

Phragmites australis

Canada's Most Invasive Plant: Concerns and Control Options

Niagara-on-the-Lake
Council Meeting
Monday April 1st, 2019



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Executive Director
Invasive Phragmites Control Centre



Presentation Outline:

- Background Information
- Concerns
- Control Options
- Challenges
- Control options for SWM ponds, irrigation and roadside ditches
- Emergency Use Program
- Ontario initiatives
- Components of an effective control program

Background Information:

- *Phragmites australis* - Common Reed, Giant Reed
- Native species - uncommon member of wetland plant communities in North America for at least 3000 yrs

Phragmites australis subsp. americanus

- Invasive genotype - Haplotype M
Phragmites australis subsp. australis
Phragmites australis
European Common Reed

- Canada's worst invasive plant
(P. Catling, 2005, Agriculture and Agri-food Canada)



Native Phragmites, Rondeau Provincial Park, October 2012

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Oliphant August 2015

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Bruce Dale CA, Lake Huron, July 2015



McLean Marsh, Rondeau Bay, October 5, 2007

Background Information cont'd

- Perennial grass
- Clones long lived; evidence of persisting >1000 yrs in Europe
- Spreads into new areas through seed dispersal, rhizomes, stolons and stems
- Easily establishes in disturbed sites



Kettle Point, Lake Huron, March 2012



Detroit River, May 2011 (M. Gartshore)

Rondeau Provincial Park, Lake Erie, September 2012





Wood Drive B1 Aug 1 2017

Sturgeon Creek Wetland, Lake Erie, July 2014





North Bruce shoreline, Lake Huron, June 4, 2015

Background Information cont'd:

- Once established spreads predominantly underground through rhizomes
- Up to ~ 200 stems/m²
- Rhizomes observed at 10m depths
- Exponential growth in colony size



Kettle Point, April 2012

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St. Joseph Island, Lake Huron, August 2011

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Background Information cont'd:

- Wide tolerance of habitat conditions:
 - brackish to freshwater
 - >1m water depth to >1m above water table
 - low to high nutrient sites
 - pH 4.8 – 8.2
 - cool temperate to tropical desert



Crown Marsh, Long Point Bay, Lake Erie, July 2008



Crown Marsh, Long Point Bay, Lake Erie, July 2008



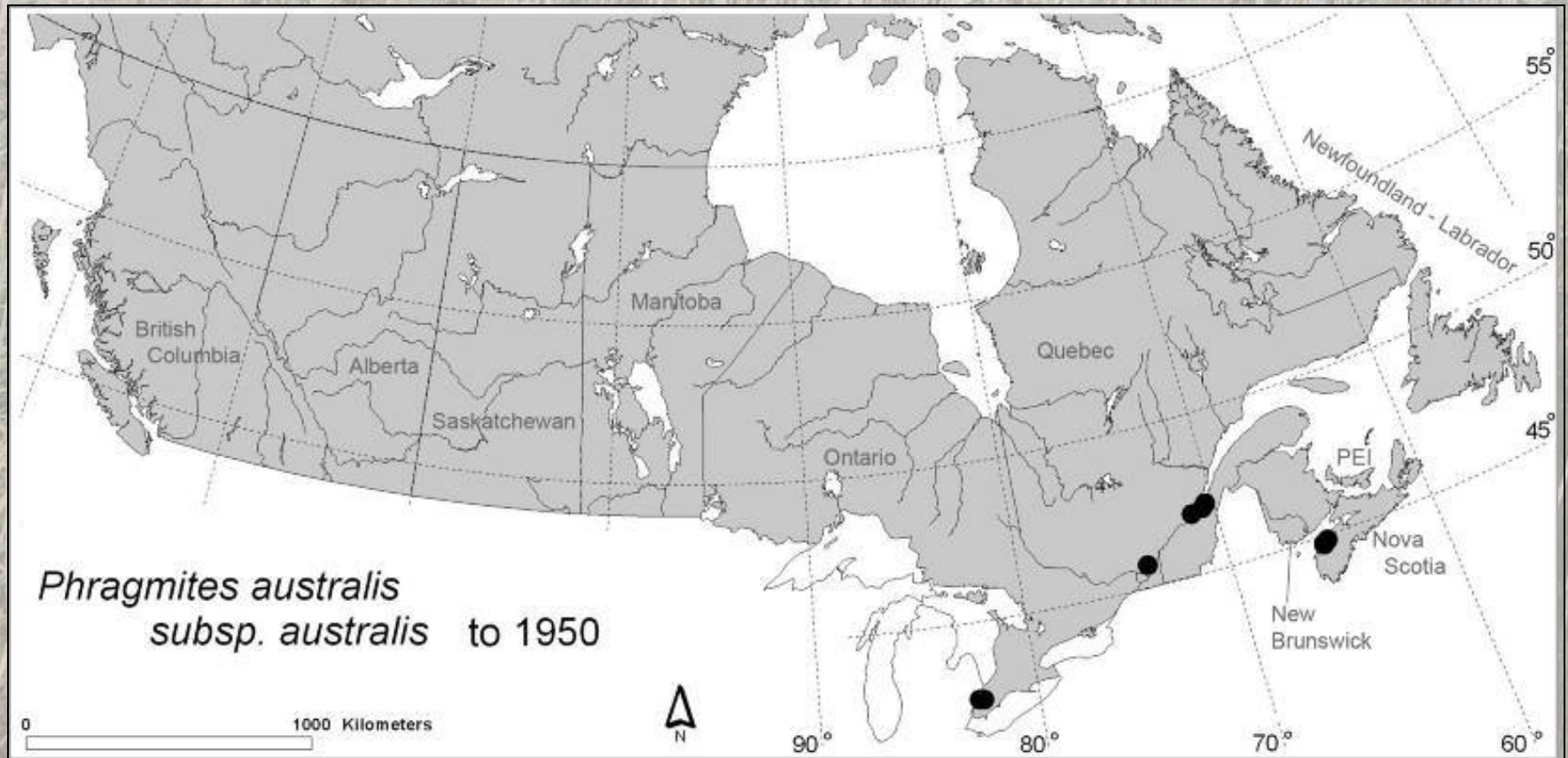
Point Farms Provincial Park, Lake Huron, September 2010

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Background Information cont'd:

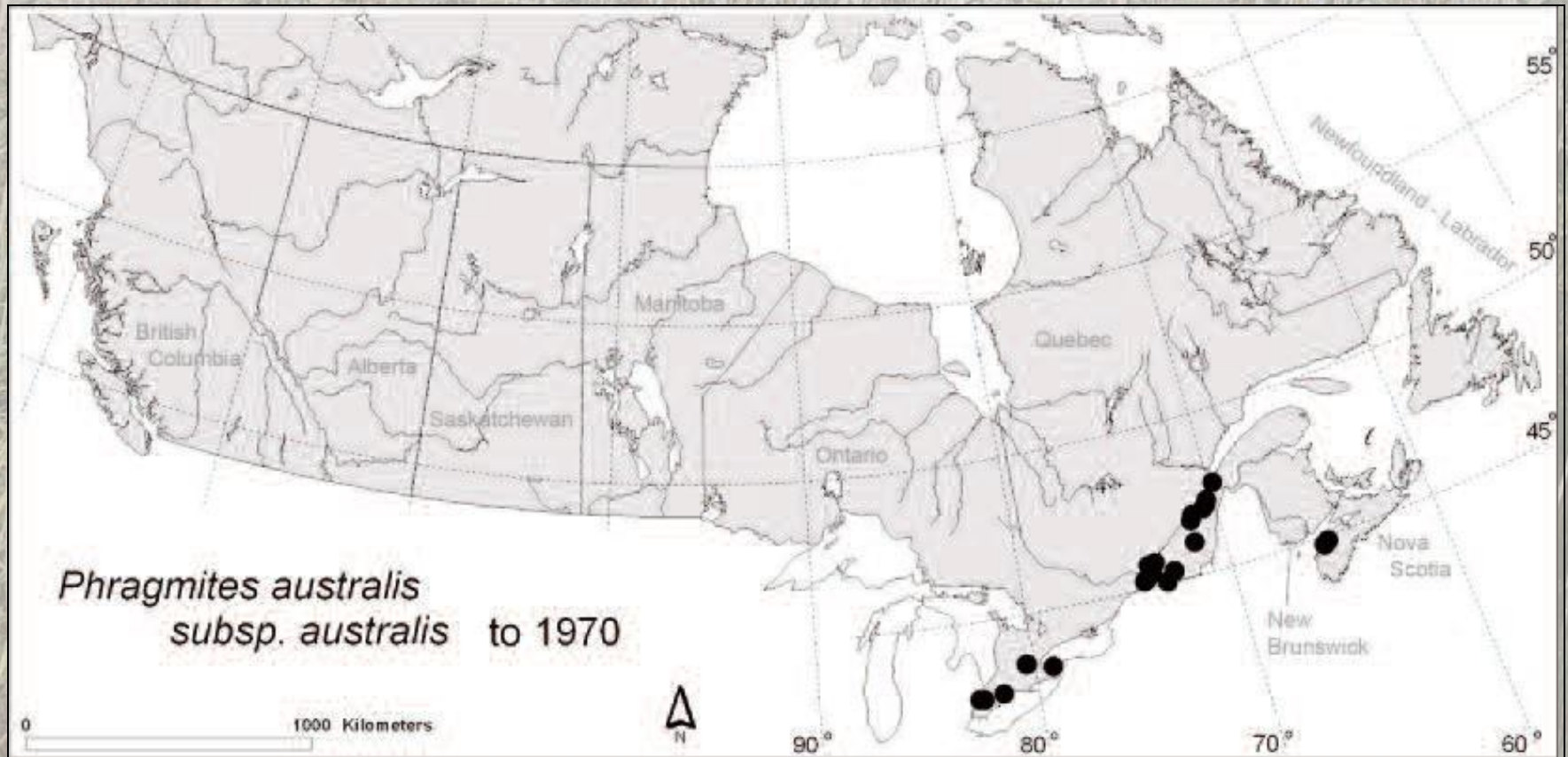
- Strong competitor for nutrients
- Allelopathic
- No effective natural controls

