Preserving Biodiversity at Rouge Park: identifying and meeting the challenges

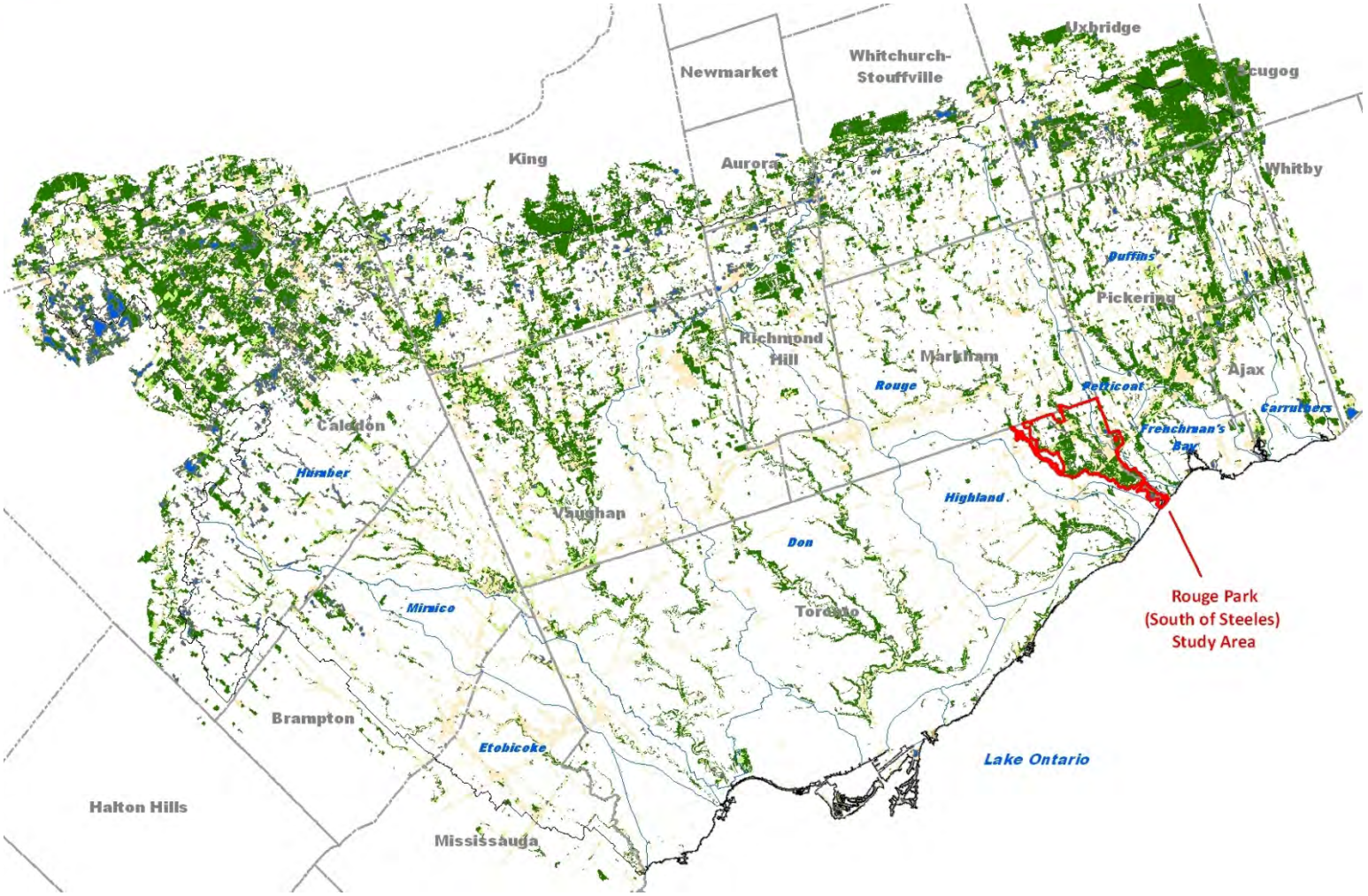
The Living City Foundation

Toronto and Region Conservation for The Living City

Outline

- The Rouge Park
- What has been lost
- Why this happened
- How we might respond

ROUGE PARK INTRODUCTION


Uxbridge
Whitchurch-
Stouffville
Newmarket
King
Aurora
Whitby
Duffins
Pickering
Richmond
Hill
Markham
Ajax
Rouge
Petticoat
Carruthers
Frenchman's
Bay
Caledon
Humber
Highland
Vaughan
Don
Mimico
Toronto
Rouge Park
(South of Steeles)
Study Area
Brampton
Etobicoke
Lake Ontario
Halton Hills
Mississauga


