



Creating an Invasive Plant Management Strategy: A Framework for Ontario Municipalities

Photo courtesy of the Lambton Shores Phragmites Community Group

Ontario Invasive Plant Council

The OIPC was formed in 2007 to provide a coordinated provincial response to the growing threat of invasive plants.

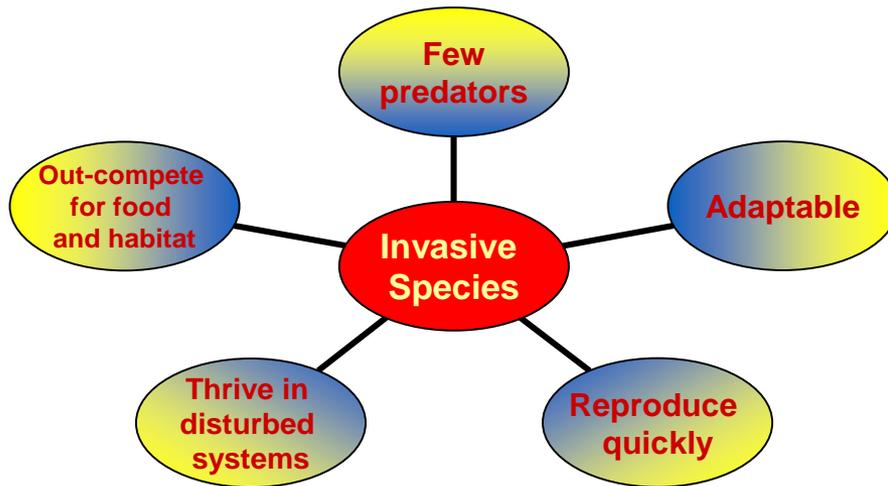
The OIPC includes representatives from:

- All levels of government
- Non-government organizations
- Academia
- First Nations
- Industry



Leadership, expertise and a forum to engage and empower Ontarians

What are invasive species?



Native:

A species that has existed in a given area prior to European settlement

Non-native:

A species that has been introduced from another geographic region to an area outside its natural range

Invasive:

Harmful alien species whose introduction or spread threatens the environment, the economy or society, including human health

Introduction

- Invasive species represent the second most significant cause of species extinction worldwide, after habitat loss (IUCN, 2014)
- Invasive plants impact the recreational, ecological and economic values of our natural environment
- Municipalities are some of the largest land managers in Ontario and its crucial they have the proper tools to address this issue



Photo courtesy of Kellie Sherman.

Impacts of Invasive Plants

Degradation of Natural Areas

- Reduce benefits of natural areas i.e. habitat, removing air pollution, capturing runoff
- Reduce native species diversity and richness by monopolizing light, moisture, nutrients, impacting intricate linkages
- Shown to alter water cycles from different growth rates, decreasing water supplies

Interference with Agriculture

- Invasive plants can act as new or additional hosts for new or existing crop diseases
- Oat crown rust threatens oat and barley production
- More diseases, means an increase in use of pesticides and an increase in money spent by farmers
- Crop losses in BC are an estimated \$50 million plus annually, especially from knapweed, that infests rangelands and reduce forage quality (BC Ministry of Agriculture)
- Invasive Phragmites has been reported in Ontario to be clogging important drainage ditches



Photo courtesy of Greg Bales.

Impacts of Invasive Plants

Socio-Economic

- Increased costs for managing public lands and rights of ways i.e. EAB costs estimated over a 30 year period \$265 million to \$1,177 million
- Invasive Phragmites costs an estimated \$1,112/ha
- Reduces aesthetic quality, affecting enjoyment of natural areas

Reduced forest productivity

- Directly compete with tree seedlings, affecting forest productivity i.e. dog-strangling vine
- Increased costs for woodlots owners to manage invasive species
- Hinder or prevent access by forestry workers and equipment
- Most direct economic impact of invasive species on forest sector is related to loss or reduced efficiency of production – approximately \$4.2 billion in forest products are lost each year to invasive species (Pimentel et al, 2000).

