educational materials
- Involve the press
- Web-based sites

"Spread the word, not the weeds."

St. Lawrence - Eastern Lake Ontario

SLELO

WMA

Weed Management Area

1st Edition - 2006

PURPOSE

The mission of the St. Lawrence – Eastern Lake Ontario Weed Management Area (SLELO WMA) is to protect the natural and cultural integrity of aquatic and terrestrial areas from invasive plants. SLELO WMA includes Jefferson, St. Lawrence, and Lewis counties outside of the Adirondack Park Blue Line.

WHAT IS AN INVASIVE PLANT?

The term "invasive plant" is used to describe plants that aggressively compete with, and displace, locally adapted native plants. Invasive plants can impact biodiversity, agriculture, recreation, and human health.

PARTNERSHIPS

SLELO WMA functions as a collaborative effort between principal and cooperating partners throughout the area. Some partners include:

- New York State Department of Environmental Conservation, Region 6
- New York State Office of Parks, Recreation and Historic Preservation, Albany Office and 1000 Islands Region
- New York State Department of Transportation, Region 7
- United States Department of Agriculture, Natural Resources Conservation Service
- Cornell Cooperative Extension of Jefferson, St. Lawrence, and Lewis counties
- The Nature Conservancy
- Ducks Unlimited
- Lake Bonaparte Conservation Club, Inc.
- Jefferson County Soil & Water Conservation District
- Fort Drum Military Installation

SLELO WMA partners share these goals:

PREVENTION – Prevent the introduction of invasive plants into the SLELO WMA.

EARLY DETECTION & RAPID RESPONSE – Rapidly detect new and recent invaders and eliminate all individuals within a specific area.

COOPERATION – Share resources, including funding personnel, equipment, information, and expertise.

INFORMATION MANAGEMENT – Collect, utilize, and share information regarding surveys, infestations, control methods, monitoring, and research.

CONTAINMENT – Contain established infestations to prevent invasive species from spreading.

SUPPRESSION – Reduce the density but not necessarily the total area of established infestations.

LARGE-SCALE CONTROL – Combine resources and methods to contain, suppress, or eradicate infestations.

BEST MANAGEMENT PRACTICES – Site specific management practices to reduce the introduction of invasive plants or control invasive plants once they are established.

INTEGRATED WEED MANAGEMENT (IWM) – A science-based management system that uses all suitable methods in a compatible manner to manage invasive plant populations.

RESTORATION – Develop and implement effective restoration methods for areas that have been degraded by invasive plants and where suppression or control has taken place.

EDUCATION – Increase public awareness and understanding of invasive plants and IWM.

SLELO WMA is concerned with all invasive plants, but is focusing on these five species:

BLACK & PALE SWALLOW-WORT (*Cynanchum louiseae & C. rossicum*)

Swallow-worts, also known as "Dog-strangling Vines," are perennial, twining vines growing up to 6 ½ ft. in length. Native to Eurasia, these species are adapted to a variety of habitats. Swallow-worts grow rapidly, and once established, can completely smother native vegetation. Swallow-worts are also known to be extremely toxic to livestock and monarch butterfly larvae. Related to milkweeds, their wind-dispersed seeds can spread over long distances.

GIANT HOGWEED (*Heracleum mantegazziamum*)

Giant hogweed is a toxic plant which, upon contact with the skin or eyes, causes painful blisters, UV sensitivity, and/or blindness. It is a noxious herbaceous biennial or perennial that grows up to 15 feet tall. Although often found in open fields and along roadsides, it has been recently observed along streams in natural areas. Giant Hogweed is native to central and southwest Asia.

PURPLE LOOSESTRIFE (*Lythrum salicaria*)

Purple loosestrife is an herbaceous perennial wetland plant native to Eurasia. Because of its perceived beauty, this plant was, and continues to be sold in the nursery trade. A prolific seed producer, an individual mature plant may produce up to 1 million seeds in a season. It forms homogeneous stands outcompeting and replacing native wetland plants which provide wildlife habitat.

