



# National Context: Examples of Urban Forestry Best Practices across Canada

Michael Rosen, R.P.F.  
President – Tree Canada

2018 Annual Christmas Seminar,  
December 12, Kemptville, ON



# Urban Forest History: Urban Parks

- Industrial Revolution = leisure time
- Stanley Park, Vancouver: 1886
- High Park, Toronto: 1873
- Parc Mont-Royal, Montréal: 1876
- Battlefields Park, Québec City, 1907
- Point Pleasant Park, Halifax, 1866
- Bowring Park, St. John's, 1914



# Jorgensen and Growth of “Urban Forestry”

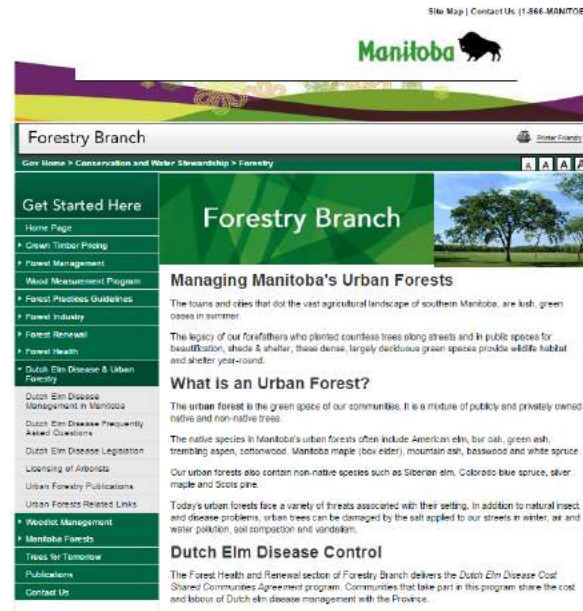
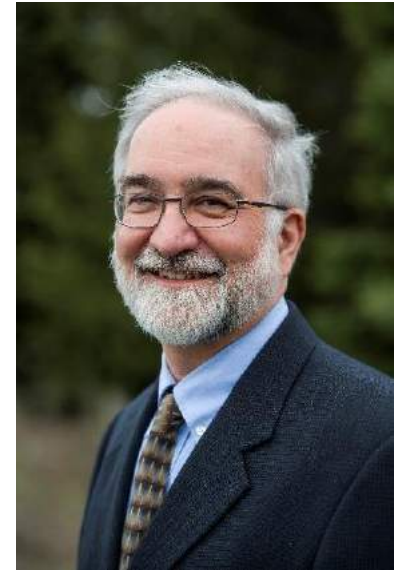
- 1955: U of T/founded Shade Tree Research Laboratory for DED/OSTC/Masters students
- 1970's: Launch of DED/uf programs + expansion in education/ISA
- 1<sup>st</sup> Canadian Urban Forest Conference (1993)
- 2000: “Urban forest” in legislation (ON.Prof.For. Act), Urban Forests in NFS 2003-2008, CUFN (2004), CUFS (2008-)
- Expansion in Education:
  - S.S. Fleming/UNB uf/arboriculture (2013)
  - UBC Bachelor of Urban Forestry (2015)
  - U of T?





# Three themes in Canadian Urban Forestry

1. Superficial support by the provincial and federal governments
2. Individual commitments to developing urban forestry excellence
3. Awareness and action fueled by natural disasters



# Typical Municipal Urban Forestry Program

- Statement of Goals and Objectives
- Responsibilities of Parks, Urban Forestry, Citizens Committee, Public Works
- Legal Basis: land use compatibility, forestry operations, bylaws both municipal and private
- Inventory of trees: species, size, health
- Tree planting: standards, species, spacing and location
- Tree Maintenance: pruning cycle, removals, protection, education
- Integrated Pest Management
- Operational management (inventory, training etc.)
- Disaster planning





# Threats to Urban Forests

- Weak strategic approach at federal, provincial, and academic levels
- Climate change (drought, storms)
- Urbanization, infill development and growth
- Invasive insects, diseases and plants
- Maintenance of urban green infrastructure (financial burden for municipalities/no programs)



