

Title: Nature-based urban development in practice: Key lessons from Scandinavian and Dutch cities

Abstract topics: climate adaptation

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ABSTRACT SUMMARY

Habitat fragmentation caused by urbanization and climate change are important drivers of biodiversity decline and ecosystem degradation (McKinney, 2002). Governmental inaction results in cascade effects, such as the extinction of species and the weakening of ecosystem services that citizens depend on. Alarming studies show the continuing loss of nature within European cities as they densify further to meet the demand for housing (Balikçi et al., 2022). The housing market is currently impacted negatively by economic factors and municipalities often respond by scaling back their sustainability ambitions. To avoid cosmetic greening of cities, the eco-social value of urban developments and their contribution to climate-change adaptation need to be made measurable. Developing nature-based urban areas offers opportunities to increase socio-ecological resilience (McPhearson et al., 2015; Spanjar et al., 2022).

In the two-year Nature-Based Area Development study researchers at four Dutch universities collaborated with planning professionals in cities, regions and companies to investigate how nature-based urban development can become a forceful reality. The study applied a combination of methods such as co-research sessions with consortium partners, in-depth interviews with experts and a multiple case study analysis of best practices in the Netherlands and abroad. Malmö and Stockholm are frontrunners in applying innovative green planning instruments such as Green Area Factor to meet high environmental ambitions (Kruuse, 2011). These instruments were also analysed and compared with eco-city projects in the Netherlands to identify their effectiveness in fostering nature and ecosystem services.

The analysis shows barriers in governance and spatiality between public and (semi-)private developments. Policy silos and ownership divisions often lead to standalone interventions that negatively impact social and ecological connectedness and projects' potential for climate-change adaptation. Nature-based urban developments require a proactive effort to understand the precise ecological demands across scales and how they can be harnessed effectively in these complex planning processes. The results of the study provide key lessons and inspiration to enable authorities to implement more effective nature-based planning instruments.

References

Mckinney, M.L. (2002). Urbanization, biodiversity, and conservation. *Bioscience*, 52 (10), 883–890.

Balikçi, S., Giezen, M., & Arundel, R. (2022). The paradox of planning the compact and green city: Analyzing land-use change in Amsterdam and Brussels, *Journal of Environmental Planning and Management*, 65(13), pp. 2387-2411. doi: [10.1080/09640568.2021.1971069](https://doi.org/10.1080/09640568.2021.1971069)

McPhearson, T., Andersson, E., Elmqvist, T., Frantzeskaki, N. (2015). Resilience of and through urban ecosystem service. *Ecosystem Services*, 12, 152-156. doi: [10.1016/j.ecoser.2014.07.012](https://doi.org/10.1016/j.ecoser.2014.07.012).

Spanjar, G., Bartlett, D., Schramkó, S., & Kluck, J. (2022). *The Urban Heat Atlas: A Standardised Assessment for Mapping Heat Vulnerabilities in Europe* (Amsterdam: Amsterdam Universities of Applied Sciences). Available at <https://research.hva.nl>

Kruuse, A. (2011). GRaBS Expert Paper 6: *The green space factor and the green points system*. London: Town and Country Planning Association.