Accepted Manuscript

Title: Growing on the street: Multilevel correlates of street tree growth in Montreal

Authors: Sophie Limoges, Thi-Thanh-Hien Pham, Philippe Apparicio

PII: S1618-8667(17)30557-5
DOI: https://doi.org/10.1016/j.ufug.2018.01.019
Reference: UFUG 26066

To appear in:

Received date: 15-9-2017
Revised date: 9-1-2018
Accepted date: 20-1-2018

Please cite this article as: Limoges, Sophie, Pham, Thi-Thanh-Hien, Apparicio, Philippe, Growing on the street: Multilevel correlates of street tree growth in Montreal. Urban Forestry and Urban Greening https://doi.org/10.1016/j.ufug.2018.01.019

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.
Title: Growing on the street: Multilevel correlates of street tree growth in Montreal

Authors:

Sophie Limoges, Graduated Master degree – Urban studies
Address: Département d'étude urbaines et touristiques, Université du Québec à Montréal. 315, rue Sainte-Catherine Est, Montréal (Québec) H2X 3X2. Canada
Email: limoges.sophie@courrier.uqam.ca

Thi-Thanh-Hien Pham, Associate professor
Address: Département d'étude urbaines et touristiques, Université du Québec à Montréal. 315, rue Sainte-Catherine Est, Montréal (Québec) H2X 3X2. Canada
Email: Pham.thi_thanh_hien@uqam.ca

Philippe Apparicio, Professor
Address: Institut national de la recherche scientifique, Centre Urbanisation Culture Société. 385, rue Sherbrooke Est Montréal (Québec) H2X 1E3. Canada
Email: philippe.apparicio@ucs.inrs.ca

Abstract:
Tree planting has been favoured in many North American cities, including Montreal which aims to increase its canopy from 20% to 25% in 2025. However, the mortality rate of street trees is especially high in the first few years after planting. Studies have shown that variables that are intrinsic to the tree and those related to its location, the urban form and the socio-demographic characteristics of the surrounding environment are significantly associated either with trees’ survival rate or with vegetation cover. In this research we examine variables that have statistical associations with tree growth, which is the diameter at breast height divided by the number of years on the ground, for approximately 28,000 street trees in Montreal. Independent variables were nested into three spatial scales: the tree (species and physical variables), the street section (urban form variables), and the census tract (socio-demographic variables). Multilevel models reveal that 65.51% of the growth variance is potentially explained by the species and planting physical conditions such as the east and north sides (positive associations with the growth), signage as an obstruction (negative association). 28.54% of the grow variance is potentially explained by the urban form, in our case building age (convex relationship with the growth), mixed zoning (negatively) and residential zoning (positively). At the neighbourhood level, although none of our variables is significant, 6.95% of the growth variance is be potentially explained by other missing variables. New planting programs should hence consider the urban form in order to improve tree growth.

Keywords: street trees, tree growth, planting conditions, urban form, multilevel models
دریافت فوری 
متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات