Human Ecology
Human Ecology

Contemporary Research and Practice
Preface

This book arose from the need to develop accessible research-based case study material which addresses contemporary issues and problems in the rapidly evolving field of human ecology. Academic, political, and, indeed, public interest in the environmental sciences is on the rise. This is no doubt spurred by media coverage of climate change and global warming and attendant natural disasters such as unusual drought and flood conditions, toxic dust storms, pollution of air and water, and the like. But there is also a growing intellectual awareness of the social causes of anthropogenic environmental impacts, political vectors in determining conservation outcomes, and the role of local representations of ecological knowledge in resource management and sustainable yield production. This is reflected in the rapid increase of ecology courses being taught at leading universities in the fast-growing developing countries much as was the case a decade or two ago in Europe and North America.

The research presented here is all taken from recent issues of Human Ecology: An Interdisciplinary Journal. Since the journal itself is a leading forum for contemporary research, the articles we have selected represent a cross-section of work which brings the perspectives of human ecology to bear on current problems being faced around the world. The chapters are organized in such a way to facilitate the use of this volume either to teach a course or to introduce an informed reader to the field. Basic issues and key concepts are introduced in the general Introduction and in Overviews to each of the four subsequent sections.

Section I deals with theoretical and methodological issues, notably what constitutes causal explanation, the risky use of metaphors in ecological discourse, and the importance of biocultural diversity and local knowledge. Section II addresses the dynamics of change in food procurement strategies, Section III takes on the causes and consequences of agricultural intensification, and Section IV concerns common property management, conservation, and public policy. If used in a classroom, this modular arrangement is easily adaptable to the purposes and nature of the course.

Foremost, we thank all the contributors, whose enthusiasm and cooperation have made this collection possible. All actively participated in the final editing, which has resulted in each chapter being a more concise but still an intellectually valid representation of the original article. Pete Vayda occupies an unrivaled place in the development of human ecology within the social sciences and as the founding edi-
tor of Human Ecology some 38 years ago. We owe him a great debt of gratitude. We are also very grateful to Bill Tucker, Teresa Krauss, and Katie Chalbako, our New York editors at Springer, and Ms P. Arthi Prianka, our Project Manager. Many thanks go to Ludomir Lozny, Managing Editor of Human Ecology, for his generous intellectual, technical and practical support. In addition, we thank Bill Baughman, Gary Clevidence, Nancy Flowers, David Gilmore, Greg Johnson, and Flora Lu for their assistance with the project.

Daniel G. Bates
Judith Tucker
Contents

Introduction ................................................................................................................................. 1

Section I  Theory, Method, and Explanation in Human Ecology

Explaining Indonesian Forest Fires: Both Ends of the Firestick ....................... 17
Andrew P. Vayda

On the Notions of Mother Nature and the Balance of Nature and Their Implications for Conservation ......................... 37
Dennis E. Jelinski

Hunter–Gatherers Optimize Their Foraging Patterns Using Lévy Flights ....................................................... 51
Clifford T. Brown, Larry S. Liebovitch, and Rachel Glendon

What is Biocultural Diversity? A Theoretical Review ........................................... 67
Michelle Cocks

The Conservation Catch-22: Indigenous Peoples and Cultural Change ............................................................... 79
Flora Lu

Does Environmental Talk Equal Environmental Knowledge? An Example from Newfoundland .................. 89
Craig T. Palmer and Reed L. Wadley

Section II  Dynamics of Local Food Procurement Systems

Tracking the Carbon Footprint of Paleolithic Societies in Mediterranean Ecosystems ........................................... 109
Mary C. Stiner and Steven L. Kuhn
<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burning and Hunting in Australia’s Western Desert</td>
<td>127</td>
</tr>
<tr>
<td>Douglas W. Bird, Rebecca Bliege Bird, and Christopher H. Parker</td>
<td></td>
</tr>
<tr>
<td>The Wild Yam Question: Evidence from Baka</td>
<td>143</td>
</tr>
<tr>
<td>Foraging in the Northwest Congo Basin</td>
<td></td>
</tr>
<tr>
<td>Hirokazu Yasuoka</td>
<td></td>
</tr>
<tr>
<td>Life Without Pigs: Decisions, Community Action, and Subsistence Changes Among the Irakia Awa, Papua New Guinea</td>
<td>155</td>
</tr>
<tr>
<td>David J. Boyd</td>
<td></td>
</tr>
<tr>
<td>Food Security and Pastoralism in the Northern Sahel</td>
<td>173</td>
</tr>
<tr>
<td>Jon Pedersen and Tor A. Benjaminsen</td>
<td></td>
</tr>
<tr>
<td>Section III Agricultural Intensification and Large-Scale Population Dynamics</td>
<td></td>
</tr>
<tr>
<td>Labor Productivity and Agricultural Development: Testing Boserup</td>
<td>195</td>
</tr>
<tr>
<td>Robert C. Hunt</td>
<td></td>
</tr>
<tr>
<td>Following Netting: The Cultural Ecology of Viliui Sakha Households in Post-Soviet Siberia</td>
<td>213</td>
</tr>
<tr>
<td>Susan Crate</td>
<td></td>
</tr>
<tr>
<td>Adaptive Responses to Environmental and Sociopolitical Change in Southern Zambia</td>
<td>225</td>
</tr>
<tr>
<td>Lisa Cliggett, Elizabeth Colson, Rod Hay, Thayer Scudder, and Jon Unruh</td>
<td></td>
</tr>
<tr>
<td>Social and Environmental Impacts of the Rise and Fall of Flue-Cured Tobacco Production in the Copán Valley</td>
<td>237</td>
</tr>
<tr>
<td>William M. Loker</td>
<td></td>
</tr>
<tr>
<td>Does Climate Change Affect War Frequency?</td>
<td>255</td>
</tr>
<tr>
<td>The Case of Eastern China</td>
<td></td>
</tr>
<tr>
<td>David D. Zhang, Jane Zhang, Harry F. Lee, and Yuan-qing He</td>
<td></td>
</tr>
<tr>
<td>Section IV Common Property Management, Conservation, and Development</td>
<td></td>
</tr>
<tr>
<td>Local Knowledge and Changing Subsistence Strategies in James Bay, Canada</td>
<td>281</td>
</tr>
<tr>
<td>Claude Peloquin and Fikret Berkes</td>
<td></td>
</tr>
</tbody>
</table>
After the Cochabamba Water War of 2000:  
A Common Pool Resource Institution in the Urban Andes .................... 297
Amber Wutich