# Toronto

- Area: 63,020 ha
  - Population: 2,929,886 (2017)
  - Parkland: 12.7%
  - Present Canopy: 26.6-28% (2013)
  - Canopy Target: 40%
  - # Trees: 10.2 million (6 million private)
  - Planting: 100,000/year
  - Maintenance: 400,000/year
  - Disasters: DED, EAB, Ice Storm, invasive plants
  - Budget: \$73 M (2017)
- = \$24.90/person



contained 7,500,000 trees

stored 900,000 Mg of Carbon

sequestered 28,000 Mg of Carbon

removed about 1,500 Mg of other air pollutants

(For an estimated associated economic value of \$8.5 million – Kenney 2005)



# Toronto – Best Practices

- Sheer Volume and detail of Program
- # of Staff and professionalism (15 foresters+)
- Diversity of Program
- Extent of partnerships: federal/provincial gov't (pests), LEAF, universities, community associations, volunteers





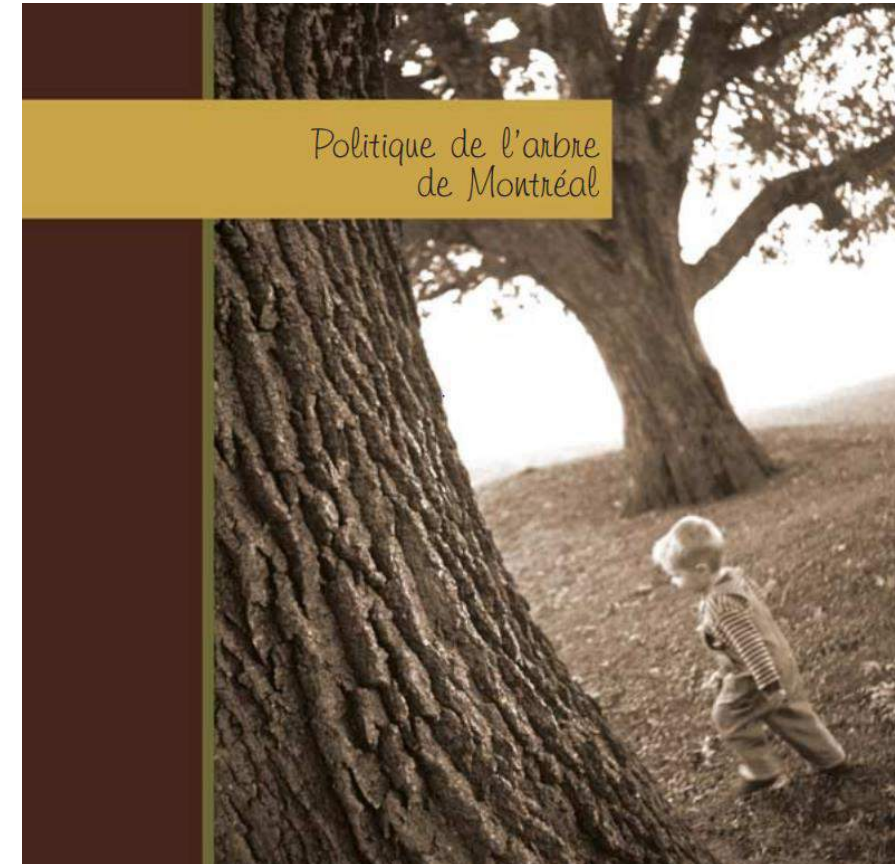
# Montréal

- Area: 43,150 ha
  - Population: 1,705,000 (2016)
  - Parkland: 7.4%
  - Present Canopy: 20% (2012)
  - Canopy Target: 25% (2025)
  - # Trees: 1.2 million (public only)
  - Planting: 22,000/yr (partners)
  - Maintenance: 20,000/yr
  - Disasters: DED, EAB
  - Budget: \$22.8M (2016)
- = \$13.37/person



# Montréal – Best Practices

- Politique de l'Arbre
- Partnerships – SOVERDI, Éco-Quartiers, Alliance de la Forêt Urbaine
- Province (Santé/Health) support for heat island management
- Iconic Mont Royal





# Vancouver

- Area: 11,500 ha
  - Population: 631,490 (2016)
  - Parkland: 11%
  - Present Canopy: 18% (2013)
  - Canopy Target: 22% (2025)
  - # Trees: 440,000 (62% private)
  - Planting: 22,000/year
  - Maintenance: 12,000 trees/year
  - Disasters: Wind, Invasive Plants
  - Budget: \$6.42M
- = \$10.17/person



