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Abstract. The drilling resistance test has been widely used in tree inspections and structures since its first demonstration in Germany in 1988. A high correlation to wood density allows a correspondingly clear interpretation and reliable evaluation of the profiles in terms of wood condition. Without such a correlation, it is not clear what the profiles mean. In this study, researchers compared the profiles of a non-calibrated resistance drill with pictures of the surfaces of the drilled stem cross sections in order to find out how defects are revealed. In decayed areas, the profiles mostly dropped down and the results showed that advanced stages of decomposition and voids of significant size can be detected reliably with this device. There were statistical differences between drilling amplitude among the studied species and, in the heartwood, the values of amplitudes were superior and statistically different from those obtained in the sapwood. However, the depth of the drop, or the changes in the profiles of this device, do not allow users to differentiate between various stages of deterioration. Similarly, it is not clear if all rising profile peaks are caused by locally higher wood density, as compatibilizations zones, or by technical artefacts.

Key Words. Decay in Trees; Hazard; Resistance Drilling; Stem Cross Section; Tree Inspection; Tree Risk Assessment.

Abstract. The urban forest is a valuable ecosystem service provider, yet cities are frequently degraded environments with a myriad of stressors and disturbances affecting trees. Vulnerability science is increasingly used to explore issues of sustainability in complex social-ecological systems, and can be a useful approach for assessing urban forests. The purpose of this study was to identify and explore drivers of urban forest vulnerability in a residential neighborhood. Based on a recently published framework of urban forest vulnerability, a series of indicators of exposure, sensitivity, and adaptive capacity that describe the built environment, urban forest structure, and human population, respectively, were assessed for 806 trees in Toronto, Ontario, Canada. Tree mortality, condition, and diameter growth rates were then assessed using an existing 2007/2008 inventory. A bivariate analysis was first conducted to test for significant relationships of vulnerability indicators with mortality, condition, and growth. A multivariate analysis was then conducted using multiple linear regression for the continuous condition and growth variables and a multilayer perceptron neural network for the binary mortality variable. Commercial land uses and commercial buildings adjacent to trees consistently explained higher mortality rates and poor tree conditions. However, at finer spatial scales it is important to differentiate between different causes and correlates of urban forest decline within commercial land uses. Tree species, size, and condition were also important indicators of vulnerability. Understanding the causes of urban forest change and decline are essential for developing planning strategies to reduce long-term system vulnerability.

Key Words. Condition; Growth; Mortality; Neighbourwoods; Urban Forest; Vulnerability Assessment.

Abstract. In the presence of a target, tree failures have the potential to damage property, disrupt services, or threaten public safety. Worldwide, several qualitative methods have been developed to provide a systematic approach for tree risk assessment and management. The consistency and accuracy of these methods, the values placed on the tree in question and its potential targets, and the risk perceptions and levels of acceptance of the evaluator and tree owner all influence how risk is managed. This review explores the concept of risk, examines and contrasts the most commonly referenced tree risk assessment methods, and summarizes research on public perceptions of trees and the risk of trees and greenspaces in built environments. The review identifies general summarized themes and gaps in the available literature to guide future research.

Key Words. Decision Making; Hazard Tree; Mitigation; Public Safety; Qualitative and Quantitative Risk Assessment Methods; Risk; Tree Risk Assessment; Tree Risk Perception; Urban Forest.