Gender, Social Difference and Coastal Resource  
Management in Lowland Philippine Fishing Communities .................. 317
James F. Eder

Causes of Deforestation in Central Maine, USA .......................... 331
James M. Acheson and Jon McCloskey

Environmental and Economic Costs of Biofuels .......................... 349
David Pimentel, Alison Marklein, Megan A. Toth,  
Marissa N. Karpoff, Gillian S. Paul, Robert McCormack,  
Joanna Kyriazis, and Tim Krueger

Editors’ References ............................................................................. 371

Index .................................................................................................... 373
Contributors

James M. Acheson
University of Maine, Orono, ME, USA
acheson@maine.edu

Daniel G. Bates
Hunter College, City University of New York, New York, NY, USA
dbates@hunter.cuny.edu

Tor Benjaminsen
Fafo Institute for Applied Social Science, Oslo, Norway

Fikret Berkes
Natural Resources Institute, University of Manitoba, Tucson, AZ, USA

Douglas W. Bird
Stanford University, Stanford, CA, USA
dwbird@stanford.edu

Rebecca Bliege Bird
Stanford University, Stanford, CA, USA

David J. Boyd
University of California at Davis, Davis, CA, USA
djboyd@ucdavis.edu

Clifford T. Brown
Florida Atlantic University, Boca Raton, FL, USA
cbrown@fau.edu

Lisa Cliggett
University of Kentucky, Lexington, KY, USA
Lisa.cliggett@uky.edu

Michelle Cocks
Rhodes University, Grahamstown, South Africa
m.cocks@ru.ac.za
Elizabeth Colson  
University of Kentucky, Lexington, KY, USA

Susan Crate  
George Mason University, Manassas, VA, USA  
scrate@gmu.edu

James F. Eder  
Arizona State University, Tempe, AZ, USA  
James.Eder@asu.edu

Rachel Glendon  
Florida Atlantic University, Boca Raton, FL, USA

Rod Hay  
University of Kentucky, Lexington, KY, USA

Yuan-qing He  
University of Hong Kong, Hong Kong, China

Robert C. Hunt  
Brandeis University, Waltham, MA, USA  
Hunt@Brandeis.edu

Dennis E. Jelinski  
University of Victoria, Victoria, BC, Canada  
jelinski@mail.geor.uvic.ca

Marissa N. Karpoff  
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Tim Krueger  
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Steven L. Kuhn  
University of Arizona, Tucson, AZ, USA

Joanna Kyriazis  
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Harry F. Lee  
University of Hong Kong, Hong Kong, China

Larry S. Liebovitch  
Florida Atlantic University, Boca Raton, FL, USA

William M. Loker  
California State University, Chico, CA, USA  
wloker@csuchico.edu

Flora Lu  
University of California, Santa Cruz, CA, USA  
floralu@ucsc.edu
Contributors

Alison Marklein
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Jon McCloskey
University of Maine, Orono, ME, USA

Robert McCormack
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Craig T. Palmer
University of Missouri, Columbia, MO, USA
palmerct@missouri.edu

Christopher H. Parker
Stanford University, Stanford, CA, USA

Gillian S. Paul
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Jon Pedersen
Institute for Labor and Social Research (FAFO), Oslo, Norway
Jon.pedersen@fako.no

Claude Peloquin
University of Arizona, Tucson, AZ, USA
cpeloq@email.arizona.edu

David Pimental
Cornell University, Ithaca, NY, USA
Dp18@cornell.edu

Thayer Scudder
University of Kentucky, Lexington, KY, USA

Mary C. Stiner
University of Arizona, Tucson, AZ, USA
mstiner@email.arizona.edu

Megan A. Toth
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, USA

Jon Unruh
University of Kentucky, Lexington, KY, USA

Andrew P. Vayda
Rutgers University, New Brunswick, VA, USA
vayda@aesop.rutgers.edu

Reed L. Wadley
University of Missouri, Columbia, MO, USA
Amber Wutich
Arizona State University, Tempe, AZ, USA
amber.wutich@asu.edu

Hirokazu Yasuoka
Hosei University, Ichigaya, Japan
yasuoka@hosei.ac.jp

David D. Zhang
Hong Kong University, Hong Kong, China
zhangd@hkucc.hku.hk

Jane Zhang
University of Hong Kong, Hong Kong, China