EUROPEAN FROGBIT (*Hydrocharis morsus-ranae*)

European Frogbit is an herbaceous aquatic plant native to Eurasia. Frogbit does not root in the substrate and can quickly form dense floating mats in wetlands and other slow moving water systems. Like Eurasian water milfoil, frogbit can reduce the growth of native submersed aquatic plants and has the potential to impact recreation.

JAPANESE KNOTWEED (*Polygonum cuspidatum*)

Japanese knotweed is a perennial herb with bamboo-like stems. It typically grows in thickets 3-6 feet tall, but can grow up to 15 feet tall. As the name implies, it is native to Asia. It thrives in disturbed areas, however, once established, it spreads rapidly creating monocultures. Japanese knotweed threatens natural areas by changing the habitat, shading out native vegetation, reducing species diversity and impacting wildlife habitat.

To learn more about invasive plants and control methods, check these web sites:

St. Lawrence-Eastern Lake Ontario Weed Management Area
http://media.cce.cornell.edu/hosts/counties/jefferson/

Adirondack Park Invasive Plant Program
www.adkinvasives.com

Invasive Plant Council of New York State
www.ipcnys.ene.com

The Nature Conservancy Global Invasive Species Initiative
http://tncweeds.ucdavis.edu/

National Invasive Species Council
www.invasivespeciesinfo.gov

U.S. National Park Service Alien Plant Invaders of Natural Areas
www.nps.gov/plants/alien/factmain.htm

FOR MORE INFORMATION or REPORT A SIGHTING CONTACT:

Jefferson County
315-788-8450

Lewis County
315-376-5270

St. Lawrence County
315-379-9192

Cornell University
Cooperative Extension

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SLELO's approach…

How much do we have and where is it?

- Land surveys
- Use of GPS
- Mapping
- Inventory form
- Accomplished via grant funding and volunteers, TNC and other organziations.

Town of Henderson Survey

- Summer 2005, two interns
- Scouted for swallow-wort
- Pinpointed populations with GPS equipment
- All affected property owners were contacted
- A "fireline" was established and this survey was followed up in 2006 with targeted herbicide applications by TNC.
- In 2007 and 2008 additional surveying and spraying were done by TNC

Invasive Plant Inventory Form

- **Invasive Plant Inventory Form**
- **Invasive Plant Species: _____ Inventory Date: _____**
- **Observer's Name: _____ Phone # _____**
- **Observer's Email Address: _____**
- **Site Location** (directions & sketch map on back of form)**: _____**
- _____
- **County: _____ Town: _____**
- **GPS: UTM NAD 83 / Zone 18 N N: _____ E: _____**
- **Property Owner _____ Private _____ State Site Name _____**
- **Property Contact Person** (e.g.: landowner) **& Phone #** (if needed)**: _____**
- _____
- **Location Type:**
- **___Roadside ___Backcountry ___Yard/Garden ___Logging Road ___Farm field ____ Other**
- **Habitat:**
- **___River ___Lake/Pond ___Wetland ___Forest/Upland ___Cultural**
- **Infested Area (Square Footage):_____**
- **Abundance (# of Plants):**
- **___Single Plant ___< 20 ___20-99 ___100-999 ___More than 1000**
- **Condition of Invasiveness (Distribution of Plants):**
- **___Spotty ___Light ___Dense ___Dense Pockets (Multiple Patches)**
- **Percent Cover:**
- **___ (<1%) ___ (1-5%) ___ (6-25%) ___ (26-50%) ___ (51-75%) ___ (76-100%)**
- **Site Description / Condition** (must sketch map on back of form):
- _____
- _____
- _____
- **Photos ___ Yes ___ No**
- **Please include any photos along with description with completed form**

SLELO's Approach...

The Future

- Continue education/public awareness efforts
- Full time coordinator for the SLELO region
- Development of a data base
- Develop BMP's
- Establish early detection/rapid response teams
- In-depth research

The Invasive Plant Traveling Road Show:

What is the Difference?

- Native Species- Species indigenous to the area at the time of European settlement
- Non-Native Species (exotic, introduced, alien)- Accidental or purposeful introduction of a species outside its historic range
- Naturalized Species- Non-native species that have adapted and have become common in the environment, but are not invasive; Lilacs, Queen Anne's Lace
- Invasive Species- Species that rapidly reproduce and displace native species causing harm
- Noxious Species- Can be native or non-native, cause harm to humans or animals; poison ivy
- Nuisance Species- Species that interfere with human activities (weeds)

What makes a plant invasive?

