

• Ethnoecology through the lens of sustainability science

Stéphanie Carrière,
UMR Sens,
IRD, Montpellier, France

Background

Today, social and environmental problems are challenges that are often intertwined, sometimes making them inextricable. Understanding them and analysing their ins and outs to identify solutions undoubtedly requires the implementation of multidisciplinary, or even interdisciplinary, research programmes. The use of interdisciplinarity to address these issues is in itself a major challenge that an increasing number of researchers are focusing on, even though they may find it easier to design and plan than to implement successfully and effectively. Sustainability science is one of the emerging research areas that is already grappling with this. Some of the more longstanding, traditional interfacing disciplines, such as ethnoscience, are less well recognised in this field, but have questions, themes and methods that deserve to be highlighted, not only in terms of how they converge, but also in terms of how they contrast or indeed disagree.

Contact

stephanie.carriere@ird.fr

Further reading

HANSPACH et al., 2020 – Biocultural approaches to sustainability: A systematic review of the scientific literature. *Nature and People*, 2 : 643-659.

What is the interdisciplinary science of ethnoecology?

Ethnoecology studies the so-called biocultural interactions (cognitive, sensitive and practical dimensions) between humans and their local environment: inventories of knowledge and expertise on how a contemporary society works, the experience of humans in their environment, representations of the world and how it is organised, the needs of populations, assessing the possibilities for feeding, clothing and caring for oneself that the environment provides, characterising the effects of lifestyles on ecosystems, and evaluating the sustainability of a socio-ecological system. Like sustainability science (SS), it is essentially an interdisciplinary approach (social sciences and humanities (SSH), life and Earth sciences), which, depending on the situation, draws on disciplines from SSH, such as linguistics, anthropology, law, history, geography, sociology, musicology, and from the life and Earth sciences (ecology, biology, botany, pedology, agronomy, climatology), and sometimes even from data and model sciences, genetics, nutrition and medical sciences. Ethnoecology is an area where multiple collaborations take place, requiring a strong interest in scientific otherness and a marked preference for dialogue and interdisciplinary sharing. The mixed intellectual approach is by turns monographic, inductive and iterative (from SSH) and hypothetical-deductive (from life and Earth sciences). It specifically combines a dose of scientific theory (Western vision), a measure of local knowledge from the ethnosciences (a set

of local conceptions and viewpoints) and, finally, the observation of the raw facts (which are often distinct from the discourse and viewpoints). This combination of knowledge and biocultural values provides a solid foundation for the co-construction of projects, solutions and indicators with local stakeholders and populations, in the same way that SS does. Ethnoecologists (as in SS) must become familiar with the different groups of stakeholders (populations, NGOs, policymakers, managers, etc.) and understand the different global processes involved at each of the scales of socio-ecological systems. They do this through their research topics and questions, which are designed to identify the problems affecting populations and their impacts on the environment (and, through a retroactive effect, on the populations themselves). The topics aim, for example, to understand the causes and consequences of competing access to land and resources, the development, sustainability and acceptability of practices in response to social and environmental changes, and the fast-paced dynamics of local knowledge.

Forging a strong stance

Practising ethnoecology in the field helps forge a strong professional and ethical stance, which has several objectives. Firstly, ethnoecologists strive to remain neutral in a given situation. They then consider the plurality of viewpoints without passing judgement on the knowledge, practices or logic of the stakeholders. They must understand without interfering, just as anthropologists do. It is not particularly desirable to

try to drive transitions, unlike SS does. Furthermore, a strong partnership is essential, and this is achieved through ongoing dialogue with academic and non-academic stakeholders, but without taking over their roles and remits, particularly with regard to finding solutions to problems in their territories. Lastly, ethnoecology aims to study and combine local knowledge and know-how with that which complements researchers' knowledge. This helps develop a co-constructed understanding of these systems and of the bio-cultural processes they support. In this way, and without in any way minimising the importance of environmental issues – in particular deforestation, which I study – the ethnoecologist tries to provide a scientifically supported counterpoint (for example, by researching practices that have positive effects on the dynamics of biodiversity), which SS rarely does, to balance an often stereotypical discourse on tropical family farming. This stance is far from being neutral. Instead, it is fully adopted and even becomes a commitment. Objectivity exists and is shaped by a reflective and collective approach. The ethnoecologist's concrete action lies in the detailed description, analysis and written representation of a system and its social, ecological or economic sustainability, of a practice, of values or of knowledge that is eminently evolving, just as one would do to relate a piece of history.

