

Sustainability in the City and Beyond

Concordia University

March 19-21, 2019

The Grass Isn't Always Greener: A Study of Pollinator Diversity and Abundance Across Montreal Urban Green Spaces

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Many pollinator species, which are ecologically and economically important, are facing global population decline.¹ A major contributing factor to this decline is habitat loss due to the expansion of urban and suburban landscapes and the impoverished conditions these environments provide for pollinators. Nonetheless, green spaces within an urban landscape have been shown to be capable of providing shelter, nesting, and foraging sites to a variety of pollinators. In some case, urban spaces can support levels of pollinator species diversity similar to those of non-urban landscapes.² However, not all urban green spaces are equally beneficial to pollinators. While many studies have shown that lawns are poor habitats for pollinators, few studies have compared the efficacy of other types of urban green spaces in supporting pollinators. Fewer still have investigated how different types of urban green spaces and the presence of different flowering plants may be more or less beneficial to urban pollinators. In particular, while pollinator gardens and revitalization projects have grown in popularity in recent years, no study has explicitly tested whether or not these gardens are in fact more effective in supporting pollinators than other types of green spaces. Therefore, in order to measure the relative attractiveness of urban green spaces to urban pollinators, I collected data on the abundance and diversity of pollinators from the orders Hymenoptera (bees and wasps) and Lepidoptera (butterflies and moths), in a variety of representative urban green space types in Montreal, Quebec. This study was conducted across four different types of urban green spaces: an ornamental garden, a pollinator garden, a community food garden, and an untended revitalization area. In August 2018, I identified and counted individual pollinators in 2 sample plots per each of the four green space types with grass lawn sites as controls. I found that the pollinator garden had the highest pollinator diversity and abundance of the green spaces that were tested. The results of the study suggest that efforts to support urban pollinator populations by planting “pollinator-friendly” gardens over other garden designs can be an effective method for maintaining pollinator populations and diversity.



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1 Potts, S. G., Biesmeijer, J. C., Kremen, C., Neumann, P., Schweiger, O., & Kunin, W. E. (2010). Global pollinator declines: trends, impacts and drivers. *Trends in Ecology & Evolution*, 25(6), 345-353. <https://doi.org/10.1016/j.tree.2010.01.007>

2 Baldock, K. C. R., Goddard, M. A., Hicks, D. M., Kunin W. E., Mitschunas, N., Osgathorpe, L. M., ... Memmott, J. (2015). Where is the UK's pollinator biodiversity? The importance of urban areas for flower-visiting insects. *Proceedings of the Royal Society B: Biological Sciences*, 282(1803), 149-171. <https://doi.org/10.1098/rspb.2014.2849>



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