Journal of Ethnobiology and Ethnomedicine

EDITORIAL

Open Access

Plural and commoning? Forecasting four scenarios for ethnobiology and ethnomedicine by 2035

Andrea Pieroni[1,2*], Mousaab Alrhmoun[1] and Naji Sulaiman[1]

Abstract

The accelerating erosion of traditional and local ecological and medical knowledge (LEK) systems is increasingly evident in the Global North and across many less marginalised regions of the Global South. This decline is primarily driven by overarching forces, i.e. globalisation, internalised coloniality created worldwide and over decades by non-rural leading classes, and, most remarkably, by a profound detachment from continuous, embodied interactions with nature. At the same time, sustainability-driven agendas and the expanding role of AI in science and daily life intertwine challenges, opportunities, and a few risks for ethnobiology and ethnomedicine in the coming decade. This editorial proposes four plausible scenarios for the evolution of these disciplines, navigating the intricate cobwebs of LEK loss, resilience, adaptation, and, most importantly, trying to open new horizons in the current problematic times. These scenarios are intended to inspire further theoretical and primarily further empirical engagement in the field, alongside a call to urgently foster *commoning* practices and innovative educational platforms for (re) experiencing LEK.

Introduction

Over the past half-century, ethnobiology and ethnomedicine have emerged as crucial interdisciplinary sciences exploring the complex relationships between humans, plants, animals, and ecosystems. Traditional, Indigenous, and local ecological and medical knowledge (LEK), long regarded as the core of ethnobiological inquiry, now faces immense pressure from multiple, overlapping global transformations: the expansion of industrialised agriculture and consumerism, migration, urbanisation, climate change, economic globalisation, and the homogenising forces of modernisation, post-modernisation or, at times, centralised authoritarian regimes.

While a substantial body of scholarship has documented the ongoing erosion of LEK, although some ethnobiologists continue to challenge this widely held assumption, far fewer studies have focused on LEK rearrangement, transformation, dilution, and revitalisation processes. Moreover, critical attention to structural asymmetries shaping how local nature knowledge is framed, represented, and internalised, particularly across many marginalised areas of the Global South, peripheral rural areas and minority groups worldwide, remains limited. These communities often champion sustainable LEK systems, yet their local epistemologies are frequently undervalued.

As we approach the midpoint of the twenty-first century, the discipline must engage in reflexive scenario-building to anticipate the opportunities and challenges arising from rapidly evolving technological and socio-economic transformations. These include waves of

*Correspondence:
Andrea Pieroni
a.pieroni@unisg.it
[1] University of Gastronomic Science, Piazza Vittorio Emanuele II 9, 12042 Pollenzo, Italy
[2] Department of Medical Analysis, Tishk International University, Erbīl 44001, Iraq

expelled workforce due to AI and robotics, the plausible extension of free and "idleness" time, and the potential rise of new injustices and social frictions.

This editorial seeks to humbly outline four distinct yet interconnected scenarios for the evolution of ethnobiology by 2035.

Scenario 1: Indigenous ecologies and agroecology

Local and Indigenous ecological knowledge (LEK) will remain foundational to food security, livelihoods, and domestic healthcare strategies in select remote regions of Africa, the MENA region, Central and South America, Southeast Asia, and the Pacific. Although often heavily diluted in many contexts, some Indigenous and smallholder communities will continue to steward complex, virtuous ecological and domestic medical systems (both in primary, very few, and secondary environments), serving as key knowledge holders and transmitters. Women, elders, and small-scale farmers will retain central roles in natural resource management, domestic health practices, and cultural transmission.

Grassroots movements advocating food, medical sovereignty, and bio-cultural revitalisation will gain momentum in marginalised areas. Ethnobiologists may engage as co-creators, facilitators, and co-designers within transdisciplinary Indigenous ecological and agroecological platforms, collaborating closely with local actors.

At the same time, youth outmigration will deepen intergenerational divides, while climate change, land grabbing, and deforestation will erode crucial ecological niches. Waves of migration, climate shocks, and socio-political instability may further disrupt local social systems and knowledge transmission, accelerating LEK loss or, in rare cases, sparking reinvention and adaptation.

Globalised, Western and urban-centric educational systems may continue to undervalue local epistemologies, perpetuating injustice and internalised inferiority complexes across many Global South communities and rural "peripheries" worldwide. However, digital platforms hold potential as positive tools for renewed LEK transmission within Indigenous and minority-centred political agendas. Younger generations in rural areas could harness smartphones, apps, and social media to document and share representations of traditional practices, revitalising neglected spaces and articulating old and new forms of sovereignty. Research in this scenario will increasingly focus on describing the actual processes of these collaborative initiatives, assessing reciprocity in knowledge exchange and monitoring concrete LEK resilience and revitalisation projects.

Scenario 2: digital documentation rush and memory ethnosciences

In many regions of Europe, North America, Oceania, and Far Eastern Asia and increasingly across large parts of the LEK, it is becoming increasingly faded, often reduced to isolated memory fragments or cultural artefacts. Rather than living knowledge systems, LEK will be increasingly preserved in curated reconstructions spanning the past two centuries, showcased in eco-museums, heritage festivals, and commodified cultural (over)tourism products such as herbal teas, Slow Food specialities, handicrafts, but also innovative "living labs".

This scenario may surge in radical digital archiving efforts, transforming ethnobiological knowledge into vast, AI-enhanced ethnographic corpora integrating oral histories, multimedia, and textual data.

