Invasive Species in Prince Edward County

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NATURE CONSERVANCY CANADA

Outline

- NCC in Prince Edward County
- Invasive Species
  - Zebra Mussels
  - Garlic Mustard
  - Dog Strangling-vine
  - Wild Parsnip
  - Flowering Rush
  - Silvergrass
  - Phragmites
- Invasive Species Control Decision Making
  - Example
- Invasive Species Reporting
- What can YOU do?

Nature Conservancy of Canada

- The Nature Conservancy of Canada (NCC) leads and inspires everyone to join us in creating a legacy for future generations by conserving important natural areas and biological diversity across all regions of Canada.
- Our conservation impact since 1962, includes 14,000,000 hectares of land protected directly and with partners which includes land for 231 species at risk.
- Today, NCC has helped to protect more than 83,000 hectares in Ontario. From the north shore of Lake Superior to Pelee Island in Lake Erie to the south shore of Prince Edward County, NCC works to protect the province's most significant natural landscapes.

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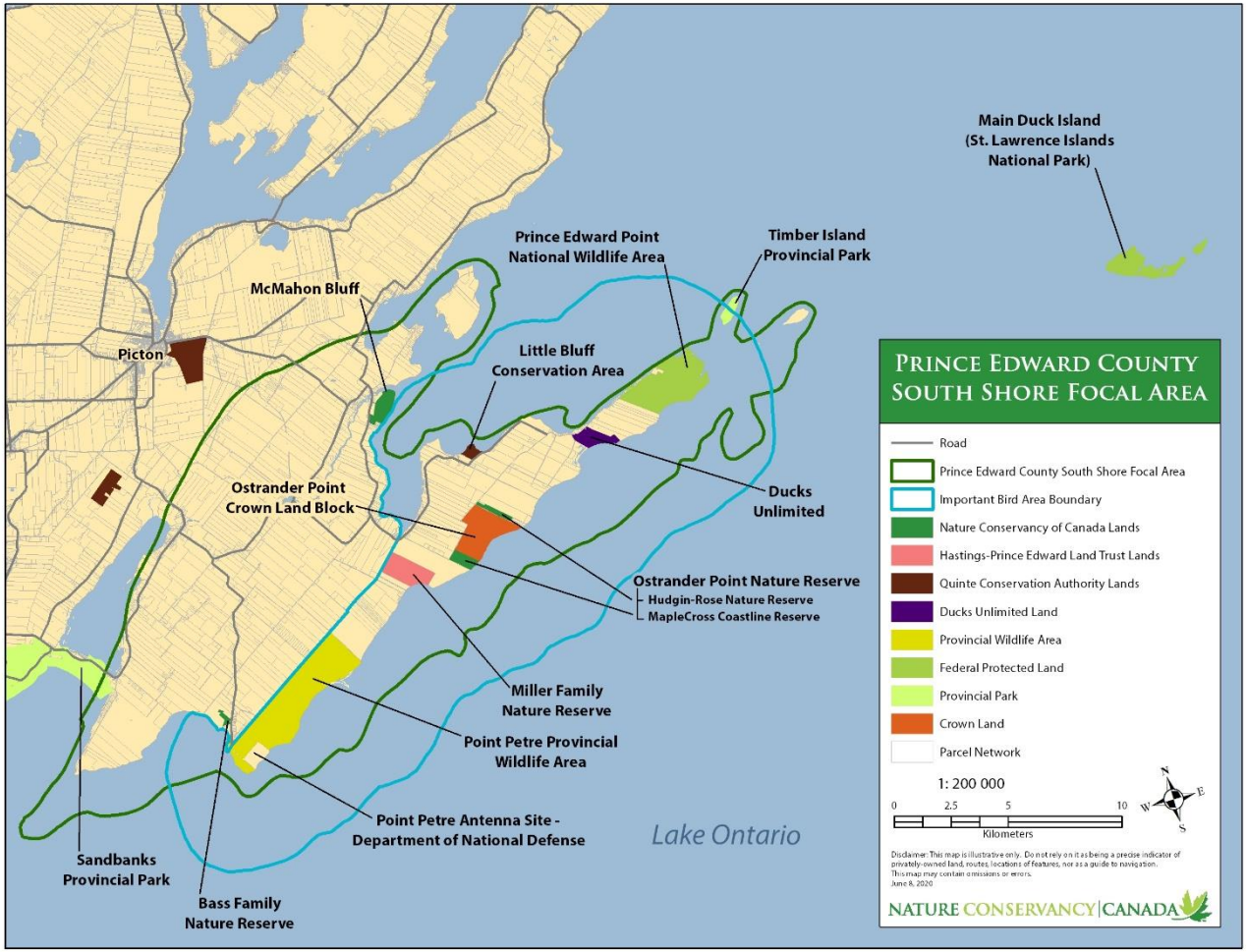
NCC in Prince Edward County

