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Climatic and Ecological Change in the Americas: A Perspective from Historical Ecology.

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Eva Sophia Kirmes
International Research Training Group "Temporalities of Future"
Freie Universität Berlin (Berlin, Germany)
ORCID: 0009-0009-4060-7871
e.kirmes@fu-berlin.de

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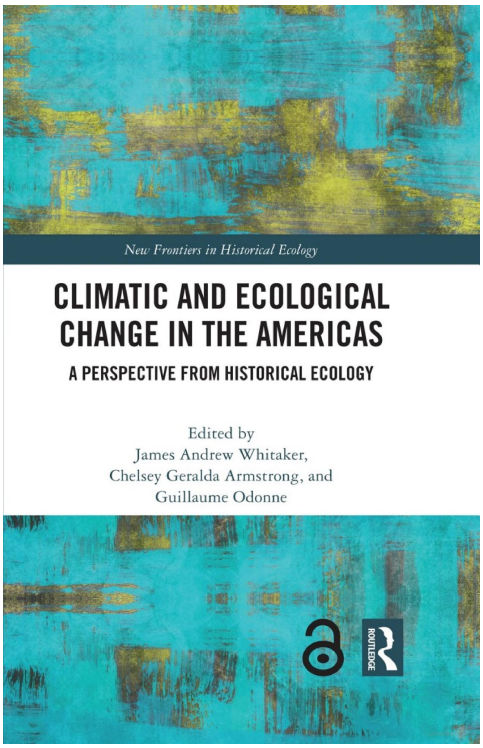

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While the contemporary urgency in addressing climate change may appear novel, scholars across disciplines argue that there have always been societies that have had to deal with climate variations. A selection of the latest studies on this subject is compiled in the book *Climatic and Ecological Change in the Americas: A Perspective from Historical Ecology* by James Andrew Whitaker, Chelsey Geralda Armstrong, and Guillaume Odonne, published by Routledege in 2023. It is part of the series New Frontiers in Historical Ecology (edited by William Balée and Carole L. Crumley). Over 256 pages, 31 researchers – mainly from the fields of social anthropology and archaeology – use the framework of historical ecology to present long-term perspectives on the interaction between humans and landscape in times of environmental changes. In so doing, the authors attempt to establish a connection between local knowledge, and global time scales. The book is divided into 12 chapters.

In the initial three chapters, archaeological and paleoecological approaches illustrate climate related demographic changes over thousands of years. The first chapter by Stéphen Rostain and Jonas Gregorio da Souza discusses consequences of climate change in pre-Columbian times in Amazonian regions, especially extreme weather events and cold periods. They show how these alterations had an impact on subsistence structures and settlement patterns. In chapter 2, Anabel Ford describes the resilience of today's Maya forests based on the traditional knowledge developed through trial and error over time. She counters the preconception that tropical forests cannot feed a large population und emphasizes the compatibility of traditional Mayan practices with nature conservation. In chapter 3, Torben Rick, Gabriel Sanchez, and Shannon Tushingham illustrate how, during the terminal Pleistocene and the Holocene, native populations of Coastal California coped with climate instabilities by both relocating due to rising sea levels and seizing new subsistence opportunities. The authors argue that a shared view into the past between archaeologists and Indigenous people provides an opportunity to learn from the flexibility of the past in dealing with climate change for the present.

Chapters 4 and 5 underline the importance of fire management as a contribution to ecologically complex landscapes. In chapter 4, Natalie Mueller focuses on human agency within ecological change using the concept of intrinsic and extrinsic ecological change (Williams et al. 2011) to examine the different types of ecological alterations in Prairie Peninsula in Eastern North America. She argues that Indigenous fire management is a significant factor to sustain the prairies as an important ecosystem. In chapter 5, Christopher Roos, Thomas Swetnam, and Christopher Guiterman present cultural burning practices within Pueblo and Apache conifer forest management in the Southwestern USA. Combining archaeology and palaeoecology with palaeoclimate reconstructions, the chapter reveals that landscapes that were managed with fire by Native Americans "were more resilient to episodes when climate may have reduced fire spread than landscapes that were not intensively managed" (97).