Historical Distribution



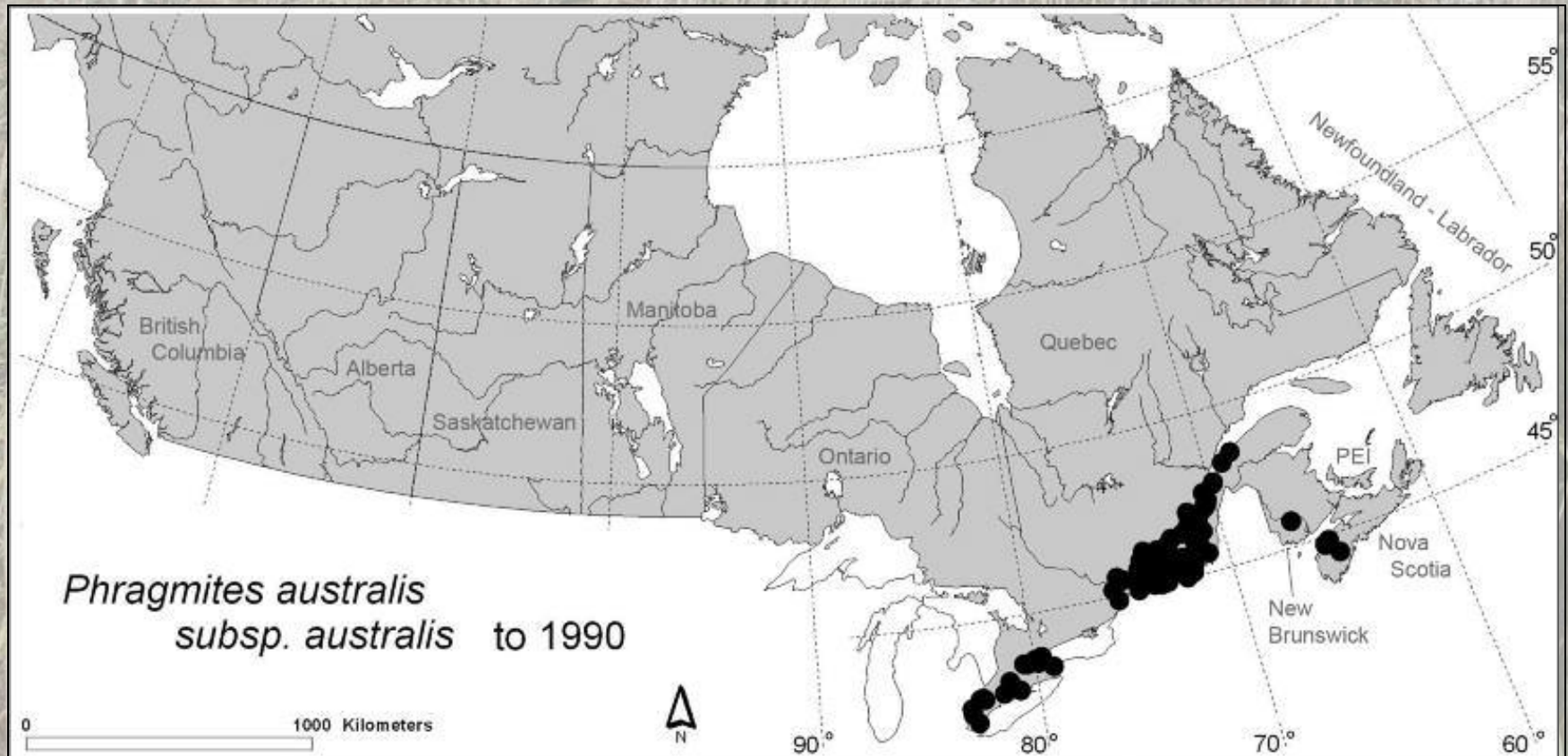
Catling, Paul M., and Gisèle Mitrow. 2011. The recent spread and potential distribution of *Phragmites australis* subsp. *australis* in Canada. *Canadian Field-Naturalist* 125: 95–104.

Historical Distribution cont'd.



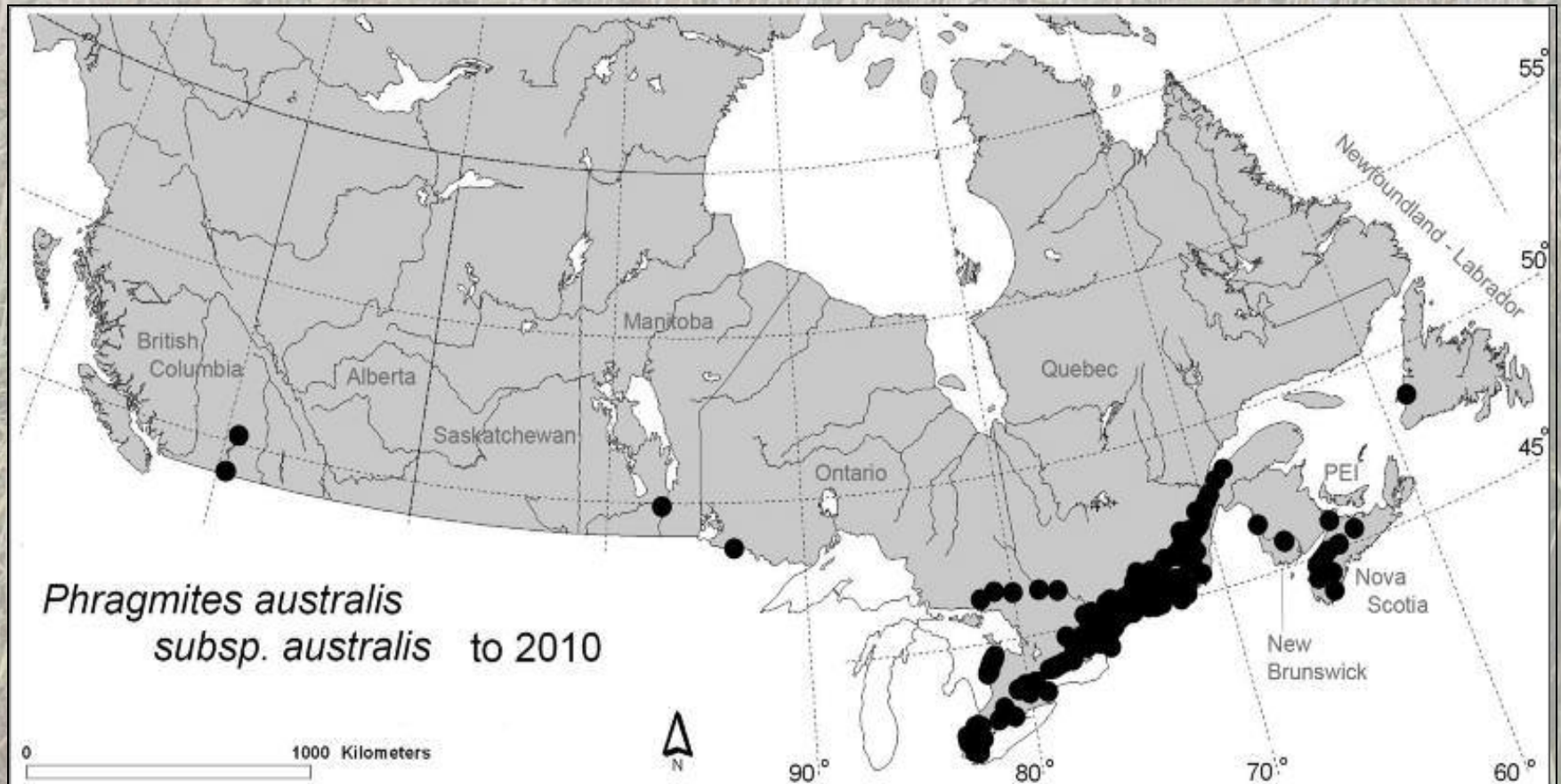
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Historical Distribution cont'd.



