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# Editorial: Recreational forests for co-benefits: conservation, tourism and well-being

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Editorial on the Research Topic
Recreational forests for co-benefits: conservation, tourism and well-being

As outlined in the Global Risk Report 2023, environmental risks such as climate change, ecosystem degradation, and natural disasters remain the most significant global challenges (World Economic Forum, 2023). In this context, recreational forests represent a powerful model for achieving co-benefits across conservation, tourism, and health domains.

Forests cover ~31% of the Earth's land area and serve as home to more than 80% of terrestrial species (FAO, 2022). They act as major carbon sinks, absorbing 2.4 billion tons of $CO_2$ annually (Pan et al., 2011; Griscom et al., 2017). Simultaneously, forests are increasingly recognized for their contribution to human wellbeing as recreational forests—especially in urban and peri-urban contexts where populations are growing rapidly. By 2050, over 70% of the world's population is projected to live in urban areas (UN DESA, 2018), escalating the demand for accessible natural spaces.

Recreational forests, emerging as multifunctional landscapes, support physical and mental health, promote pro-environmental behaviors, and foster sustainable tourism—all while enhancing ecological integrity and biodiversity conservation (Gong et al., 2024; Hegetschweiler et al., 2022; Bratman et al., 2021).

This Research Topic brings together empirical and conceptual contributions that explore forest-based recreation across geographic and cultural contexts. The six published articles reflect an interdisciplinary approach—combining ecological, psychological, sociological, and policy-driven frameworks.

Yang presents a comprehensive review of biosphere reserves and outlines how sustainable livelihoods frameworks support conservation and community wellbeing. A Czech study investigates public expectations for forest recreation, emphasizing participatory governance in forest design (Purwestri et al.). Research from India assesses sustainable livelihoods and ecotourism potential in a wildlife sanctuary, integrating conservation with local development (Bhushan et al.), while Erfanian et al. conduct a study based on social cognitive theory that examines how forest visits shape environmental intentions and behaviors among ecotourists. A neuroscientific study from China quantifies

stress recovery through forest color schemes using EEG feedback, linking aesthetics to cognitive restoration (Wu et al.). Another study (Zhu et al.) demonstrates that audio-visual elements in bamboo forest spaces-especially natural sounds and visually rich recreational and ornamental types-enhance psychological restoration and guide visual attention. By employing eye-tracking methods and controlled soundscapes, it provides evidence-based insights for designing more effective and health-promoting urban green spaces.

Emerging research supports the idea that exposure to forest environments positively impacts human mental and physiological health. Nature-based experiences reduce cortisol levels, enhance mood, and improve cognitive function (Antonelli et al., 2019; Tyrväinen et al., 2014). Furthermore, post-pandemic studies emphasize the urgency of integrating green infrastructure into urban planning to promote both health security and environmental sustainability (Twohig-Bennett and Jones, 2018; van den Bosch and Ode Sang, 2017).

The value of urban forests is now recognized in climate strategies as well. Forests not only mitigate heatwaves and reduce urban heat island effects but also support water regulation and air purification (Hanna and Comín, 2021; Tedesco et al., 2023). These multiple services underscore the need for integrative forest planning that includes recreational access, ecological protection, and social resilience.

The importance of recreational forests closely aligns closely with several United Nations Sustainable Development Goals (SDGs), notably SDG 3 (Good Health and Wellbeing), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 15 (Life on Land). Furthermore, Article 5 of the Paris Agreement emphasizes the role of forests in climate change mitigation and adaptation strategies, underscoring the value of maintaining and enhancing forest carbon stocks. The UN Decade on Ecosystem Restoration (2021–2030) also advocates for integrated, inclusive, and equitable approaches to forest management.

Recreational forests, with their potential to foster climate resilience, ecological awareness, and health equity, serve as practical implementations of these frameworks. They provide tangible examples of Nature-based Solutions (NbS) that address multiple goals simultaneously (Seddon et al., 2020; Chausson et al., 2021).

To advance the science and policy of recreational forests, several key research needs must be addressed. Among these, Integrated Assessment Frameworks should develop transdisciplinary models that combine ecological indicators, psychological health metrics, and socio-economic valuation tools. Additionally, longitudinal studies are essential to measure the long-term benefits of forest exposure on physical and mental health, particularly in vulnerable urban populations. The use of modern technology and smart monitoring systems-such as remote sensing, GIS, and AI-is crucial for monitoring recreational forest health and visitor impacts in real time. Furthermore, research on community engagement is important to investigate participatory governance models that incorporate local and Indigenous knowledge into recreational forest planning.