- Late 1970's NCC acquired Main Duck Island; transferred to Parks Canada
- In 2012, NCC assisted Hastings Prince Edward Land Trust with the acquisition of the Miller Family Nature Reserve
- In 2018, NCC purchased the Hudgin-Rose property (east side of Ostrander Point Crown Land)
- In 2019, NCC purchased the MapleCross Coastline Reserve property (west side of Ostrander Point Crown Land)
- In 2020, NCC purchased the Bass Family Nature Reserve
- In late 2020, the McMahon Bluff property was donated to NCC by Mike Wilson

NCC in Prince Edward County



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Biodiversity in Prince Edward County

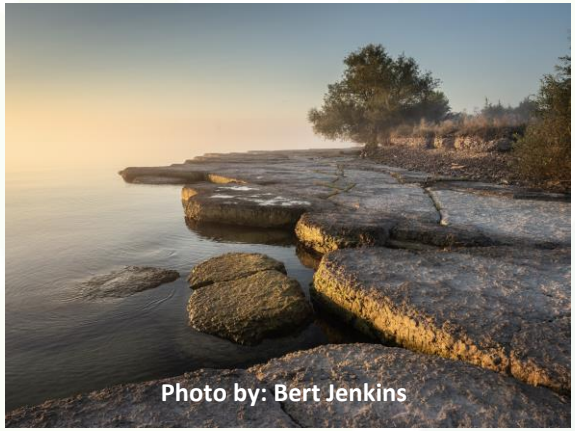
Photo by: Bert Jenkins


Photo by: Dave Coulson for NCC


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Biodiversity in Prince Edward County

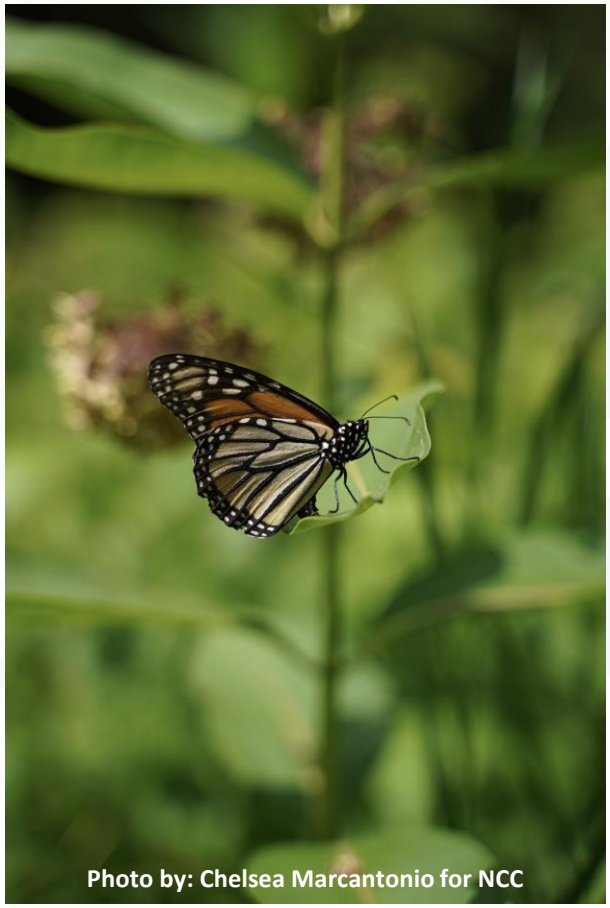
Photo by: Chelsea Marcantonio for NCC


Photo by: NCC


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Invasive Species

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Invasive Species

- Invasive Species are defined as "non-native species, whose introduction or spread negatively impacts native biodiversity, the economy and/or society, including human health" (Canadian Council on Invasive Species).
- Non-native species refers to any plants, animals and microorganisms that have been accidentally or deliberately introduced into areas beyond their normal range (Canadian Council on Invasive Species).
- Also called "alien", "introduced" or "exotic" species.
- Not all non-native species are invasive.
- Plants, Fish, Invertebrates, Fungi, etc.

Invasive Species

- Reduce crop yield & crop value
- Endanger livestock
- Reduce forest regeneration
- Change soil chemistry
- Reduce food/habitat for wildlife
- Reduce native plant diversity
- Human health issues

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Invasive Species in Ontario - $

- Total estimated expenditures by municipalities and conservation authorities across Ontario: $50.8 MILLION/YEAR (Invasive Species Centre)
- The potential economic impacts on agriculture, fisheries, forests, healthcare, tourism and the recreation industry are estimated to be approximately $3.6 billion/year in Ontario (Invasive Species Centre)

ESTIMATED EXPENDITURES ON INVASIVE SPECIES BY ONTARIO MUNICIPALITIES & CONSERVATION AUTHORITIES – see invasivespeciescentre.ca

Zebra Mussels

- "Classic" example of an invasive species
- Freshwater bivalves
- Native to Black Sea area
- Arrived in ballast water
- Found in all Great Lakes

Impacts

- Water filtration
- Decreases available food
- Increased vegetation growth
- Increased toxic algal blooms
- Issue for recreation

Focus on stopping the spread, drain/clean/dry and reporting new sightings

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BEST MANAGEMENT PRACTICES

Newly Published Best Management Practices (2020):

We have recently published 5 BRAND NEW BMP documents, including an updated document on Invasive Phragmites. You can find these new BMPs below.


