

A Brief Historical Perspective of Urban Forests in Canada

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Introduction

In recent years, a greater amount of interest has been in expressed in urban forests – partly as a result of increasing urbanization but also due to new threats including the invasive insect, emerald ash borer. This history reveals much about the country itself - the reluctance to move past the image of "hewers of wood" has made urban forestry a young "specialty field" within forestry in Canada. According to Dean (2015), European urban forests with their long lines of identical trees speak of the human control of nature while in North America, rows of street trees served to tame the wilderness as muddy frontier roads were "brought into line". Others point to the "democratization of the automobile, densification, climate change and invasive insects" as powerful North American themes which pose the greatest threat to urban forests (Lévesque, 2014, p 6).

Urban forests in Canada have been dominated by three themes: superficial support by the provincial and federal governments, individuals' commitment to developing urban forests of excellence, and awareness and action fueled by natural disaster.

Canada – the Urban People in a Forest Nation

The world looks to Canada as a forest leader – and with good reason. With 417.6 million ha of forest (10% of the world) Canada leads in many of the standard, industrial forestry measures: "timber-productive forest land", "allowable annual cut", "area burned by forest fire", and "area of certified forest". How disconcerting it can be when people are informed that well over 80% of Canadians live in cities and towns - their connection to the forest coming not from national parks or "wilderness" but from their neighbourhood park, roadside trees and backyards. Within the forestry profession, "urban forests" are still regarded as a "specialty field", possibly because of the discomfort whereby trees are less seen as a "resource" and more as an entity to preserve and protect for solely environmental/social purposes. Canadians' identification with trees is ubiquitous. The maple leaf adorns Canada's flag and shield. Many communities' names proudly identify an arboreal connection: "Oakville", "Pointe-au-Chêne" and "Ce-dar". Canadian urban forest advocacy groups: "Trees London", "Green Here" and "SOVERDI" bring trees into people's lives, advocate and bring pockets of urban forest excellence into communities across the country (Rosen, 2012).



How odd it is that support at the higher levels of government remains limited only to periodic, disasterrelated and political of responses. Yet, in spite of this, Canadian municipalities, universities, NGO's and citizen groups continue to do very creative things in urban forest management, with much borrowed from the US and the European community.

The Starting Point: Urban Parks

The creation of a national, urban park system figured early in the mindset of the young Canada. The need to provide recreational opportunities to those living in the burgeoning urban areas coincided closely with the industrial revolution where a new concept arose in society - leisure time (Thomas, 2015).

Stanley Park was founded in Vancouver in 1886 on land owned by the federal government (Stephens, 2014). The 405 ha forested park has a fascinating history of park use, logging and natural storm activity (Kheraj, 2013). In 2010



A new concept, leisure, created the demand for urban parks.

a new management plan was written, as a result of a devastating windstorm in 2006 and involved the University of British Columbia, the Stanley Park Ecological Society and others.

High Park (Toronto, est. 1873) was created as a result of a gift of the estate of John George Howard, the City of Toronto's first surveyor and engineer. The park is a mixture of exotic trees, cultural and educational facilities, gardens, playgrounds and a small zoo. Recently, prescribed burning has been employed in an effort to restore the unique black oak savannah that comprises a large part of the park; not a simple task in the heart of the country's largest urban area.

Parc Mont-Royal in Montréal was created in 1876 through the planning of Frederick Olmstead, the pre-eminent American landscape architect who created the plans for Central Park in New York many years before. Today it is a focal point of the city.

An interesting history was the creation of the **Battlefields Park** better known as the "Plains of Abraham" in 1907 in Québec City. Timed to coincide with the 300th anniversary of the city, the 98 ha park recognizes the battles which changed the character of Canada from the French to the British regimes. The park plan was completed by F.G. Todd, an American landscape architect and disciple of Olmstead.

Todd later went on to create plans for other Canadian parks including St. John's, Newfoundland's **Bowring Park** in 1914 (Government of Canada, 2014) and P**oint Pleasant Park**, Halifax's 75 ha treasure which was created in 1866. Because of Hurricane Juan in 2006, the character of the once closed canopy and intact forest was changed dramatically.

Regional Urban Forest History

The urban forests of **British Columbia** display a diversity of ecosystems. Ironically, the gigantic trees that B.C. is famous for were not always seen as a feature worth preserving - reportedly there were many public celebrations throughout the 1800's in Vancouver for the large trees felled to make way for the expanding city. Early 20th century British Columbia placed the planting of street trees largely in the hands



The Cary Fir, one of the last giants felled (to the joy of its citizens) to create the City of North Vancouver, B.C.

of the burgeoning Parks departments. It was not until the 1990 Clouds of Change report (Stephens, 2014) that the City began to implement a true urban forest program, leading to Vancouver's Greenest City 2020 initiative. The same trend was followed in most other B.C. municipalities including Surrey and Victoria. Prince George, a northern community which expanded into natural forests of lodgepole pine, had to deal with mountain pine beetle which began killing trees in 2002. The 2003 Kelowna wildfires in which homes burnt in the "urban-rural interface" led to new national Fire Smart program of protecting homes in areas of wildfire vulnerability. A recent development is the creation by the Faculty of Forestry of the University of British Columbia of an undergraduate program in urban forestry, set to commence in September, 2015.