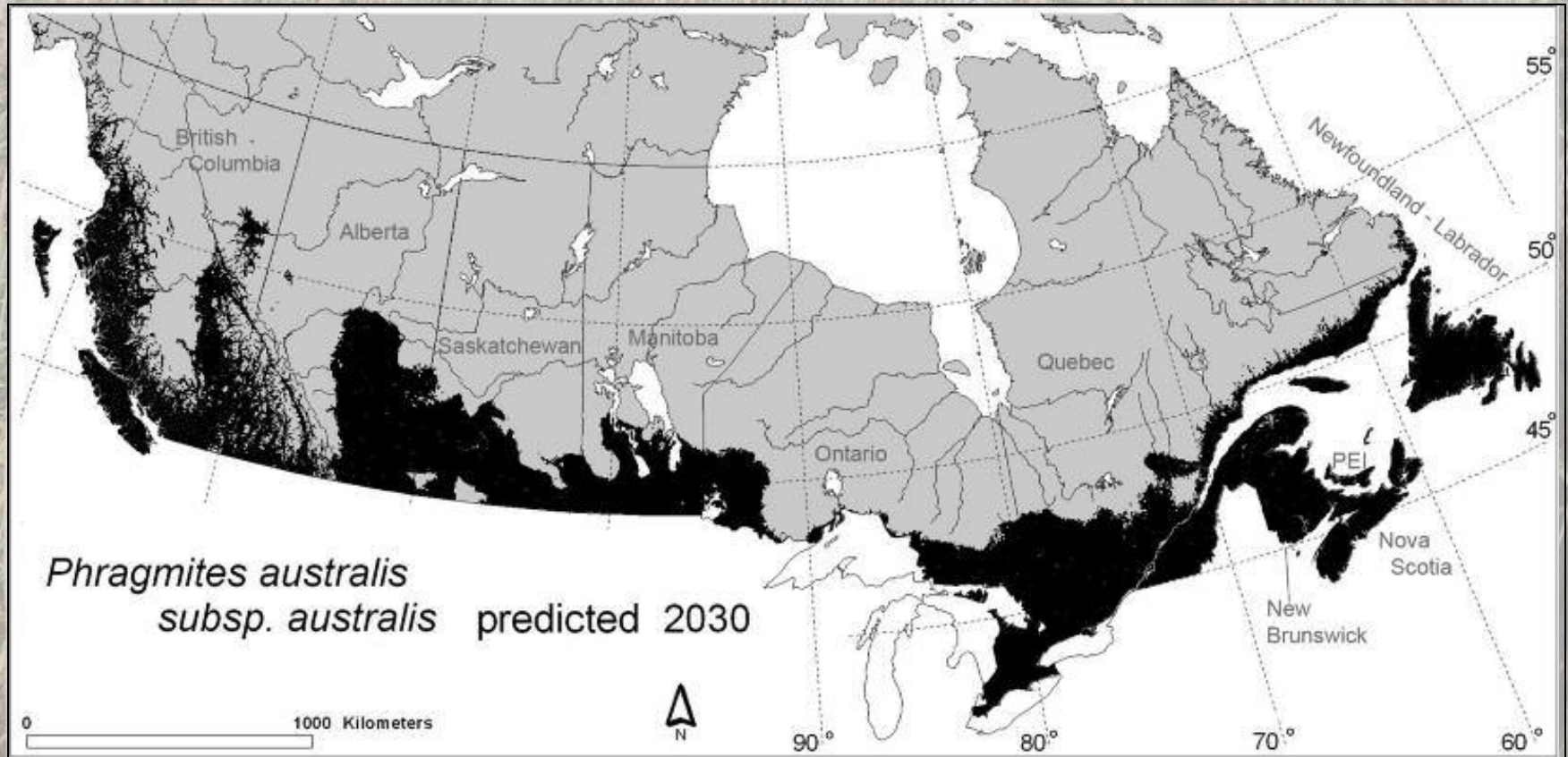
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Distribution 2010



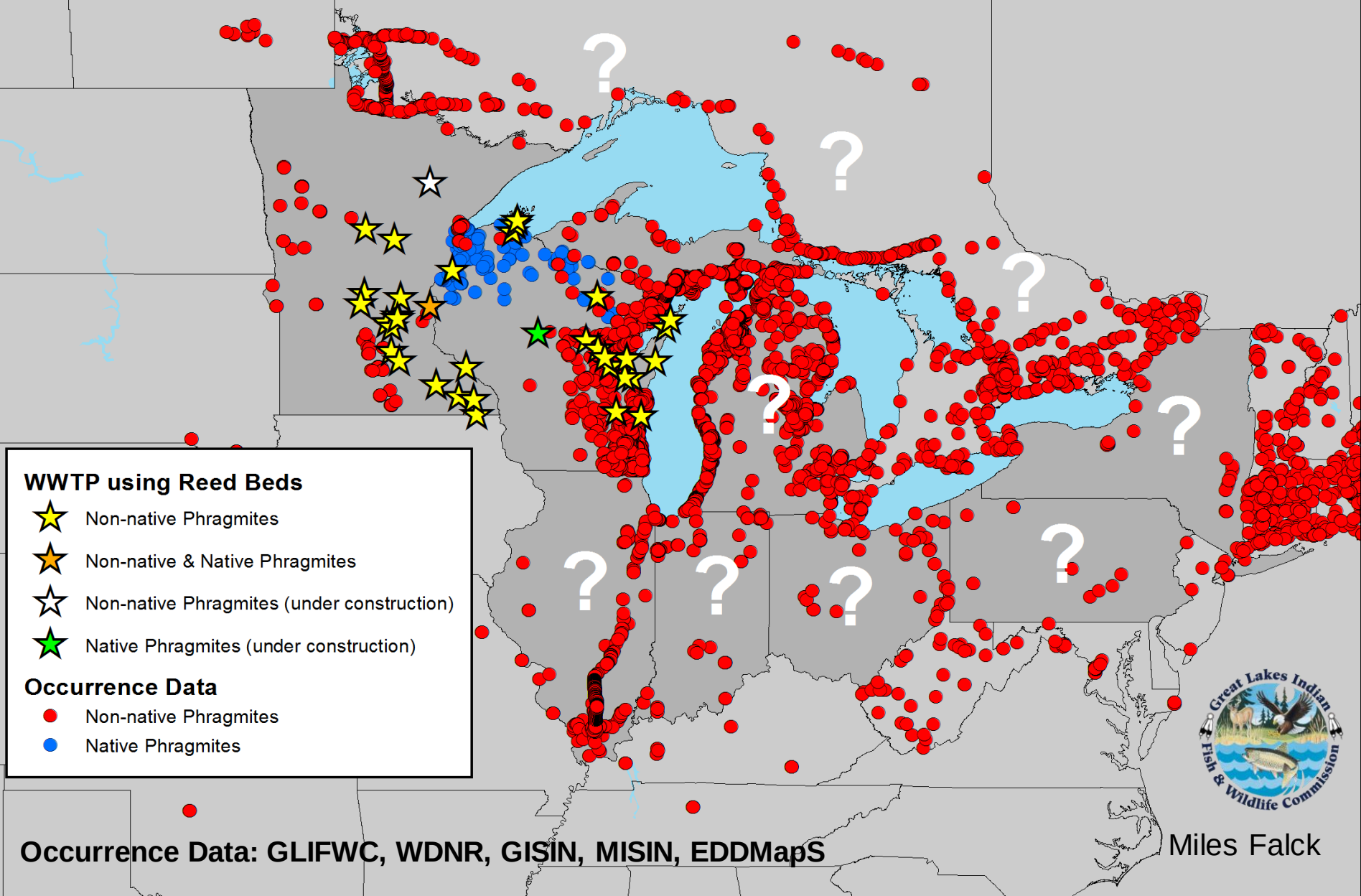
Catling, Paul M., and Gisèle Mitrow. 2011. The recent spread and potential distribution of *Phragmites australis* subsp. *australis* in Canada. *Canadian Field-Naturalist* 125: 95–104.

Predicted Distribution 2030



Catling, Paul M., and Gisèle Mitrow. 2011. The recent spread and potential distribution of *Phragmites australis* subsp. *australis* in Canada. *Canadian Field-Naturalist* 125: 95–104.

Great Lakes



Giving Phragmites a helping hand

- Population explosion in 1990's linked to land use changes (increased disturbance, urbanization, eutrophication, hydrological changes)
- Establishment along transportation corridors provides a major spread vector (Lelong *et al.* 2007, Diversity and Distributions Vol. 13)
- Strong correlation between pioneer populations at inflow locations along Lake Huron shoreline and *Phragmites* in ditches further inland (Alexander, K. 2012, *Phragmites australis* in Coastal Environments, Lake Huron Lake Huron Centre for Coastal Conservation)



Catling, Paul M., and Gisèle Mitrow. 2011. The recent spread and potential distribution of *Phragmites australis* subsp. *australis* in Canada. Canadian Field-Naturalist 125: 95–104.



Norfolk County Rd.1, July 2009

Invasive *Phragmites* along Highway #17 East of Sault St. Marie, 2011



ATV activity increases Phragmites spread



Baie du Dore, Lake Huron, September, 2015

Giving Phragmites a helping hand cont'd.

- Establishment in agricultural drainage ditches also a major spread vector
- Increasing issues with blocked drainage, flooded fields and reduced crop production



Norfolk County, August 2015

Concerns

- Loss of recreational opportunities
- Negative impacts on tourism
- Decline in shoreline property values
- Damage to infrastructure (asphalt roads, Hydro corridors)
- Hazards (fire, blocked views at intersections)





Photo taken by Murray Purcell, Ontario Ministry of Transportation, West Region



Residential
encroachment
creates high risk of fire





YouTube^{CA}

Search



SIGN IN



0:29 / 1:11



Phragmites Burn at Golf Course

1,005 views



4



0



SHARE



Concerns cont'd.

- Significant reduction in biodiversity
- Major impacts on wildlife
- Identified threat to 25% of 217 Species at Risk

Rondeau Provincial Park, Lake Erie, September 2012

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➤ turtles are particularly susceptible



dead Map Turtle

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Dead Blanding's Turtle
Rondeau Provincial Park,
spring, 2013



Amy Whitear

Rondeau Provincial Park, fall 2010

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Control Options

- Biological
- Manual/Non-chemical
- Chemical

Control Options: factors to consider

- timing and design of a Phragmites control project is site specific
- edges of dense Phragmites cells will have wildlife habitat value (staging, mating, nesting, brood rearing, foraging)



Considerations

- What are the goals of the control program?
- What are the most appropriate methods for achieving those goals?
- What is the best timing to undertake the planned activities?
- How do you know you are doing more good than harm?

