The Role of Native Species in Urban Forest Planning and Practice: A Case Study of Carolinian Canada

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Urban Forest Management

Substantial investment in the urban forest, focused on planting more trees

Prioritize native species (Ordonez & Duinker, 2013)

Municipal actors attitudes and actions regarding native trees

Maintaining Native Species in Urban Areas

Knowledge gap: Tolerance to urban stressors

Ecological Integrity suggests native species should be prioritized

Ecosystems services are provided by non-native trees

Climate change? Assisted Migration?

Research Goal

Examine the role of native trees in UFMPs and municipal planting practice





Methods

Reviewed UFMPs and Planting Lists

Conducted Interviews

Interviewed 16 municipal foresters (28 open-ended questions, coded using NVivo)

explored attitudes and use of native species

Municipalities Interviewed

MUNICIPALITY (UFMP year drafted)	POPULATION (Stats Canada, 2011)	UFMP STATUS (As of February, 2015)
Ajax (2011)	110,000	Active
Brantford (2010)	95,000	Active
Burlington (2011)	180,000	Active
Guelph (2012)	125,000	Active
London (2014)	370,000	Active
Mississauga (2014)	720,000	Active
Oakville (2008)	185,000	Active
St. Catharines (2011)	135,000	Active
Toronto (2013)	2,650,000	Active
Cambridge	126,000	In Draft
Milton	85,000	In Draft
Brampton	524,000	None
Hamilton	520,000	None
Markham	302,000	None
Niagara Falls	83,000	None
Windsor	211,000	None

UFMP Municipalities Prefer Native Trees

MUNICIPALITY	VALUES	PREFERENCE FOR NATIVE SPECIES? (Y/N)
Ajax	"favouring native tree species wherever possible."	Y
Brantford	"native species are preferable"	Y
Burlington	"increase native biodiversity"	Y
Guelph	"protect and expand native species diversity"	Y
London	"emphasizing native species where possible."	Y
Mississauga	"maximize native biodiversity"	Y
Oakville	"Preservation and enhancement of local natural biodiversity"	Y
Peel Region	"policies require use of native species"	Y
St. Catharines	"requirements for native planting have been implemented."	Y
Toronto	"encouraging native biodiversity through management"	Y

Why Increase the Ratio of Native Trees?

- Carolinian Forest is unique
- Wildlife benefit
- Less invasive
- Council requests it
- Ecological integrity
- They fair better
- Sense of place
- It is not a goal (municipalities with no UFMP)

Non-Native Planting

MUNICIPALITY	NON-NATIVE VALUES	ACTIVELY PLANT NON-NATIVE TREES
Ajax	"50 species are included in the planting schedules. Of these, 39 are non-native"	X
Brantford *		
Burlington	"plant a mix of native and non-invasive, non-native species"	Χ
Guelph	"Non-native species maybe considered"	X
London	"non-native plantings may be required to address harsh environmental conditions"	Х
Mississauga	"non-native plantingnecessary"	X
Oakville	"non-native where necessary"	X
Peel Region	"minimize use of non-native species"	X
St. Catharines	"use native species where appropriate"	X
Toronto	"diverse mix of native and non-native species"	X

Non-Native Tree Planting

- Poor site conditions (100% of respondents)
 - Salt
 - Utility conflicts
 - Small growing space
 - Compacted soil
 - Windy planting site

Why Non-Native Trees are Planted



Factors Determining Species Planted

Logistical concerns dominate Native/Integrity is secondary

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What Factors Determine the Species that is Planted?





Assisted Migration in UFMPs

MUNICIPALITY	ASSISTED MIGRATION MENTIONED?	CLIMATE CHANGE CONSIDERED?
Ajax	X	Х
Brantford		Х
Burlington		Х
Guelph	X	Х
London		Х
Mississauga	X	Х
Oakville		Х
Peel Region	X	Х
St. Catharines		Х
Toronto	X	Х

Discussion

Municipalities with UFMPs are considering more managerial aspects with native trees

- (planting lists, native consideration in tree requests)
- Can improve these practices
- Municipal practice highlights the challenges of prioritizing native species, and shortcomings of tree species supply

 UFMPs are related to more thoughtful management of native species

Future Research & Management Recommendations

- Align development of planting lists with native species goals
- Altering the species availability at the place of purchase
- Actively manage assisted migration
- Native species suitability trials
- Species suitability information regarding assisted migration
- Strengthen municipal network to share research findings
- Need for consistent messaging (municipalities plant many non-native trees)

Any Questions?

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