



OPEN ACCESS

EDITED AND REVIEWED BY
Martin Siegert,
University of Exeter, United Kingdom

*CORRESPONDENCE
Diogo Guedes Vidal,
✉ diogo.vidal@uc.pt

RECEIVED 13 September 2024
ACCEPTED 16 September 2024
PUBLISHED 24 September 2024

CITATION
Vidal DG, Alves F, Menezes M, Gallo E and
Tomé P (2024) Editorial: Possible nature(s) in
urban spaces: plurality and agency to tackle
socio-ecological challenges.
Front. Environ. Sci. 12:1495979.
doi: 10.3389/fenvs.2024.1495979

COPYRIGHT
© 2024 Vidal, Alves, Menezes, Gallo and Tomé.
This is an open-access article distributed under
the terms of the [Creative Commons Attribution
License \(CC BY\)](#). The use, distribution or
reproduction in other forums is permitted,
provided the original author(s) and the
copyright owner(s) are credited and that the
original publication in this journal is cited, in
accordance with accepted academic practice.
No use, distribution or reproduction is
permitted which does not comply with these
terms.

Editorial: Possible nature(s) in urban spaces: plurality and agency to tackle socio-ecological challenges

Diogo Guedes Vidal^{1,2*}, Fátima Alves^{1,2,3,4}, Marlucci Menezes⁵,
Edmundo Gallo^{1,3,4} and Pedro Tomé⁶

¹Centre for Functional Ecology - Science for People and the Planet (CFE), TERRA Associate Laboratory, Department of Life Sciences (DCV), University of Coimbra (UC), Coimbra, Portugal, ²Department of Social Sciences and Management, Universidade Aberta, Lisbon, Portugal, ³Observatory of Sustainable and Healthy Territories of Bocaína, Paraty, Brazil, ⁴Sergio Arouca National School of Public Health (Ensp), Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro, Brazil, ⁵National Laboratory for Civil Engineering (LNEC), Lisbon, Portugal, ⁶Institute of Language, Literature and Anthropology, Spanish National Research Council (CSIC), Madrid, Spain

KEYWORDS

nature agency, socio-ecological challenges, plurality, socio-ecological futures, rights of nature

Editorial on the Research Topic

Possible nature(s) in urban spaces: plurality and agency to tackle socio-ecological challenges

Nature has often been framed as a solution to contemporary socio-ecological challenges through homogeneous, formal, and anthropocentric viewpoints. However, these perspectives are inadequate for addressing the complex and multifaceted nature of such challenges. To effectively engage with contemporary socio-ecological phenomena, it is crucial to adopt a more integrative approach—one that involves thinking *with* and *like* nature in a symbiotic relationship where different perspectives and knowledge systems are valued, integrated and interconnected (Alves et al., 2013; Alves and Vidal, 2024). In urban spaces, nature is frequently viewed as domesticated and passive, functioning merely as a backdrop to human activity. This limited view neglects nature's intrinsic agency and its potential to work in partnership with human societies (Čapek, 2010; Wolch et al., 2014).

Despite the growing recognition of the need to restore the interconnected relationships between society-nature-culture, especially within the context of our multicultural and unequal cities, more needs to be done to foster innovative and inclusive solutions. These solutions should encourage humans and non-humans alike to co-create diverse urban spaces that support resilient and sustainable possible futures (Folke et al., 2016; Bina et al., 2024). By embracing a broader understanding of nature's role in urban systems, we can cultivate more adaptive and equitable urban spaces that are better equipped to address both current and future socio-ecological challenges.

