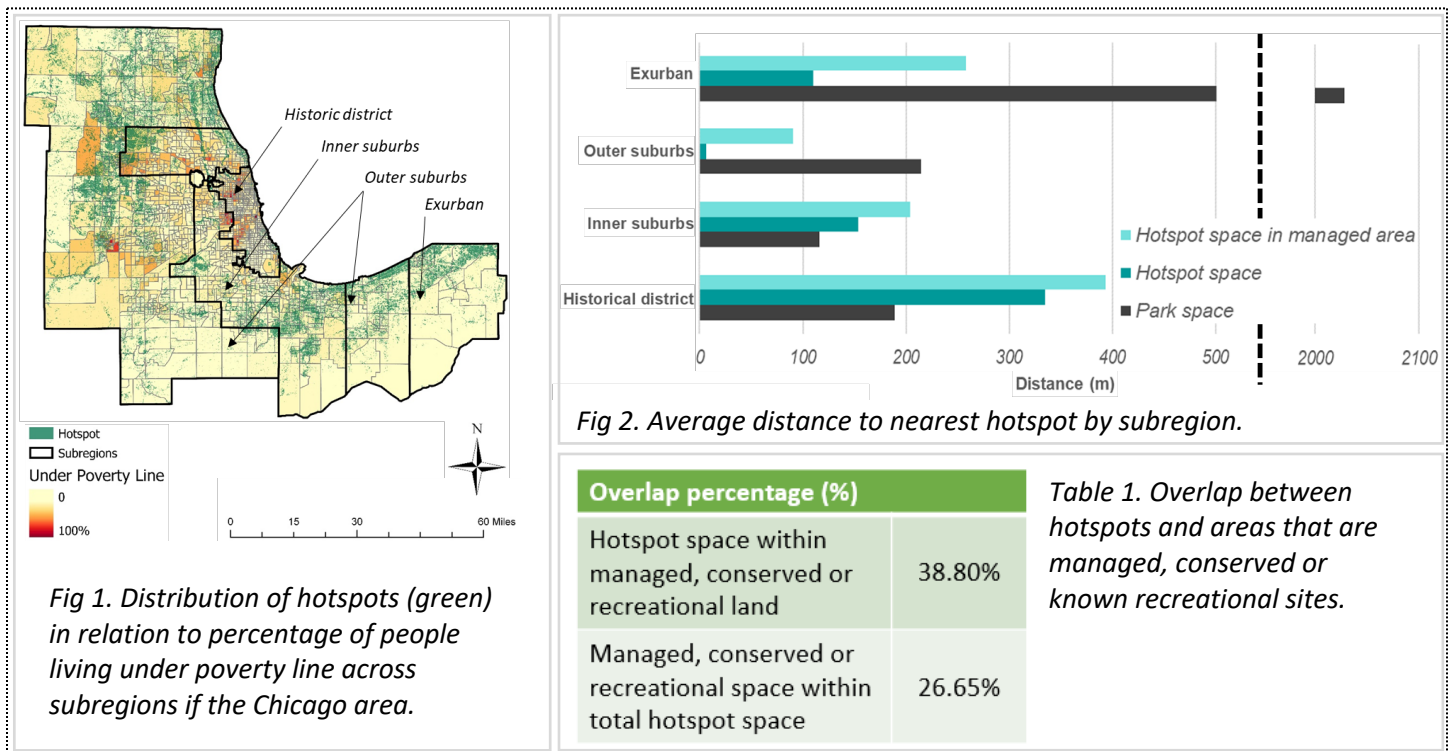


Ecosystem services dynamics in urban socio-ecological systems: A look into service provisioning within the Chicago region.

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Overview and Background: Ecosystem services are the benefits humans obtain from nature. Incorporating these into planning can enable more sustainable land management decisions. However, traditional service assessments only consist of identifying their distribution, leaving unanswered questions about their potential beneficiaries. Hence, this study looks at the distribution of high-rate multi-ecosystem service providing areas (hotspots) across a large metropolitan extent, the Chicago region, in relation to local social context.

Approach: We: (1) mapped the distribution of 5 services (habitat for species, climatic and hydrologic regulation, water provisioning, and recreation) using InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs tool), (2) identified areas providing multiple high-rate services (top 20th percentile, i.e. hotspots) (Blumstein & Thompson, 2015), and (3) measured accessibility to link hotspots to demographics.

Results: Our findings open a dialog on accessibility, the potential to reach and benefit from service providing areas (Ala-Hulkko et al., 2016), and its role as a component of management to guarantee a fair distribution of hotspots.

- There is higher hotspot abundance in suburbs and exurban areas than within the historical district, which has a high percentage of people living under poverty line (although some rural poverty is observed in outer suburbs) (Fig. 1).
- 39% of hotspots are managed or recreational (Table 1).
- Distance to hotspots are greater in the historic district, but parks (for comparison) are further in rural areas (Fig. 2).

Considerations: Hotspot calculation identifies the ‘workhorse’ greenspaces of the landscape at the selected scale. Recalculation for smaller extents, reflect different results.

Future work: We will continue our current by collecting site-specific survey data that will add to our knowledge of accessibility within the ecosystem services context.

FOR FURTHER READING:

Ala-Hulkko, T., Kotavaara, O., Alahuhta, J., Helle, P., & Hjort, J. (2016). Introducing accessibility analysis in mapping cultural ecosystem services. *Ecological Indicators*, 66, 416-427.

Blumstein, M., & Thompson, J. R. (2015). Land-use impacts on the quantity and configuration of ecosystem service provisioning in Massachusetts, USA. *Journal of Applied Ecology*, 52(4), 1009-1019.