Memory will become a central axis, as ethnobiology turns towards studying "remembered" practices and the affective dimensions of loss, displacement, and cultural change. In post-traditional societies, scholars may increasingly focus on bio-cultural grief and "LEK nostalgia". This emerging interdisciplinary interest will intersect with eco-semiotics, historical ecology, medical humanities, and trauma studies, exploring how cultural and ecological memories shape identity, resilience, and healing.

Thus, ethnobiology may straddle the boundary between heritage preservation and psychological inquiry in this scenario, illuminating how memory conserves and transforms ethno-scientific knowledge in a world grappling with rapid socio-environmental changes.

Scenario 3: post-traditional, cosmopolitan hybridities

As LEK systems continue to erode in much of the Global North and across various parts of the Global South, increasing studies on novel urban ethnobiological practices will emerge, focusing on how people engage with nature in city landscapes.

This trajectory will intersect studies on citizen and urban planning and sustainability science, new forms of humans–nature interactions such as perceptions, management, and use of urban green areas and collective home gardens, new pets management, dumpster diving and scavenging, bird and wildlife watching, animal rescuing, and designing foodscapes made by homemade fermented products.

However, migrants' practices will continue to be the pillar of urban ethnobiology. Women newcomers will be pivotal agents and may serve as cultural brokers who transplant and adapt medicinal and food species within urban gardens, balconies, and allotments, subtly nurturing intergenerational LEK transmission despite displacement. Their practices will further shape path-breaking

ethnoecological research that assesses the factors affecting continuity and adaptation strategies amid cultural disruption.

Alongside these lived practices, hybrid forms of urban herbalism, do-it-yourself fermentations, and plant-based diets will largely flourish through social media platforms and digital wellness trends. However, this proliferation may blur the boundaries between culturally rooted knowledge, commercial pseudoscience, and the new-age wellness industry. Emerging digital actors such as "TikTok ethnobiologists" and AI-generated plant guides may take on new authoritative roles, becoming popular entry points for city dwellers to connect with nature. Yet, ethnobiology in this scenario will also assess the risks of creating echo chambers of pseudo-traditional cures, sometimes overshadowing grounded, community-rooted knowledge systems.

Scenario 4: big data analysis in ethnobiology and molecular techno-ethnobiology

AI-driven tools are poised to transform ethno-scientific knowledge into a critical input for bioprospecting, omics technologies, and pharmacological innovation. This integration will embed ethnobiological insights into molecular, nutraceutical, and R&D pipelines, ushering in a new era of "in silico" ethnobiology where ethnopharmacology and ethno-nutrition can be analysed digitally at unprecedented scales. For example, AI-assisted meta-analyses could analyse two centuries of ethnobotanical data collected from diverse communities, enabling the assessment of large datasets, novel cross-geographical and diachronic insights that were previously impossible.

However, these advances will increasingly raise questions of ownership and access to these repositories, and therefore, the cultural contexts of LEK may risk being overshadowed by dominant biomedical and nutrigenomic priorities. Large corporations and research institutions may increasingly seek patents on AI-generated targets and molecular data, raising profound issues of intellectual property rights, benefit-sharing, and data sovereignty. While international frameworks like the Nagoya Protocol and Indigenous data sovereignty movements offer some guidance, implementation may remain uneven, and the threat of digital bio-neocolonialism looms large.

Crisis-driven resurgences based on sharing and a plural future?

In escalating environmental crises, pandemics, and geopolitical conflicts, fragments of LEK may regain renewed interest both in the Global North and South. Climate-induced desertification and food insecurity could stimulate global attention towards neglected crops, wild foods, and traditional fermentation techniques. At the same time, pandemics might renew interest in plant-based immunity boosters and adaptogens. At the same time, environmental management agencies might integrate LEK into community-based resilience strategies, catalysing a reactive but promising resurgence of knowledge-sharing and *commoning* practices.

Although these resurgences might be fragmented and often reactive, they offer fertile ground for fostering genuine, pluralistic exchanges of resources, knowledge, and practices across cultural and geopolitical divides. Such moments may facilitate bridging grassroots political ecologies with applied science, supporting intergenerational and intercultural dialogue.

Nonetheless, these possibilities unfold amidst ongoing transboundary challenges: bio-cultural erosion, stark asymmetries in knowledge production and access, persistent analogue and digital colonialities, and the potential failure of green agendas witnessed over the previous two decades. The stakes are high, as the future of situated, less-globalised LEK and thus the future of ethnobiology and ethnomedicine will also depend on confronting the biodiversity loss, rising nationalisms, and algorithmic injustices that threaten pluralistic and inclusive frameworks.

By 2035, ethnobiology may inhabit multiple, sometimes contradictory futures. Ideally, it will become more reflexive, fully integrated within the planetary health paradigm, and participated in by scholars physically more present on the ground, celebrating their marginalised communities and less engaged in sterile desk research.

However, a central and fundamental worldwide challenge will be regenerating embodied, experiential learning with nature. Ultimately, the survival and flourishing of ethnobiology and ethnomedicine will depend on their ability to implement concrete arenas for re-educating everyone to continuous interactions with nature, including the serendipitous and poetic essence of the humans–nature interactions.

Authors' contributions
AP designed the first draft of the editorial, which was later actively revised by all authors.

Published online: 25 July 2025