Invasive Phragmites 2020


Eurasian Water-Milfoil


European Frog-Bit


Flowering Rush


White Mulberry

Best Management Practices Series

In recent years we have developed Best Management Practices (BMPs) guides for more than 15 different invasive plants in Ontario. Our BMPs provide you with a detailed background history of the plant, how to identify it and how to properly manage it.

The series promotes the use of integrated pest management to achieve effective control. Our BMPs are developed with the expert assistance of our Board of Directors, committees and broader network of invasive plant experts from across Ontario and beyond. Our BMPs are updated on a regular basis, so check here for the most current edition, in alphabetical order:




- Resources
- For Municipalities
  - Invasive Plant Management Strategy Framework
- For Teachers
- Best Management Practices
- Fact Sheets & Postcards
- Grow Me Instead
- Technical Documents
  - Landowner's Guides
  - Phragmites Site Prioritization Tool
  - Quick Reference Guides
  - Compendiums

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Dog Strangling-vine

- Introduced in late 1800's
- Native to east Europe
- Perennial
- Opposite, smooth leaves, biggest in middle
- Vary in colour
- Red star-shaped flowers
- Seeds dispersed by wind
- Wide range of habitats; limestone

Dog Strangling-vine

Impacts

- Impact native (and rare) plants
  - Creates heavy shade
  - Allelopathic
- Decrease habitat for species
- Impacts on Monarchs
- Suppress tree growth
- May be toxic to livestock
- Recreation

Dog Strangling-vine

Control Measures

- Digging
- Mowing
- Clipping
- Tarping
- Pulling
- Seedpod Removal
- Chemical

- **Disposal:** bag in black plastic, leave in sun for up to 3 weeks

Control Considerations

- Consider density of infested area
- Size of infested area
- Point in lifecycle
- Surrounding plants

NATURE CONSERVANCY CANADA

Garlic Mustard

- Native to Europe
- Biennial; overwinters as a rosette
- Leaves remain green through winter
- Shallow roots
- Scented


Photo by: Peter Nitzsche


Photo by: EDRR Network

- Spreads only by seed (up to 105,000 seeds/m^2)
- Variety of Habitat; disturbed sites
- Advance/retreat growth pattern


Photo by: NCC

Garlic Mustard

Impacts

- Displace native species
  - Allelopathic
  - Quick growing
  - Early
- Viral host
- Livestock

Garlic Mustard

Control Measures

- Pulling
- Cutting
- Mowing
- Clipping Flower Heads
- Chemical
- Biological
- Controlled Burns

Disposal: bag in black plastic, leave in sun at least one week

Control Considerations

- Density of infested area
- Size of infested area
- Point in lifecycle
- Surrounding plants

Wild Parsnip

- Native to Europe & Asia (early 1600's)
- Introduced as crop
- Short-lived perennial
- 0.5 to 1.5m
- Hollow stem with deep grooves
- Large leaves with saw tooth edges
- Flat-topped yellow flower cluster
- Disturbed areas

Wild Parsnip

Impacts

- Outcompetes native vegetation (including pollinator plants)
  - Lifecycle
  - Height
- Reduce forage quality
- Health risks to human

Wild Parsnip

Control

- Mowing
- Tilling
- Tarping
- Pulling
- Burning
- Chemical

Disposal do not burn; do not compost; leave in place or bag in black plastic and leave in sun for 1 week

Control Considerations

- Density of infested area
- Size of infested area
- Population characteristics
- Purpose of control
- Timing
- Location
- Safety

Flowering Rush

- Arrived by 1900 via packing material, ballast water and/or horticultural escape
- Perennial
- Emergent/Submergent; prefers fluctuating water levels
- Leaves are triangular
- Rigid vs. ’elastic’ leaves
- Flowers June to September
- Umbrella-shaped umbels with white to pinkish flowers
- Two reproductive types (determines how it can spread)

Photo by: Derek Stone, Riverwood Conservancy

Richard A. Howard Image Collection, Courtesy of Smthsonian Institution

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Flowering Rush

Impacts

- Displace native vegetation
- Reduce biodiversity
- Form dense mats and fill in littoral zones
- Alter fish habitat
- Change water temperature
- Clog drainage ditches

Flowering Rush

Control

- Cut and drown
- Cutting seed heads
- Digging

Disposal: dry land, above the high-water mark

Control Considerations

- Density of infested area
- Size of infested area
- Level of disturbance
- Population characteristics
- Purpose of control
- Timing
- Safety

