

# Carl Folke

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**Rockström, Johan, Malin Falkenmark, Carl Folke, Mats Lannerstad, Jennie Barron, Elin Enfors, Line Gordon, Jens Heinke, Holger Hoff, and Claudia Pahl-Wostl. 2014. *Water Resilience for Human Prosperity*. Cambridge University Press, Cambridge, UK. 292 pp.**

The world's human population now constitutes the largest driving force of changes to the biosphere. Emerging water challenges require new ideas for governance and management of water resources in the context of rapid global change. This book presents a new approach to water resources, addressing global sustainability and focusing on social-ecological resilience to changes. Topics covered include the risks of unexpected change, human impacts and dependence on global water, the prospects for feeding the world's population by 2050, and a pathway for the future. The book's innovative and integrated approach links green and blue freshwater with terrestrial and aquatic ecosystem functions and use. It also links changes arising from land-use alteration with the impacts of those changes on social-ecological systems and ecosystem services. This is an important, state-of-the-art resource for academic researchers and water resource professionals, and a key reference for graduate students studying water resource governance and management.

- Contributes an important and novel perspective to the current paradigm of integrated water resource management
- Provides a deeper understanding of the role of freshwater for ecosystem functions and services
- Places water in relation to, and in interactions with, other key global change dynamics such as climate change and globalisation

## Content

Preface

Introduction to the book

Acknowledgements

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8. Governance for navigating the novel freshwater dynamics of the Anthropocene

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## Reviews

"Readers not already familiar with the perspective on water management and governance this book offers may find it challenging. However, we believe that it is well worth the effort that might be required to digest the new ideas and perspectives

it offers.” Rob C. de Loë and James Patterson, **Canadian Water Resources Journal** 2015, 40(4): 424-425.

“Reading *Water Resilience for Human Prosperity* is hard but fruitful work given how informative the volume is. If you haven’t worked on water, it’s a great interdisciplinary and contemporary introduction to it. If you’re a hydrologist, you may still find it a valuable read, because it comprises the global, socio-economic and complex perspective of today’s changing world.” Marcus Schmidt, **GeoQ 12**, European Geosciences Union Newsletter.

“Valuable for academic researchers, professionals in water resources management, and graduate students ... Highly recommended.” E.S. Norman, **Choice**

<http://www.cambridge.org/se/academic/subjects/earth-and-environmental-science/hydrology-hydrogeology-and-water-resources/water-resilience-human-prosperity?format=HB&isbn=9781107024199>

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**Boyd, Emily and Carl Folke (editors) 2012. *Adapting Institutions: Governance, Complexity and Social-Ecological Resilience*. Cambridge University Press. 290 pp.**

Global environmental change is occurring at a rate faster than humans have ever experienced. Climate change and the loss of ecosystem services are the two main global environmental crises facing us today. As a result, there is a need for better understanding of the specific and general resilience of networked ecosystems, cities, organisations and institutions to cope with change. In this book, an international team of experts provide cutting-edge insights into building the resilience and adaptive governance of complex social-ecological systems. Through a set of case studies, it focuses on the social science dimension of ecosystem management in the context of global change, in a move to bridge existing gaps between resilience, sustainability and social science. Using empirical examples ranging from local to global levels, views from a variety of disciplines are integrated to provide an essential resource for scholars, policy-makers and students, seeking innovative approaches to governance.

- Case studies allow readers to understand the material through empirical examples from primary research
- Brings together cutting edge thinking on complexity, systems and social features of adapting institutions, helping readers to engage with a resilience perspective on adaptation
- Builds on a new view of governance and adapting institutions in the context of complex multi-scale environmental change

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## Reviews

"This volume provides a nice addition to the growing scholarship on institutions, institutional analysis in global environmental governance, and adaptation.... a must-read integrative collection of case studies and theoretical insights that set the stage for much needed additional exploration of the themes of resilience, adaptive governance, and complexity in global environmental governance." Raul Pacheco-Vega **Global Environmental Politics** 2013, 13:164-165.

