

# Sustainability in the City and Beyond

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## ***Effects of Landscape Structure, Historical land-use, and Biodiversity on Urban Ecosystem Services***

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The current era of unprecedented urban growth has markedly changed ecosystem structure, function, and biodiversity, and consequently many ecosystem services that our health and wellbeing depend on. To work towards more sustainable, liveable cities, it is important to understand where there are opportunities to manage cities for increased ecosystem service provision – which requires an understanding of urban areas as spatially heterogeneous and temporally dynamic ecosystems. Drawing on synthesis, observational, and citizen science approaches, I will discuss how landscape structure, land-use history, and biodiversity can impact multiple ecosystem services in urban landscapes. Examples will be drawn from global-scale analyses, as well as empirical work in the mid-size city of Madison, Wisconsin, including: the role of past agriculture and contemporary land use in driving patterns of soil-based ecosystem services; a novel, sensor-based approach for measuring potential of urban forests for climate change adaptation; and the use of citizen science approaches in urban invasion ecology.



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