‘Do the most good with the least harm’





Archanara neurica

adult

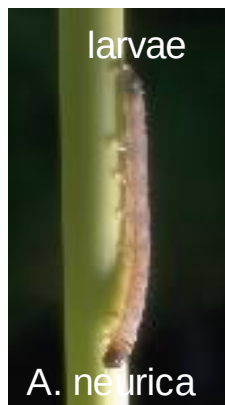
Biological Control:



Archanara geminipuncta

adult

- Bernd Blossey, Cornell University:
 - > 170 herbivores in Europe; 40% feed only on *Phragmites*
 - 26 herbivores known to attack *Phragmites* in the U.S.
 - all but 5 introduced
 - 2 moths recently identified as potentially effective
 - also target native *Phragmites*
- Great Lakes *Phragmites* Collaborative



larvae

A. neurica



pupae

Archanara geminipuncta



Distribution.

The European part of Russia, the Caucasus and Ciscaucasia, Western Siberia, Eastern Siberia (except Arctic regions), all areas of the Far East (except Arctic regions), and Central Asia. Absent in deserts.

Ecology

Hygrophilous plant. It is widely distributed in lands with close-standing, subsoil waters (2.0-2.5 m). Grows in coastal zone, along coasts of rivers and lakes, frequently in water, grassy marshes, boggy meadows, forest edges, bogs, crude meadows, and solonetz soils. Frequently forms continuous thickets.

Economic significance.

Malicious segetal weed. It is widely distributed on irrigated grounds, where it infests all agricultural crops, especially rice, cotton, and lucerne. Small parts of rhizomes take root easily; therefore, inter-row treatments promote vegetative reproduction of the Common Reed.

Main control measures include drainage, dehydration of soil surface after watering, deep and repeated treatments of ground, and crop rotation with alternation of rice and periodically watered cultivars.

Non-chemical Control Options

- Livestock grazing: cattle, sheep, goats



Freshkills Park, NY, 2.2 ac restoration
Pilot Project



Ranch
would be
good

Rondeau Provincial Park, 2011

Non-chemical Control Options cont'd

➤ Covering, smothering

Lake Huron, August, 2012

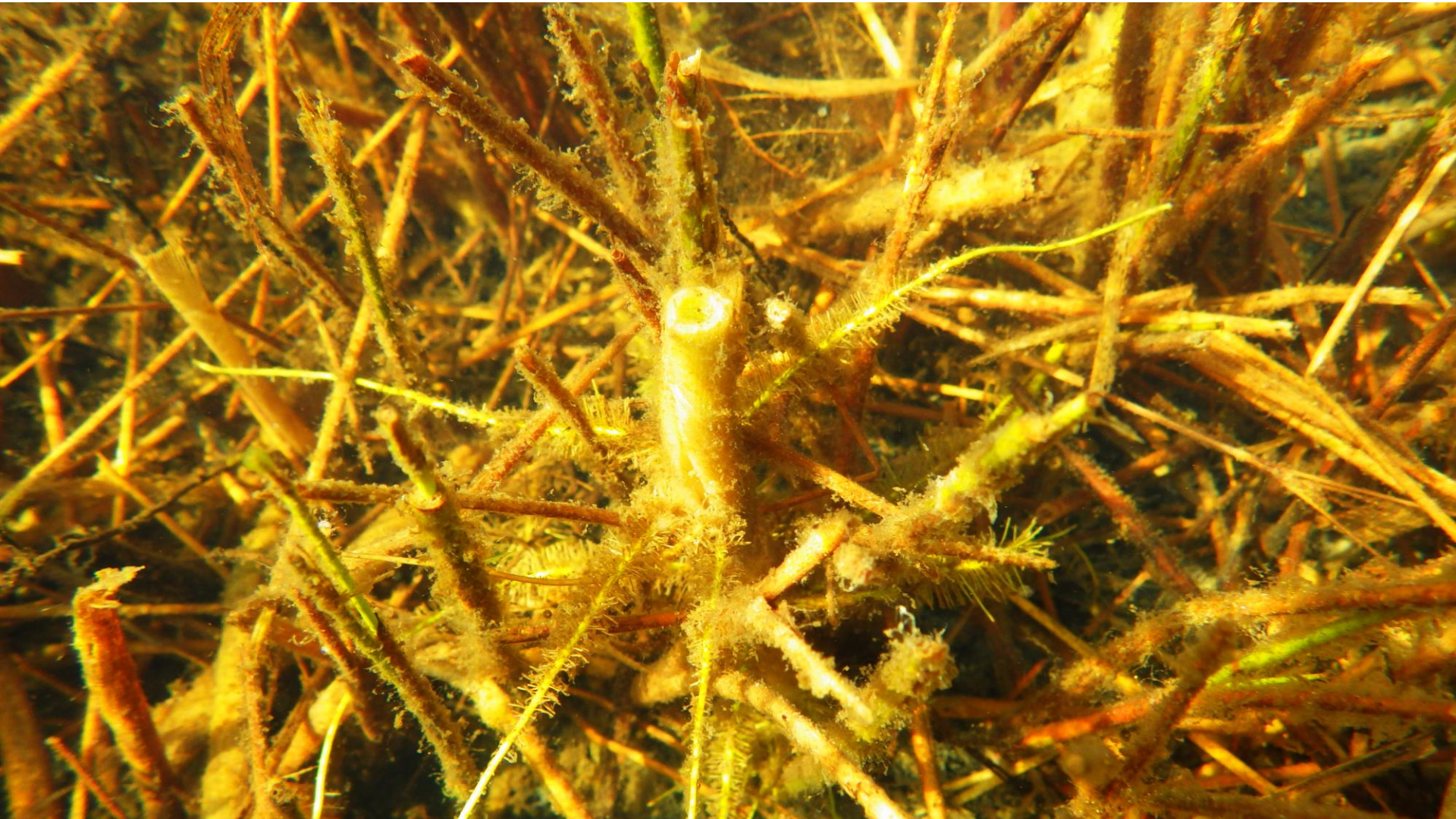


Pilot Project: Kettle Point, 2013



Non-chemical Control Options cont'd

- Cutting to drown



Non-chemical Control Options cont'd

➤ spading



➤ raspberry cane cutter



Oliphant, Lake Huron, September 26, 2017



Wood Drive Coastal Wetland, Municipality of Lambton Shores, August 2015

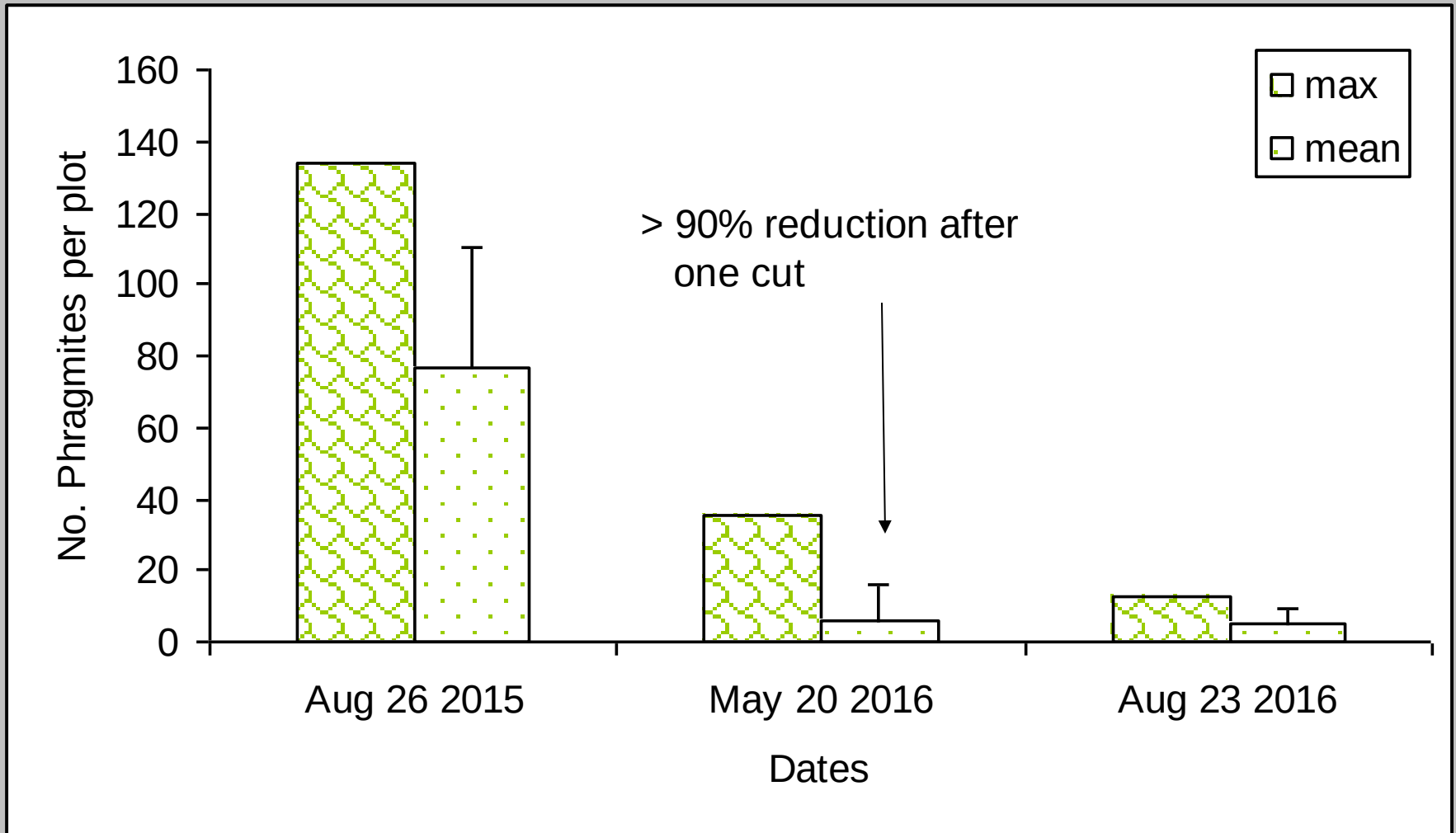
Before cutting
August 2015



After cutting
August 2016



Control Options: cutting to drown







Invasive Phragmites Control Centre

Est. 2017

- Not-for-profit organization
- emphasis on promoting site specific, appropriate control actions
- focus on restoring challenging sites (coastal areas, Species at Risk habitat, wetlands)