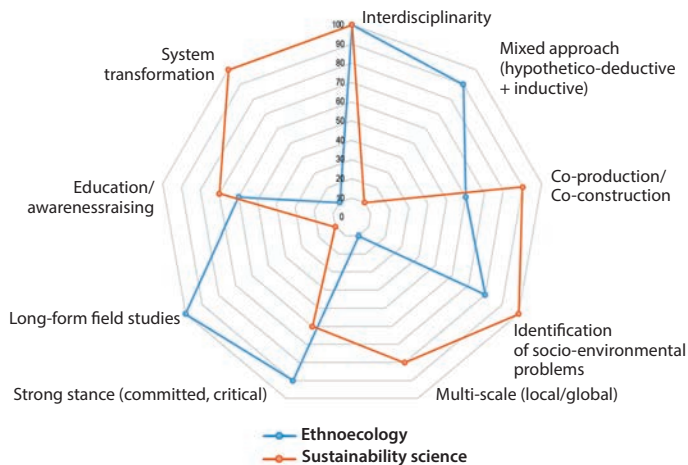
Thinking outside the box

In my view, it is inappropriate in the practice of ethnoecology to separate facts from norms, politics from science, the sensitive from the

cognitive. Ethnoecologists prefer a more integrative, interdisciplinary, politically aware and even critical analysis of the political, socio-economic and personal contexts in which questions, data, scientific analyses and dominant discourses on environmental issues emerge (rarely seen in SS). If we are to consider how and where the results of science can be used to raise awareness or educate society about the issues that drive us, we need to feed the scientific and societal debate with reliable data, as SS does, but, as we do in ethnoecology, we also need to find ways of using innovative and even sensitive media. For example, we have previously organised drawing workshops for children. The purpose of these workshops was to analyse children's representations and knowledge of nature, but also to foster interactions between various stakeholders (children, parents, teachers, donors, policymakers, media) on controversial issues or processes, such as deforestation. This work demonstrated that drawing could be used to create forums for dialogue that foster science-society interactions, similar to those proposed in SS.

Potential cross-fertilisation

There are many similarities between sustainability science and ethnoecology: inter/trans-disciplinarity, co-production of knowledge, identification of socio-environmental problems, education and awareness-raising. However, they differ in a number of other areas. Ethnoecology provides detailed knowledge of local systems, acquired through long-term field



Schematic and comparative representation of the respective emphasis of ethnoecology and sustainability science.

research (several months to several years) and conducted through immersion with local populations. SS does very little of this: it is more concerned with finding short- or medium-term solutions. In its most traditional practice, however, it refrains from proposing or encouraging transitions or even transformations, even when

local stakeholders want them. Lastly, ethnoecology, like SS, is well versed in interdisciplinary work and the wide variety of approaches and tools used. Bridging the gap between the two fields, through dialogue, respect and experience sharing, should not, on the face of it, cause too much discomfort.

KEY POINTS

Ethnoecology is a traditional, multidisciplinary and interface discipline. Its origins, background and development have transformed it into a disciplinary field that is evolving alongside more recent approaches, such as sustainability science, whose own objectives are highly complementary.

SUSTAINABILITY SCIENCE

UNDERSTAND, CO-CONSTRUCT, TRANSFORM

Collective thinking coordinated
by Olivier Dangles and Claire Fréour

French National Research Institute for Sustainable Development
Marseille, 2023

Peer review board

Valérie Verdier, IRD Chairman and Chief Executive Officer

Corinne Brunon-Meunier, Deputy General Director

Isabelle Benoist, General Secretary

Philippe Charvis, Deputy Director of Science

Marie-Lise Sabrié, Director of the Scientific and Technological Culture Mission

Cover photo: Rock painting, Cueva de las Manos, Argentina.

© IRD/O. Dangles – F. Nowicki/*Une Autre Terre*

Photo p. 14: “Understand”: Survey work, Kenya.

© IRD/S. Duvail

Photo p. 40-41: Observation and sampling, Burkina Faso.

© IRD/M. Barro

Photo p. 62: “Co-construct”: Participatory mapping workshop on coastal cultural heritage, Marquesas Islands.

© IRD/P. Ottino

Photo p. 88-89: Participatory work with local people, Madagascar.

© IRD/M. Léopold

Photo p. 110: “Transform”: Schoolchildren’s fresco on the theme of the Pachamama, Ecuador.

© IRD-CNRS/S. Desprats Bologna

Photo p. 136-137: Children playing on a beach in Salango, Ecuador.

© IRD/O. Dangles – F. Nowicki/*Une Autre Terre*

Editorial coordinators: Corinne Lavagne and Marie-Laure Portal-Cabanel

Cover, design and layout: Charlotte Devanz

IRD, Marseille, 2023