# Vancouver - Best Practices

- World's *Greenest City* initiative
- Protection of Trees By-laws
- Retaining more trees on development sites
- Expand Park Planting and Private Property Planting Programs
- Updating Street Tree Management Plan
- Creating Street and Park Succession Plans



Cary Fir, 1895





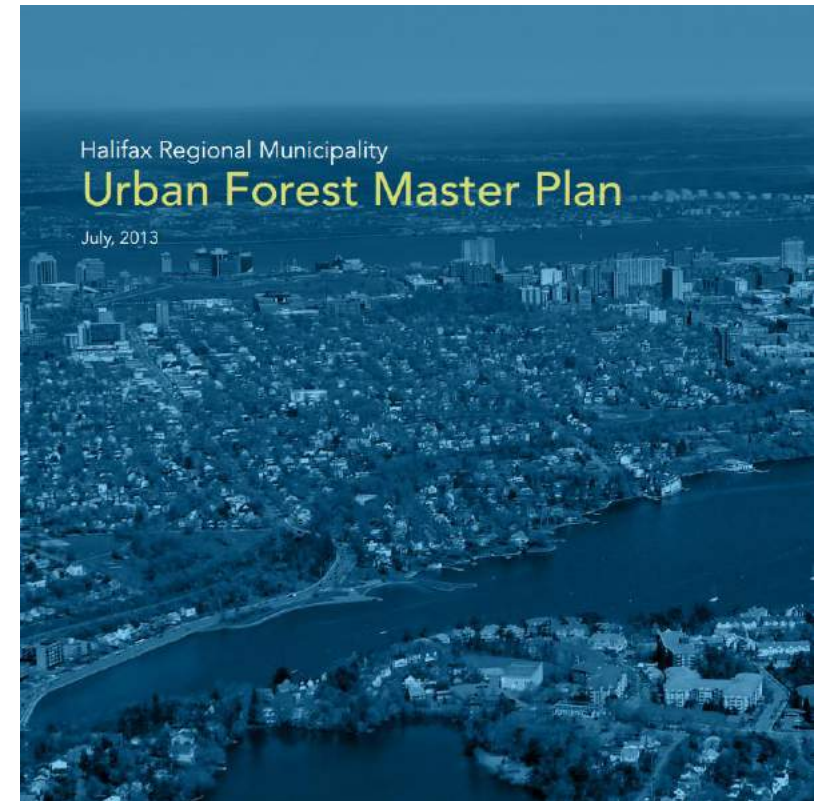
# Halifax

- Area: 549,000 ha
  - Population: 403,130 (2016)
  - Parkland: 1.2%
  - Present Canopy: 43% (2013)
  - Canopy Target: %(na)
  - # Trees: 57,862,251 (incl.private)
  - Planting: 1,500/year
  - Maintenance: ?
  - Disasters: Wind, EAB
  - Budget: \$ 2.6M
- = \$6.45/person



# Halifax – Best Practices

- Unique ecology (city built in a forest)
- Relationship with Dalhousie U. and planning department
- Moderate climate
- Urban Forest Management Plan (2012)





# Truro

- Area: 3,449 ha
- Population: 12,261 (2016)
- Parkland: >30%
- Present Canopy: ?%
- Canopy Target: ?%
- # Trees: ?
- Planting: 359/year
- Maintenance: 45/year
- Disaster: DED
- Budget: \$178,025(2018)  
= \$14.52/person



# Truro – Best Practices

- Small town/celebrates trees
- Very solid DED program
- Solid community backing
- Drinking water from town-owned reservoir/park
- Many programs to involve citizenry
- Truro Tree Committee (46 years old)





