The Anthropocene condition: Evolving through social–ecological transformations

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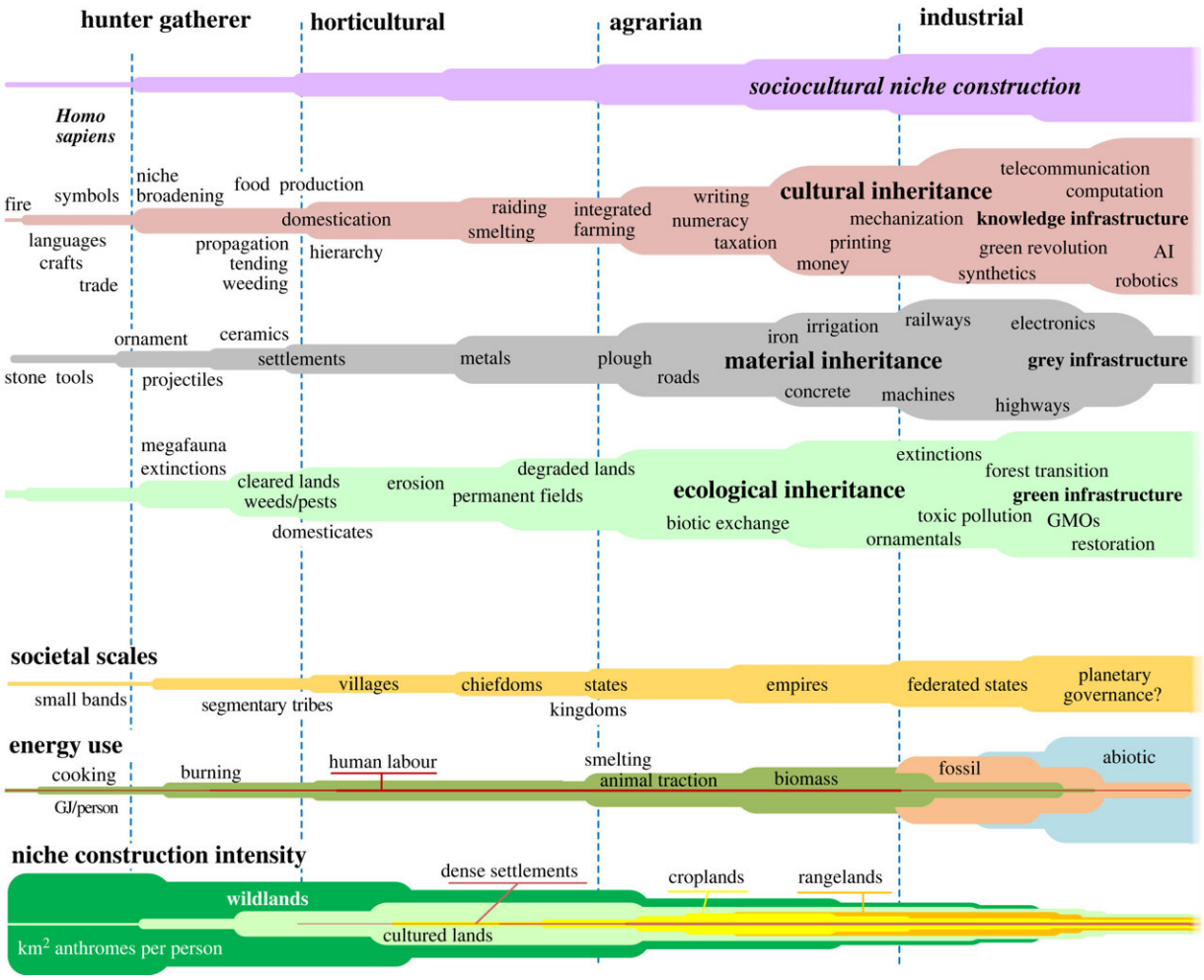