Other:

- Danger to human health and safety, adverse impacts on recreation and aesthetics i.e. giant hogweed, boating and swimming

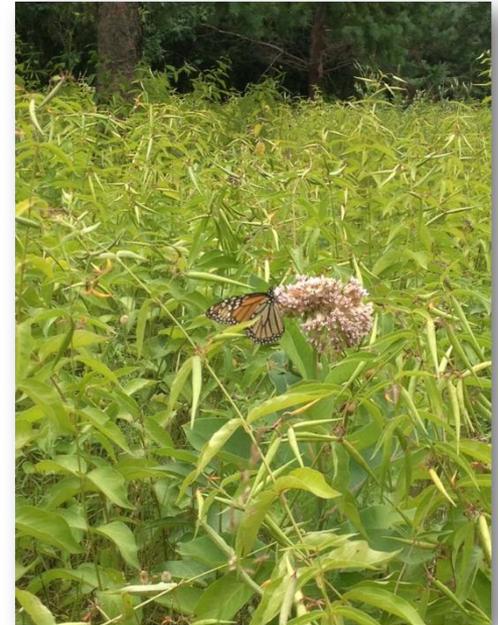
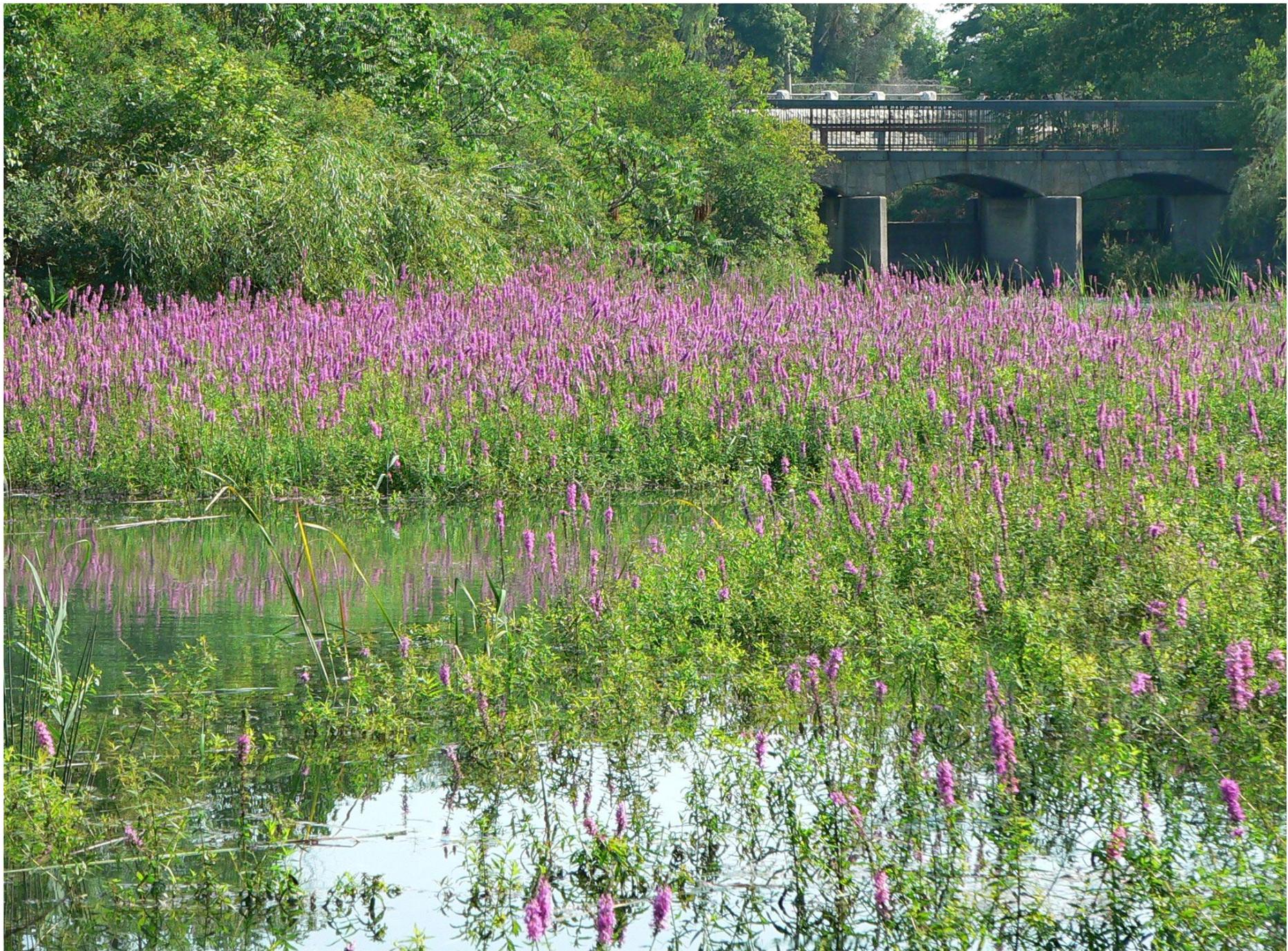


