Out with the bad, in with the good: invasive species control and restoration on Pelee Island

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Overview

- What is the Nature Conservancy of Canada?
- Planning broadscale finescale
- Pelee Island
- Invasive species and prioritization
 - Phragmites
 - Garlic mustard
 - Invasive shrubs
- Restoration and associated invasive problems



The Nature Conservancy of Canada

- Canada's leading not-for-profit, private land conservation organization
- Acquire land and manage for conservation
- Founded in 1962
- Have helped secure over 2.8 million acres (1.1 million ha) across Canada
- Conserve areas of natural diversity focus on highest priority landscapes representing diversity of Canada





LANDS CONSERVED BY THE NATURE CONSERVANCY OF CANADA 1962 - 2015



NCC's Priority Natural Areas





Western Lake Erie Islands Natural Area





Pelee Island

- Originally several rocky islands connected by marsh, drained via canals and pumphouses in late 1800's
- Cattle grazing common up to 1970s
- Small permanent population, larger (1500) seasonal population
- 18% in conservation ownership (incl. 60% of all natural habitat)
- 32% natural cover compare to 7% in Essex County mainland
- Most of remainder is agricultural (soybeans, vineyards)
- Many rare species and habitats







•••• Trail

Scale 1:48,000 500 1,000

Data Sources:

(SWOCP), 2010

July 10, 2018

Pelee Island



Biggest threats

- Habitat loss
- Invasive species



Pelee Island plants

- 642 plant species recorded
- 81 tracked species species that are rare/uncommon in Canada and/or Ontario
- 194 non-native (30%)









Prioritization: Western Lake Erie Islands NACP

- Invasive plant threats
 - Phragmites
 - Garlic Mustard
 - Invasive shrubs
 - Eurasian pasture grasses
 - White Mulberry
- Other considerations
 - Relevance to other work
 e.g. restoration













Disdaimer: This map is illustrative only. Do not rely on it as being a precise indicator of privately-owned land, routen, locations of features, nor as a guide to navigation. This map may contain omissions or errors. Not sarvey grade.

Data Sources: Nature Conservancy of Canada, 2019 Ontario Ministry of Natural Resources and Forestry, 2019 Southwestern Ontario Ontrophoto Project (SWOOP), 2015

January 08, 2019



Phragmites

- Started control in 2011, now mostly cleanup and catching new populations before they spread
- Several strategies used
- Hit big patches where possible to remove seed/rhizome source
- Follow up!
- Monitor wet spots!







Red = phramites Pink = wetland



Phragmites control approaches

- Roll, burn, spray
- Handwicking
- Spraying
- Spraying and cutting
- Cut and drown (not yet used on Pelee)





Roll, burn, spray

- Used for large (800 m long), dense patch along shoreline
- Well-established, abundant dead material
- Contractor
- Required letter of opinion both for SAR and herbicide use





Phrag treatment area two years later



 - 2 years post-treatment: 26 native species, including Swamp Rosemallow (Special Concern)





Follow up

- Initially sprayed larger patches that were missed
- Later treating individuals
- Increased lake level finished job









Handwicking

- Used where stems are few and scattered
- Experimented with this approach for a few years, limited success
- Messy, hard to get enough herbicide on plant





Spraying

- Handsprayers
- Backpack better reach
- Most effective for small patches
- Replaced handwicking even for single stems





Cutting/spraying

- Medium-sized patches
- Spray from edges with backpack sprayers
- Cut dead material with kombi tool following year
- Repeat until patch is gone





Summary

- Big patches: contractor job, remove dead material if possible
- Medium patches: can be treated with backpack sprayers, but will take several years, remove dead material if possible
- Small patches: easily treatable with backpack sprayers
- Single stems: spray or cut/drown
- Monitor!!









Garlic Mustard

- Mapping: if there are trees, there is garlic mustard
 - If there is disturbance, there is more garlic mustard
- Prioritization varies, depends on control method, time of year, accessibility of patch, time available





FLORIAN DIAMANTE NATURE RESERVE - ANTHROPOGENIC FEATURES





Garlic mustard – control

- Pulling
- Spraying (glyphosate)
- Biggest factors in choosing – timing and sensitivity of the area



Garlic Mustard - spraying

- Backpack sprayers, glyposate
- Good for early in year, and/or very disturbed areas
- Minimizes soil disturbance
- Can be hard to get a good weather window before native species emerge





Garlic Mustard pulling



Richard and Beryl Ivey: Invasive Species Control Property Boundary Garlic Mustard Pulled 08-May-2015

Legend

50





Garlic Mustard - disposal

- Leave in pile on site
- Most of the material will decompose by following year
- Check pile following year – if anything has germinated, pull it







12 May 2012

11 May 2018





Eurasian

pasture

grasses

Invasive shrubs

- Most prevalent Amur honeysuckle
- Also buckthorn, autumn olive, multiflora rose, dog rose





Amur Honeysuckle

- Some parts of treed alvar dominated by non-native honeysuckles
- Remove to open up canopy, combat succession

 recommended for blue racer
- Target priority habitats
- Remove via cut stump application of Garlon RTU











Eurasian pasture grasses

- Grazing history
- Alvar communities
- Form mat, allow soil to build, facilitate succession





Field Restoration

- 94 ha (230 ac) of agricultural land
- 61 ha (150 ac) restored so far.
- Goal to recreate `natural' habitat and diversity
- Support more wildlife and facilitate dispersal between existing natural areas





Wetland creation

- Straightforward holes that fill with rainwater
- Mark on field, hire contractor to excavate
- Break and plug field tiles
- Irregular edges, gentle slopes







Upland restoration

- Hand collect seed from wild populations on the island
- 30-40 species
- Early successional species as well as trees and shrubs
- Plant by broadcast seeding and volunteers hand-planting acorns and seedlings





Results



Results

- Planted species dominant in abundance, native non-planted dominant in diversity
- 7% of species are problematic invasives







Also creating a void (at least initially)



THE FAR SIDE . Gary Larson



The woods were dark and foreboding, and Alice sensed that sinister eyes were watching her every step. Worst of all, she knew that Nature abhorred a vacuum.





Canada Thistle

- Noxious weed neighbours don't like
- Grows in ditches
- Problem in restored fields adjacent to roadsides





FLORIAN DIAMANTE NATURE RESERVE - RESTORATION





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