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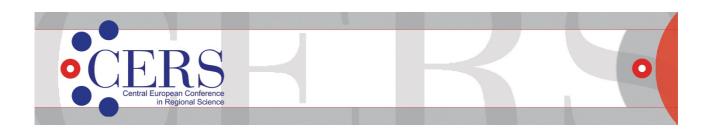
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Accounting for rivalry in the local provision of ecosystem services in urban areas

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Citizens benefit from ecosystem services at a wide range of scales. These services originate from different types of green spaces within urban areas and the degree to which their provision meets local demand is strongly dependent on the spatial configuration of green spaces in relation to population distribution. Conventional approaches for the quantification of locally provided ecosystem services in urban areas typically focus on supply only, ignoring local demand for these services. This is especially relevant for congestible services for which the level of utility depends on the number of simultaneous users. In this paper we assess the supply-demand mismatch of a congestible and non-congestible ecosystem service along an urban-rural gradient: recreation and cooling services. Using data with high spatial resolution available for a 15-year period we quantify the spatial supply, demand, and (mis)match between them of recreation and cooling services. The analysis indicates an increasing mismatch between supply and demand, demonstrating the need for placebased policies to attain more sustainable and resilient urban development.

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