Photo courtesy of Rachel Gagnon











Vegetation changes over time

Community	1999	2006	2014*
Mixed Emergent	8.3	11	5.0
Cattail	38.9	47.4	28.7
Open Meadow	9.7	7.2	9.8
Trees/Dry land	1.2	2.3	4.5
Open Water	2.4	6.7	14.8
Phragmites	1.2	9.2	34.5
Built-up Area	16.8	16.2	

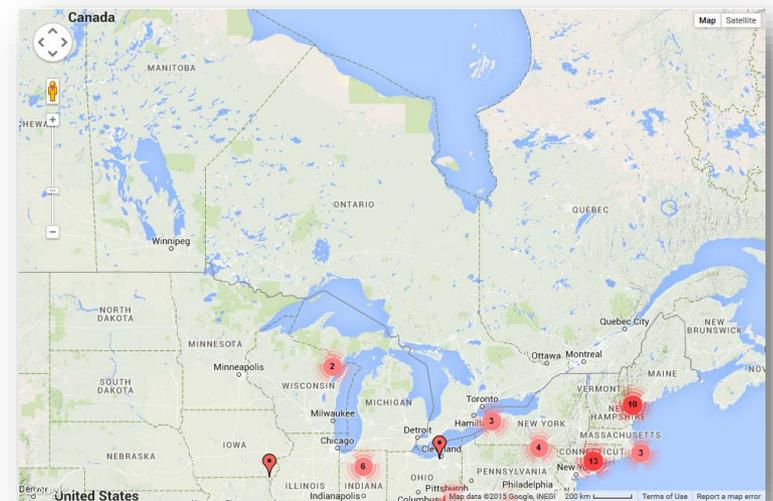
(values are percentages)

MNRF, 2015

* = Includes totals of entire Crown marsh 1379ac (east of Old Cut)

Invasive Plants in Ontario

- Ontario has the highest number of invasive plant species in all of Canada
- Is at a higher risk of new invasions compared to any other province
- Urbanized areas, degraded habitats, geographic location all contribute to this
- Change in our climate will play a role in range expansion of invasive plants



Hydrilla distribution in the Great Lakes Basin. Photo courtesy of EDDMaps.

Invasive Plants in Canada

- In Canada, invasive plants species include at least 27 percent of all vascular plants
- The World Conservation Union's list of the world's 100 worst invasive plants include many already established in Canada, including leafy spurge, Japanese knotweed, purple loosestrife
- New species are continuously arriving at our borders by air, land and water



Creating a Strategy

An invasive plant management strategy sets clear direction for the management of invasive plants

The framework provides a resource for local municipalities to begin a strategy or strengthen an existing one

Creation of an effective plant management strategy includes:

1. A Vision: start with a broad vision
2. Scoping: determine what is possible
3. Setting goals and objectives: create tailored goals and objectives.

Assessment of financial and staff resources will allow you to make cost-effective decisions of priorities

In the initial stages it may be best to focus on three to five strong and cost effective objectives in priority areas, follow-up is key



Photo courtesy of bugwood.org.