The **Prairies** (Manitoba, Saskatchewan and Alberta) offers a fascinating urban forest history because these forests were created in places that were dominated by grasslands. In Winnipeg, elm trees were taken from river valleys and out-planted on city streets starting in the 1900s making it an "elm city".



The success of Winnipeg elms through the mutual efforts of the city and the province



Mike Allen, the first urban forester for the city of Winnipeg and a student of Erik Jorgensen.

Mike Allen, a Masters of Forestry graduate from the University of Toronto who studied under Erik Jorgensen, was hired in the 1980's as the City's first forester. With the discovery of Dutch elm disease in 1975, the *Coalition to Save the Elms* was created in 1982. Martha Barwinsky, a Master's of Science graduate from the University of Manitoba became its Executive Director and is now the City Forester for Winnipeg. Today, the provincial government is still involved in financially supporting the City in its (so far) successful battle against DED (Barwinsky, 2015) the most substantial urban forest commitment by any provincial government in Canada.

It was not until the early 1990's that Calgary hired its first forester. Today, thanks to advanced irrigation and strict tree protection measures, the canopy cover of Calgary has never been healthier. Other weather events (flooding, 2013, snow 2014) continue to affect its tree populations. Today, professionals are engaged in Edmonton, Medicine Hat, Red Deer, Grande Prairie, Leduc, Canmore and Banff. Organizations like *STOPDED* are vigilant in educating the

public in the risks of introducing Dutch elm disease (Alberta remains DED-free).

Cities like Saskatoon, Regina and Moose Jaw saw urban forests created largely with elm due to the limited number of species choice. In the 2000's greater efforts were expended to diversify these forests. Regina's *Wascana Centre* has had a lead role in maintaining tree cover in the prairie city as has SOS Elms in Saskatoon.



There is little doubt that **Ontario** has been a Canadian leader in urban forests, partly due to its urbanized character, the 1960s DED crisis, the work of certain individuals and university support. Ontario planted American elm, silver and sugar maples along city streets in the late 1800's (Morsink, 2011).

The onslaught of DED changed Ontario cities and towns dramatically. After arriving from Denmark as a forest pathologist for the federal government, Erik Jorgensen joined the University of Toronto in 1959 and began a concerted program to study and combat DED. He established the *Shade Tree Research Laboratory* and in 1964 reached out to the community with the establishment of the *Ontario Shade Tree Council* (Kenney, 2011). This led to the teaching of the first urban forestry course in Canada (1969) and the eventual development of *Lignasan* and root flare injections to treat DED (Sisam, 1982). Jorgensen defined the term "urban forestry". He was supposed to lead a national urban forestry program in Ottawa, but the government



Eric Jorgensen, Canada's first urban forester

and university's priorities changed - he finished his career at the University of Guelph.

His first Master's student, Bill Morsink, became the first of a generation of "urban foresters". Jorgensen also encouraged a number of others who worked as urban foresters throughout Ontario (and Canada) including: Mike Allen (Winnipeg), Lloyd Burridge (Windsor), Bill Granger (Vancouver) and Bob Perkins (Oakville). Ian Nadar, who studied under Jorgensen, brought DED control to Ottawa through the National Capital Commission in the late 70's. Urban forest related NGO's and community groups such as the Ontario Urban Forest Council, LEAF in Toronto, Trees London and Tree Ottawa are an integral part of Ontario's urban forest fabric – providing services and programs and advocating for the urban forest.

Prior to the 1970's, urban forests in **Québec**, like the rest of Canada, remained within municipal "public works" departments for plantings and maintenance. A short-lived federal urban forestry program (1972-1979), A Forest for Man was founded by the Canadian Forestry Service (CFS) at the Laurentian Forestry Centre in Ste-Foy under the direction of Éric Rey-Lescure. From 1979-1984, *Déry, Rocray et associés* was active as the first urban forestry consulting firm. A number of employees of the firm went on to advance urban forestry in municipalities and provincial agencies including Pierre-Émile Rocray, Montréal's first professional forester. The first urban forestry conference in Canada was the



International Conference on Urban Forests at Laval University in Québec City in 1979. Guy Bussières, a forest pathologist, began the first urban forestry courses at the Faculty of Forestry at the University of Laval in the 1980s.