# Ottawa/Gatineau

- (Total)Area: 676,741 ha
- (Total) Population: 1,323,783 (2017)
- Parkland: Ottawa?/  
Gatineau11% (7% fed)
- Present Canopy: Ottawa 18%  
Gatineau?
- Canopy Target: Ottawa 30%  
Gatineau?
- # Trees: Ottawa 340,000 (streets/park)  
Gatineau?
- Planting: Ottawa134,000/year (includes rural ref)  
Gatineau 500+2,000
- Maintenance: Ottawa14,000 (only pruning)  
Gatineau?
- Disasters: DED, EAB, Tornado
- Budget: Ottawa \$18M  
Gatineau \$2.4M
- = Ottawa \$19.27/person  
Gatineau \$8.69/person



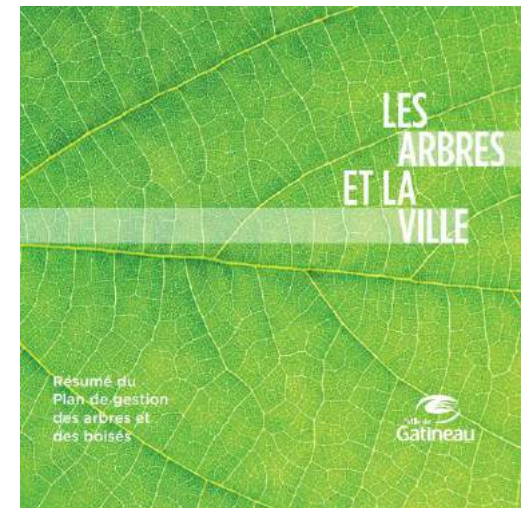
# Ottawa-Gatineau Best Practices

- Ottawa: Urban forest management plan/Gatineau: forming and maintaining a new, urban forest program
- Ottawa/Gatineau: EAB response and rehabilitation to maintain significant trees and develop strategies to reforest areas which have been drastically impacted.
- By-laws to protect city-owned and private trees in the urban area. Working with developers to either protect existing tree cover, or ensure that trees are planted as part of each development.
- Federal Ownership (NCC+) and others are huge influencers

*Putting Down Roots for the Future*

City of Ottawa  
Urban Forest Management Plan  
2018-2037

Prepared by:  
Urban Forest Innovations Inc., Beacon Environmental Ltd. and Dr. W. A. Kenney





# Oakville, Ontario

- Area: 13,850 ha
  - Population: 201,000 (2018)
  - Parkland: 27.8%
  - Present Canopy: 27.8% (2016)
  - Canopy Target: 40% (2057)
  - # Trees: 2,016,500 (55% private)
  - Planting: 50,476/year
  - Maintenance: 6,648 (work orders)
  - Disasters: DED, EAB, invasive plants
  - Budget: \$ 7,978,600
- = \$39.69/person

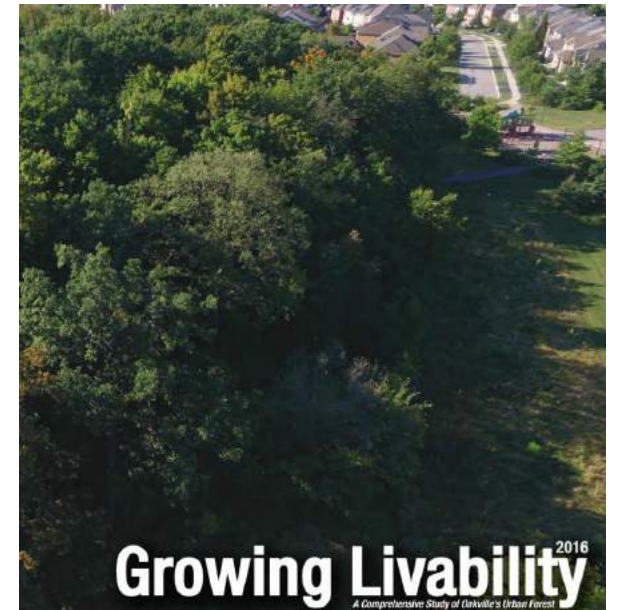


# Oakville – Best Practices

- Effective tie-in between urban forests and planning
- Innovation at every step
  - UFore study with 10-year follow-up
  - FSC- certified woodlands
  - Tree bylaw/zoning bylaw classification of “woodlots”
  - Oakville Green/Canopy Club

## URBAN FOREST STRATEGIC MANAGEMENT PLAN TOWN OF OAKVILLE: 2008 - 2027

Prepared by:  
Urban Forest Innovations Inc. and Dr. Andy Kenney  
with input and amendments by Town of Oakville Forestry staff





