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Conference Abstract

Spontaneous urban vegetation, invasive species, and public perception: integrating biotic and social drivers of plant diversity in a large city

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Abstract

Urbanization is a dominant driver of global landscape transformation, profoundly reshaping biodiversity patterns and ecosystem stability. Contemporary landscapes are increasingly characterized by intensive human intervention, leading to the homogenization of rural environments and the decline of species-rich habitats. In this context, a growing body of research (e.g. Aronson et al. 2017) demonstrates that urban green spaces can host biodiversity levels comparable to, or even exceeding, those in surrounding agricultural landscapes. Cities thus emerge as important refugia for a wide range of plant and animal species, including taxa of conservation concern. Particular attention has recently been given to spontaneous and semi-cultural ecosystems, such as ruderal sites, brownfields, and other forms of “novel urban nature”, which can support high habitat heterogeneity and unique species assemblages (Bonthoux and Chollet 2024, Kowarik and Lippe 2018). At the same time, integrating urban biodiversity into spatial planning remains a key challenge.

Our study builds on these perspectives by addressing urban green spaces as socioecological systems shaped by both ecological processes and human perceptions.

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We present preliminary results from an interdisciplinary research project conducted in Prague, Czech Republic, combining ecological field data with sociological insights. First, we report findings from a quantitative survey examining how residents perceive different types of urban nature, from intensively managed urban green spaces (e.g. ornamental parks) through semi-natural habitats (e.g. urban forests and protected areas) to ruderal, successional, and unmanaged sites with spontaneous vegetation, with emphasis on biodiversity, aesthetics, and recreational use. The results reveal differentiated and often ambivalent attitudes, with increasing appreciation for less regulated, “spontaneous” green spaces alongside traditionally managed parks.

Second, we introduce the BASALS method (Biotic And Social Assessment of Landscape Segments), a novel approach for quantifying biotic-social interactions. The method integrates ecological and social parameters into composite indices that capture habitat diversity and socioecological value across urban sites, including both protected areas as well as sites designated for development or transformation. Within the BASALS framework, we mapped the distribution of alien plants and assessed their contribution to plant species diversity in different types of urban landscapes. By linking biodiversity patterns, invasion dynamics, and public perception, the study contributes to a more nuanced understanding of urban ecosystems and supports the integration of spontaneous vegetation into urban planning and the development of green infrastructure strategies.

Keywords

Urban biodiversity, spontaneous vegetation, urban green spaces, socioecological systems, alien species, landscape planning

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Conflicts of interest

The authors have declared that no competing interests exist.

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