

Behavioral Ecology and the Transition to Agriculture

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BOOK REVIEWS

CYNTHIA FOWLER

Book Review Editor

Behavioral Ecology and the Transition to Agriculture. Douglas J. Kennett and Bruce Winterhalder (Editors). 2006. University of California Press, Berkeley. Pp. 407, photographs, line illustrations, maps, tables. \$60.00 (hardcover). ISBN 0-520-24647-8.

This book addresses one of the big events in the history of humankind: the transition to agriculture. In a stimulating and inspiring approach, it applies concepts and theories from human behavioral ecology (HBE) to questions concerning the evolutionary transition from foraging to farming. Following an introductory chapter by the editors, the broad range of concepts and analytical models within HBE unfolds in eleven detailed empirical case studies provided by archaeologists and one ethnographer. Six case studies are from the Americas, and one each from Madagascar, Spain, Arabia, New Guinea, and Oceania.

In Chapter 2, Bram Tucker discusses how dissimilar delay to reward influences the choice between foraging and farming, as demonstrated by the Mikea of Madagascar who cultivate because the rewards are high compared with foraging but refrain from intensification because immediate needs limit their capacity for future investment. In the next case study, Kristen J. Gremillion uses central place foraging theory (CPFT) to analyze decision making about the location of garden plots among forager-farmers of the eastern Kentucky uplands.

Chapters 4, 5 and 6 address the coexistence of foraging and farming over prolonged periods of time. Michael W. Diehl and Jennifer A. Waters discuss results from recent excavations in Southeastern Arizona, which show that a mixed foraging and farming economy existed for at least 1,350 years. These exciting findings are discussed using a diet breadth model from optimal foraging theory. K. Renee Barlow explores spatial and temporal diversity in the relative importance of foraging and farming in the Fremont region (eastern Great Basin and northern Colorado Plateau) from AD 600 to 1300. Douglas J. Kennett, Barbara Voorhies, and Dean Martorana discuss factors causing a long-term delay between the initial adoption of maize and more intensive forms of maize-based food production on the Pacific coast of southwestern Mexico by using an ecological model and CPFT.

In Chapter 7, Dolores R. Piperno uses optimal foraging theory and other concepts from HBE to examine the origins of plant cultivation and domestication in the American tropics, with a special focus on the family Cucurbitaceae.

While most of the case studies focus on plant foods, Chapters 8 and 9 address the transition to animal husbandry. In a gender-sensitive approach, Mark Aldenderfer explores animal domestication in the Andean highlands, showing how costly signaling theory can be used to explain the emergence of herding in

the Rio Asana valley of southern Peru. Sarah B. McClure, Michael A. Jochim, and C. Michael Barton use an ideal free distribution model to examine the role of domestic animals in changes of land use in Valencia, Spain.

Chapters 10, 11 and 12 provide insights with implications far beyond the special circumstances of the individual case studies. Joy McCorriston looks at the late adoption of domesticates in Arabia, which was drawn out over a period, perhaps as long as four millennia, due to climatic factors. Tim Denham and Huw Barton address the important issue of behavioral continuity in the emergence of agriculture from pre-existing foraging strategies in the Highlands of New Guinea. Like the authors of Chapters 4 to 6, Denham and Barton come to the conclusion that agriculture emerged gradually and not as a revolution. In the last case study, Douglas Kennett, Atholl Anderson, and Bruce Winterhalder use the model known as ideal free distribution to explore the colonization of Oceania, one of the last areas on earth to be colonized by humans.

Particular strengths of the book are the two concluding chapters by Bruce D. Smith and Robert Bettinger, which complement the editors' perspective.

The book is, of course, a "must" for anybody interested in the origins of agriculture. In addition, I would recommend it to anybody who enjoys reading the *Journal of Ethnobiology*, even if their main thematic focus is quite different, because the foraging-farming dynamic is of such central importance in human history. This book provides an enjoyable access to this complex topic, as well as taking the reader right to the cutting edge of research and theoretical discussion – all in one go. In addition to being accessible, stimulating, and informative, it is particularly noteworthy that so many different authors who obviously engage quite passionately in their research managed to refrain from polemic almost completely throughout the book.

To anyone with \$60 to spend on books, I would recommend the beautiful hardcover edition—the price is certainly justified. Alternatively, a downloadable e-book version offers instant access to the stimulating content of the book, not only for those with small budgets but also for anybody staying in a remote place without book stores where the internet is more reliable than mail service.

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