TAUNTON RD
STEELES AVE
BEARE RD
ALTONA RD
WHITES RD
FAIRPORT RD
SEWELLS RD
REESOR RD
PLUG HAT RD
FINCH AV
MEADOWVALE RD
ROSEBANK RD
NEILSON RD
OLD FINCH AVE
SHEPPARD AV
KINGSTON RD
FINCH AVE
WYN RIVERS DR
SHEPPARD AVE
MACDONALD-CARTIER FREEWAY
RAMP
HIGHWAY 401 C E
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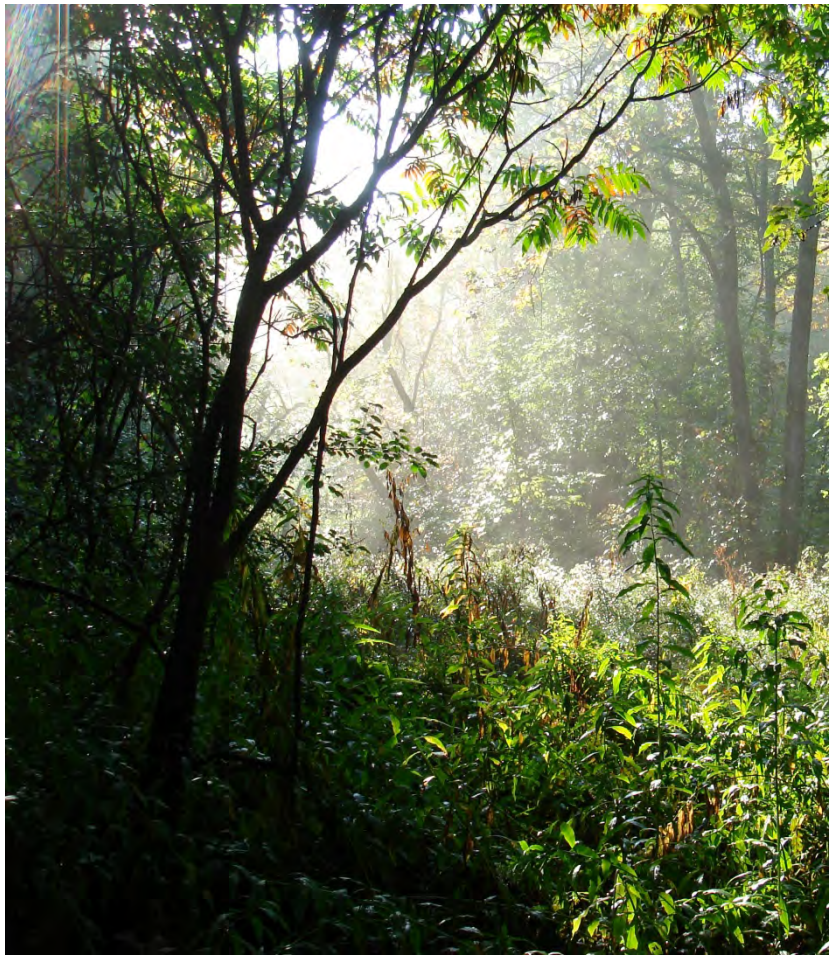
Significance of the Park



- Location: Toronto (about 1500 ha south of Steeles)
- 880 species of plant observed 2001-11
- Overlap of Carolinian and Great Lakes life zones
- Forest, wetland, savanna, and successional communities (151 types)
- 15 species of plant found nowhere else or at 1 other location in TRCA

History of the Park

- Rouge Conservation Report – 1956: “large-scale wilderness preserve”
- Concern over development – began in 1960s-1970s: Lois James
- Save the Rouge Valley System – 1975
- 1980s – almost lost Scarborough section (5000 acres) to developers: big political fight
- Protected in 1988
- National Park proposal: May 2011 Throne Speech
- Little Rouge up to Oak Ridges Moraine, also includes urban valleyland in Markham and Richmond Hill