- Habitat generalists; invade a wide range of sites
- Early germination; leaf out before native plants
- Out compete native plants through shade and nutrient competition
- Non-native, few natural predators
- Thorns and toxins
- Reproduce via seeds or vegetatively
- High reproductive output
- Long flowering and fruiting periods
- Pollination by wind or generalist pollinators
- Long distance seed dispersal; wind
- Store food in roots and rhizomes
- Tend to form large monotypic stands

Keys to Success…

- Education
- Prevention
- Early detection
- Rapid response
- Report infestations

Swallow-wort

- Herbaceous perennial vine
- Member of the milkweed family
- Dies back to crown at end of season
- Leaves dark green, opposite in arrangement, tapered to a point

Flowers

- Inconspicuous
- In clusters
- In leaf axils
- Purple-black
- 5-lobed corolla
- Late-May to mid-July

Fruit

- Pods- similar to milkweed, filled with seeds

Leaves, Pods, Vines

Root Crown

Habitat

- This is not a turf weed!
- Recently cleared areas
- Conservation habitats
- Old pasture
- Fencerows
- Prefers calcareous (limestone) soils

Problems

- Chokes out native vegetation
- Will grow in sun or shade
- Climbs 3-6’ in shady areas
- Will grow anywhere except in standing water
- Seeds are wind dispersed 1meter^2 = 2090 seeds
- Seeds are polyembryonic
- Seed bank 5 years +
- Entire crown must be removed for control
- Deer will not eat it, toxic substance in leaves
- No natural enemies
- Monarch butterflies
- Problem in perennial crops

Swallow-wort and standing water…

Polyembryonic Seeds

Seed Pods

Jefferson County…

- Began showing up in mid-1990's
- Chaumont Barrens (Alvar habitat)
- Clayton, Dexter, Galloo Island, Grenadier Island, Lafargeville, Pillar Point, Point Penninsula, Stony Point, Theresa

Stony Point

- 1995 – Not present on a 500 A horse farm
- 1997 – Began to show up
- 2001 – No hope

Grenadier Island

Thirty hectare, mono-specific stand

(74 acres)

Swallow-wort Control

Small infestations:

1) Remove entire crown and destroy
2) Remove and destroy pods
3) Cut stem application of herbicide
4) Repeat several times during the season

Large infestations:

1) Herbicides, late June to mid-July, timing is essential!
2) Mow to prevent seed production
3) Repeat one to two times each season

* Stay out of the area during seed dispersal!