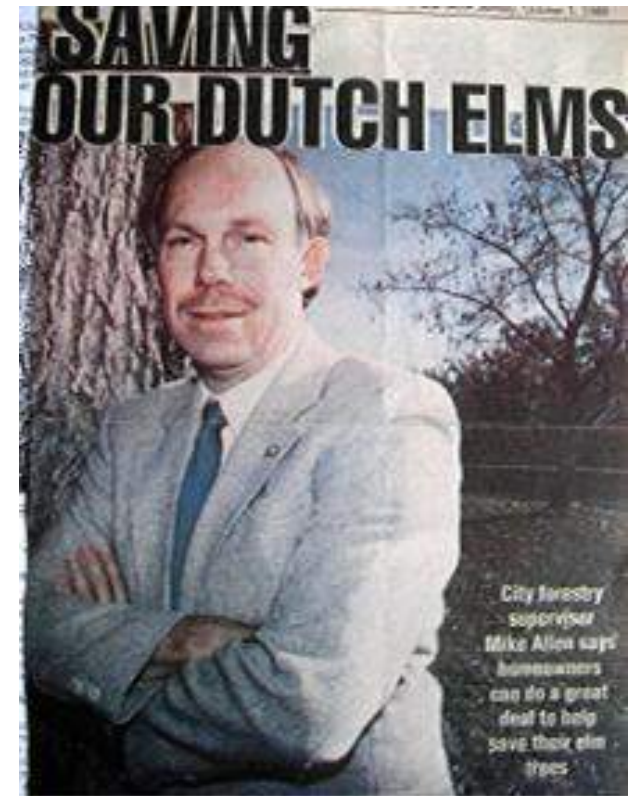
# Winnipeg, Manitoba

- Area: 46,410 ha
- Population: 705,245 (2016)
- Parkland: 6.4%
- Present Canopy: 20% (est.)
- Canopy Target: 25% (est.)
- # Trees: 8 million (incl.private)
- Planting: 2,300/year
- Maintenance: 13,000/year
- Disasters: DED, EAB, CAP
- Budget: \$7.1M (2018)
- \$/Person: \$10.07



# Winnipeg – Best Practices

- Provincial involvement, DNR
- Strong citizen involvement (Trees Winnipeg)
- High degree of professionalism
- Strong maintenance program esp. on DED and now EAB
- All this without tree bylaws on private trees





# Fort McMurray (Reg.Mun.Wood Buffalo)

- Area: 6,177,765 ha
  - Population: 71,589 (2017)
  - Parkland: 11%
  - Present Canopy: 25% (2016) 41% pre-fire
  - Canopy Target: 25% (2025)
  - # Trees: 75,000 (in urban area)
  - Planting: 950/year
  - Maintenance: 7,000/year
  - Disasters: wildfire
  - Budget: \$1.3M (\$10.5M special FireSmart grant)
- = \$18.16/person (without FireSmart)



# Fort McMurray – Best Practices

- Competence in urban management in a northern setting
- FireSmart leader both pre-2016 wildfire and after





