

The Residential Yard and Green Infrastructure: A Study of Attitudes in Toronto, Philadelphia and Malmo



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BACKGROUND

- Urban Green Infrastructure** is vegetation managed for wide-spread, multi-functional public benefit. It includes **trees, gardens, green roofs**, and other vegetation that may contribute to storm water attenuation, microclimate regulation, air pollution reduction, improved physical and physiological well-being, and other benefits.
 - The **residential yard** is much more than just a place of relaxation, socialization and beauty (Blaine et al., 2012), it is also important to recognize the capacity of the yard as **part of a larger ecosystem**.
 - Residents overlook their yard's presence in the larger ecosystem (Blaine et al., 2012, Clayton, 2007).
 - Yards provide:
 - Direct ecosystem services:** cultural and social benefits through interaction with the yard.
 - Indirect ecosystem services:** climate regulation, and shade and shelter storm water attenuation, etc.
 - Residential yard characteristics** are related to:
 - Physical characteristics of a yard
 - Residents management decisions, which are based on: cultural background, demographics and housing type (Coleman et al., 2018, Gao et al., 2016, Lin et al., 2017).
- Therefore, resident decision-making can have an impact on the overall ecosystem services and benefits achieved from the yard, as well as the cumulative services and benefits provided by the larger ecosystem in the urban landscape.

Knowledge Gaps

- While there has been extensive research examining resident's knowledge, attitudes and preferences related to their yard spaces that all share similar findings, not many researchers have examined yard preferences and characteristics in the context of understanding urban vegetation as **green infrastructure (GI)**.

Research Questions

- How do residents' preferences for yard use and function vary in different cities?
- What is their level of interest in installing GI features?

METHODS

Study Areas

- Toronto, Canada;
- Philadelphia, USA;
- Malmo, Sweden

Survey

- Surveys of residents were conducted in 2018.
- Questions asked how residents use their yards and what features they would like in their yards.

Analysis

- Responses were summarized by city and compared across the three cities.
- Responses were analyzed in relation to household and property characteristics.
- Furthermore, a PCA analysis, ANOVA and correlation was conducted to explore the relationship between the three cities.