Recreational forests present a timely opportunity to reconsider our relationship with nature, shifting from exploitation to co-creation. As demonstrated in this Research Topic, the co-benefits of forests for climate, conservation, and community wellbeing are too significant to ignore.

## Author contributions

MR: Conceptualization, Data curation, Formal analysis, Methodology, Supervision, Validation, Writing – original draft, Writing – review & editing. MH: Conceptualization, Data curation, Writing – review & editing. UB: Conceptualization, Data curation, 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.

The author(s) 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.

## Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

## Publisher's note



## References

Antonelli, M., Barbieri, G., and Donelli, D. (2019). Effects of forest bathing (shinrin-yoku) on levels of cortisol as a stress biomarker: a systematic review and meta-analysis. *Int. J. Biometeorol.* 63, 1117–1134. doi: 10.1007/s00484-019-01717-x

Bratman, G. N., Anderson, C. B., Berman, M. G., Cochran, B., de Vries, S., Flanders, J., et al. (2021). Nature and mental health: an ecosystem service perspective. *Sci. Adv.* 7:eabj2946. doi: 10.1126/sciadv.aax0903

Chausson, A., Turner, B., Seddon, D., Chabaneix, N., Girardin, C. A. J., Kapos, V., et al. (2021). Mapping the effectiveness of nature-based solutions for climate change adaptation. *Global Change Biol.* 27, 613–627. doi: 10.1111/gcb.15513

FAO (2022). *The State of the World's Forests 2022.* Rome: FAO.

Gong, C., Yang, R., and Li, S. (2024). The role of urban green space in promoting health and well-being is related to nature connectedness and biodiversity: Evidence from a two-factor mixed-design experiment. *Landscape Urban Plann.* 245:2024. doi: 10.1016/j.landurbplan.2024.105020

Griscom, B. W., Adams, J., Ellis, P. W., and Houghton, R. A. (2017). Natural climate solutions. *Proc. Natl. Acad. Sci.* 114, 11645–11650. doi: 10.1073/pnas.1710465114

Hanna, E., and Comín, F. A. (2021). Urban green infrastructure and sustainable development: a review. *Sustainability* 13:11498. doi: 10.3390/su132011498

Hegetschweiler, K. T., Fischer, C., Venter, Z. S., Wolff, M., Hoase, D., Ostaic, S. K., et al. (2022). The influence of urban forests on people's health during the COVID-19 pandemic: a review. *Urban Forest. Urban Green.* 74:127653. doi: 10.1016/j.ufug.2022.127624

Pan, Y., Birdsey, R. A., Fang, J., Houghton, R., Kauppi, P. E., Kurz, W. A., et al. (2011). A large and persistent carbon sink in the world's forests. *Science* 333, 988–993. doi: 10.1126/science.1201609

Seddon, N., Chausson, A., Berry, P., Girardin, C. A. J., Smith, A., and Turner, B. (2020). Understanding the value and limits of nature-based solutions to climate change. *Philosoph. Trans. Royal Soc. B* 375:20190120. doi: 10.1098/rstb.2019.0120

Tedesco, A. M., López-Cubillos, S., Chazdon, R., Rhodes, J. R., Archibald, C. L., Pérez-Hämmerle, K. -V., et. al. (2023). Beyond ecology: ecosystem restoration as a process for social-ecological transformation. *Trends Ecol. Evol.* 38, 643–653. doi: 10.1016/j.tree.2023.02.007

Twohig-Bennett, C., and Jones, A. (2018). The health benefits of the great outdoors: a systematic review and meta-analysis of greenspace exposure and health outcomes. *Environ. Res.* 166, 628–637. doi: 10.1016/j.envres.2018.06.030

Tyrväinen, L., Ojala, A., Korpela, K., Lanki, T., Tsunetsugu, Y., and Kagawa, T. (2014). The influence of urban green environments on stress relief measures: a field experiment. *J. Environ. Psychol.* 38, 1–9. doi: 10.1016/j.jenvp.2013.12.005

UN DESA (2018). *World Urbanization Prospects: The 2018 Revision*. New York, NY: United Nations.

van den Bosch, M., and Ode Sang, A. (2017). Urban natural environments as nature based solutions for improved public health - a systematic review of reviews. *J. Transp. Health* 5:S79. doi: 10.1016/j.jth.2017.05.230

World Economic Forum (2023). *Global Risks Report 2023*. Geneva: World Economic Forum.