"Rather than dwelling on making an argument for adapting institutions to achieve socioecological resilience, this edited collection focuses on understanding what are the features of institutions that allow them to adapt and transform towards socioecological sustainability?.... What is really distinctive in this volume is that, collectively, these essays draw attention to both the need to think across scales and the complexities involved in this task. While the book presents examples of adaptive capacity at different levels, it also confirms that scholars in adaptive governance and socioecological resilience operate in a largely uncharted territory. Here, Ostrom's maxim of 'no panaceas', on which she insisted upon in her later work, is an important reminder of the need to abandon ready-made recipes for dealing with global environmental change." Vanesa Castán Broto **Environment and Planning C: Government and Policy** 2013, volume 31

<http://www.cambridge.org/se/academic/subjects/life-sciences/natural-resource-management-agriculture-horticulture-and/adapting-institutions-governance-complexity-and-social-ecological-resilience?format=HB&isbn=9780521897501>

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**Söderqvist, Tore, Anna Sundbaum, Carl Folke and Karl-Göran Mäler (editors)**  
**2011. *Bringing Ecologists and Economists Together: The Askö Meetings and Papers*.** Springer, Heidelberg. 246 pp.

- Showcases ten Askö papers from meetings held in 1993 - 2002
- Written for a wide audience by leading ecologists and economists
- Commentaries provided by an ecologist and economist for each Askö Paper
- Foreword by Kenneth J. Arrow, 1972 Nobel Laureate in Economics

The Askö meetings are an annual forum where leading economists and ecologists come together to discuss the myriad issues and challenges surrounding sustainable development. Organized by the Beijer Institute of Ecological Economics and held on the Island of Askö in the Stockholm Archipelago, Sweden, the meetings facilitate a dialogue in which various players with differing perspectives can arrive at common conclusions and solutions that benefit us all. *Bringing Ecologists and Economists Together* showcases ten papers chosen from Askö meetings held from 1993 to 2002. Most of them were written for a wide audience and published in well-renowned journals, and each one is introduced by an ecologist and an economist who place the papers in a contemporary context. Lucid and accessible, these papers are important reading for students and researchers in ecology, economics and environmental sciences as well as anyone else interested in how ecologists and economists can agree upon crucial sustainability issues.

"Meeting the sustainability challenge on our human-dominated planet requires creative, interdisciplinary collaborations like those that take place at the Askö meetings. The results of such collaborations, like this collection of Askö-essays and commentaries, represent a significant contribution to our future." Jane Lubchenco, Professor of Marine Biology and Oregon State University Distinguished Professor of Zoology and the administrator of the National Oceanic and Atmospheric Administration (NOAA).

"The Askö meetings were extraordinary and full of impassioned debate. The bridges we did find in rare moments were formed between scholars who recognized the need for a minimum level of complexity, enjoying exploring the full range of non-linear behavior, with unexpected flips and unknowns, where transformations are possible, where novelty dominates. Such periods are often viewed as a curse, not as an opportunity, but these wonderful, flexible meetings opened some of our eyes." Buzz Holling, Professor in Ecological Sciences at the University of Florida.

"The bright minds that the Askö meetings bring together have shaped an essential cross-border research agenda and societal discussion. It is wonderful to read this overview and realize how relevant these ideas still are." Aart de Zeeuw, Professor in Environmental Economics at Tilburg University and Director, Tilburg Sustainability Institute.

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### **Part III The Askö Papers**

Askö 1993: Ecologists and Economists Can Find Common Ground

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Askö 1994: Economic Growth, Carrying Capacity, and the Environment

Commentaries by Elinor Ostrom and V. Kerry Smith

Askö 1995: Resilience in Natural and Socioeconomic Systems

Commentaries by Stephen Carpenter and David A. Starrett

Askö 1997: Food Production, Population Growth, and the Environment

Commentaries by Robert J. Scholes and Anne-Sophie Crépin

Askö 1998: The Value of Nature and the Nature of Value

Commentaries by Shahid Naeem and Jeffrey R. Vincent

Askö in Washington 1999: Managing Ecosystem Resources

Commentaries by Brian Walker and Edward B. Barbier

Askö in Stanford 2000: Are We Consuming Too Much?

Commentaries by Terry Hughes and Thomas Sterner

Askö 2000: Genetic Diversity and Interdependent Crop Choices in Agriculture

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Askö 2001: Sustainability's Compass – Indicators of Genuine Wealth

Commentaries by Lance Gunderson and Scott Barrett

Askö 2002: Coping with Uncertainty – A Call for a New Science-Policy Forum

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### **Part IV Conclusion**

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Appendix: List of Askö Meetings, Participants, and Publications 1993–2002

<http://www.springer.com/la/book/9789048194759>

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**Chapin, F. Stuart III, Gary Kofinas and Carl Folke (editors) 2009. *Principles of Ecosystem Stewardship: Resilience-Based Natural Resource Management in a Changing World*. Springer, New York. 401 pp.**

About this textbook

1. Textbook for Natural Resource Management and related courses.
2. First textbook to take a resilience-based approach to the ecology and management of resources. It focuses on ecosystems ability to adapt to change.
3. Provides a framework for managing resources in a world dominated by uncertainty and change.
4. A systems perspective linking social and ecological systems.

