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Host: Jason Grabosky through the United States Forest Service, Tony L. Ferguson.

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Introduction

Urban tree inventories are used for a wide range of purposes, e.g. mapping storm-damaged trees and determining the species and tree sizes most affected (Jim & Liu, 1997), risk management (Lonsdale, 1999; Mattheck & Breloer, 1994), charting the diversity of urban trees (Sjöman et al., 2012a; Raupp et al., 2006), modelling local climate (Nowak et al., 2006; Dimoudi & Nikolopoulou, 2003; Nowak et al., 2001a; Yokohari et al., 2001) and reducing urban heat island effects (King & Davis, 2007). Urban tree inventories are also used to assist with choosing species able to capture particles that are a potential hazard to human health (Sæbø et al., 2012; Gallagher et al., 2011; McPherson et al., 1997; Sæbø & Mortensen, 1996), for finding key places where trees contribute most in reducing energy costs, air pollution and decreasing runoff from stormwater (McPherson et al., 1997), for calculating the overall economic benefits of urban trees (i-Tree, 2012a; Maco & McPherson, 2003) and for assessing the economic value of individual trees (Randrup, 2005; Cullen, 2002; CTLA, 2000).

The increased use of tree inventories has also led to an increase in both the methods and parameters used for urban tree inventories, which in turn has led to increased difficulty regarding comparability between the methods and parameters. With better standardisation, i.e. detailed tree inventory systems and common definitions of how to record inventory parameters, urban tree planners, researchers and arborists will obtain more, and better, data to manage urban trees and important synergy effects can also be activated.

The work of increasing the standardization on urban tree inventories have been studied by Östberg et al. (2013) and the USDA (United States Department of Agriculture) in the US are also working with this important question. During the visit to Rutgers University a multidisciplinary meeting was organized with the goal to start the process of standardizing the inventories in the US. The question of which tree inventory parameters should be used in urban tree inventories is something that has gained little attention, except from recent international efforts to develop urban forestry standards (UNRI, 2010) and the development of the i-Tree software suite by the US Forest Service (i-Tree, 2012; Cumming et al., 2008; Simpson et al., 2004). The work conducted within e.g. i-Tree has started to provide a baseline when it comes to tree inventory parameters that could be used by cities in the United States, but it does not describe satisfactorily how cities and other stakeholders engaged in urban tree inventories should navigate through the large quantity of tree inventory parameters available. This problem has been recognized by the USDA and there work does not only include the standardization of parameters, but also what tree inventory parameters to use for different purposes.

Within the work carried out by Östberg et al (2013) the Delphi-method was used to select the most important tree inventory parameters for large scale urban tree inventories. The Delphi method is an established qualitative research technique that seeks to provide a reliable group opinion through the use of expert judgment (Landeta, 2006). Within the study, participants anonymously rated the importance of the different parameters on a scale of 1 (least important) to 10 (most important). The scorings of the individual panellists were then shared within the group, together with the group mean, and the panellists could change their rating according to the other panellists' ratings. The process was repeated until the group had reached consensus. The study resulted in a list of 148 tree inventory parameters that were rated by the three panels, a mean value for all user groups and separate means for the three user groups. This prioritized list will most likely be used by the USDA when they create there list of urban tree inventory parameters, but they will further develop the

definitions of the parameters by including many user groups, which is in line with (Schipperijn et al., 2005).

The results from the Delphi study did not only result in a prioritized list, it also revealed large differences between the three groups, with only one parameter (*Scientific name of tree species and genera*) receiving the highest score from all panellists. The study furthermore revealed that the arborists and city officials differed most when comparing the groups of parameters used in the study. The top rated parameters after *Scientific name of tree species and genera* were *Vitality, Coordinates, Hazard class* and *Identification number* (Table 1).