The concept of “possible” is used to recognize alternative ways of coexistence and challenge hegemonic norms and traditional planning paradigms. It aims to explore the potentialities within a given context and is associated with generativity and creativity latent in a territory (Stengers, 2000; Bragança, 2023). Previous research has been devoted to exploring the various aspects of integrating nature into urban environments and promoting

more balanced socio-ecological relationships through an ecosystem services approach (Vidal et al., 2022). Therefore, concepts like urban biodiversity, ecosystem services, green infrastructure, and biophilic design have been studied and explored albeit in a fragmented way and failing to recognize the complexity of dealing with nature (Aldeia and Alves, 2019) and, consequently, failed to integrate emotions and nature narratives and imaginaries into urban planning (Lencastre et al., 2023). This gap calls for an innovative approach that could contribute to adding depth, meaning, and resonance to urban spaces, creating environments that are not only functional but also emotionally enriching, fostering a stronger sense of community, wellbeing, and ecological awareness to raise resilience towards socio-ecological challenges. This Research Topic seeks to foster a deep discussion and reflection on the diverse possibilities that nature(s) can assume within urban spaces through the creation of a collaborative environment where a multitude of voices contribute to urban sustainability (Ramirez et al., 2018; Vidal and Alves, 2024; Vidal et al., 2024). Nature and its elements are understood as active agents with agency, working alongside humans. These nature imaginaries should be deconstructed through a widely participatory exercise that promotes a new culture of the territory and space, which implies including different forms of knowledge, ecological values and practices. Considering the interdependencies of nature-society, urban spaces can be relevant in contributing to the importance of reimagining possible futures (Harris, 2022). This Research Topic collected seven manuscripts investigating new ways of reimagining our relationship with Nature in urban settings, considering the reflection of Nature(s) with agency and in the plurality of forms that can assume that goes beyond the formal and classic ones and how this can address the discussion on socio-ecological challenges.

Within this standpoint, the contribution of Alves et al. entitled “*The Rights of Nature and the Human Right to Nature: An Overview of the European Legal System and Challenges for the Ecological Transition*” explores the complexities of recognizing nature’s rights within European legal frameworks. By examining how different countries incorporate the Rights of Nature and the human right to a healthy environment, this study reveals the persistent anthropocentric bias that could hinder efforts to promote ecological transitions. This research highlights the need for a pluralistic approach that acknowledges the agency of nature within the legal and cultural contexts of urban spaces. Beery et al. “*Broadening the Foundation for the Study of Childhood Connectedness to Nature*” emphasized the importance of spatial and sociocultural factors in understanding children’s access to nature in urban environments. The study’s focus on Malmö, Sweden, underscores the diverse ways urban spaces can facilitate or hinder connections to nature. The findings adds to the conversation about how urban planning and education may enable a more inclusive and pluralistic engagement with nature, promoting a better ecological consciousness among future generations, by pushing for a broader understanding of these connections. Bragança’s article “*Possible Gardens: Cosmopolitical Worlds*” delves into the interactions within urban gardens, presenting them as sites where multiple species coexist and create dynamic ecological spaces. Considering gardens in Belo Horizonte (Brazil), the study illustrates how gardens function as miniature versions of larger socio-ecological systems, where both human and

