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Editorial: Social-ecological urbanism: Developing discourse, institutions and urban form for the design of resilient social-ecological systems in cities

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Editorial on the Research Topic
Social-ecological urbanism: Developing discourse, institutions and urban form for the design of resilient social-ecological systems in cities

The concept Social-Ecological Urbanism (SEU) was launched by the publication of the book *Principles for Social-Ecological Urbanism* in 2013 (Barthel et al., 2013). SEU is increasingly used by researchers to improve resilience in the urban built environment. The approach is positioned at the interface of urban ecology and urban design (Marcus and Colding, 2014; Colding et al., 2022). It points out how resilience in interlinked social and ecological urban systems can be addressed through informed design of institutions and urban form, both shaped by urban discourse. A key tenet is that a deeper understanding of how discourse, institutions and urban form connect to self-organising urban systems, can help create the conditions for social-ecological outcomes in accordance with political goals and aims on sustainability. SEU offers a far broader conception of urban sustainability than current discourses, by addressing cities on the relevant systems level, where, moreover, social, economic and ecological urban systems are combined. Humans become co-creators of nature in SEU through the integration and management of ecosystem services. SEU integrates and aligns ecological and social services in various urban design projects and adopts social–ecological resilience thinking as a guiding design principle.

This presents a broad inter- and transdisciplinary research program aimed for a comprehensive transformation that addresses the interconnection between, on the one hand social and ecological systems in cities, and on the other hand, between such social-ecological systems and means used in practice, such as discourse, institutions and urban form.

The goal of this Topic Issue is through a selected set of articles describe how cities are conceived as continuous landscapes, where discourse, institutions, and urban form shape and structure social-ecological systems into specific and varied patterns that cannot be captured in isolated terms, such as through density, or in individual technologies like autonomous vehicles and digital smart-city designs which is so fashionable nowadays for building sustainable and climate resilient cities.

Based on non-systematic reviews, two articles in this Topic Issue present a pair of theoretical concepts (*ruderal resilience* and *topodiverse city*), which challenge our view of what a "good city" should be and especially for whom (Samuelsson; Kennedy). Two articles present methodological contributions where Samuelsson (ibid) provides principles for urban planning and design focusing on urban form, while Rostang et al. provide a method to support planning decisions. All address, in line with SEU, the integration of the city as a social and ecological system but also discuss the balancing act that this requires due to tradeoffs between them.

Kennedy argues that an ontological shift in planning is needed toward multispecies thinking that goes beyond embracing the concept of ecosystem services with a strong anthropocentric perspective. As an alternative, or a complement, the concept of ruderal resilience is introduced that does not aim to absorb disturbance and sustain functions to meet human needs (as in urban resilience), but rather aims to increase the capacity to transform. It acknowledges urban nature as a critical stakeholder and thus requires rethinking the objective of urban planning with a human-centered thinking.

Samuelsson also calls planners to rethink but on the level of design principles. He starts of by linking the positive feedback loops of urbanity that require a certain level of density and proximity, the very reason people live in cities (where more people live, more activity takes place, making even more people move there), to the lack of restoration pathways in dense neighbourhoods. Based on a non-systematic review, Samuelsson arrives at three principles coined in the concept of the *topodiverse city*. The first principle is "Avoid street network sprawl" to promote active modes of transport and urban development in general; the second "Avoid Too High Concentrations of People" to ensure that the psychological demands of urban life do not outweigh the benefits derived from higher density; the third "Provide Topodiversity on the Neighborhood Scale" is very much in line with the "15-min city" (2020). Interestingly, the three principles are also in line with the five principles of UN Habitat (2014) but with the difference that Samuelson includes *avoiding* high density while UN Habitat describes a *minimum* density. This exemplifies ones again the balancing act that SEU urges planners to carry out, alluding to the notion of the "safe zone" that Kate Raworths describes in Doughnut Economics (2017) where people can thrive without jeopardizing the planet (Berghauser Pont and Haupt, 2021).

Rostang et al. add the social perspective to these morphological descriptions by asking the question for whom this matters and especially, for whom this matters most. While Kennedy highlight the importance of multiple species with varying needs where humans are just one, Rostang et al. focus on different groups in society with varying needs. The method they propose helps planners to identify areas where investment in green infrastructure could contribute most to closing the health gap and building community resilience. The method could also be used for multiple purposes as it enables to prioritize investments through a SEU lense.

While this Topic Issue contributes to SEU, many challenges remain in the years ahead, such as discourse discussions and paradigm shifts in planning as discussed by Kennedy, or studies of densification thresholds to reduce emissions, support biodiversity and well-being, needed to make the planning principles of Samuelsson concrete where the variety of the population addressed by Rostang et al. should not be overlooked.

Author contributions

Authors are Topic Editors of the Topic Issue *Social-ecological urbanism: Developing discourse, institutions and urban form for the design of resilient social-ecological systems in cities*. Conceptualization, MB, SB, JC, AG, AL, LM Leading of the writing process, MB Corresponding author, MB All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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