Silvergrass

- Miscanthus genus (~10 species)
- Native to Asia
- Introduced as an ornamental
- Tall perennial grass
- Distinct silver-white panicles
- Spikelets lack awn
- Flowers in late summer
- Spreads vegetatively via rhizomes

Silvergrass

Impacts

- Outcompetes native vegetation
  - Aggressive vegetative growth
  - Forms dense mats
- Invades shorelines
- Potential biofuel and biomass crop

Silvergrass

Control

- Digging
- Repeated mowing
- Chemical

Control Considerations

- Density of invasion
- Size of invasion
- Level of disturbance
- Re-invasion risk
- Population size
- Wetness
- Local SAR

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Common Reed

Identifying Invasive Phragmites.
Photo courtesy of J.M. Gilbert, MNR.

"Canada's **worst** invasive plant"

Agriculture & Agrifood Canada, 2005

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Common Reed

- Native to Eurasia
- Introduced in 1800's via packing material
- Widespread
- Up to 5m tall; hollow stem
- Multiple methods of spread
- Leaves flat, alternate and at 45 degrees
- Dense, fluffy seed heads later in season
- Belowground biomass

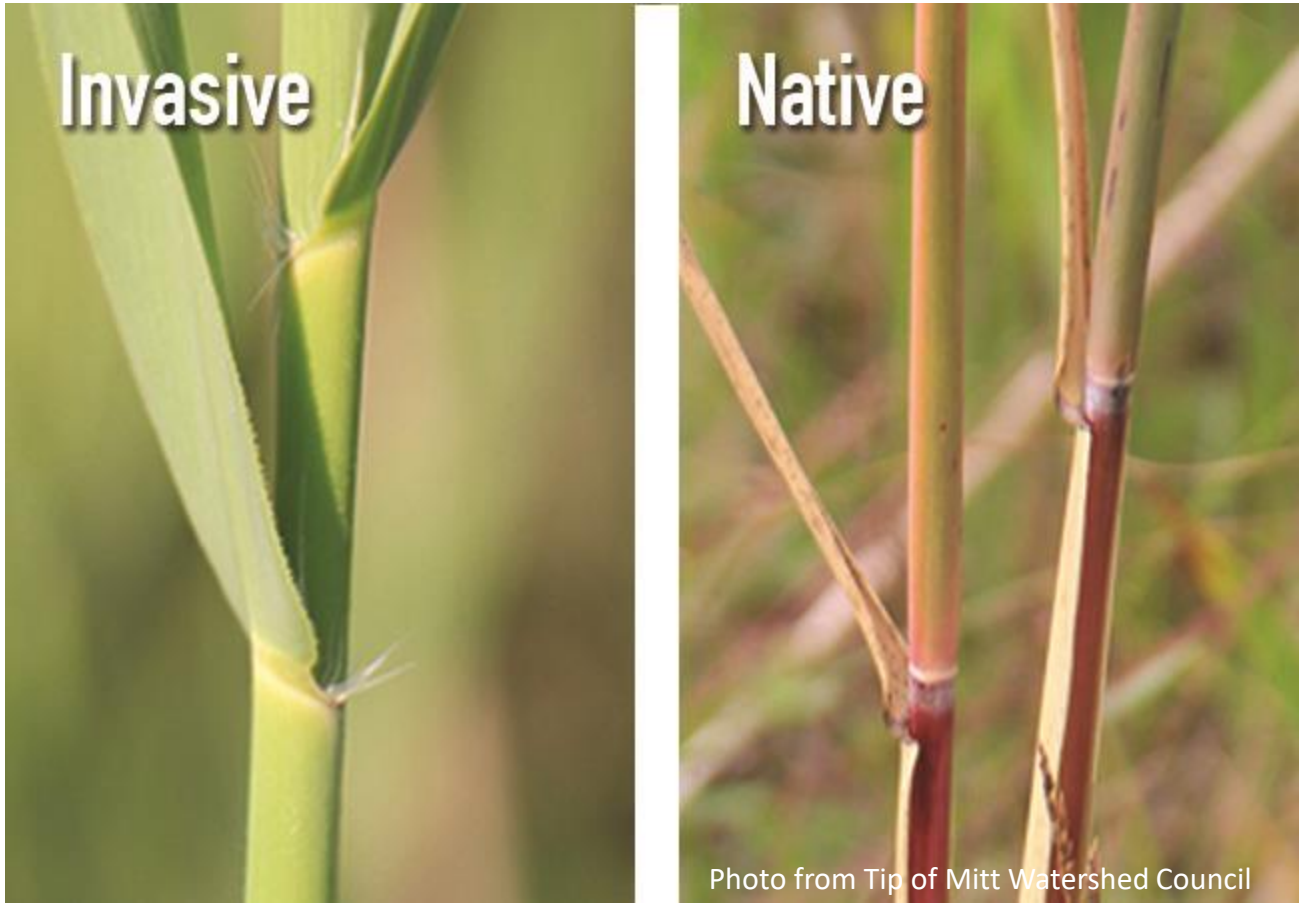
Native vs. Invasive Phragmites

Native Phragmites	Invasive Phragmites
Leaf sheaths drop easily	Leaf sheaths adhere tightly
Mixed into communities	Monoculture
Smooth, shiny stem	Rough, dull stem
Stem reddish/purple	Duller green/brown stem
Lighter yellow foliage	Darker green-blue foliage
Ligules, glumes longer	Ligules, glumes shorter
Sparse flower/seed heads	Dense flower/seed heads
Flexible stem	Rigid stem
Not aggressive	Spreads aggressively

Common Reed

Photo from Canadian Freshwater Alliance

Common Reed



Common Reed

Impacts

- Habitat and biodiversity loss
- Hydrology changes
- Physical/structural damage
- Fire hazard
- Impair sightlines
- Construction complications
- Loss of productivity
- Blocks access to important areas

Common Reed

Control

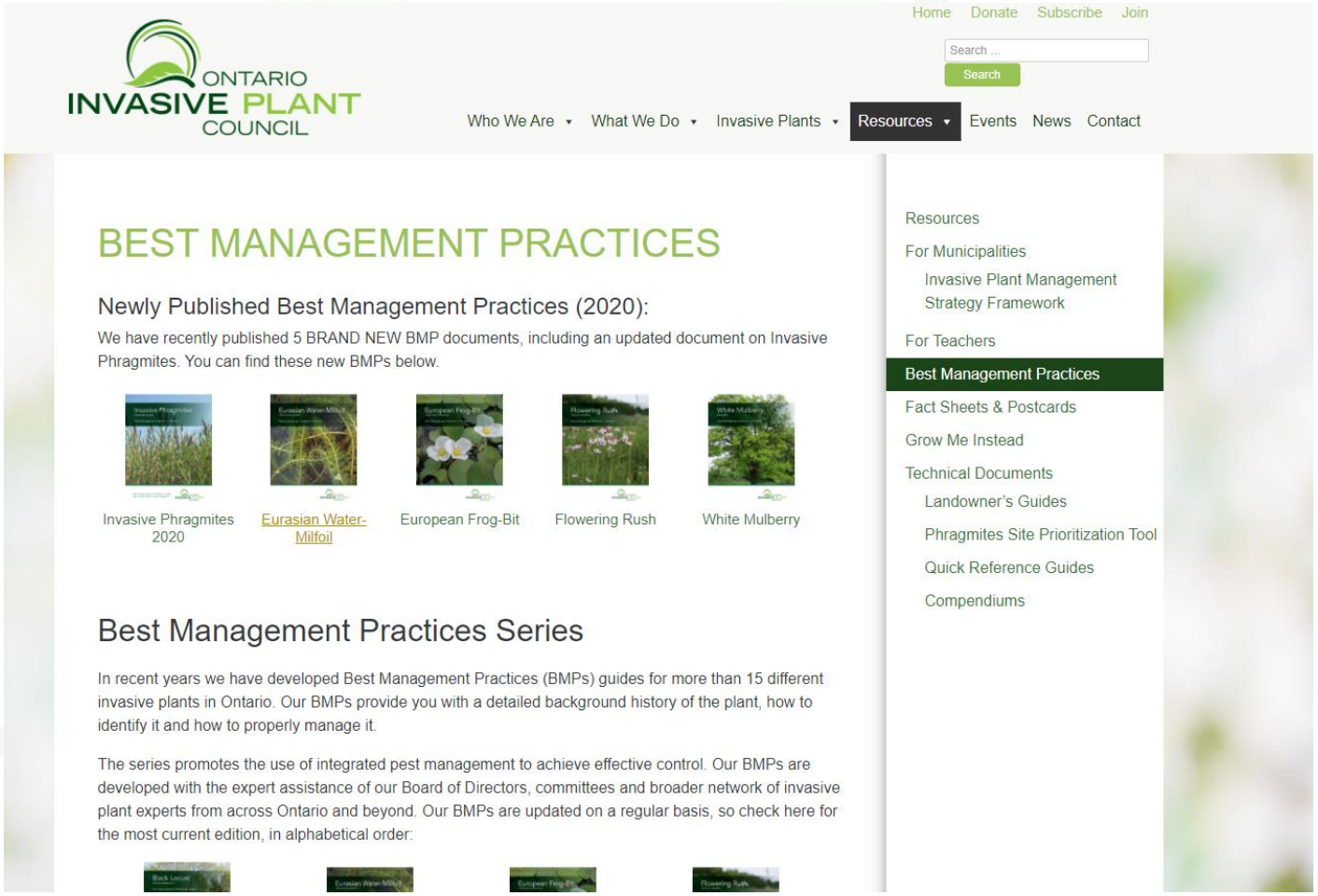
- Selective cutting/spading
- Chemical
- Flooding
- Selective cutting/spading in water
- Mulching
- Prescribed burning
- Re-vegetation

