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Assessing the influence of location attributes on urban forest species composition in suburban neighbourhoods

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## Highlights

- *A posteriori* hierarchical cluster analysis is used on trees in suburban neighbourhoods.
- Street-tree assemblages are most distinct in terms of species composition.
- Environmental and structural attributes influence urban tree diversity.
- Urban forest classification techniques can inform management practices.

## Abstract

Determining how suburbanization shapes tree-species composition and diversity is vital in Canadian and most nations' cities, as suburban and peri-urban areas continue to grow faster than any other region. These areas, characterized by various land types and uses, represent differences in management and governance, jurisdiction, planting practices and species selection, and professional and political agendas. Such complexities emphasize the importance of exploring the influence of various environmental and location attributes of suburban neighbourhoods. Using hierarchical cluster analysis to classify urban forest species assemblages, we found that location attributes such as land type, development decade, and geography are influential on species composition and diversity – but only to an extent. We found that street-tree assemblages were classified more distinctly than remnant woodlands, which were in turn more distinct than tree communities found on residential properties. Residential land types had a high degree of species heterogeneity, highlighting the importance of not only considering the location attributes chosen for this study, but also including socioeconomic and cultural variables in future ecological classification schemes. Identifying drivers of species composition and diversity is useful for developing and implementing forest management strategies for urban and peri-urban areas, as different species assemblages give rise to different challenges and management opportunities, as well as varying quantities of ecosystem services, values, and benefits.

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