IPCC Overview

- Provide assistance with all Phragmites control needs: management plans, training, education, control (mechanical, chemical)
- Cutting Program
- Herbicide Program
- Monitoring: fish, vegetation, wildlife
- R&D

IPCC's Cutting Program

- control efficacy is water depth dependant
- short operating window to lower impacts/
disturbance to spawning fish, nesting birds etc.



Oliphant, August 2018



Oliphant Fishing Islands, August 2018



Blue Jay Creek, Manitoulin Island, August 2018



Lambton Centre United Church Camp, Lake Huron, September 2017



Lambton Centre United Church Camp, Lake Huron, Septmber 2017



Wood Drive, Lake Huron, September 16, 2017



Oliphant, Lake Huron, August 9, 2018



Oliphant, Lake Huron, September 14 2017



Oliphant, Lake Huron, September 14 2017



Blue Jay Creek, Manitoulin Island, August 2018



Manitoulin Island, August 14, 2018



Blue Jay Creek, Manitoulin Island, August 2018



Manitoulin Island, August 13, 2018



Oliphant, Lake Huron, September 15, 2017



Oliphant, Lake Huron, August 9, 2018



Blue Jay Creek, Manitoulin Island, August 2018



Oliphant Fishing Islands, August 2018



Oliphant Fishing Islands, August 2018

Bruce Peninsula Biosphere Association and Oliphant community assisting IPCC crew with Phragmites removal



Oliphant, Lake Huron, September 2017



Oliphant August 8, 2018



Wood Drive, Lake Huron, July 23 2018

Wood Drive Coastal Wetland



Wood Drive Coastal Wetland



August 26, 2015

Wood Drive Coastal Wetland



August 2018



Lambton Centre, Lake Huron, August, 2012



Lambton Centre, Lake Huron, August, 2012



Lambton Centre, Lake Huron, August 13 2017



Lambton Centre, September 7, 2017



Lambton Centre, July 18, 2018



Lambton Centre, July 18, 2018



Brucedale Conservation Area, Lake Huron, July 20, 2015



Brucedale Conservation Area, Lake Huron, July 20, 2015



Brucedale Conservation Area, Lake Huron, July 20, 2015



Brucedale Conservation Area, Lake Huron, July 20, 2015



Brucedale Conservation Area, Lake Huron, July 21, 2015



Brucedale Conservation Area, Lake Huron, August 24, 2017



Brucedale Conservation Area, Lake Huron, September 14, 2018



Bruce Dale CA, Lake Huron, July 2015



Brucedale Conservation Area, Lake Huron, August 1, 2018

Invasive Phragmites Control Centre: Cutting Program

2018

1. Wood Drive Coastal Wetland: Lambton Shores Phragmites Community Group
2. Lambton Centre
3. Kettle and Stony Point First Nation
4. Municipality of Kincardine
5. Brucedale Conservation Area: Lake Huron Centre for Coastal Conservation/Saugeen Valley CA/ Enbridge
6. Oliphant: Bruce Peninsula Biosphere Assoc., Friends of Oliphant
7. Manitoulin Is.- Blue Jay Creek (Judith Jones), Wiikemkoong First Nation
8. Fish Islands, Oliphant
9. Nawash First Nation
10. Baie du Dore coastal wetland: Bruce Power, Ontario Power Generation
11. Honey Harbour: Georgian Bay Forever
12. Saugeen First Nation

➤ ~ 310 tonnes cut and removed (2 Truxors)



Rondeau Provincial Park, Lake Erie, September 2012

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Chemical Control

United States:

- Effective chemicals: Glyphosate (Rodeo, AquaNeat, AquaPro, Shore Klear), Imazapyr (Habitat- BASF)
- Can be applied over water
- Can be applied aerially
- An estimated \$20 million to \$30 million (Federal) have been spent controlling Phragmites in the Great Lakes basin since 2011 (H. Braun, Great Lakes Commission)



Chemical Control cont'd.

Legal Chemical Options in Canada:

- WeatherMax® and VisionMax® (Monsanto products)
 - glyphosate + surfactant (polyethoxylated tallowamine)
- Arsenal Powerline®
 - imazapyr + surfactant
- No over water approval for these products
- glyphosate and imazapyr two of 82 active ingredients banned for cosmetic use (Ontario Cosmetic Pesticides Ban Act, April 22, 2009)
- Requires a Letter of Opinion- written opinion from the MNR that the use is an appropriate means to protect or manage natural resources



Chemical Control Options cont'd.

- large, dense cells targeted using retrofitted track vehicles (Dover Agri-serve)



➤ Marsh Master (Nature Conservancy of Canada, Giles Restoration)



Long Point Crown Marsh, March 2017

Chemical Application Options:



Sauble Beach, Lake Huron, 2007



Lake Huron Coastal Wetland, Municipality of Kincardine, September 17, 2015

Complementary Control

- removal of biomass improves native plant species response and allows for easier follow-up Phragmites control



McLean Marsh, Rondeau Bay, 2007

Before invasive Phragmites control, fall 2011



Kettle Point, Lake Huron

After invasive Phragmites control, spring 2014



Kettle Point, Lake Huron

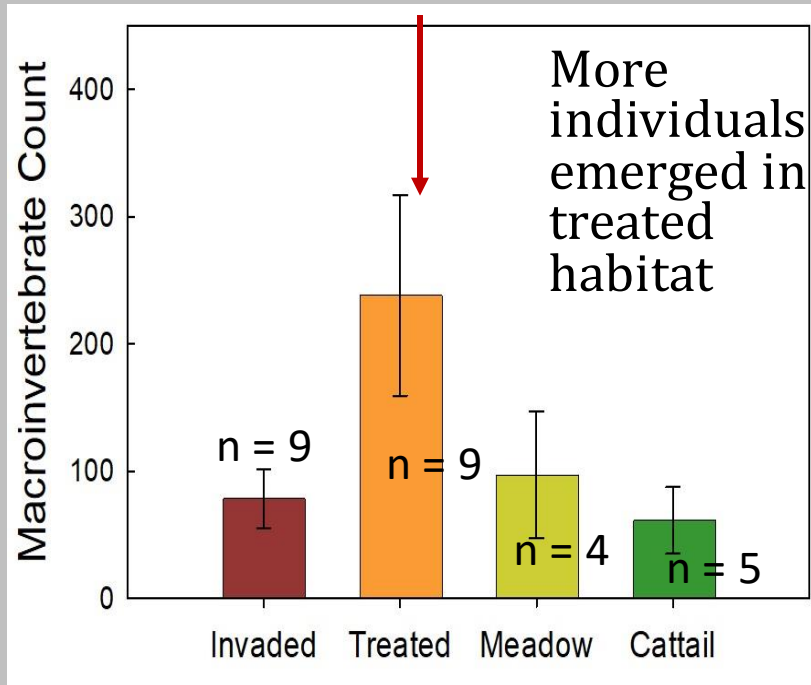
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Kettle Point, Lake Huron September 18, 2018



Prey quality and quantity: 2017 data



Ephydriidae



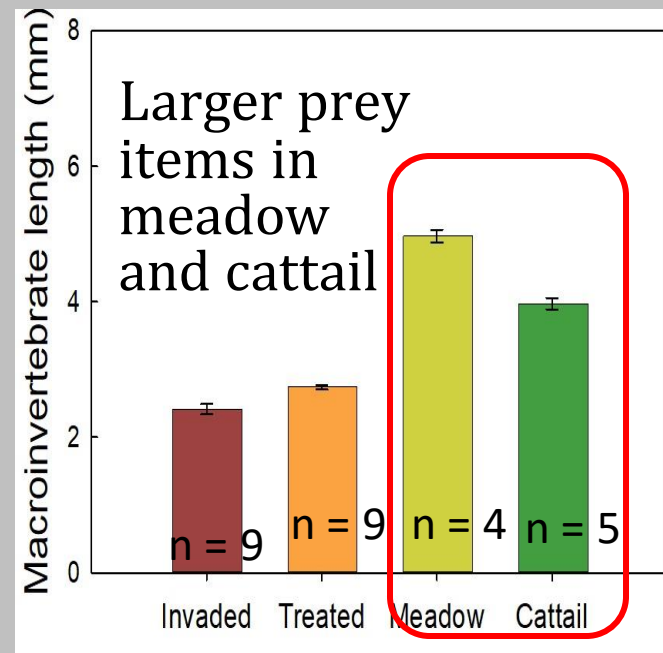
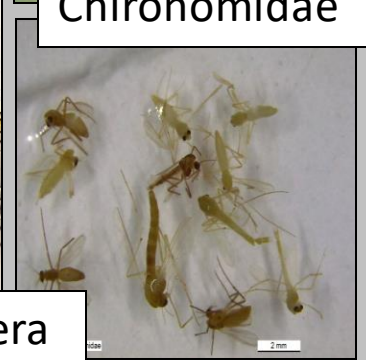
Chironomidae



Anisoptera



Chironomidae



Error bars = standard error

Challenges

- Trying to control Phragmites with the current 'tools'
- Reducing collateral damage to non-target species



Challenges cont'd.