Disposal: bagging, burning; check local guidelines

Control Considerations

- Density of invasion
- Size of invasion
- Level of disturbance
- Re-invasion risk
- Seed bank presence
- Population size
- Vectors of spread
- Wetness
- Local SAR

Best Management Practices



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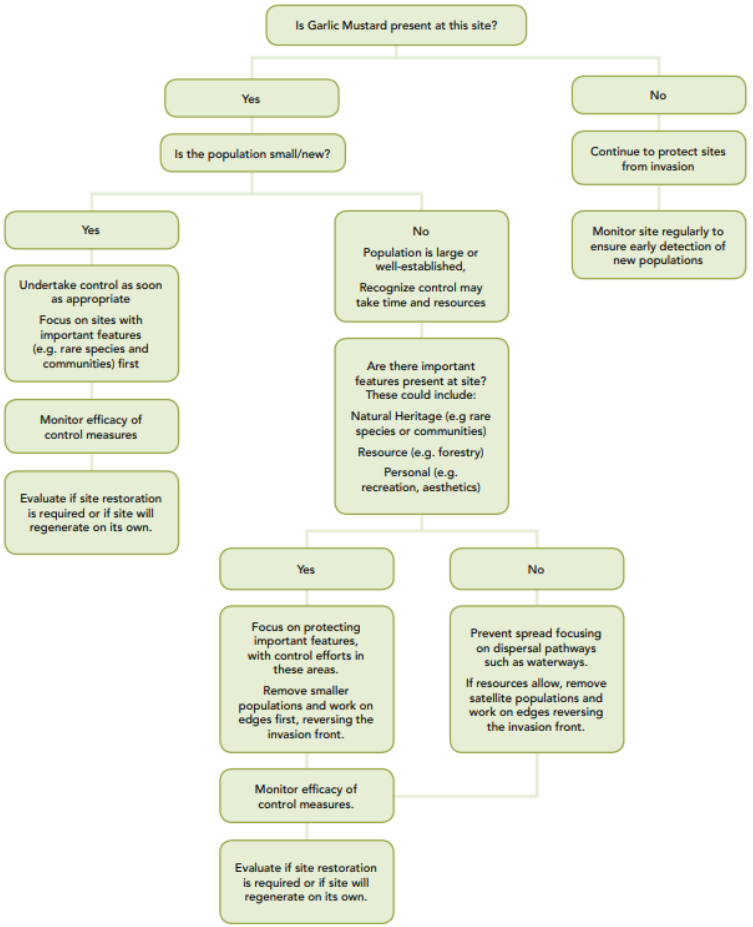
Invasive Species Control Decision Making

- Setting Priorities
  - Keeping areas free of invasive species
  - Focusing on satellite populations
  - Focusing on sensitive areas or areas with sensitive species
  - Focusing on dispersal pathways



From Garlic Mustard BMP – Hayley Anderson 2012

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Example

Two-acre woodlot behind a home in a rural area of Prince Edward County. Property owner notices what she thinks are 10 small Garlic Mustard rosettes along a walking path she shares with a neighbour. What should they do?

Refer to Best Management Practices for Garlic Mustard and:

1. Confirm identification
2. Use prioritization flow chart, if needed (for multiple populations/sites)
3. Using the Control Measures table (based on size and density of populations), select appropriate control method
4. Read about control method including disposal
5. Perform control method and dispose of properly
6. Continue control and monitoring for at least 5 years to ensure seed bank is depleted.
7. Consider whether restoration is needed

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Example

Size of the Infested Area

Density of Infested Area	Size of the Infested Area: Isolated Plants	Small (.1-.5ha)	Medium (.5-2ha)	Large (more than 2 ha)
Low Density (1-50 plants or less than 10% cover)	• Pulling • Mowing/Cutting • Chemical	• Pulling • Mowing/Cutting • Clipping Flower Heads • Chemical	• Mowing/Cutting • Clipping Flower Heads • Chemical	• Mowing/Cutting • Chemical
Medium Density (50-1000 plants or between 10% and 30% cover)		• Pullling • Mowing/Cutting • Clipping Flower Heads • Chemical	• Mowing/Cutting • Clipping Flower Heads • Chemical	• Mowing/Cutting • Chemical
High Density (more than 1000 plants or 30 – 100% cover)		• Mowing/Cutting • Clipping Flower Heads • Chemical	• Mowing/Cutting • Clipping Flower Heads • Chemical	• Chemical • Biological • Controlled Burns*

*controlled burns should only be used where fire is part of the natural disturbance regime. Controlled burns should only be applied by authorized personnel, and safe burning practices should always be followed.