non-human actors contribute to urban sustainability. This research illustrates how urban gardens can become catalysts for ecological practices and policies, embodying the plurality and agency needed to address contemporary urban challenges. The paper of Jamal and El-Fattah, “*An Overview of Solid Waste Management and Privatization in the Kingdom of Bahrain*,” addresses the pressing issue of waste management in an urban context. The study explores how Bahrain’s constrained geographical space and increasing waste production challenge the creation of sustainable urban environments. It discusses the potential role of privatization in enhancing waste management systems, contributing to the ongoing discourse on how urban spaces can adapt to ecological challenges through diverse and innovative solutions, highlighting the need for inclusive strategies that engage multiple stakeholders. Muñoz et al. examined in the article “*Assessing Biodiversity and Regulatory Ecosystem Services in Urban Water Bodies Serving as Aqua-Nature-Based Solutions*” how urban ponds function as Nature-based Solutions (NBS) to enhance biodiversity and resilience to climate change. By comparing ponds’ biodiversity and ecosystem services with different hydroperiods, the study emphasizes the need for varied and well-integrated NBS in urban planning. This research underscores the importance of recognizing and leveraging the diverse ecological functions of urban water bodies to address socio-ecological challenges, fostering more resilient and biodiverse cities. The Esteves et al. approach, “*Exploring the Nexus of Gender and Environment in the H2020 PHOENIX Project: Insights from the Design of a Gender Equality Plan*,” investigates the intersection of gender and environmental issues within the European Green Deal framework. Creating a Gender Equality Plan Gender Equality Plan through a participatory approach, the study highlights the need for gender-sensitive research in environmental projects. This work contributes to the broader discourse on how inclusive and pluralistic approaches can enhance the effectiveness of ecological initiatives, ensuring that diverse perspectives and experiences shape the future of urban environments. Finally, Borges et al. offer in their article “*Transforming Cities into Sustainable and Healthy Territories Starts with the ‘Culture of Water’: Learning from Traditional Peoples and Communities of the Carapitanga River Basin*” an innovative perspective on urban water governance. Using the ecological knowledge that has been traditionally used by people in the Brazilian Carapitanga River Basin, the study presents water culture as a vital component in addressing urban socio-ecological challenges. This research enriches the discourse on how Indigenous and traditional practices can inform sustainable urban development, emphasizing the plurality of approaches necessary to balance the hydrosocial cycle in modern cities.

In conclusion, this Research Topic emphasises the critical need for a paradigm change in our understanding of and interactions with nature in urban settings. We open the door to more resilient, inclusive, and sustainable urban possible futures by embracing nature’s inherent agency and integrating multiple views and knowledge systems. The seven contributions that are the subject of this discussion showcase a variety of creative methods that go against accepted wisdom and provide new perspectives on how urban areas and wildlife might meaningfully coexist. These studies, which range from gender-sensitive environmental research to educational techniques and local ecological practices, all support

a redesigned relationship that is egalitarian and flexible with nature. To address the complex socio-ecological concerns of our day, it is imperative that we keep promoting collaborative efforts and including many viewpoints as we go forward. By doing this, we may design urban areas that are rich in ecological and emotional value in addition to being functional, making them better able to promote the welfare of all residents, humans and non-humans, and the condition of our shared environment.

Author contributions

DV: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing—original draft, Writing—review and editing. FA: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing—original draft, Writing—review and editing. MM: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing—review and editing. EG: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing—review and editing. PT: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing—review and editing.

Funding

The authors declare that financial support was received for the research, authorship, and/or publication of this article. Diogo Guedes Vidal and Fátima Alves were supported by the “PHOENIX: The Rise of Citizens Voices for a Greener Europe” project, funded by the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 101037328. They also acknowledge the support of the R&D Unit Centre for Functional Ecology—Science for People and the Planet (CFE), with reference UIDB/04004/2020 and DOI identifier (<https://doi.org/10.54499/UIDB/04004/2020>), financed by FCT/MCTES through national funds (PIDDAC) with and extension at the University Aberta, the

Associate Laboratory TERRA, with reference LA/P/0092/2020. Fátima Alves also thanks CAPES for supporting the project with reference 88887.832797/2023-00 (CAPES-PRINT) from the Oswaldo Cruz Foundation (FIOCRUZ) within the scope of the Institutional Internationalization Program (Notice n°41/2017). Marlucci Menezes was supported by the RUN| Naturalized Urban Rivers project, funded by the Cyted - Ibero-American Science and Technology Programme contract no. 420RT0008. Pedro Tomé was supported by the research project “Sustainable Food Networks as Chains of Values for Agro-Ecological and Food Transitions. Implications for Public Territorial Policies (Alisos). Upscaling and Cooperative Logistics in City-Regions. Comunidad de Madrid” (PID2020-112980GB-C22), funded by the Spanish Scientific, Technical and Innovation Research (Ministerio de Ciencia e Innovación).

Acknowledgments

We thank all authors and reviewers who have contributed to this Research Topic. The authors are grateful to the members of the research group Societies and Environmental Sustainability of the Centre for Functional Ecology of the University of Coimbra with an extension and University Aberta for their invaluable insights and discussions about the topic explored in this Research Topic. These exchanges have greatly enriched our understanding of the sociocultural construction of nature.