Presence of SAR

Long Point October 2015

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Challenges cont'd.

Presence of Desirable Species



Baie du Dore September 2015

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Rondeau Provincial Park, 2013

Challenges cont'd:

High and Low Density Cells

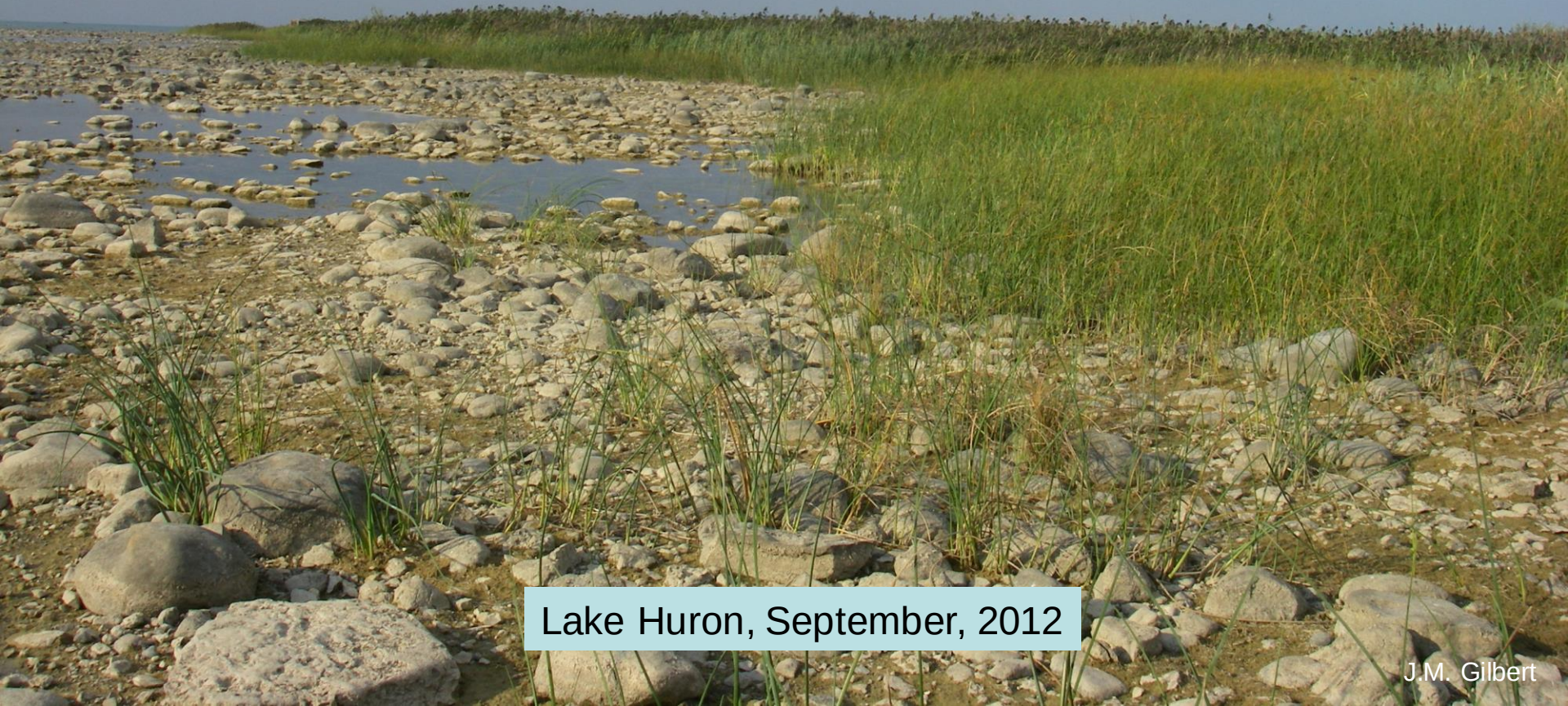


Baie du Dore September 2015

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Challenges cont'd:

Difficult Terrain



Lake Huron, September, 2012

Challenges cont'd:

High Winds



Manitoulin Island, June 2015

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Challenges cont'd:

Remote Areas

Long Point October 2015

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Challenges cont'd:

Recreational Areas



Lake Huron shoreline, July 2012

Challenges cont'd:

How do we control invasive Phragmites using the tools currently available?

- Site specific approach
- Some sites can be controlled with current tools
- Many areas cannot be controlled

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

- Cutting
- Herbicide
- Excavation



Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Wet Sites

- cutting to drown if water depths >0.40 m
- shallow water cutting to reduce spread, seed production
- timing: standing dead early spring; new growth late July – fall

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Dry Sites

- cutting alone will not kill Phragmites but it may slow growth, reduce stand density, reduce seed head development
- **cut everything**
- if you can only cut once, aim for mid-July to early August



Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Dry Sites

Wetblade: combines cutting and herbicide

- control option for areas where herbicide application using spray methods is not an applicable option (ie. close proximity to lawns, crops)
- potential for Phragmites to develop herbicide resistance



Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Herbicide: most effective control option on dry land

WeatherMAX/VisionMAX (a.i.glyphosate)

- recommended rate 2.0 - **8.0** L/Ha
- add an approved surfactant (MSO Concentrate Methylated Seed Oil); concentration 0.5% - **1%** v/v

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Herbicide cont'd.

Arsenal Powerline (a.i. imazapyr)

- recommended rate 4.68 L/Ha
- non-ionic surfactant should be added at 0.25% v/v

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Herbicide cont'd.

- apply anytime after there is enough leaf surface (plant height ~1.5 m) until first heavy frost (or natural die off)
- if planning to spray earlier in growing season, cut or roll standing dead stalks in winter/early spring
- do not spray when plants are wet with dew or rain or if temperatures are too cold/hot or in high humidity
- target entire cell

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Herbicide: WeatherMAX/VisionMAX

- allow at least 3 weeks to assess plant response
- can anticipate 80 – 90% mortality
- touchup can be done in same year
- total control can be obtained within 2 -3 yrs

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Herbicide: Arsenal Powerline

- plants will not brown after application
- stalks tend to fall down during winter
- can anticipate 90%-100% mortality
- mature trees and other woody species can be killed if roots are within the spray zone
- total control can be obtained within 2-3 yrs

Control Options for SWM Ponds, Irrigation Ditches, Roadside Ditches

Excavation

- unless all of the below ground plant material can be removed it is best to spray the ditch prior to digging (wait at least 3 weeks for the herbicide to be effective)
- excavated material should only be disposed of at locations where it can be contained, monitored and if needed, controlled
- can also cover ditch spoil with dark, thick plastic or bury (0.70 m overburden)
- transported Phragmites material must be properly covered to ensure seeds and viable plant parts do not escape while en route to the disposal site

Control Program Examples

- Huron County
- London
- St Thomas

Huron County

- Approached Ausable Bayfield CA in 2014
- Phragmites was spreading on County Roads but their spray program didn't suit Phragmites control as roadside spraying for weeds only occurred every three years
- ABCA staff had appropriate licenses and experience
- staff knowledgeable about Phragmites and are on the roads frequently and can monitor
- Can spray at optimum times

Contact: Jeff VanNiekerk Field Services jvanniekerk@abca.on.ca

London

- London Invasive Plant Management Strategy adopted by city council 2017; Identified need to develop a Phragmites control program
- London Phragmites Working Group formed 2017 (city staff from Parks, Sewer Operations, Transportation, Environmental & Parks Planning, Urban Forestry, 3 Conservation Authorities (LTVCA, UTVCA, KCCA); MTO, IPCC
- Mapping program designed for city staff; reporting portal on city website for public
- Control on ESA's contracted to UTVCA
- Ongoing control by various City departments (roads, parks, urban forests)
- Sewer Ops: all Phragmites in SWM ponds to be treated by 2020
- 90% of city private lands; provide list of contractors

Contact: Linda McDougall Ecologist lmcdouga@london.ca

St Thomas

- Formed Phragmites working group 2014 (private citizens, council member, city staff: fire, police, parks and recreation, roads and drainage, Conservation Authority)
- Management Plan- Phase 1 2014
- Annual budget allocation for control on all properties within city boundary
- Five year Letter of Opinion
- Goal Phrag Free by 2020...achieved goal in 2019

Contact information: David Collins phragfreecity@outlook.com

Emergency Use Program 2016-present

- Partnership between Ontario Ministry of Natural Resources and Forestry (OMNRF), Nature Conservancy of Canada, Ducks Unlimited Canada, Ontario Parks, Bird Studies Canada, private marsh owners
- OMNRF applicant to Pest Management Regulatory Agency (Health Ca); Ontario Ministry of the Environment, Conservation and Parks needed to approve
- Allows use of Roundup Custom (glyphosate) to treat Phragmites in wet areas
- Aerial and ground application

Emergency Use Program 2016-present

- Long Point and Rondeau Provincial Park focus areas
- First time this control activity has taken place in Canada
- Monitoring undertaken by Dr. Rebecca Rooney, University of Waterloo