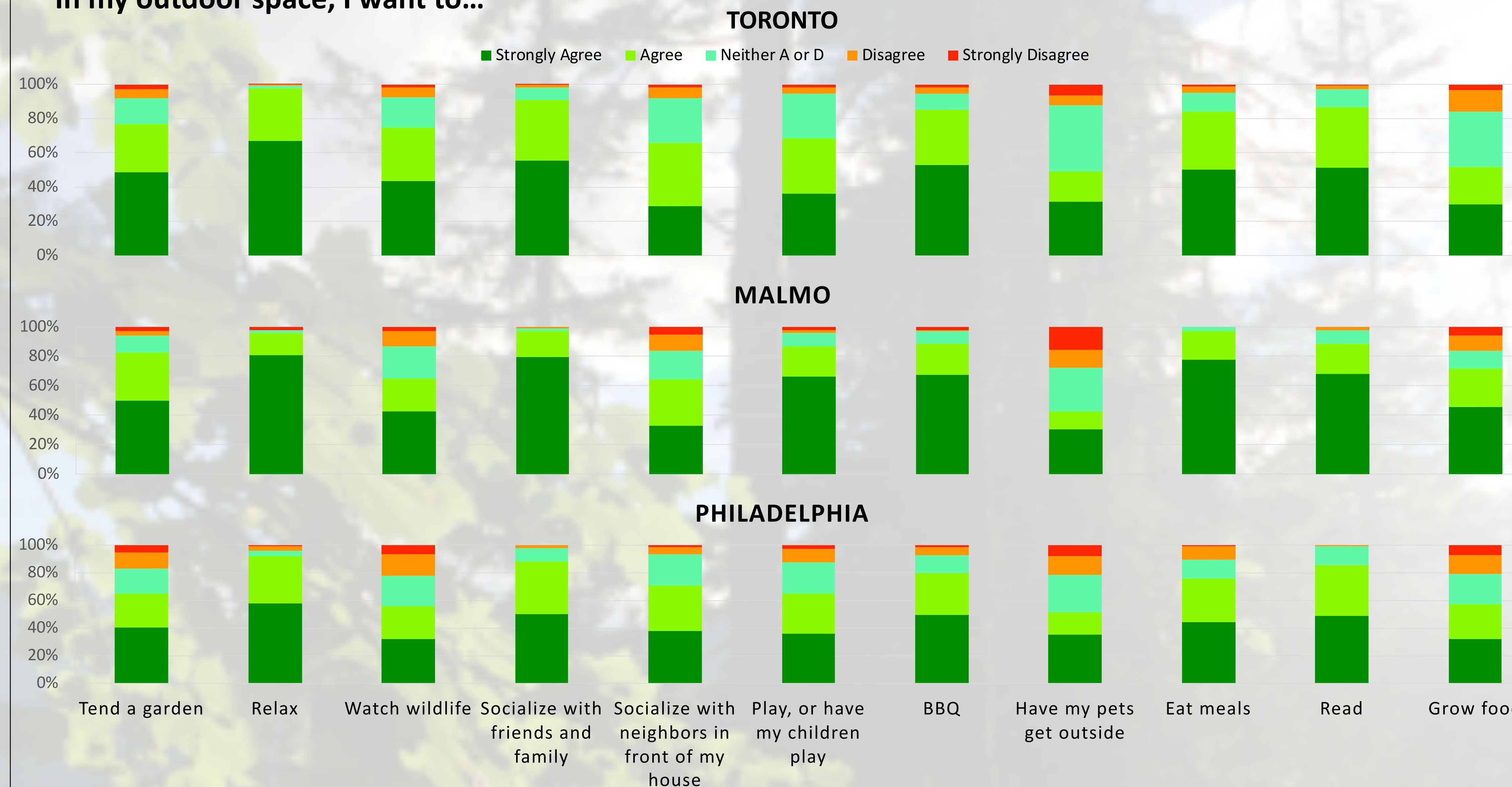


Fig. 1 Example of living GI: Plants in pots

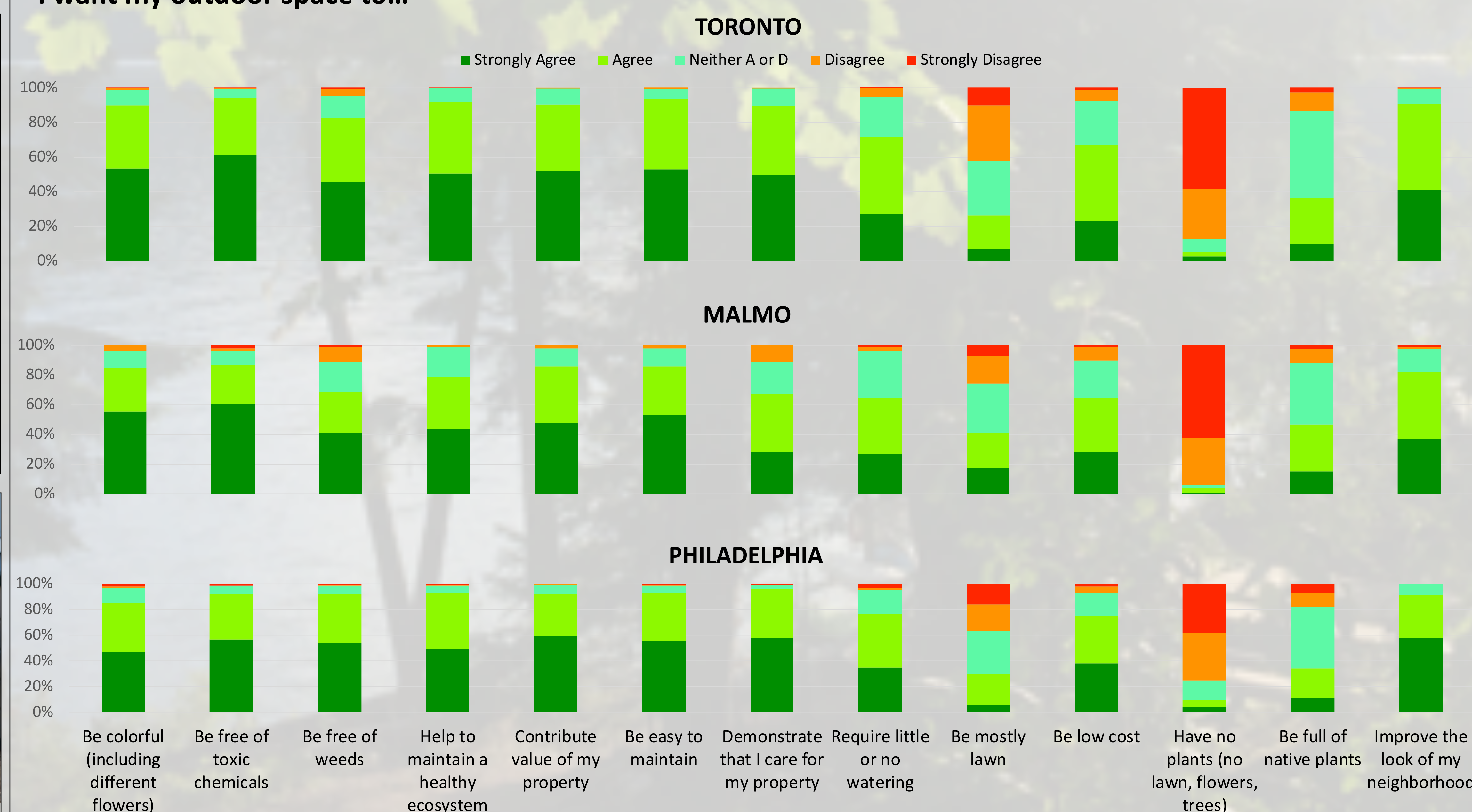
SURVEY RESULTS

- Residents aspire to have an outdoor space that is colorful, free of toxic chemicals and weeds, help to maintain a healthy ecosystem, contribute to the value of their property, be easy to maintain, demonstrates that they care for their yard, and improves the overall look of the neighborhood.
- Notably, residents in all three cities are neutral about having a yard full of native plants, and having a monoculture lawn.
- The results indicate that half of residents in all three cities prioritize their yard helping to maintain the larger ecosystem which suggests the potential to implement GI.
- However, more priority is given to improving the value of the property, and the overall look of the neighborhood.
- Furthermore, coupled with the desire for a toxic free yard, with education, implementing GI in the three cities would improve the conditions of yards and help residents achieve their yard goals.

"In my outdoor space, I want to..."



"I want my outdoor space to..."



DISCUSSION

- From the statistical analysis of the survey data, the findings of this paper are generally consistent with those found in the literature.
- While residents are willing to implement GI features into their yards, their focus remains on ease of maintenance.
- The results suggest a lack of knowledge regarding the importance of native plants, with almost half of the residents being neutral to having native plants in their yard.