A stylized depiction of long-term evolutionary patterns of transformative anthroecological change, highlighting major regime shifts in sociocultural niche construction, cultural, ecological and material inheritances, societal scales, energy use per capita and niche construction intensity (anthrome area per capita). The linear appearance of this chart is for illustrative purposes only; patterns of

change in sociocultural evolution are nonlinear, nondeterministic, and more appropriately depicted as a tree with interconnected branches—as a fabric of co-evolution. (GJ, gigajoules; GMO, genetically modified organisms; AI, artificial intelligence.) Based on fig. 3 in [7]. (Online version in color.). Credit: *Philosophical Transactions of the Royal Society B: Biological Sciences* (2023). DOI: 10.1098/rstb.2022.0255

Drawing together an array of interdisciplinary studies across archaeology, ecology, anthropology, and evolutionary theory, Erle Ellis, professor of geography and environmental systems at the University of Maryland Baltimore County, explains the evolution of the cultural practices that have enabled societies to develop unprecedented capabilities to scale up and transform the ecological systems that sustain them.

From using fire to cook food and manage vegetation to the technologies and institutions that support intensive agriculture, increasingly urbanized societies, and global supply chains stretching across the planet, human societies have evolved the social, cultural, and ecological capabilities to reshape the planet and to thrive in the process.

Ellis investigates the Anthropocene, the current geological age defined by the human transformation of the planet. He is the founder and director of the Anthroecology Lab, which studies relationships between human societies and ecosystems at local to planetary scales with the aim of guiding more sustainable human relations with the biosphere. He is currently a visiting fellow at the Oxford Martin School, where he recently presented his work on Anthropocene opportunities.

The findings are published in the journal *Philosophical Transactions of the Royal Society B: Biological Sciences*.

Towards a better future

While human societies have gained unprecedented capabilities to improve the quality and longevity of human lives, Ellis shows that the unintended consequences of these advances have generally been negative for the rest of life on Earth, from climate change to species extinctions to increasingly widespread pollution. These disruptive environmental challenges of the Anthropocene demand action if there is to be a better future both for people and for the rest of nature.

Yet, as Ellis demonstrates, portraying the Anthropocene as an environmental crisis ignores its most important message. When people work together, they can indeed change the world for the better. The urgency of current planetary environmental challenges does not mean that narratives of environmental crisis, limits, and collapse will be more effective in bringing people together to shape a better future. Successful efforts to shape a better future over the long term require harnessing these efforts to the unprecedented social capabilities of human societies and empowering their application through widely shared human aspirations.

Connecting to each other and nature

Ellis assesses the limits of the natural sciences to successfully forecast and manage the unprecedented transformative changes in societies, environments, and interactions that exemplify the Anthropocene condition. Rather, the capabilities that have always enabled human societies to survive and even thrive under challenging environmental conditions are social and cultural, built on the institutions, practices, and narratives that enable cooperative efforts to support the common good. And if there is to be a better future for the rest of nature, these social and cultural capabilities must be extended to life beyond human

societies.

"Re-emphasizing the kinship relationships among all living beings—our common evolutionary ancestry—is a start, combined with new ways to connect people and nature, from remote sensing to webcams, to nature apps, to community conservation reserves, corridor networks, and ecotourism," shares Ellis. "Aspirations for a better future must also make peace with the past through restoration of Indigenous and traditional sovereignty over lands and waters."

Ellis emphasizes that the societal capabilities to shape a much better future than the one they are shaping now have existed for decades. The key to bringing them into action is to motivate their implementation by increasing public realization that these capabilities not only exist but can be implemented successfully through the unprecedented planetary power of our shared human aspirations to live in a better world.

More information: Erle C. Ellis, The Anthropocene condition: evolving through social–ecological transformations, *Philosophical Transactions of the Royal Society B: Biological Sciences* (2023). DOI: 10.1098/rstb.2022.0255

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