Coastal marshes

Rooney Lab, University of Waterloo

Ecologically important ecosystems, > 80% of marsh habitat on north shore of Lake Erie

Need to assess whole system effects of herbicide application



1. Efficacy of 2016 EUR Application

- How effective was herbicide treatment at
 - a. Eradicating Common Reed
 - b. Encouraging re-growth of resident emergent marsh

2. Comparison of efficacy in 2017 ground and aerial application

3. Fate and effects in 2016 and 2017

- i. How far did the herbicide spread?
- ii. How long did it stick around?
- iii. Whether the herbicide application resulted in an unacceptable impact to aquatic biota
 - a. Risk assessment based on exposure
 - b. Benthos
 - c. Periphyton

Field methods 2018

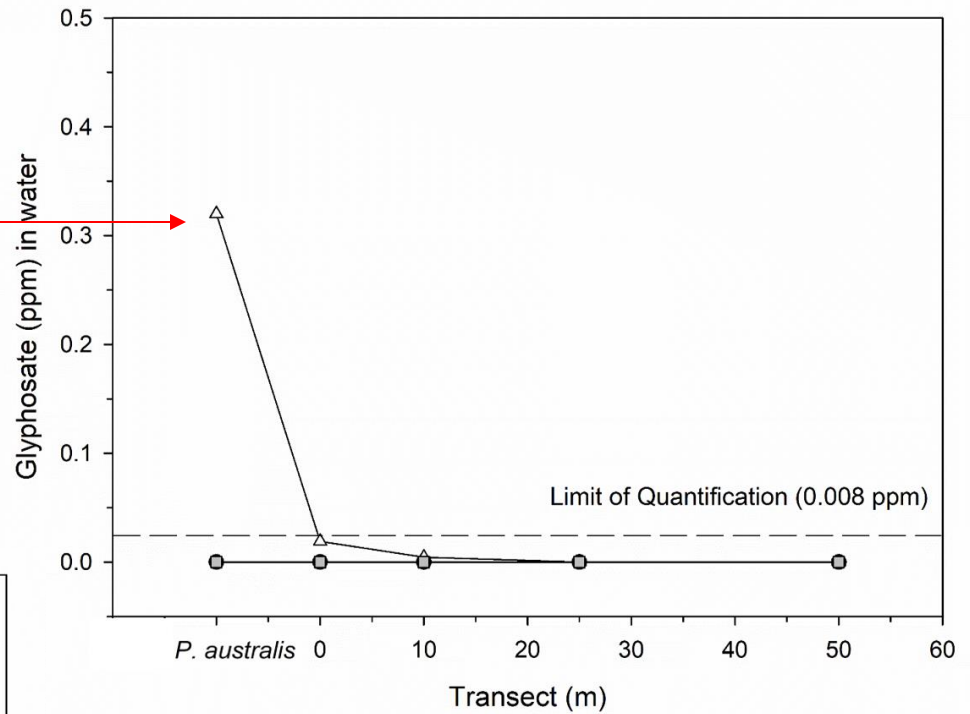
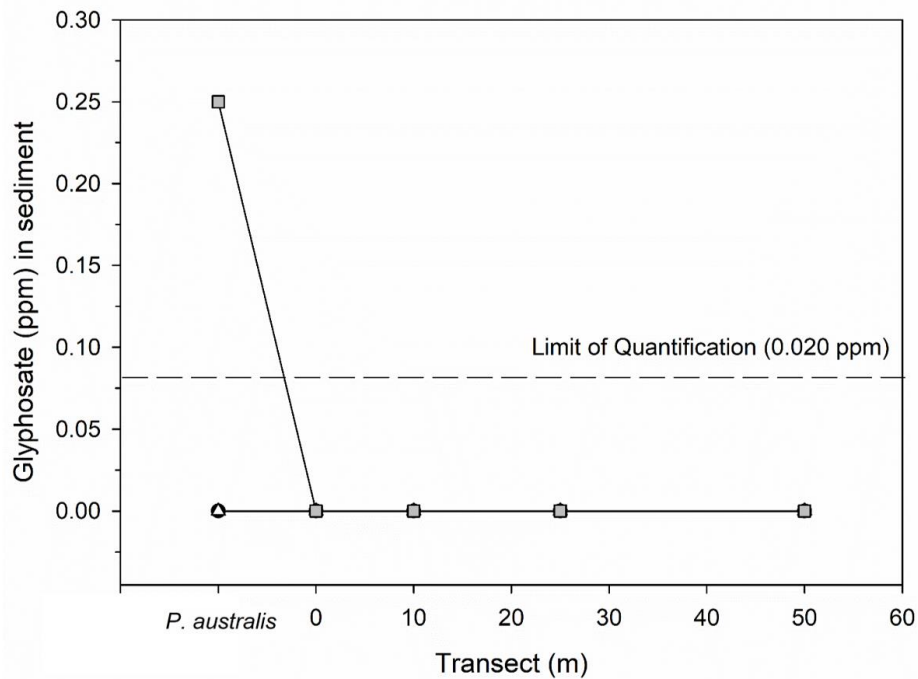
Rooney Lab, University of Waterloo

- Sampled sediment, water & total suspended solids for glyphosate, ampa, POEA
- benthic inverts for community composition, richness, diversity



Turkey Point

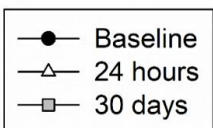
Max. concentration in 2018
(0.32 ppm); within 24 hours
at the *P. australis* site



CCME guideline for freshwater
biota:

Acute 27 ppm

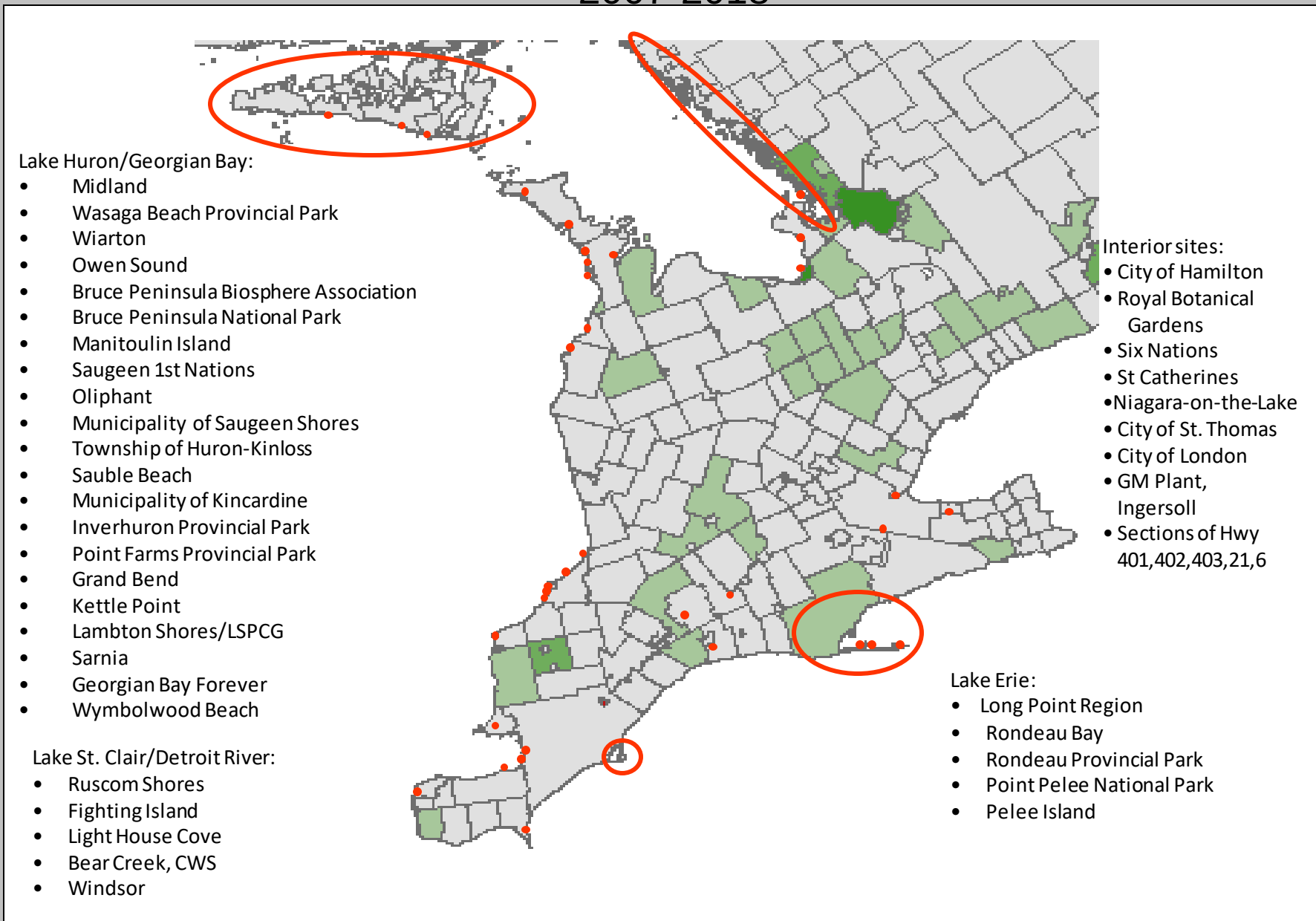
Chronic 0.8 ppm



Aquatic Safe Herbicide is Coming!