Sugar Producers…

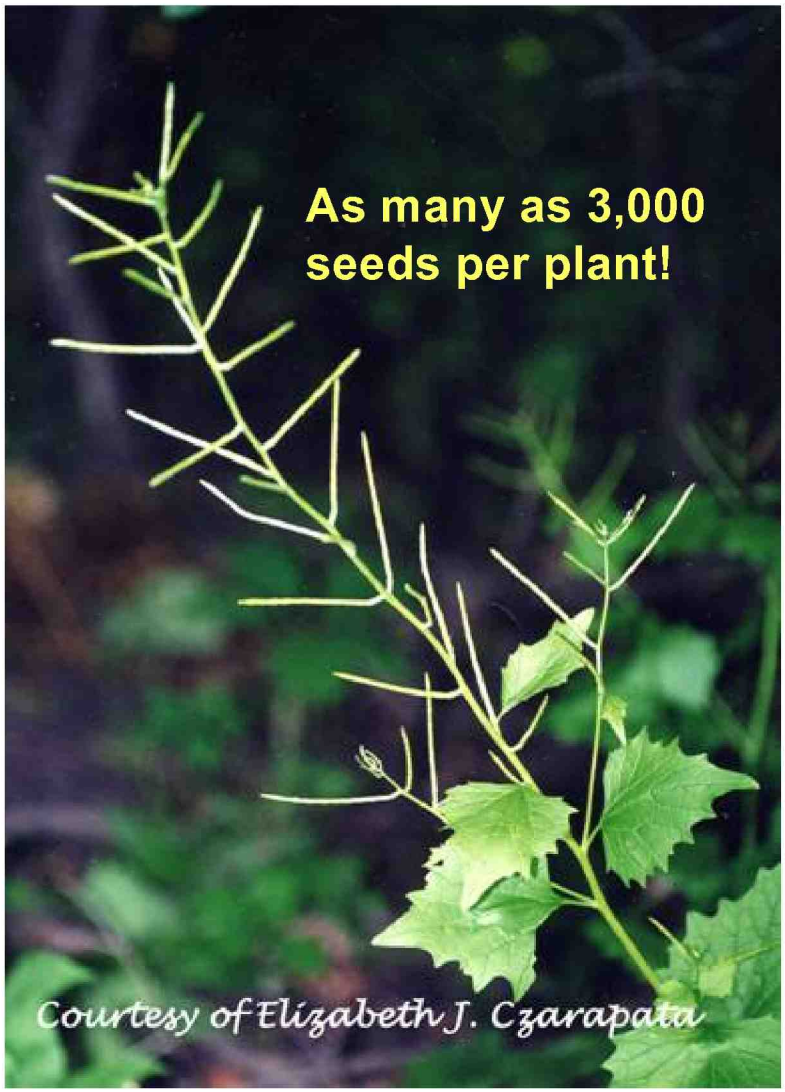
- Interferes with regeneration
- Allelopathic properties
- Scout the sugarbush and adjacent areas for swallow-wort
- Remove any infestations immediately

Garlic Mustard

- Deciduous forests, disturbed areas
- Shady, moist areas
- Grows rapidly in spring, before native understory species
- Releases phytotoxins into soil
- Prolific seed producer
- Will not tolerate acid soils
- Biennial

First year…

Second year…



Garlic Mustard Control

- Pull or cut plants in late spring when flowers are in bloom. Repeat yearly; seeds are viable for up to five years
- Pull smaller plants removing as many roots as possible

Japanese Knotweed

- Bamboo-like, hollow stems
- Sunny areas, wetlands, disturbed areas
- Spreads along stream beds and riverbanks
- Emerges early
- Shades out native plants
- Forms dense stands
- Reproduces by rhizomes (up to 60 feet)

Japanese knotweed (*Polygonum cuspidatum*)

Leaves are alternate

~6” long,
3 to 4” wide

Japanese knotweed (*Polygonum cuspidatum*)

Stems are visible all year long

Japanese Knotweed Control

- Cut at least twice per month between April and August
- Cover small areas with a weighted tarp
- Revegitate area with native plants
- Dig out small plants- be careful to remove all rhizome fragments! Do not till up!

Giant Hogweed

- Noxious plant
- Causes severe phytophotodermatitis
- Moist, disturbed areas
- Perennial herb, carrot family
- Prolific seed production, rapid growth

Flat-topped flower umbel can be up to 2 _ feet across!

Can be 8-14 feet tall

This is a VERY LARGE plant!

