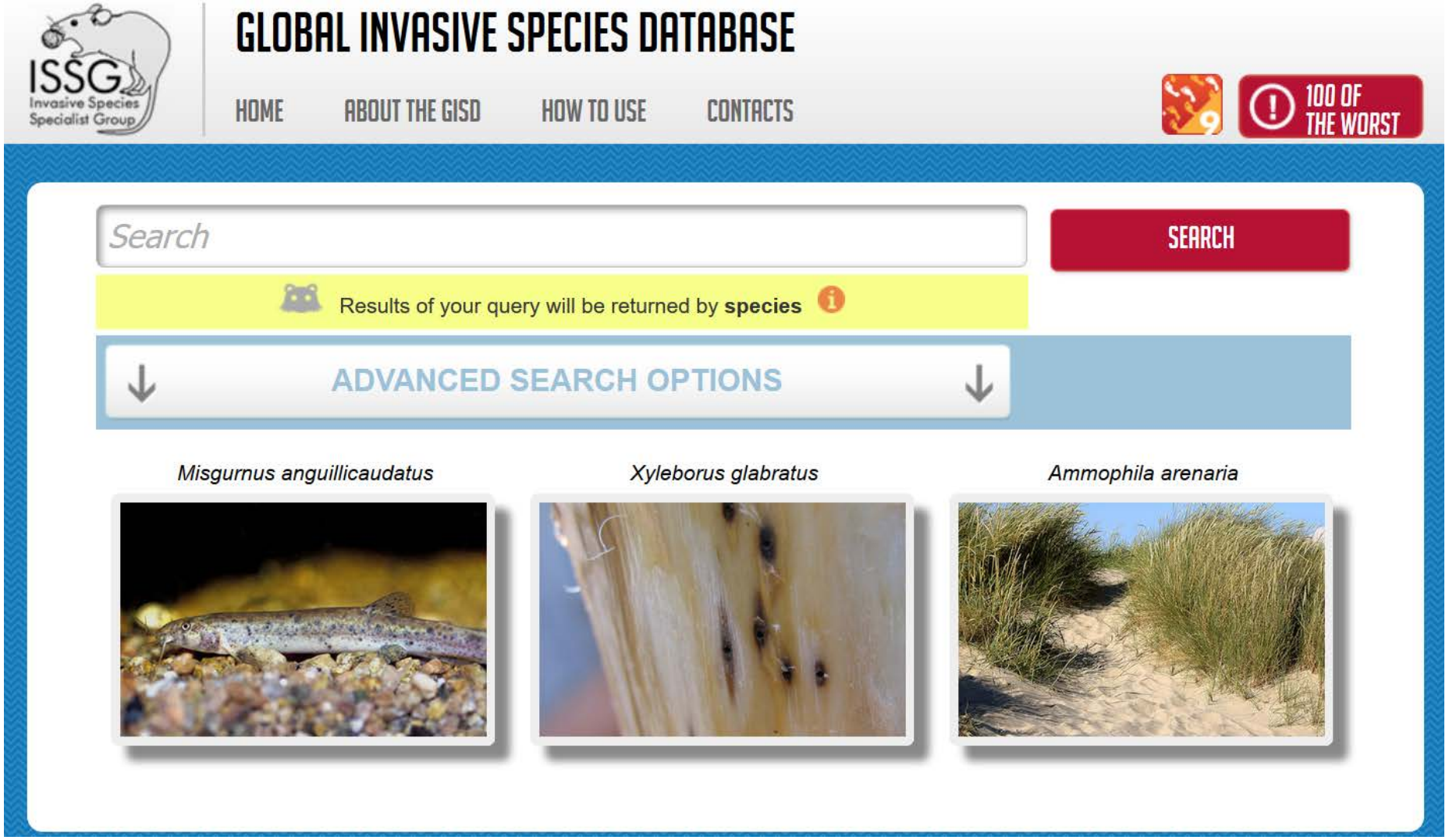
Niagara region's Aquatic and Riparian Invasive Species Control Database

Lyn Brown, M.S.

Databases as an Invasive Species Management tool



Present Study - **Research Gap**

- No databases focused on invasive species management in Niagara

Present Study - **Objectives**

1. Inventory invasive detection and control activities in Niagara and compare to the literature
2. Examine perceived efficacy for control techniques
3. Make a DB w/GIS map to improve management by facilitating collaboration

Methods

Methods - Step 1

Identify potential invasive species in the Region

Methods - Step 2

Identify management activities

Brock University

Bruce Trail Association

Canada Border Services Agency

Canadian Wildlife Service

City of Niagara Falls, Landscape Architecture

City of Port Colbourne Public Works

Coalition of the Niagara Escarpment

District School Board of Niagara, Public Affairs

Ducks Unlimited Canada

École élémentaire LaMarsh

Environment and Climate Change Canada

Escarpment Biosphere Conservancy

Fort Erie Conservation Club

Friends of Fort Erie Creek

Friends of Short Hills Park

Friends of the Glen

Friends of Walker's Creek

Grape Growers of Ontario

Great Lakes Fishery Commission

Harmony Residents Group

International Joint Commission, Great Lakes Regional Office

Invasive Species Centre

Land Care Niagara

Niagara Catholic District School Board (Facility Services)

