

Human Behavioral Ecology

Human behavioral ecology (HBE) applies the principles of evolutionary theory and optimization to the study of human behavioral and cultural diversity. Characterized by an interdisciplinary approach, HBE examines the ways that individuals navigate social and ecological trade-offs to respond adaptively to challenges of acquiring and distributing resources, pursuing mating opportunities, supporting children, and both cooperating and competing with group members across the wide variety of ecologies inhabited by humans in the present and past. Summarizing decades of research, this book is a comprehensive introduction to the theoretical orientation and empirical findings of HBE. It consolidates the insights of evolution and human behavior into a single volume that surveys both the current state and future of the field. Embodying diverse expertise, the book's authors provide a thought-provoking, broad overview of HBE and its unique contributions to the evolutionary social sciences. Throughout, the authors explain the latest developments in theory and highlight critical debates in the literature while also engaging readers with ethnographic insights and field-based studies that remain at the core of human behavioral ecology.

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Foreword: Reflections on Five Decades of Human Behavioral Ecology

The volume before you authoritatively summarizes the state of the art in contemporary human behavioral ecology (HBE). The earliest HBE publications go back nearly five decades. Compared to other frameworks in anthropology, HBE has a record of exceptional durability. Having been present at the creation, so to speak, we offer some personal insights into the foundations of HBE, and we discuss briefly features we believe account for the longevity and cumulative productivity of this research tradition.

By the late 1970s, the subfield of ecological anthropology was in flux – seemingly in decline. Cultural ecology had faded in popularity. Strenuous debates concerning “cultural materialism,” functionalism, population pressure, and the role of energy flow occupied the subfield and its critics. The cognate field of economic anthropology appeared stymied by the formalist–substantivist dispute. Key players in the ecological approach to sociocultural variation began, one by one, renouncing one framework to advance another, which in turn tended to last only a decade or so before being subject to sustained questioning and desertion. Human adaptability approaches in biological anthropology were less riven by dispute but remained a minor specialty in that subfield.

As graduate students in anthropology with an abiding interest in evolution and ecology, we might have been discouraged by this. But, in fact, we and a group of peers found opportunities to immerse ourselves in the exciting frameworks emerging in biology, including population ecology, biogeography, sociobiology, and, most importantly, what was being called “socioecology” or “behavioral ecology.” Revolution was in the air, and a small number of young anthropologists began to see the potential for revitalizing the study of human behavioral adaptation with the combination of selectionist logic, optimization modeling, and rigorous empirical evaluation being advanced by biologists such as Jerram Brown, Eric Charnov, John Hurrell Crook, Richard Levins, John Maynard Smith, Robert MacArthur, Gordon Orians, and others. Much of the early discovery and adoption of behavioral ecology by anthropologists was midwifed by biologist mentors. In our case, this included inspiring coursework with Steve Emlen and Eric’s postdoc with Orians; similar interactions occurred with Frank Bayham (Stephen Fretwell), John Beaton (Martin Cody), Kristen Hawkes and Kim Hill (Eric Charnov), Ray Hames (Richard Alexander), and Monique Bergerhoff Mulder (Tim Clutton-Brock), among others.

We know of at least five PhD dissertations framed explicitly in HBE terms that emerged from various anthropology departments between 1977 and 1982. Other landmarks in the early history of HBE include a 1981 volume on natural selection and social behavior edited by the biologists Alexander and Tinkle that included chapters by anthropologists, the 1979 Chagnon and Irons collection stemming from an American Anthropological Association (AAA) session that included E. O. Wilson

and Robert Trivers, and the 1981 volume on hunter-gatherer foraging strategies edited by us, also germinated from an AAA session. The journal *Ethology and Sociobiology* (later renamed *Evolution and Human Behavior*) was inaugurated in 1979, and a decade later, Jane Lancaster founded *Human Nature*. In the ensuing years, HBE research has burgeoned (as amply reviewed in the present volume).

What explains the success of HBE when so many other styles of ecological anthropology have faded? How did our field grow from early days when, as a colleague once joked, a couple of well-placed explosions or an elevator failure could have basically erased the field? On reflection, we would highlight five features of HBE.