Another initiative in the 1980's was through the Québec Ministry of Environment. Léopold Gaudreault, a biologist and Directeur des Réserves Écologiques hired Émilie Desbiens, a University of Toronto Master's student to write Les *Guides Verts - Manuel de la Foresterie Urbaine*, widely distributed to municipalities. In 2000, months after municipal amalgamation, the *Politique de l'Arbre de*



Organizing Committee for the seventh Canadian Urban Forest Conference, Quebec (2006). Pierre-Emile Rocray (top right), Guy Bussières (rear)

Montréal was introduced to standardize urban forestry practice amongst the 19 boroughs (*arrondissements*). Others like Jacques Grantham and Marie-Josée Coupal were innovators in Québec City, heading efforts to retain elms (despite DED) and to offer special winter protection to urban trees. Recently, Christian Messier became the first urban forest Chair at the University of Québec à Montréal (UQAM). As for the other cities in Québec (and North America) many are only now conducting their first inventories as they cope with the onslaught of a new menace – emerald ash borer.

Long-standing urban forest management programs exist across **Atlantic Canada** including Halifax, Fredericton, Truro, and Moncton. Through the twentieth century, tree planting along city streets was heavy to American elm, European lindens, Norway maple, and ashes. Contemporary planting programs are characterized by a much greater diversity (Duinker, 2015). Dutch elm disease took a great toll on the region's urban canopies in the last half of the twentieth century, with Halifax being largely spared. Urban forests in the region are subject to fierce winds and big rains - Hurricane Juan in 2003 played major havoc with the urban canopies of Halifax, Truro, and Charlottetown, while post-tropical storm Arthur in knocked down thousands of trees in Fredericton in 2014. Some cities have benefited from the presence of large institutions, especially Fredericton with the University of New Brunswick (UNB) Faculty of Forestry and Environmental Management, the Atlantic Forestry Centre of the Canadian Forest Service, the headquarters of the provincial Department of Natural Resource's forest service, and the Maritime College of Forest Technology. A new urban forestry course was launched by UNB in September 2012 in cooperation with Sir Sandford Fleming College. Edmunston, a campus of the University of Moncton is home to the Faculty of Forestry. While such institutions have focussed their attention largely on rural forests, trees are trees, so the cities have reaped great benefits in terms of research and management advice. At Dalhousie University in Halifax, Dr. Peter Duinker's research program shifted a decade ago from a focus on rural forests to a range of studies on urban forest issues, launching the Canadian Urban Forest Research Group. Natural Disasters as a Motivating Force

The motivation by communities, governments, individuals and NGO's to advance urban forestry seems to be firmly linked to natural disasters. The advent of DED in the 1940's brought an intense awareness of Canada's urban forests. Owing to its vase-like form and tolerance to urban conditions, the American elm was long considered "the perfect street tree". The reality of watching their destruction in most of Canada's eastern cities forever changed the professional management of Canada's urban forests. New university positions were created, regulations and bylaws were enacted, professionals were hired, an urban forestry consultant community was established, tree NGO's were created, disease/insect control products were developed and the creation of new (although somewhat limited) federal and provincial urban forestry programs all resulted.

The Great Ice Storm of 1998, when up to 100 mm of ice coated trees in a huge area of eastern North America demonstrated the value in regular and correct pruning of urban trees. As result of the accumulation of ice, thousands of trees, particularly those that were poorly or not pruned at all were destroyed. Two of Canada's most iconic parks – Stanley in Vancouver (2003) and Point Pleasant in Halifax (2006) were affected by huge storms and forced to look very hard at the future including the writing of new management plans and park strategies. Finally, emerald ash borer (EAB) and Asian longhorn beetle (ALHB) have allowed us to look critically at the management of our urban forests once again. As a result of DED, a new search rapidly began for the next "perfect urban tree" in the 1980s - ash (white, green and black) were then widely-planted throughout North America. In 2002 EAB was detected in Windsor, ON and quickly spread to every city in southern Ontario and Québec with the number of removals exceeding those lost to the elms for DED. ALHB, can infest a broader spectrum of hardwoods species is a local (but troubling) imported insect whose control seems to be slightly easier than that of EAB.

Epilogue

Recently, here has been progress in advancing urban forests. By 1990, all of Canada was covered by one of five chapters of the International Society of Arboriculture. In 1992 the government created *Tree Plan Canada/National Community Tree Foundation* (now *Tree Canada*) to engage Canadians in the care of their urban forests. One of its first actions was to organize the first *Canadian Urban Forest Conference* (Winnipeg) in 1993. From 1994-1999 the University of Toronto maintained



Prime Minister Brian Mulroney annouces the creation of Tree Canada (1991)

the Urban Forest Centre under its Director, Dr. Andy Kenney. In 2000, "urban forestry" was defined in regulation (Ontario Professional Foresters Act). A key advance was the integration of urban forests in the 5th National Forest Strategy in 2003 which in turn resulted in the formation of the Canadian Urban Forest Network (2004) and the Canadian Urban Forest Strategy (2008).

Canada is a young country with a strong urban forest history, despite the lack of presence by the upper levels of government (unlike most of the G8 countries). There are signs that this is changing. With the combination of individual commitment, and experience learned from the "trials and errors" of various "natural" disasters, these forests have now a much better chance of developing into the potential they deserve. As Canada increasingly urbanizes, there is little doubt that its citizens will be increasingly demanding the ecosystem services that these forests provide.

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