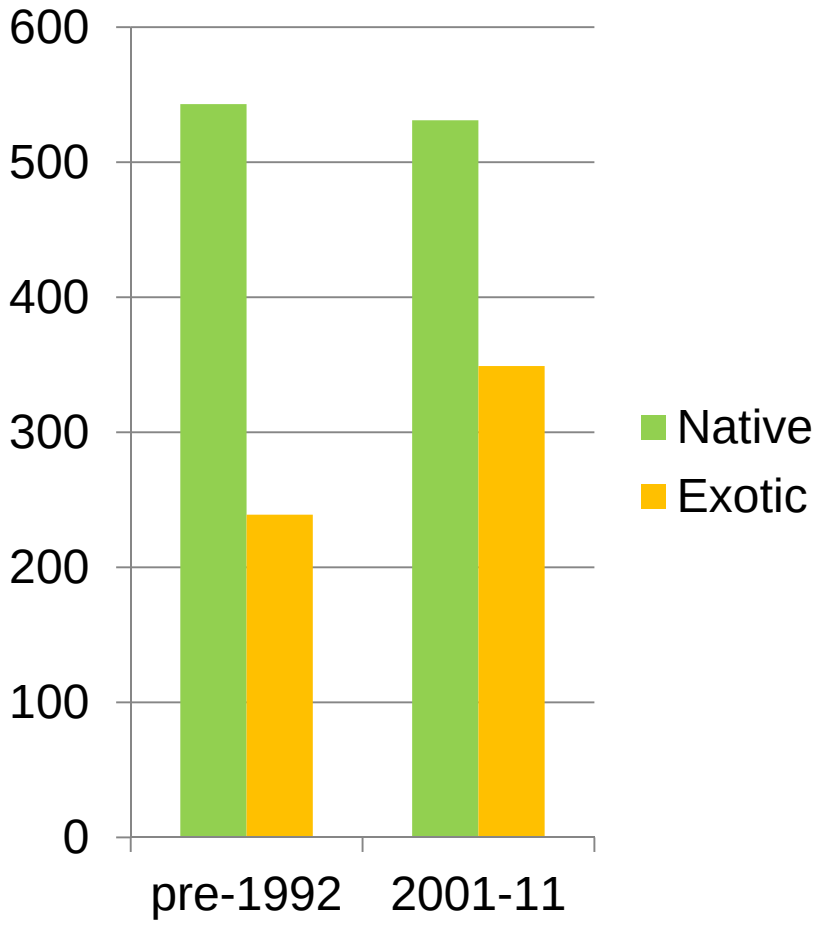
Assess changes occurring over recent decades

- **Look at historical surveys of flora in the Rouge**
- 1973: John Riley, *Ontario Field Biologist* (publ. 1978)
- 1988-90: Steve Varga and John Riley, MNR (publ. 1991)
- 1991: James Kamstra, addendum to MNR report
- 2001-2010: TRCA natural heritage surveys including ELC and flora (a couple of incidental records from 2011)
- Coverage: roughly from Lake Ontario to Steeles, reports don't cover exactly the same area but close overlap
- Roughly 40 years of record corresponding to momentum of park activism and establishment.

WHAT HAS BEEN LOST

Results

- There has been a net **loss** of native plant species from the Rouge Park in spite of protection
- Exotic species have **increased** in prominence
- OMNR pre 1992: 543 native species, 239 non-native
- TRCA 2001-11: 531 native species, 349 non-native



Results

- Sensitive native species particularly affected (L1 to L3 and/or rare): 31 seem to have gone between 1970-2010: out of about 260 spp **this is 12% loss, 3% per decade**
- An additional 20 or so drastically reduced (e.g. large populations now down to 1-10 plants) or not found for other reasons (e.g. survey limitations and water levels)
- Oak savannah or barren: 12 species
- Wetland: 12 species
- Mature forest: 6 species
- Disturbed successional: 1 species
- Matches results from other studies (e.g. Boston area)

Bashful bulrush: *Trichophorum planifolium*

Other Examples

Holly, 2009

- Pale vetchling: *Lathyrus ochroleucus* (1973)
- Showy orchis: *Galearis spectabilis* (c. 1988)
- Hobblebush: *Viburnum lantanoides* (c. 1988)
- Swamp rose: *Rosa palustris* (c. 1988)

WHY THIS HAPPENED

Causes of Degradation

- TRCA Terrestrial Natural Heritage Strategy recognizes numerous factors
- Effect of external influences impinging
- Merely protecting the land and setting it aside is not enough!