First, HBE started with and has retained a solid foundation in evolutionary biology, based not just in general principles but in ongoing engagement with the literature in theoretical and empirical behavioral ecology and cognate fields. The increasing frequency with which HBE papers appear in top-line biology or general science journals is one indication that our field remains conversant with current developments in BE and evolutionary biology in general. As the HBE literature grows, it will become more difficult to avoid involution, but the history of HBE suggests that attentiveness to developments in evolutionary ecology and behavioral economics is vital. Of equal importance, the biological foundations of HBE have not come at the expense of discounting unique (or uniquely developed) human characteristics, from social learning and cultural transmission to specific features such as large-scale cooperation, symbolic language, ritual, and technology.

Second, in marked contrast to much of anthropology, HBE has consistently practiced a hypothetico-deductive (H-D) research strategy, utilizing formal models to generate explicit and testable hypotheses, which in turn are subject to rigorous empirical testing. In turn, test results are used to evaluate and, as necessary, modify or discard the assumptions and models used to generate these hypotheses. Finely detailed, quantitative field studies likewise have been a strength of HBE. We are not claiming that all HBE research adheres to the H-D format, or that the field is entirely free of untested plausibility arguments or confirmation bias. But relative to other anthropological research traditions, HBE has been highly productive because of its emphasis on a judicious combination of formal models and empirical evaluation.

Third, collaboration with biological mentors was vital at the origin of HBE; interdisciplinary team-oriented studies will be even more important to its future. When the first HBE generation went to the field, our equipment consisted of pencils and notepads, a stopwatch, SLR camera and perhaps a cassette tape recorder, steel tape measure and spring scale, paper maps, black-and-white air photos usually of WWII vintage, and a portable mechanical typewriter. Surprisingly, those simple tools accomplished a lot. Our analyses consisted mainly of descriptive statistics, compiled from punch cards on an unseen “mainframe” computer, or produced with handheld calculators. Much has changed. Foremost is the technology available for recording and analyzing complex behavioral data. From GPS and remote sensing to Bayesian and multilevel statistical methods, the potential of behavioral data analyses has grown enormously. In parallel, the skill sets required to make use of this potential have

proliferated and have grown more demanding. Collaboration – with our anthropological colleagues, ethnographers, archaeologists, paleoanthropologists, and primatologists, and with geographers, satellite data analysts, biomathematicians, and others with relevant skill sets – has become more common and indeed necessary.

Fourth, HBE has flourished by being intellectually omnivorous. Although research on subsistence decisions dominated in the earliest field studies, applications of HBE quickly expanded to work on mating systems, parental care, reciprocity and collective action, the origins of agriculture, and evolution of inequality. Studies of pastoralists, horticulturalists, and fisherfolk were added to those of hunter-gatherers. Policy-framed studies likewise have begun to appear. They range from research on the decision-making of auto thieves to the potential for spread of zoonotic infections via the foraging decisions of women and children. Application of games and experimental methods drawn from behavioral economics and cognitive psychology have opened new research possibilities, as have analyses of existing cross-cultural databases as well as those newly assembled from past or contemporary studies. The current volume is testimony to this topical expansion. We should also draw attention to the burgeoning of HBE-based work in archaeology, evident in the present volume but of breadth and abundance to merit a companion volume of its own.

Finally, a fifth feature that has helped HBE prosper is an avoidance of intellectual hubris. Practitioners of HBE rarely claim to possess a master narrative that comprehensively explains human society; they generally remain cautious about having found the definitive answer even to much more specific questions. The field has been explicit in acknowledging the multi-causality of human behavior and in seeking to understand its own explanatory limits. Furthermore, HBE has a good record of avoiding such pitfalls as genetic determinism and gender essentialism – HBE remains, in other words, anthropologically informed about human diversity and flexibility.

In sum, five decades of hindsight suggest to us that these are among HBE's more important guiding features. In any case, we are confident that the next 50 years of this evolving research tradition will be equally productive of creativity and insights.

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