- Habitat (imazapyr)
- BASF submitted product registration application to Pest Management Regulatory Agency (Health Canada) 2017
- Anticipate registration late 2019
- Provincial approval also required

Invasive Phragmites Control Projects* in Ontario 2007-2018



* Projects that J.M. Gilbert is aware of

Ontario Phragmites Working Group

Est. Dec. 2011

Committee of the Ontario Invasive Plant Council 2013

- MNRF/MOECC
- Ontario Parks
- National Parks
- Lake Huron Centre for Coastal Conservation
- First Nations
- Lambton Shores Phragmites Community Group
- Municipality of Chatham/Kent
- Township of Huron-Kinloss
- Hamilton Phragmites Working Group
- Canadian Wildlife Service
- Environment Canada
- Nature Conservancy of Canada
- Ducks Unlimited Canada
- Georgian Bay Forever
- Ontario Good Roads Association
- City of London
- Master Gardeners of Ontario
- Ontario Horticultural Association
- Lambton Community in Bloom
- Grand Bend and Area Horticultural Society
- Conservation Ontario
- Carolinian Canada
- Researchers (University of Waterloo, McMaster University, Humber College)
- BASF
- Private contractors
- St. Thomas Phragmites Community Group
- Great Lakes Our Waters
- Bruce Peninsula Biosphere Assoc.
- ON Fed. Agriculture
- Friends of Laurel Creek, Waterloo
- Long Point Rate Payers Assoc.
- Long Point Phragmites Action Alliance
- Elgin Phragmites Working Group

Preventing Further Contamination and Spread

- It is much more costly to control Phragmites after it's established than it is to prevent its spread
- Clean the equipment before moving from a contaminated site to an uncontaminated site

Clean Equipment Protocol for Industry

Inspecting and cleaning equipment for the purposes of invasive species prevention



Smart Practices for the Control of Invasive Phragmites along Ontario's Roads

Version 1, March 2015
Ontario Phragmites Working Group

J.M. Gilbert

FACT SHEET

Controlling *Phragmites australis* (European Common Reed) in Agricultural and Rural Areas

What is Phragmites?

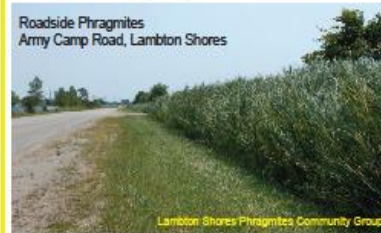
Phragmites is an aggressively spreading invasive grass capable of reaching heights greater than 5 m and densities of over 200 plants per square metre. In 2005 it was recognized as Canada's worst invasive plant by scientists at Agriculture and Agri-Food Canada.



Lambton Shores Phragmites Community Group

Why is Phragmites a concern in agricultural areas?

If left uncontrolled, Phragmites can develop into a dense mass that clogs drainage tiles and ditches, impeding water flow and causing flooding. Old stalks are resistant to decay and can remain for several years, further impeding water flow if not removed.



Roadside Phragmites
Army Camp Road, Lambton Shores

Lambton Shores Phragmites Community Group

Phragmites is spreading along roadside ditches and municipal drains, interfering with water flow.



Same roadside ditch after herbicide application & excavating

Controlling Phragmites on the Farm

Phragmites control options are site specific and may include a combination of herbicide application, excavation, cutting or burning.

Timing is Everything

Regardless of the control method selected it is important to note that animals, including nesting birds, turtles, frogs, toads, or snakes, may be present on the edges of Phragmites cells, and timing control activities to reduce potential harm or mortality should be a consideration.

Cutting

- Although cutting will not cause Phragmites mortality, it may slow growth, reduce stand density and reduce seed head development
- If this method is selected as a management option, a regular cutting regime must remain in place for perpetuity, since the plants can grow quite rapidly and dense cells can re-establish once cutting discontinues

Herbicide Application

- Mortality rates of between 70–95% can be expected after one treatment and complete control can be expected after two treatments for most sites
- Depending upon the site conditions, control can be undertaken using conventional equipment such as boom sprayers
- Allow at least three weeks after herbicide application before cutting, burning or excavation activities take place to ensure the chemical has time to be effective
- If plants are to be treated before they reach full height it is highly recommended that the standing dead plants be flattened or cut prior to the growing season, to increase herbicide contact with live plants and reduce product waste

Disposal

- There are many benefits to removing dead plant material including restoring water flow and native vegetation
- For more information on proper disposal refer to "Smart Practices for the Control of Invasive Phragmites along Ontario's Roads" – Ontario Phragmites Working Group

Fact sheet created by:



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Achieving the goal of an effective, efficient and environmentally responsible control program

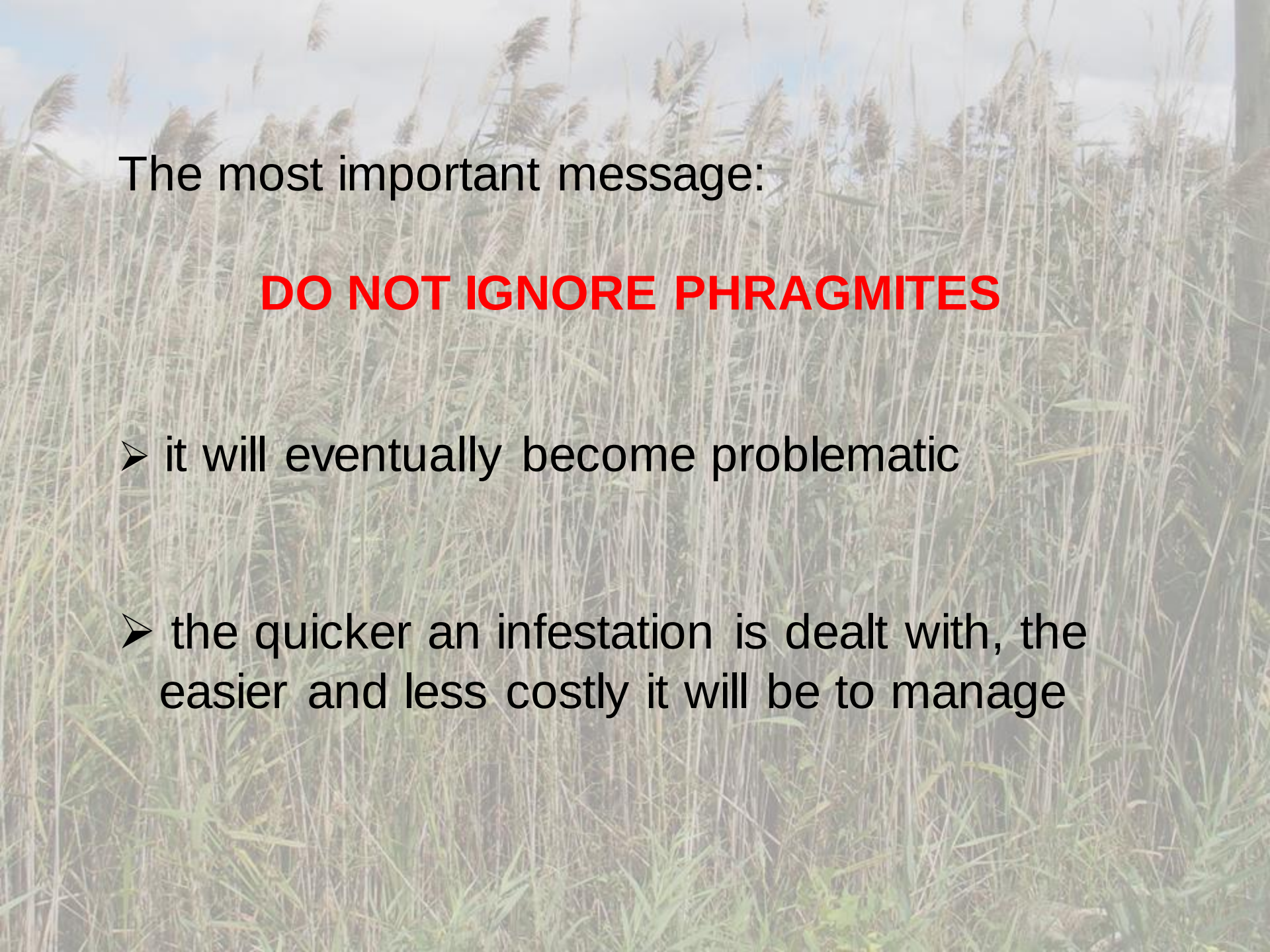
- 1) Control spread vectors along roads and agricultural drainage ditches
 - requires government agencies engagement
 - prioritize roads and cells adjacent to rivers, creeks, wetlands
 - promote the Clean Equipment Protocol
- 2) Availability of over water and aerial herbicide control options
- 3) Implement an effective education campaign
 - needs to be added to the provincial Noxious Weed List
- 4) Provide local groups with required support
- 5) Dedicated funds – Federal/Provincial/Municipal/Private sources

Achieving the goal of an effective, efficient and environmentally responsible control program

➤ **Locally driven**

➤ **Management Plan:**

- 1) Scope of current invasion: habitat type, ditches, acreage
- 2) Control options (water, timing, habitat, recreational activity...)
- 3) Dealing with complications of different land ownership (Federal, Provincial, Conservation Authorities, Municipal, Private, NGOs)
- 4) Associated costs; funding options
- 5) Prioritizing target sites
- 6) Building short and long-term capacity/infrastructure



The most important message:

DO NOT IGNORE PHRAGMITES

- it will eventually become problematic
- the quicker an infestation is dealt with, the easier and less costly it will be to manage

Is this the next problematic invasive?



Questions?