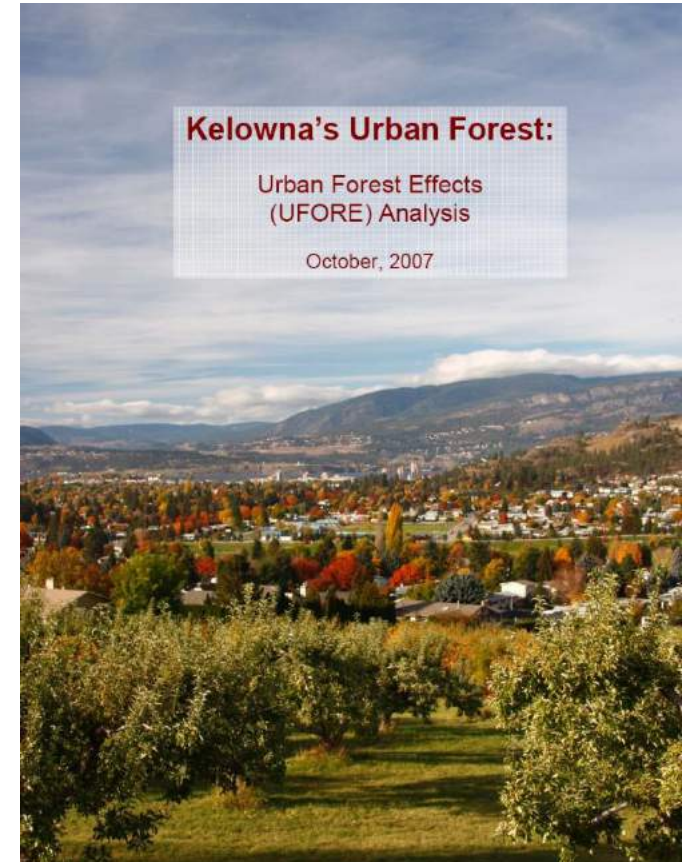
# Kelowna

- Area: 21,180 ha
- Population: 127,380 (2016)
- Parkland: 10%
- Canopy Present: 16% (2013)
- Canopy Target: 20%
- # Trees: 3.3M
- Planting: 500/year
- Maintenance: 25,000/year
- Disasters: Fires and Flooding
- Budget: \$2.5M (2018)
- \$/Person: \$19.62



# Kelowna – Best Practices

- **NeighbourWoods Program** – 500 trees sold annually at a discounted rate on private land
- **Sustain Urban Forestry Strategy (SUFS)**– increasing tree canopy and tree protection
- **Improving tree planting requirements for developments** – soil volume, tree species, irrigation etc.
- **Community Wildfire Protection Planning** FireSmart, fuel mitigation and policy and planning changes to development
- **Bare root tree nursery**
- **Flood mitigation & the Mill Creek Tree Management Plan** – to avoid a second year of devastating flood damage, tree removal below the high-water mark in Mill Creek was implemented in short order.





# Thank You for Growing Better Places to Live....

## 'Sex traps' to be put on trees to get moths out of Ottawa

By Margaret Munro  
Citizen staff writer

Sex traps, laced with the scent of female gypsy moths, will be used to flush thousands of male moths out of Ottawa bushes over the next two months.

About 400 orange tepee-shaped contraptions—designed to trick a male into thinking he's flying to a female and not into a death trap—should be adorning trees, posts and bridges in two 14-square-kilometre areas within two weeks, says Mike Rosen, in charge of the tree-climbing chore.

The traps, worth about \$1 each, will be strategically placed in the area around infested areas on Island Park Drive and Muskoka Avenue. "Exactly five traps per mile," says Rosen, pointing to a wall chart covered with dots.

By the end of September, hundreds—if not thousands—of males should be stuck to traps scented with synthetic sex hormones that smell like female gypsy moths.

The traps are invaluable in tracking insect infestations, says NCC urban forester Aviem Perumal, but unfortunately the males have usually finished their egg-fertilizing business before they are caught.

But if all goes as planned this fall, the traps should give the NCC enough information about the local infestation to plan a comprehensive control program for next year, says Perumal. He said the commission will likely have another biological trick waiting for the moths in the spring.

That plan, which must be finalized this winter, is to destroy any visible egg-masses with a chemical in the spring and then spray trees infested with caterpillars with a bacteria-based pesticide that was originally developed for the spruce budworm.

The problem is finding the trees before it's too late, said Rosen, who scours suspect areas on foot, bicycle and in tree-pruning machines along with five other forestry students the NCC had on staff this summer.

While the caterpillars are visible on the trees, Rosen says the egg masses are difficult to spot. "The general rule of thumb is that for every egg mass you find there are 20 you missed."

Homeowners are asked to check



Mike Rosen attaches moth trap to tree

oak trees—the gypsy moths' favorite—in their yards for the chamomise-colored egg-masses. The caterpillars began appearing their cocoons about two weeks ago and the moths are now emerging to lay their eggs on tree bark, under rocks and almost anywhere else they find a spot. The masses, with the texture and color

of a chamomise cloth, look much like tiny piles of sand.

While Agriculture Canada and NCC officials say they would like to be informed of any egg masses found, neither organization has a system for handling the calls, though a message centre may be set up before next spring.



TreeCanada  ArbresCanada