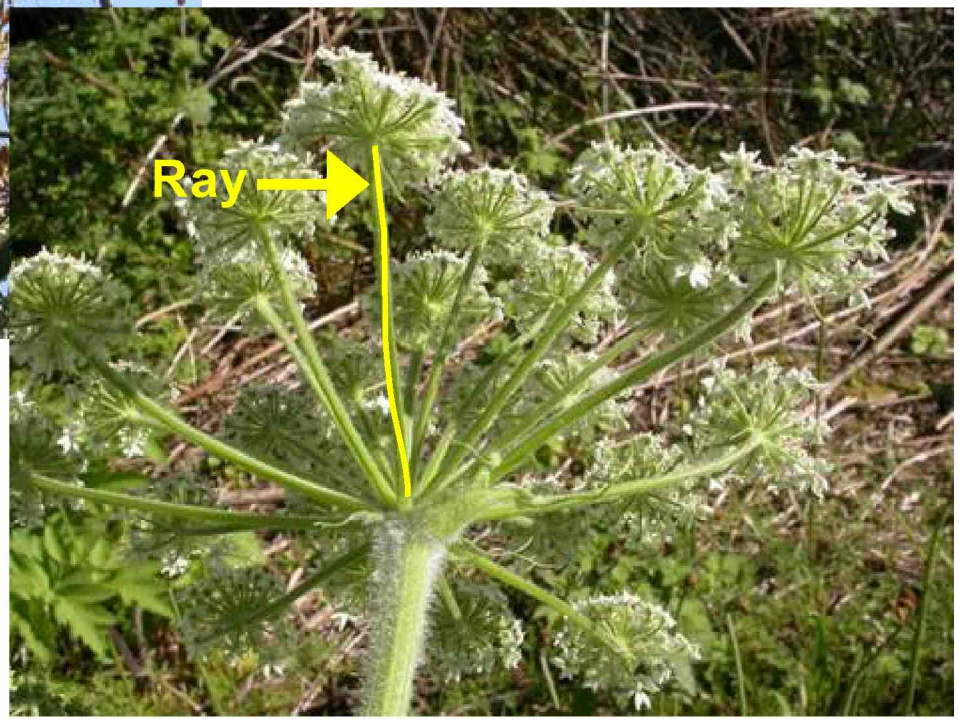
HUGE deeply incised leaves- up to 5 feet across

Giant Hogweed (*Heracleum mantegazzianum*)

Giant Hogweed has both purple blotches & coarse hairs

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

Giant Hogweed:
50 or more rays per umbel



Cow Parsnip:
15-30 rays per umbel

Huge Flower…

Plant most often mistaken for Giant Hogweed

COW PARSNIP			
			
HEIGHT 5 to 8 feet	**STEM** 1 to 2 inch diameter Deeply ridged, green to slightly purple, fine hairs, fuzzy	**LEAF** Compound, less incised, 2 to 2 1/2 feet across, fuzzy hairs	**FLOWER** Whitish flower clusters no larger than 1 foot across

Native plant- may cause skin irritation

NYSG Invasive Species Factsheet Series: 06-2

Plant often mistaken for Giant Hogweed

WILD PARSNIP			
			
HEIGHT Up to 5 feet	**STEM** Yellowish-green with verticle grooves running full length	**LEAF** Compound, pinnate, 5 to 15 toothed, variably lobed, yellowish-green	**FLOWER** Single flower stalk with flat-topped umbel of clustered yellow flowers

DO NOT touch this plant

**Exotic plant-
can also cause
serious skin irritation**

NYSG Invasive Species Factsheet Series: 06-2

Angelica

Giant Hogweed Control

- Early application of glyphosate (non-selective) during the bud stage and the period of active growth
- Apply triclopyr to entire surface of leaves and stems during periods of active growth. Numerous applications will be necessary to kill the root stalk
- Constant mowing; dig out plants- avoid skin contact!!!

Purple Loosestrife

- Square stem
- Moist environments
- Aggressive invader of wetlands and marshes
- Forms dense monocultures
- A mature plant can produce 2 million seeds annually