Niagara Chapter of the Ontario Woodlot Association

Niagara Escarpment Commission

Niagara Land Trust

Niagara Remedial Action Plan

Niagara Restoration Council

Niagara-On-The-Lake Sustainability Network

Niagara's Outdoor Adventure Campus

Ontario Apple Growers

Ontario Invasive Plant Council

Ontario Nature

Ontario Phragmites Working Group

Ontario River's Alliance

Ontario Soil and Crop Improvement Association

Ontario Tender Fruit Growers

Ontario Trails Council

Preservation of Agricultural Lands Society

Ridley College

School of Horticulture and Botanical Gardens

St. Catharines City Hall Transportation and Environmental Services

St. Lawrence Seaway Management Corporation

Thorold Public Works

Town of Fort Erie

Town of Grimsby Public Works

Town of Lincoln Planning Department

Town of Pelham Public Works

Township of Wainfleet

Township of West Lincoln Planning Department

Trout Unlimited Canada

Welland Public Works

Welland River Keepers

Wildlife Preservation Canada

Methods - Step 3

Identify organizations

Canadian Food Inspection Agency

Niagara College Canada

Peninsula Field Naturalists

Friends of Malcolmson Eco-Park

Ontario Power Generation

Hamilton Naturalists' Club

Niagara Parks

Ontario Federation of Anglers and Hunters

The Nature Conservancy

Fisheries and Oceans Canada

Bert Miller Nature Club

Niagara-on-the-Lake

Niagara Peninsula Conservation Authority

Niagara Falls Nature Club

Ontario

Ministry of Natural Resources and Forestry

Methods - Step 4

Design & Pre-test questionnaire

Appendix D: Survey Instrument

___Date_____Org_____

Title_____Name_____

Org
Email_____Email_____

Org Phone_____Phone_____

Please note, to keep phrasing consistent, I will be reading the questions. And, as a reminder, this questionnaire focuses on aquatic and riparian invasives only. These invasives could include species along watercourses/streams/creeks like phragmites, purple loosestrife, invertebrates, amphibians, and fish.

i. Which invasives does your organization deal with (list)?

1a. Which invasive species does your organization spend the most resources on? 1b. Why?

2. What techniques are you using to detect the presence of invasive species?

For question 3, use Collector for ArcGIS and list from question i.

3a. What control techniques do you use for the invasive species? [If they use multiple controls for an invasive, ask if the controls are all used in the same place]

Methods - Step 5

Identify Study Area

Methods - Step 6

Prepare database and map

InvasiveControlLocations2

Inv	Purple_Loosestrife
Site	20 m around the pond by the dam at Saint Johns Conservation Area.
Contr	Physical
Descrip	Hand-pull the purple loosestrife once per year.
Eff	75-100%
Comm	
Org	Niagara Peninsula Conservation Authority
Org_Email	info@npca.ca
Org_Phone	9057883135
Cont_FN	Kim
Cont_LN	Frohlich
Cont_Email	kfrohlich@npca.ca
Cont_Phone	9057883135x241
GlobalID	{df85e174-ecdc-4696-85dd-ec60e86365cf}

Results & Discussion

Niagara Region Invasive Management Efforts 2017-2018

- 16 interviewed
  - 8 detected only
  - 8 detected and controlled

- 35 control efforts
- Spatially - mainly along Niagara River

Invasive Management Gaps

- NPCA & ONMNRF doing little to no control
- 99% of aquatic invasives unchecked in Niagara Region
- No invasive detection/control along the Welland Canal or Lake Erie or Ontario shorelines

Invasive Detection and Control

- 40 detected
  - Primarily visually detected
- 12 controlled
  - Only chemical and/or physical control

Press Herald 2010

Grow Natives, 2019

Control Efficacy

- Average Control Efficacy in Niagara Region: 61-86%
- 8 of 12 ratings corroborated with the literature
- Others may not have due to:
  - Control timing
  - Site
  - Distribution
  - Population Size


Niagara's Aquatic and Riparian Invasive Species Control
with Web AppBuilder for ArcGIS
QEW
InvasiveControlLocati...
1 of 1
St. Catharines
Tuscarora Nation Reservation
405
Niagara Falls
58
Niagara Falls
420
Short Hills Provincial Park
Niagara River
406
190
Welland
QEW
140
Fort Erie
Dunnville
Port Colborne
3
Rocky Point Provincial Park
Twenty Mile Creek
Oswego Creek

Costs

Niagara Region in 2017-2018

- $1,216,718
- 4,570 man-hours

Present Study - **Contributions**

- Resource – provides baseline information
  - Contributes to the global information network
- Practical tool
- Collaboration tool

Recommendations

- Increase aquatic invasive control activities
- Target control efforts at the Welland Canal & along L. Erie shoreline
- Increase # of orgs controlling aquatic/riparian invasives in Niagara
- To prioritize management, do an ecological-social risk assessment
- Make a regional invasive species strategic plan
- NPCA to make an invasive species strategy
- Focus on early detection with remote sensing, DNA barcoding & dogs
- Use a variety of control methods
- Share information about planning & decision-making
- Increase collaboration via database use & workshops

Questions?