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# Editorial: Shaping the future: urban resilience and socio- ecological systems through time

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## Editorial on the Research Topic

[Shaping the future: urban resilience and socio-ecological systems through time](#)

In recent decades, the global shift of over half the population to urban areas has intensified pressures from human activities and natural hazards, catalyzing significant research into urban sustainability and resilience. Strategies for cities to transform and respond to these challenges often involve developing and applying metrics and methodologies to gauge critical social, economic, and environmental dimensions. These efforts facilitate the creation of urban resilience assessments, enabling policy-makers and planners to design cities capable of prospering under such pressures (e.g., [Fu and Wang, 2018](#); [Anelli et al., 2022](#); [Datola, 2023](#)).

Despite the abundance of studies focusing on contemporary urban planning to bolster sustainability, there has been much less attention given to understanding the evolution of urban resilience over time and its connection to current practices (e.g., [Chase et al., 2023](#); [Murphy et al., 2023](#)). This has led to an oversight of how lessons from past societies could inform and transform contemporary approaches to the sustainability and resilience of our cities.

This Research Topic seeks to address this gap, positing that a multifaceted approach is crucial to tackle the challenges posed by climate change in today's cities. Investigations into how urban natural systems were managed across time and space and the benefits they provided for human wellbeing and biodiversity can uncover valuable lessons for achieving urban resilience now. In particular, understanding how ancient societies integrated natural systems into their urban planning offers crucial insights for contemporary cities, which are expanding rapidly and exerting significant environmental impact. While research has predominantly focused on modern Western cities, we advocate for a broader, interdisciplinary approach that includes archaeological, historical, and Indigenous knowledge perspectives. The growing body of ethnohistoric and archaeological data,

continually improving in both quantity and quality, provides examples of resilient urban environments that harmonized with their natural landscapes and navigated environmental, social, and economic shifts successfully.

The papers in this Research Topic aim to merge historical and ecological viewpoints, examining the interplay between human communities and natural resources across different periods and geographies. Our goal is to foster the development of urban contexts where nature-based solutions, promoting both human well-being and biodiversity, can thrive in the future.

Zaro et al. examine urban landcover and green space transformations spanning 3,000 years in Zadar, Croatia. They argue that green spaces critically contribute to improving human well-being and benefit urban ecosystems, thus, they play a major role in enduring urban resilience. The authors also emphasize how the endurance of ancient city layouts highlights essential elements for maintaining resilience over extended periods. Consulting primarily archaeological and historical datasets, they trace the evolution of Zadar's broader landscape from the Iron Age to the modern era, with specific attention given to spatial changes in the built environment and green spaces. Their findings suggest that Roman practices initially shaped the green spaces, with this legacy persisting into modern times, underscoring their lasting importance in fostering socioecological resilience through the ages. However, starting from the mid-20th century, rapid urban development led to the loss of green spaces and increased landcover. The paper stresses the need to acknowledge the remaining relics of green spaces' local importance, ecosystem benefits, and cultural value, advocating for their preservation to uphold urban resilience amidst modern development pressures and uncertain climate conditions.

Long-term land use legacy is also a focal point of the paper by Antorcha-Pedemonte et al. Through four case studies from the prehispanic northern Maya lowlands and the Nahua and Otomi of Central Mexico, this article contributes to the discourse on the impact abandoned ancient cities left on long-term environmental sustainability. The authors employ ethnoecological and historical ecological approaches and argue that the environmental management strategies in the studied ancient cities exemplify nature-based urban planning. The study demonstrates how urban dwellers influenced their environments by applying controlled, intermediate-scale human disturbances. These disturbances enhanced biodiversity and biomass and resulted in mosaic landscapes, leading to urban resilience and having long-lasting positive effects on environmental sustainability. The creation of these enduring second natures highlights the potential for ancient practices to inform modern sustainability efforts. The study reveals that the historical legacies of these ancient cities continue to shape contemporary practices in agroforestry, ecological preservation, and agriculture. The authors propose viewing cities as spaces where people and biodiversity can coexist, thereby paving the way for a sustainable urban socioecological future.

Feinman et al. explore the diverse historical trajectories of prehispanic urban centers in western Mesoamerica and their pathways to sustainability for hundreds of years. They focus on 24 regional centers established between 1000 BCE and 300 BCE, considering their sustainability in terms of how long they remained

the dominant centers in their respective regions (i.e., apogee duration). Governance, infrastructural investment, urban form, and inter-community networks are studied in a comparative framework to scrutinize the significance of these factors in urban sustainability. The cities in the sample were featured by variations in historical path, layout, architectural investment, and form of institutional characteristics to a great extent. The authors find that cities with more collective forms of governance tended to be more sustainable. Additionally, the results suggest that settlement density, domestic labor cooperation, architectural layout, and interregional competition also influenced the longevity of these principal centers. Thus, the interplay of community organization, practices, and institutions facilitated resilience to socioenvironmental changes and perturbations during these centers' apogee duration. The need for detailed empirical data to advance understanding of long-term urban sustainability in Mesoamerica is emphasized.

Campbell et al. propose leveraging the "Sankofa Urbanism" perspective to tackle current challenges in sustainable urban development as they relate to the relationship between cities and nature. The concept of Sankofa, rooted in a Ghanaian symbol and proverb, embodies the idea of incorporating historical awareness and traditions of innovation to bolster nature-based solutions in urban planning. To enhance sustainability initiatives, the authors advocate for drawing insights from archaeological studies on the interplay between urban development and the natural environment. Using the Chicago region as a case study, the authors argue that the integration of biodiversity preservation, heritage-based place-making, and sustainability initiatives with ancestral environmental knowledge strengthens contemporary efforts in urban planning for resilience. They advocate for broadly participatory urban sustainability strategies that improve public life through heritage-informed nature-based solutions in urban neighborhoods. Ultimately, the authors underscore the essence of the Sankofa concept, urging the application of lessons from the past to shape a sustainable future.

This Research Topic provides illustrative examples demonstrating how insights from the past can directly inform and inspire our urban futures. While these examples represent just a fraction of the myriad of experiences, we put them forward to highlight that urbanity is not a monolith and it is not strictly 'modern'—this approach allows us to learn from past experiences, guiding us toward more sustainable cities.

## Author contributions

AG: Conceptualization, Writing – original draft, Writing – review & editing. AD: Conceptualization, Writing – review & editing. RS: Conceptualization, Writing – review & editing. NP: Conceptualization, Writing – review & editing. MA: Conceptualization, Writing – review & editing.

## 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.

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