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Editorial

From Fragmented Growth to Ecological Resilience: A New Vision for Urban–Regional Sustainability

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ABSTRACT

This inaugural editorial for Urban Regional Ecology (URE) introduces the journal's mission to advance interdisciplinary research on the ecological dynamics of human-dominated landscapes. It calls for a paradigm shift from fragmented urban growth toward integrated urban–regional resilience. Positioned at the intersection of ecology, technology, planning, and policy, URE aspires to serve as a global platform for transformative knowledge that links cities, regions, and ecosystems. Through this vision, the journal promotes equitable resource management, biodiversity conservation, and climate-adaptive urban design to build sustainable futures for both people and nature.

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1. Reframing the Urban–Regional Nexus

The 21st century marks an extraordinary transformation of our planet's surface. Over half of the global population now resides in urban areas, and by 2050, this proportion will exceed 70%. Cities have become the defining ecological entities of our age, serving as engines of innovation and epicenters of environmental stress. The relentless expansion of infrastructure, land conversion, and resource extraction has fragmented natural habitats,

disrupted hydrological cycles, and intensified urban heat effects. Yet, paradoxically, these same cities are now emerging as laboratories for sustainability and climate resilience.

This duality forms the intellectual foundation for Urban Regional Ecology (URE). This journal is launched with the conviction that cities and regions must no longer be viewed as separate realms, one human, one natural, but as intertwined systems whose futures depend on integrated understanding and collective action. URE seeks to illuminate the ecological processes that operate across scales: from the microhabitats of street trees to the bioregional patterns of watersheds and ecological corridors.

In this sense, urban ecology is not merely a scientific field; it is an ethical and strategic framework. It challenges the outdated dichotomy between "urban" and "nature" and reframes them as complementary forces in a shared adaptive landscape. The urban–regional interface is where ecological theory meets planning practice, where spatial design meets governance, and where citizens' daily lives intersect with the resilience of ecosystems.

2. The Mission of Urban Regional Ecology

The creation of URE responds to a clear scientific and societal need: to transcend disciplinary boundaries in addressing the ecological challenges of rapidly urbanizing regions. The journal's mission rests on four interlinked pillars.

a) Bridging Disciplinary Divides

URE invites contributions that unite the ecological sciences with urban design, regional planning, and socio-economic systems thinking. We encourage research that spans ecology, geography, landscape architecture, civil and environmental engineering, social science, and information technology. True innovation arises not from specialization alone, but from the convergence of diverse perspectives that reimagine cities as living, adaptive ecosystems.

b) Advancing Technological and Methodological Frontiers

Ecological understanding today is inseparable from technological advancement. We welcome studies employing remote sensing, GIS-based landscape modeling, AI-driven urban analytics, and sensor networks for environmental monitoring. Equally, we value methodological innovations in participatory mapping, ecosystem service quantification, and scenario modeling that capture the complexity of human–nature interactions in real-world settings. Through these approaches, URE will spotlight technologies that empower cities to anticipate, rather than merely respond to, ecological change.

c) Promoting Social–Ecological Equity

Urban resilience is not solely a matter of infrastructure. It is deeply social. The ecological benefits of green infrastructure, cooling networks, and sustainable mobility must be accessible to all citizens, not confined to privileged enclaves. URE aims to elevate scholarship that addresses environmental justice, inclusive planning, and community-led adaptation, emphasizing the co-production of ecological knowledge among scientists, policymakers, and local communities.

d) Connecting Global Knowledge with Local Realities

No two cities share identical ecological trajectories. Lessons from Stockholm's green corridors may not directly translate to Manila's flood-prone basins or São Paulo's peri-urban forests. Thus, URE encourages context-sensitive research that bridges global frameworks with local wisdom. We welcome case studies from both the Global North

and South, recognizing that diverse biophysical, cultural, and governance contexts collectively enrich the science of urban–regional ecology.

3. The Vision of Moving Towards Climate-Adaptive, Biodiverse, and Smart Regions

At its core, URE envisions a world where urban development and ecological integrity reinforce one another. The journal's scope, therefore, encompasses a broad yet interconnected range of themes:

- Ecological Design for Climate-Resilient Cities: Integrating green-blue infrastructure, nature-based solutions, and biophilic urban design to mitigate climate impacts and enhance adaptive capacity.
- Regional Landscape Ecology: Understanding how land-use patterns, habitat networks, and regional planning frameworks influence ecosystem functionality and biodiversity conservation.
- Social–Ecological Systems: Exploring the reciprocal relationships between human behavior, governance structures, and environmental change across scales.
- Ecological Technologies and Smart Cities: Leveraging data-driven approaches — from digital twins to environmental IoT, to support sustainable decision-making and adaptive planning.
- Sustainable Development and Policy Integration: Translating ecological evidence into actionable strategies that inform national and municipal policies aligned with the UN Sustainable Development Goals (particularly SDG 11 and SDG 13).

4. A Global Conversation for a Shared Future

Our inaugural issue reflects this spirit of integration and ambition. Contributions span continents and disciplines: a study from Europe demonstrates how digital mapping of ecosystem services can inform regional planning policies; an analysis from Asia explores the adaptive capacity of megacities under extreme climate scenarios; and a perspective from Latin America examines urban biodiversity corridors as engines of ecological renewal and cultural identity.

Collectively, these works illustrate that urban–regional ecology is not an abstract ideal. It is a practical science for guiding how cities evolve, recover, and thrive amid global change.

The journal recognizes that establishing URE is both a scholarly and moral undertaking. The environmental crises confronting humanity, from biodiversity loss to climate extremes, are concentrated in the very regions where most people live: our cities. It is therefore within cities and their surrounding regions that solutions must begin. The journal's role is to illuminate these pathways through evidence, dialogue, and innovation.

5. Challenges Ahead and a Call to Action

- How can ecological principles be mainstreamed into infrastructure development and urban design? The challenge lies not in the absence of knowledge, but in institutional inertia and fragmented governance.
- How can digital technologies serve ecological ends rather than intensify consumption? Smart cities must become ecologically intelligent, using data not only to optimize services but to regenerate natural capital.
- How can urban policies balance economic growth with ecosystem stewardship? True resilience requires long-term ecological accounting that values biodiversity and ecosystem services alongside GDP metrics.
- Addressing these questions demands collaboration that transcends academic silos and national borders. URE will act as a bridge connecting theory with practice, science with policy, and local innovation with global

learning. We aim to cultivate a scholarly ecosystem where ecologists, engineers, planners, and policymakers engage in continuous dialogue, guided by a shared commitment to the planet's urban future.

6. Conclusion

As we inaugurate URE, we invite researchers, practitioners, and thought leaders worldwide to contribute to this collective endeavor. Let us move beyond disciplinary boundaries and geographical divides to envision cities and regions as regenerative systems, capable of sustaining biodiversity, enabling social equity, and adapting to a changing climate.

Urban regions are where humanity's future will unfold. Whether that future is sustainable depends on how effectively we integrate ecological understanding into the fabric of everyday urban life. URE stands ready to serve as the forum for that integration, a journal committed to knowledge that not only observes the world but transforms it.

Together, let us advance the science and practice of urban–regional ecology toward a resilient and equitable planetary future.