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Abstract. Background: Tree risk assessment methods have been developed to assist arborists in conducting thorough and systematic inspections of trees and the threat they pose to people or property. While these methods have many similarities, they also have a few key differences which may impact the decisions of those employing them. Moreover, arborists specify the associated timeframe for their risk assessment, which can range from months to years. How this impacts risk assessment reproducibility is unknown. Methods: To assess the impact of risk assessment methodology, we sent videos depicting trees in urban settings to arborists holding the International Society of Arboriculture (ISA) Tree Risk Assessment Qualification (TRAQ; $n = 28$) or Quantified Tree Risk Assessment (QTRA; $n = 21$) training. These assessments were compared to those prepared by North American arborists lacking the TRAQ credential (ISA BMP; $n = 11$). ISA BMP arborists were also asked to assess trees using both a 1-year and a 3-year timeframe. Results: While a direct comparison between the QTRA and TRAQ assessments is not possible given differences in terminology, arborists with the latter training were less likely to rate trees as having "high" or "extreme" risk compared to their ISA BMP counterparts. Moreover, we found that switching to a longer timeframe did not increase the variability of risk assessments. Conclusions: These results give further insights into how different risk assessment methods compare when assessing the same group of trees as well as the impact of training efforts and specified timeframe.

Keywords. Hazard Tree; Likelihood of Failure; Professional Judgement; Risk Management; Risk Perception; Tree Safety; Urban Forestry.

Abstract. Background: Private-sector urban and community forestry (U&CF) is a major segment of the green industry with substantial socio-ecological and economic contributions to urban and sub-urban communities. The COVID-19 pandemic reportedly caused heterogeneous impacts on businesses, the workforce, and various sectors of the overall economy. The purpose of this study was to evaluate the perceived impacts of the COVID-19 pandemic on private businesses carrying out U&CF activities in the Southern United States. Methods: Using data collected through an online survey distributed across the Southern USA in 2021, we developed and estimated an empirical model to evaluate the factors describing the perceived impacts of the COVID-19 pandemic on U&CF businesses in the region. Results: Results suggest that COVID-19 had, on average, a neutral impact on the U&CF activities performed by the private sector in the study region, but the perceived impacts varied by the industry types. Results from the ordered logistic regression suggest that nursery and garden supply stores were more likely than other businesses to have a positive impact of COVID-19 on the U&CF segment of their business. Similarly, business metrics such as the size of the company in terms of annual sales and revenues or longevity in the business were found to be significant factors explaining the COVID-19 impacts on U&CF business. Conclusions: Our study findings are useful for U&CF decisionmakers for better planning, preparedness, and programming of U&CF activities and businesses in the southern USA.

Keywords. COVID-19 Pandemic; Green Industry; Ordered Logistic Regression; Private Businesses.

Abstract. Background: Bark exfoliation is a common feature of London planes (*Platanus* × *acerifolia*) that reportedly increases during periods of drought-induced stem shrinkage. Here, we explore the spatial patterns and potential drivers of plane bark exfoliation in Mainz, a central European city of 220,000 inhabitants, following the exceptional summer drought of 2018. Methods: We estimate the degree of bark exfoliation of 349 urban plane trees across the city and use stem microcores to analyze their tree-ring widths from 2006 to 2019. Further to impervious cover, settlement structure and vegetation cover in the vicinity of each tree, we investigate the relationships between bark exfoliation and tree, site, and climate factors. Results: Results indicate that plane bark exfoliation correlates significantly with tree size and inner bark width

(both $p < 0.001$) but is independent of impervious cover and local site conditions. Similarly, stem growth does not change within the city underlining the resilience of London planes to cope with highly diverse urban site conditions. Plane tree-ring widths were only weakly associated with exfoliation estimates ($p < 0.05$) but strongly controlled by cold season temperatures ($p < 0.001$). Conclusions: As tree growth was also not affected by summer drought, potential detrimental effects by limited infiltration, increased runoff and altered evaporation are of less concern for the plane trees in Mainz. Projected winter warming is likely to enhance urban plane growth in upcoming decades.

Keywords. Dendrochronology; Mainz, Germany; *Platanus* × *acerifolia*; Urban Warming.

Abstract. Background: Urban forests can provide nature-based solutions (NBS) to complex climate-change challenges via the provision of ecosystem services such as shade and cooling that offset increased risks of chronic diseases and excess mortality. They also confer indirect health benefits by providing regulating ecosystem services that can facilitate climate-change mitigation efforts: increased shade can encourage shifts to lower-carbon transportation methods such as walking and cycling, for example. However, in order to ensure that urban forests are both resilient to threats and confer the maximum possible benefits, we must be able to project decades into the future in order to understand the implications of current urban forestry decisions. Methods: This study outlines a framework for creating urban-forest scenario models and reports the results of a case study conducted to highlight the ways in which decisions made at each stage of the scenario-development process impact its outcomes and application. Our case study focused on a neighbourhood in Vancouver, Canada, that is simultaneously undergoing urban densification and aiming to significantly increase canopy cover by 2050. Three distinct aims were identified for the case study: maximizing public-health benefits, selecting climate-resilient tree species, and integrating planting across public and private lands to advance diversity. To achieve these aims, baseline information on the neighbourhood's existing tree network was collected, entered into GIS software, and delineated based on a set of pre-identified characteristics. Next, a list of climate-adapted species was developed. This climate-adapted species list was then virtually "planted" across the neighbourhood, using a combination of machine-based and manual planting techniques. Finally, the resulting scenario model was quantitatively assessed to understand its composition and impacts. Results: Our study demonstrates that a salubrious, resilient, and diverse urban forest can be created via a strategic program that complements extant trees in the public domain with planting programs along blue-green streets and on private property. Conclusions: Achieving the urban tree trifecta will require collaboration among municipal departments and the development of a range of public and private initiatives, but it has the potential to maximize nature-based solutions in cities facing rapid shifts due to densification and climate change.

Keywords. Biodiversity; Modelling; Nature-Based Solutions; Scenario Planning; Urban Forest.

Abstract. Background: Plants are sensitive to air pollution by altering their vital processes such as growth or photosynthesis. Leaf characteristics reflect the adaptive mechanism of plants to their environment. This mechanism is demonstrated through changes in anatomical, morphological, and physiological characteristics relative to environmental changes. Methods: Samples were taken from 2 species of *Platanus orientalis* L. and *Celtis caucasica* Willd. in 10 urban forests of Tehran, Iran. In each study area, 50 leaves were collected from different directions of the canopy of each tree, and their area was measured by a leaf area meter instrument in a laboratory. Leaf moisture and specific leaf area (SLA) were also calculated. The data of air pollutants were obtained from the nearest pollution measurement stations to each study location. Results: The average percentage of moisture for *P. orientalis* and *C. caucasica* was calculated as 49.6% and 41.9%, respectively. The averages of SLA were estimated 9.2 and 6.5 cm^2/g, respectively. The average leaf area was 36 and 6.04 cm^2, respectively. The correlation between quantitative variables of leaf (leaf area and SLA) and air pollutant appeared in both study species, only there was a significant negative relationship between leaf area and O_3. This relationship was stronger in *C. caucasica* ($R^2 = -0.78$). Conclusions: The results of this research showed that both species showed similar behavior against air pollutants, but *C. caucasica* showed more reaction.

Keywords. Plant Reaction; Unhealthy Air; Urban Trees.