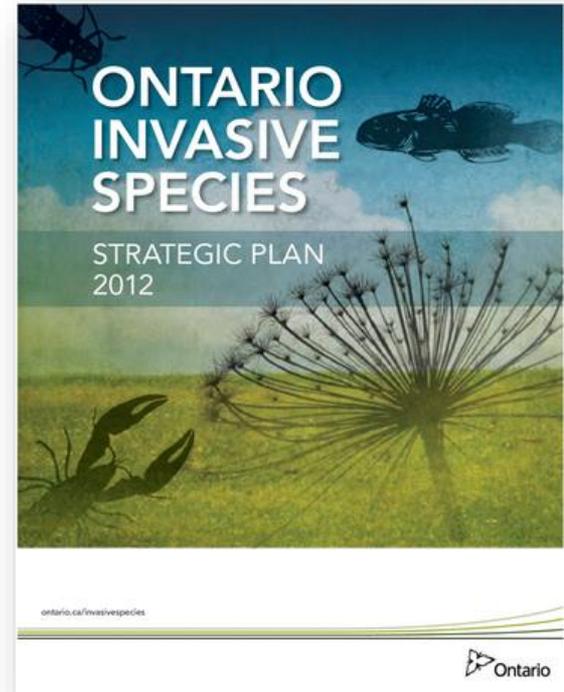
Roles and Responsibilities

The Federal Government

- Works in cooperation with its provincial and territorial counterparts
- They have created the Invasive Alien Species Strategy for Canada and there are also some relevant legislation such as the *Fisheries Act* (with new proposed regulations), *Seeds Act*, *Plant Protection Act*

The Ontario Government

- The Constitution grants most power for management of natural resources to provincial governments.
- OMNRF leading the Ontario Invasive Species Strategic Plan
- Some relevant legislation: the *Invasive Species Act*, *Weed Control Act*



Roles and Responsibilities Cont'd

Municipalities

- Responsible for municipally designated street trees, forests, parks and natural areas
- Responsible for appointing a local weed inspector and enforcing the *Weed Control Act*
- Employ by-law enforcement officers

Landowners

- Responsible for activities conducted on their land
- Play a key role in preventing the spread of/and managing invasive plants by controlling invasive plants on their property, learning how to prevent their spread, and sharing knowledge with others



Photo courtesy of Randy Westbrooks.

Some Regulatory Tools for Municipalities



Photo courtesy of OFAH.

Invasive Species Act – New

Weed Control Act

- To reduce negative impacts of noxious weeds on agriculture and horticulture
- A municipality may designate additional plants as local weeds within their jurisdiction

Municipal By-Laws

- Can amend by-laws to address the issue of invasive plants
- Example: Resort Municipality of Whistler amended Environmental Protection By-law to prohibit planting of certain invasive plants

Public Lands Act – Aquatic Invasive Plants

- Now landowners can control listed aquatic invasive plants without a permit by following certain rules (something a municipality can encourage): [Remove aquatic invasive plants](#)

Invasive Plant Inventory

- Provides the foundation of all management decisions
- Serves as a prioritization tool
- Can supply the following important information:
 - What invasive plants are present
 - Where they are located
 - Presence of rare species and rare community types
 - What control has been done and success
 - Status of the invasion
- Continue to build on if already started



Invasive Plant Inventory cont'd

Consider the following before undertaking an inventory or even continuing with an existing one:

- Use a standard inventory protocol (lacking currently)
- Work with surrounding municipalities, CA's and local community groups
- Hire a consultant
- Utilize existing resources (Landowner's Guide)



Vegetation Sampling Protocol (VSP)
a quantitative, integrative and adaptable method for vegetation inventory and monitoring

1. Controlling New and Existing Invasive Plants

EDRR and an Invasive Plant Management Plan

Early Detection and Rapid Response (EDRR)

EDRR is a proactive approach to managing invasive species that prevents establishment of new infestations

Consists of 6 steps:

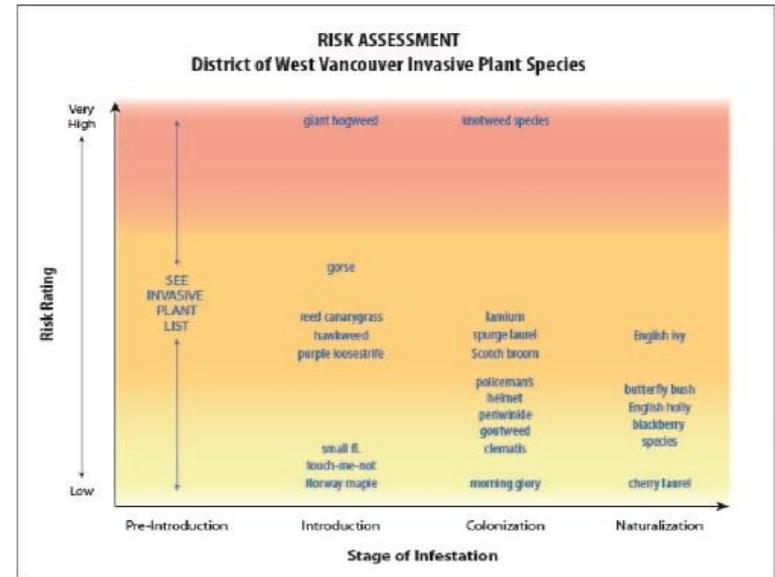
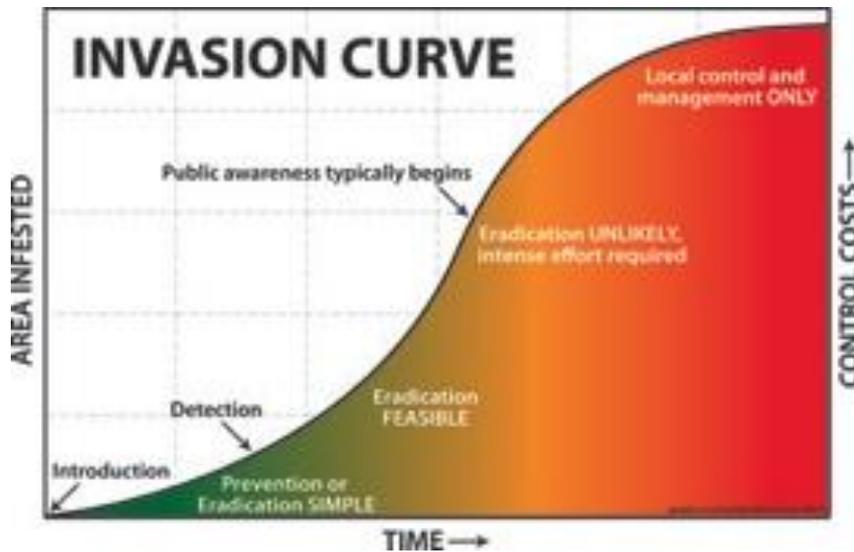
1. Early Detection
2. Identification
3. Alert Screening
4. Risk Assessment
5. Rapid Response
6. Monitoring and reassessment



Hydrilla – Photo courtesy of bugwood.org

Works best with an extensive amount of effective and efficient coordination, across jurisdictions, and will increase eradication of new species

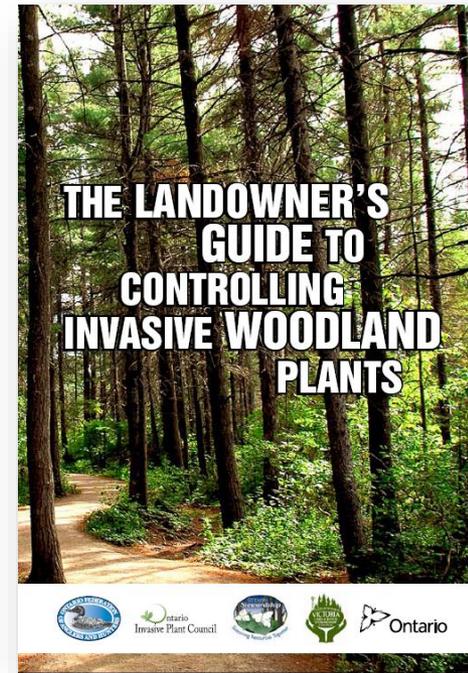
Early Detection and Rapid Response (EDRR)



Photos courtesy of Lake George Association and District of West Vancouver.