Climate and Edge Effect

Altered Hydrology

Encroachment

Air Pollution

Trail Proliferation

Fire Suppression

Opportunistic Fauna

Invasive Species

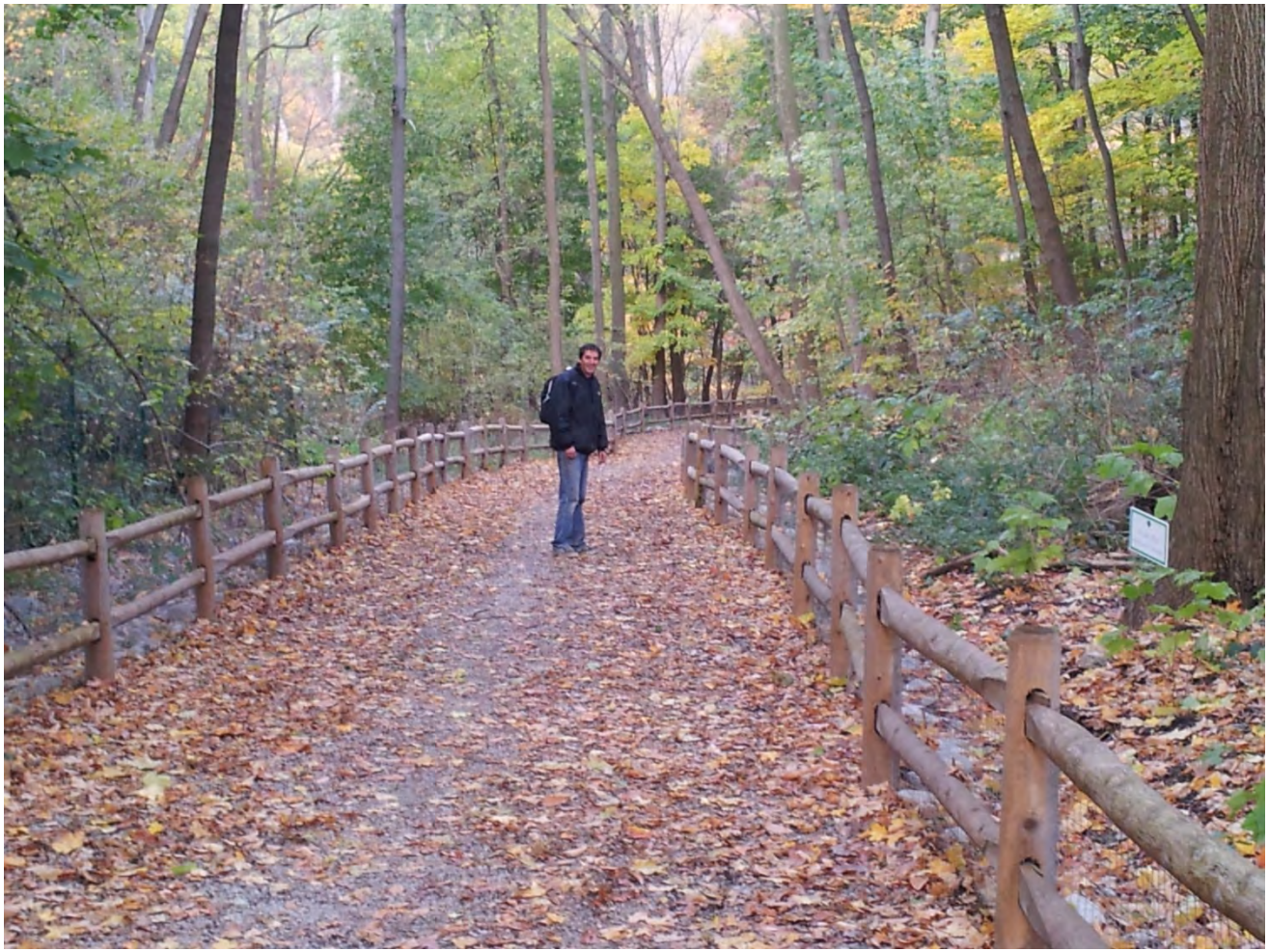
Invasive Species

- DSV
- Phragmites
- Garlic mustard
- Garden escapes
- Often but not always secondary to above problems: synergistic
- EAB & pathogens
- Vine overgrowth

Vine expansion: atmospheric changes?

Allen B.P., Sharitz R.R. and Goebel P.C. 2007. ***Are lianas increasing in importance in temperate floodplain forests in the southeastern United States? Forest Ecology and Management 242: 17-23.***

HOW WE MIGHT RESPOND



How We Might Respond

1. Manage The Matrix
2. Manage Invasive Species
3. Restore and Improve Habitat Connectivity
4. Ongoing Monitoring

1. Manage the Matrix

- **Trail system**
- Contain users
- Trail surfacing
- Fences, boardwalks
- Leash pets – exclude from sensitive areas
- Signage
- Deal with encroachment
- Stewardship
- Maintain!!!

1. Manage the Matrix

- **Low Impact Development**
- Green roofs, bioswales
- Hydrology
- Climate mitigation
- Urban habitat
- Air pollution: broader issue

1. Manage the Matrix

- **Nature Reserves**
- Based on locations of sensitive flora, fauna, and vegetation communities
- Strict limits on use
- Priority is protecting biodiversity and sensitive species

2. Manage Invasives

- Management plan
- Deal with other factors
- Prescribed burns
- Deer
- Direct removal – localized
- Biological control

3. Connectivity & Restoration

- Link to other natural areas, watersheds, waterfront
- Plant strategically to ensure success: site conditions
- Quality over quantity
- Collect, grow, plant local seed sources

4. Monitor the Park

- Keep doing biological inventories regularly (decadal basis)
- Long-term monitoring plots (annual basis)
- Specific monitoring of features, populations, restoration plantings (annual basis)
- Adaptive Management

Above all: commit

- Long-term commitment to well-being of ecosystems
- Small continuous effort better than large one-off
- Federal support can help

Thank You!

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