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Example

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4. Read about control method including disposal
5. Perform control method and dispose of properly
6. Continued control and monitoring for at least 5 years to ensure seed bank is depleted.
7. Consider whether restoration is needed

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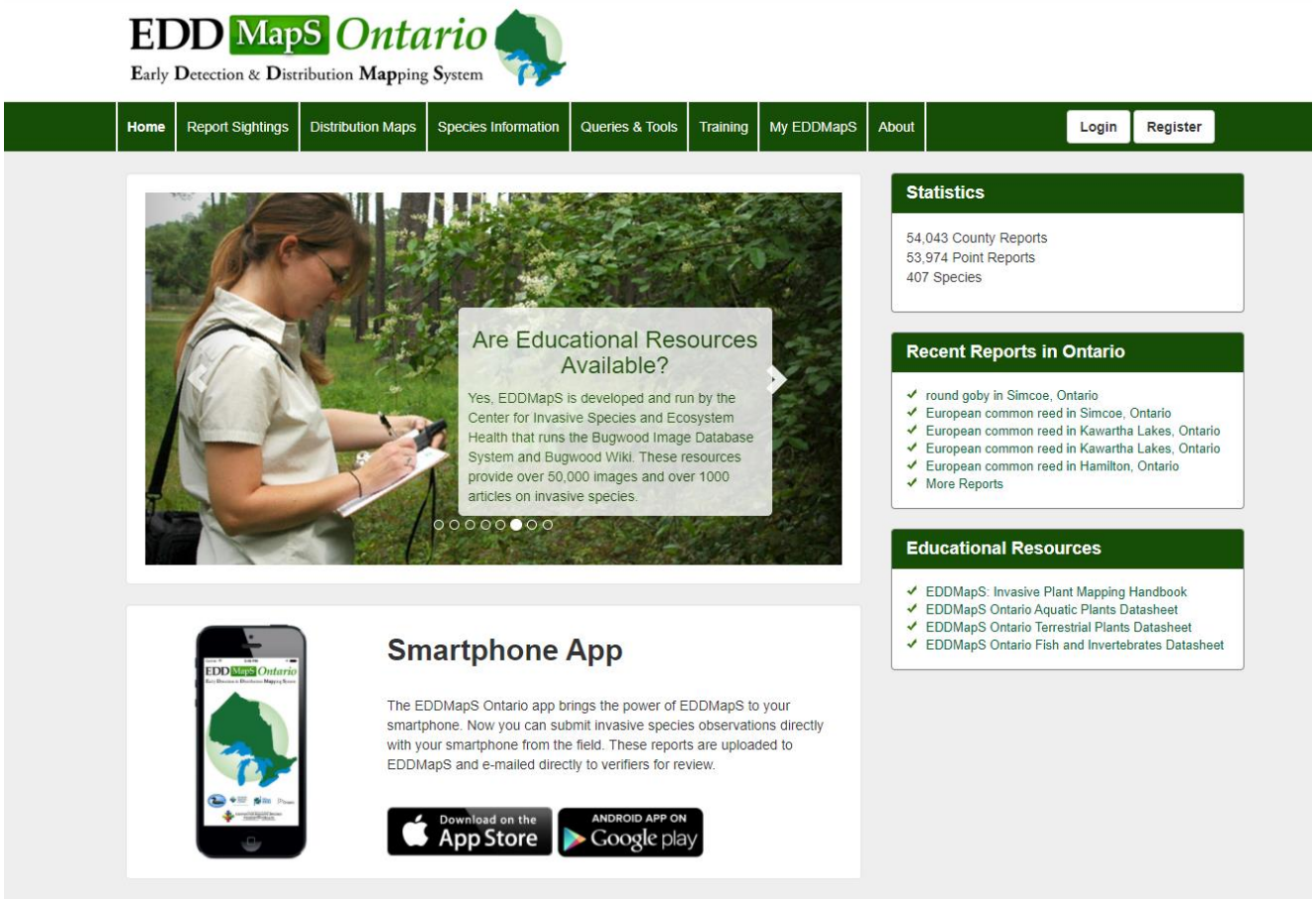
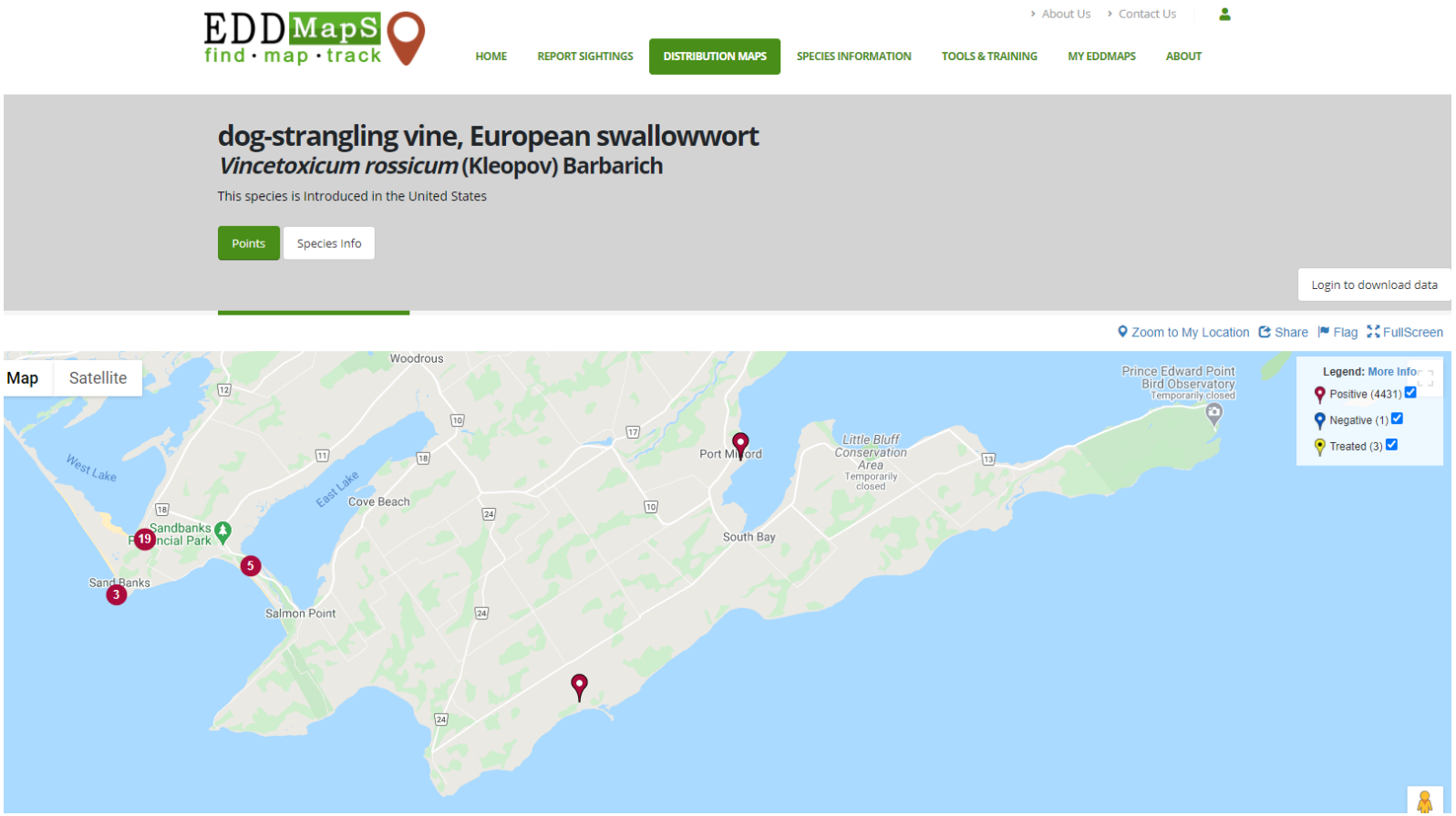
Invasive Species Reporting