Developing an Invasive Plant Management Plan

- No one correct management plan; tailor it to suit your needs – everyone's different
- Focus on a management plan as soon as possible, before efforts and cost become unmanageable
- The invasive plant inventory will support the management plan and help prioritize areas and plants for control
- Restoration and monitoring is key



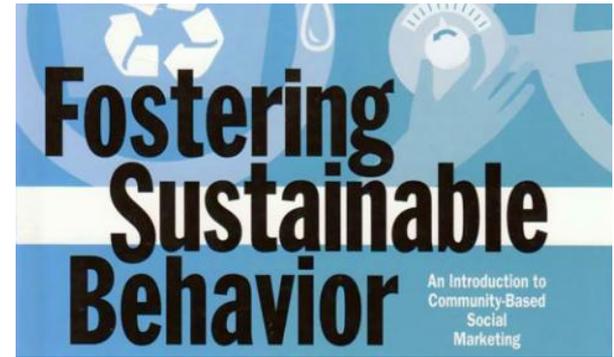
2. Preventing the Introduction and Spread of Invasive Plants

Non-regulatory and Regulatory Strategies

Non-regulatory Strategies

1. Public Education and Awareness/Community-Based Social Marketing

- Key component in prevention, introduction, spread and management
- Update existing communications strategy or create one specific for invasive plants
- Determine target audience and relay key information i.e. how they are introduced, impacts, by-laws etc.
- Consider a Community-Based Social Marketing strategy – removes barriers and fosters sustainable behaviour



Non-regulatory Strategies

Examples of specific education and awareness strategies and actions include:

- ✓ Updating website to include specific information about invasive plants
- ✓ Demonstration sites to teach about removal
- ✓ Proper yard waste disposal information brochures
- ✓ Creating a “Citizen Science” program`



Non-regulatory Strategies

2. Enhancing collaboration and communication with government and non-profit organizations

- Invasive plants spread far and fast, therefore effective management requires a strong regional approach and coordination and collaboration among various stakeholders
- Develop a strategy together or communicate your strategy to relevant organizations – lead contact
- Partner with groups already involved in education and control



Regulatory Strategies

- Education is the **preferred** action to encourage residents to manage and control invasive plants
- However, by-laws can be used when faced with residents who are unwilling to remove or directly contributing to the spread of invasive plants
- **Example:** Restricting planting of Watch List species



Photo courtesy of Dan Bechard.

Keys to Success and Optimizing Municipal Resources

Collaboration

- Sharing in costs and resources can lead to more projects and more successful outcomes

Budget evaluation and measuring success

- Conducting a review of the strategy budget will assist in supporting long-term funding and resources
- Measures of success will determine effectiveness

External funding

- Don't forget about external funding opportunities! Municipalities are often required as partners on non-profit group applications

Regular updates

- The day you finish the strategy, it might already be out-of-date; regularly update it to stay relevant and incorporate new research



Photo courtesy of Keith Matthieu.

Who is developing Invasive Plant Management Strategies?

- **City of London** (Ecologist)
- **City of Mississauga** (Private Consultant)
- **City of Kawartha Lakes** (Environmental Advisory Committee)
- **York Region** (Invasive Species Technician and others)
- **City of Ottawa** (Public Works)
- **Lambton Shores** (Janice Gilbert)
- **County of Haliburton** (interested)
- **Bruce Peninsula National Park**



Next Steps for You

- Start a working group to move this ahead
- Start a working group for EDRR
- Start a working group to improve your invasive plant inventory
- Ask OIPC to present to your Council and ask for a motion
- Talk to other communities who have started (OIPC can provide you with contact information)
- Host a follow-up workshop a year from now
- Consult with OIPC or a consultant to obtain services to write a strategy
- Write letters to your local MPs and MPPs

Thank You!

Questions?

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