- Findings from the three cities indicate that residents from the two North American cities, Toronto and Philadelphia have similar yard preferences and attitudes towards implementing GI in their yard. Residents in the third city, Malmo, vary slightly with a larger focus on recreation and aesthetics.

RECOMMENDATIONS

- There is a large lack of understanding the yard as part of the larger ecosystem. Similarly, this should be addressed through informational policy as well.
- This paper identifies a gap between the willingness to implement GI and its ecosystem benefits of urban residents in the three cities which is likely due to a lack of knowledge. Thus, it is recommended that decision makers aim to educate residents of the options and their multiple functionalities GI features in the yard, as well as the importance of native species.

CONCLUSION

- Conclusively, this study finds that while findings are consistent with the literature such that residents prioritize social and cultural benefits over ecosystem benefits from their yards, there does exist a willingness to increase the yard's capacity to operate within a larger ecosystem.
- There seems to be a disconnect between this desire to improve the ecology of a yard and the willingness to implement GI, suggesting a knowledge or educational gap which can be addressed with policy.

NEXT STEPS...

- The literature review and statistical analysis for this study have been completed.
- The next steps involve:
 - Conducting a complete interpretation of the statistical analyses,
 - Tying them to findings in the literature, and
 - Providing a host of recommendations for decision makers, land use managers, and other researchers.

References and Acknowledgements

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