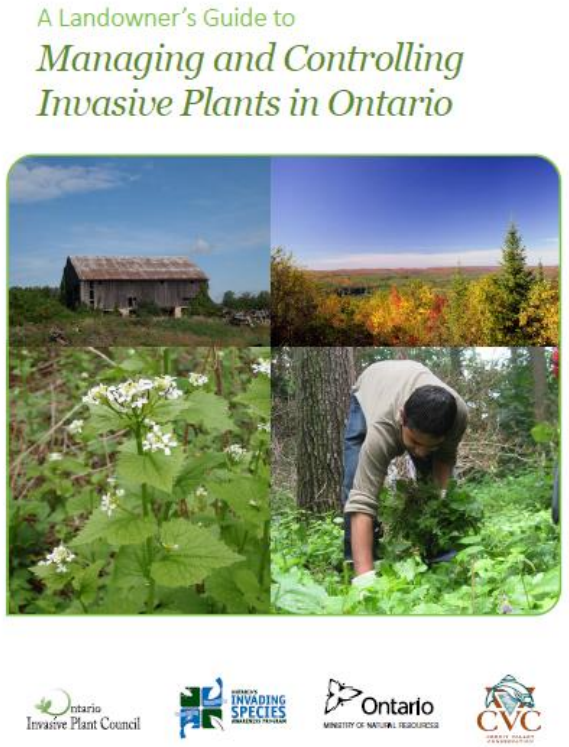


Invasive Species Reporting



What can YOU do?

- Learn more!
- Know your invasive species
- Address pathways of introduction
- Practice prevention
- Report invasive species 1-800-563-7711
- Develop a plan for your property using Best Management Practices
- Join the South Shore Stewardship Team! Contact me directly for more information!



(Landowner's Guide to Controlling Invasive Plants)

Thank you!

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