Purple Loosestrife Control

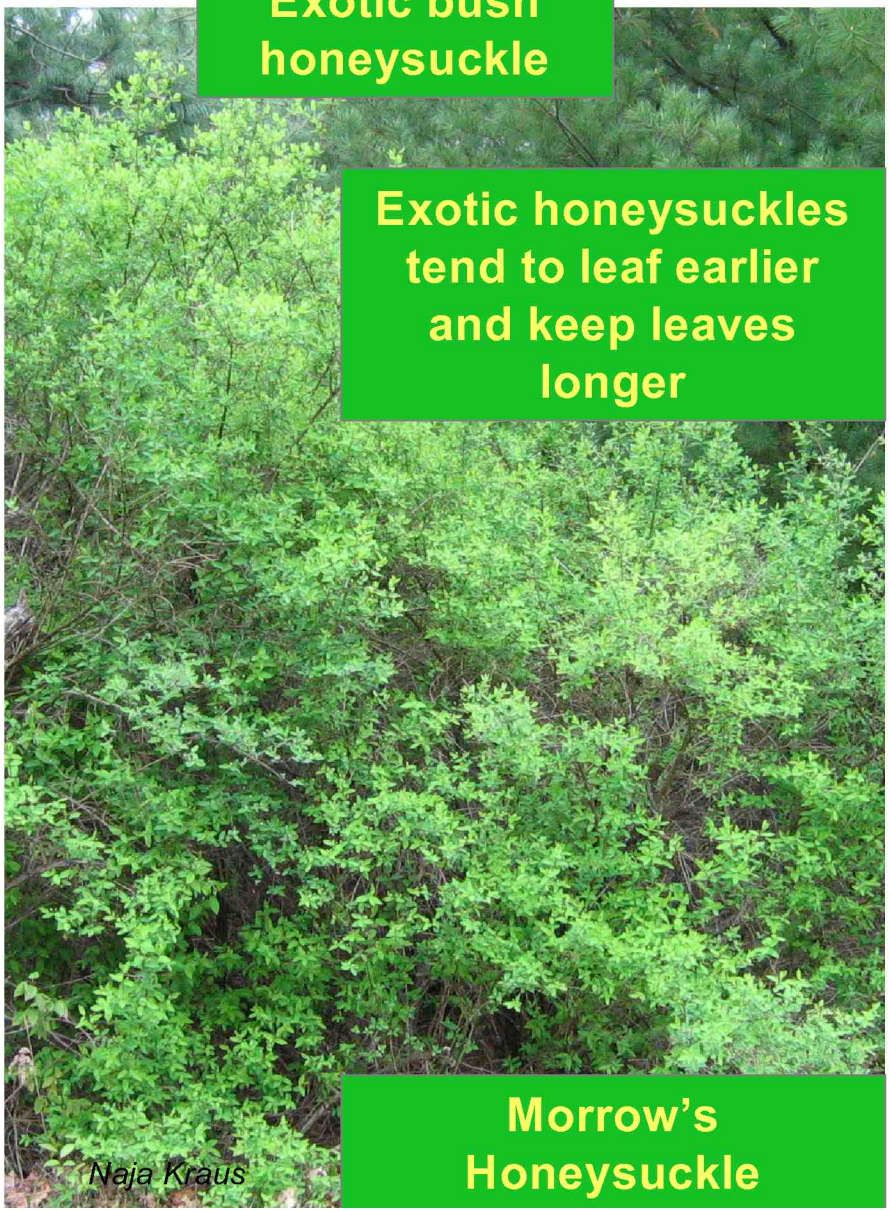
- Biological control- *Galerucella* beetles
- Pull, dig or cut plants in July and August (before seed heads develop!)
- Do not purchase!

Exotic Bush Honeysuckles

- Open, disturbed areas, forest edges
- Berries low in fat- do not sustain migrating birds
- Forms dense layers
- May release phytotoxins

1. Shape

Exotic bush honeysuckle



Exotic honeysuckles tend to leaf earlier and keep leaves longer

Naja Kraus

Morrow's Honeysuckle

Native bush honeysuckle

Naja Kraus

American Fly Honeysuckle *(Lonicera canadensis)*

Honeysuckles (*Lonicera* sp.)

Exotic bush honeysuckle

2. Pith

Native bush honeysuckle

3. Fruit

Fruit of native honeysuckles are blue or black.

4. Flower

Exotic bush honeysuckle

Fly Honeysuckle
(Lonicera x bella)

Tatarian Honeysuckle
(Lonicera tartarica)

Native bush honeysuckle

American Fly Honeysuckle
(Lonicera canadensis)

Honeysuckle Control

- Triclopyr cut stem applications
- Brush-hogging
- Repeated mowing

Buckthorn (common and glossy)

- Pastures, roadsides, woodland edges and openings
- Sunny areas
- Thicket forming
- Fruit eaten and spread by wildlife
- Control- Cutting, mowing, cut-stem herbicide applications

Invasive plants that are still sold at nurseries…

- Multiflora Rose
- Norway Maple
- Russian and Autumn Olive
- Japanese Barberry
- Burning Bush
- Oriental Bittersweet
- Japanese Honeysuckle
- Black Locust
- Ailanthus (Tree of Heaven)