Chapters 6 and 7 illustrate human-forest interactions. In chapter 6, Ana Ladio and Mauricio Sedrez dos Reis turn their attention to the relationship of Pewen forests (Mapuzungum for Araucaria araucana) and their people (Pewenche) in Northern Patagonia. They mobilise a wide range of disciplines to identify the relational models (Muradian and Pascual 2018) that can be found in Pewen forest management between the 18th and 21st century. The results show that the Pewenche's relationship model is essential for the conservation and sustainability of forests because it brings about a considerate handling of soil, plants, and animals. Chapter 7 by Chelsey Geralda Armstrong, Sara Wickham, and Kalina Hunter explores the traditional knowledge of the Ts'msyen, Haíłzaqv, and Wuikinuxv in Northwestern North America regarding forest gardening and orcharding. Having demonstrated humans' ability to foster productive ecosystems, they advocate for enhancing humanity's positive influence on ecosystems by integrating historical ecology, Indigenous knowledge, and factors of self-determination over land and food.

Chapter 8 and 9 take us to the sea. In chapter 8, Dana Lepofsky and Anne Salomon explore clam gardens, intertidal rock walls to trap sediment along the Pacific Northwest Coast as sustainable marine management systems. They especially highlight the value of clam gardens as "important places of learning and sharing" (153) where strong community connections and teaching between elders and youth contribute to keeping entire food systems resilient. In chapter 9, Isabel Rivera-Collazo explores the impacts of climate change in the Caribbean, particularly in relation to sea level rise and how local populations have adapted to direct effects such as changes in precipitation. She stresses that people's responses to climate change vary within societies due to differing experiences, leading to diverse reactions across time.

The last three chapters illustrate that anthropological studies that work with contemporary records also gain added value through the lens of historical ecology. In chapter 10, Marquisar Jean-Jacques, Marianne Palisse, Martijn Van Den Bel, Antoine Gardel, and Edward Anthony let Kali'na directly express their understanding of ecological long-term changes. They criticize the linear concept of time in climate change studies and argue for a greater focus on the temporal experiences of people in relation to climate change, which includes overcoming the dualistic separation of humans and nature. Chapter 11 by Pirjo Kristiina Virtanen, Álvaro Férnandez-Llamazares, and Francisco Apurinã focuses on oral traditions of Apurinã and Tsimane' in the Amazon region. They draw attention to the abundance of oral histories which frame environmental changes as a result of the relationality with more-than-human beings and point out their educational role for adopting management practices. In a similar way, James Andrew Whitaker illustrates in chapter 12 the climate change perceptions and ontologies among the Makushi and Akawaio in Guyana, whereby he underlines the relationality of landscape that emerges around animism. His ethnography shows that the consequences of broken relationships with the spirits that can lead to changes in weather, but also to illnesses or accidents.

All chapters in this book clearly address the intertwining of climate change and local environmental change, focusing on the ontology-specific experiences and actions of people over time in the Americas. What distinguishes this book from comparable works is its utilization of the historical ecology framework to make significant ecological changes comprehensible and connect them with lived experiences. It thus fulfills its self-imposed goal of being a bridge between global and local considerations. The most intriguing aspect of this compilation lies not in recognizing the contribution of Indigenous knowledge to ecosystem sustainability, but rather in how they achieve(d) this, a relevance observed across the Americas. In the broad scope of climate change research, I view this publication as notably optimistic, showcasing the potential for humans to engage with their environment sustainably over time. A shared characteristic of positivist studies and anthropological-ontological research is the exploration of human responsibility toward the environment. Arguments that do not place CO2 emissions first among the causes of climate change therefore do not counteract geo-ecological or biochemical climate change findings, but rather expand on them. As part of a critical reflection, many authors visibly acknowledge the influence of colonialism, as well as the challenge of preserving traditional practices today in the midst of capitalist, homogenizing pressures. Thus, advocating for a framework for land rights and self-determined governance is both imperative and grants the sciences a significant role through engaged research. In my opinion this book contributes to making climate change studies more diverse and reflexive, offering valuable insights for those seeking to understand climate change beyond its technical dimensions and expand their temporal and geographical perspectives. In times of transformations that bring challenges, it is all the more important to humbly consider a deep time development and appreciate other times and local specificities for the future of us all — this book is an excellent invitation to do so.

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