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.

The authors declared that they were an editorial board member of *Frontiers*, at the time of submission. This had no impact on the peer review process and the final decision.

Publisher’s note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

- Aldeia, J., and Alves, F. (2019). Against the environment. Problems in society/nature relations. *Front. Sociol.* 4, 29. doi:10.3389/fsoc.2019.00029
- Alves, F., Filho, W. L., Araújo, M. J., and Azeiteiro, U. M. (2013). Crossing borders and linking plural knowledge: biodiversity conservation, ecosystem services and human well-being. *Int. J. Innov. Sustain. Dev.* 7, 111–125. doi:10.1504/IJISD.2013.053323
- Alves, F., and Vidal, D. G. (2024). Plural nature (s): an overview of their sociocultural construction. *Encyclopedia* 4, 1–12. doi:10.3390/encyclopedia4010001
- Bina, O., Baptista, M. D., Pereira, M. M., Inch, A., Falanga, R., Alegria, V., et al. (2024). Exploring desired urban futures: the transformative potential of a nature-based approach. *Futures* 159, 103362. doi:10.1016/j.futures.2024.103362
- Bragança, L. S. (2023). *Jardins como possibilidade*. Rio de Janeiro: Paisagens Híbridadas.
- Čapek, S. M. (2010). Foregrounding nature: an invitation to think about shifting nature-city boundaries. *City Community* 9, 208–224. doi:10.1111/j.1540-6040.2010.01327.x

Folke, C., Biggs, R., Norström, A. V., Reyers, B., and Rockström, J. (2016). Social-ecological resilience and biosphere-based sustainability science. *Ecol. Soc.* 21, art41. doi:10.5751/ES-08748-210341

Harris, N. C. (2022). Cities build better biologists. *Sci. Am.* 10. Available at: <https://www.scientificamerican.com/article/cities-build-better-biologists/> (Accessed January 26, 2024).

Lencastre, M. P. A., Vidal, D. G., Lopes, H. S., and Curado, M. J. (2023). Biophilia in pieces: critical approach of a general concept. *Environ. Soc. Psychol.* 8, 1869. doi:10.54517/esp.v8i3.1869

Ramirez, K. S., Berhe, A. A., Burt, J., Gil-Romera, G., Johnson, R. F., Koltz, A. M., et al. (2018). The future of ecology is collaborative, inclusive and deconstructs biases. *Nat. Ecol. Evol.* 2, 200. doi:10.1038/s41559-017-0445-7

Stengers, I. (2000). *The invention of modern science*. Minneapolis: University of Minnesota Press.

Vidal, D. G., and Alves, F. (2024). Voices of the absent: the agency of nature and future in climate regeneration. *PLoS Clim.* 3, e0000420. doi:10.1371/journal.pclm.0000420

Vidal, D. G., Alves, F., Valentim, C. S., and Freitas, H. (2024). Natures instead of nature—plural perceptions and representations of nature and its challenges for ecological transition: a systematic review of the scientific production. *Environ. Sci. Eur.* 36, 108. doi:10.1186/s12302-024-00934-5

Vidal, D. G., Dias, R. C., Oliveira, G. M., Dinis, M. A. P., Fernandes, C. O., Filho, W. L., et al. (2022). "A review on the cultural ecosystem services provision of urban green spaces: perception, use and health benefits," in *Sustainable policies and practices in energy, environment and health research*. Editors W. Leal Filho, D. G. Vidal, M. A. P. Dinis, and R. C. Dias (Cham: Springer), 287–331. doi:10.1007/978-3-030-86304-3_18

Wolch, J. R., Byrne, J., and Newell, J. P. (2014). Urban green space, public health, and environmental justice: the challenge of making cities "just green enough." *Landsc. Urban Plan.* 125, 234–244. doi:10.1016/j.landurbplan.2014.01.017