Natural resource management is entering a new era in which rapid environmental and social changes inevitably alter ecosystems and the benefits they provide to society. This textbook provides a new framework for natural resource management—a framework based on stewardship of ecosystems for ecological integrity and human well-being in a world dominated by uncertainty and change. The goal of ecosystem stewardship is to respond to and shape changes in social-ecological systems in order to sustain the supply and availability of ecosystem services by society. The book links recent advances in the theory of resilience, sustainability, and vulnerability with practical issues of ecosystem management and governance. Chapters by leading experts then illustrate these principles in major social-ecological systems of the world. Inclusion of review questions, glossary, and suggestions for additional reading makes *Principles of Ecosystem Stewardship: Resilience-Based Natural Resource Management in a Changing World* particularly suitable for use in all courses of resource management, resource ecology, sustainability science, and the human dimensions of global change. Professional resource managers, policy makers, leaders of NGOs, and researchers will find this novel synthesis a valuable tool in developing strategies for a more sustainable planet.

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Chapter 8 Drylands: Coping with Uncertainty, Thresholds, and Changes in State - D. Mark Stafford Smith, Nick Abel, Brian Walker, F. Stuart Chapin, III  
Chapter 9 Freshwaters: Managing Across Scales in Space and Time - Stephen R. Carpenter, Reinette Biggs  
Chapter 10 Oceans and Estuaries: Managing the Commons - Carl Walters, Robert Ahrens  
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Chapter 12 Managing Food Production Systems for Resilience - Rosamond L. Naylor  
Chapter 13 Cities: Managing Densely Settled Social–Ecological Systems - J. Morgan Grove  
Chapter 14 The Earth System: Sustaining Planetary Life-Support Systems - Oran R. Young, Will Steffen

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Reinette Biggs, Rosamond L. Naylor, Evelyn Pinkerton, D. Mark Stafford Smith, Will Steffen, Brian Walker, Oran R. Young

## Reviews

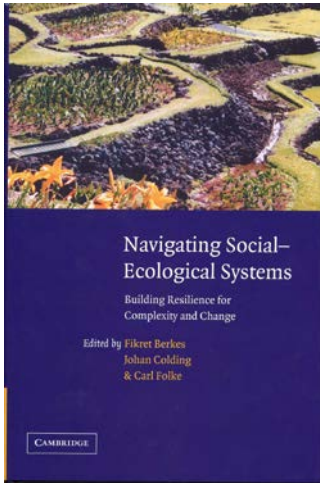
"This book introduces an intriguing new approach to the philosophy of resource management emphasizing proactive policies that shape change for sustainability, in contrast to current reactions to observed changes. Summing Up: Recommended. Upper-division undergraduate through professional collections." R. L. Smith, **Choice**, Vol. 47 (3), November, 2009

"The authors convincingly illustrate the many interdependencies between social and ecological problems, and demonstrate how the dynamics of systems as different as dry lands and open oceans can be analysed by a set of tools, such as the adaptive cycles, thresholds, or stabilizing or amplifying feedback loops. Although a multi-author work, the textbook is logically ordered, with each chapter building on its predecessors, without unnecessary redundancies. "Tobias Plieninger, **Environmental Conservation**, 37(2) 2010

<http://www.springer.com/cn/book/9780387730325>

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**Berkes, Fikret, Johan Colding and Carl Folke (editors) 2003. *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change*.** Cambridge University Press, Cambridge UK. 393 pp. Paperback edition 2008.



In the effort towards sustainability, it has become increasingly important to develop new conceptual frames to understand the dynamics of social and ecological systems. Drawing on complex systems theory, this book investigates how human societies deal with change in linked social-ecological systems, and build capacity to adapt to change. The concept of resilience is central in this context. Resilient social-ecological systems have the potential to sustain development by responding to and shaping change in a manner that does not lead to loss of future options. Resilient systems also provide capacity for renewal and innovation in the face of rapid transformation and crisis. The term navigating in the title is meant to capture this dynamic process. Case studies and examples from several geographic areas, cultures and resource types are included, merging forefront research from natural sciences, social sciences and the humanities into a common framework for new insights on sustainability.

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- **Synthesis** Carl Folke, Johan Colding and Fikret Berkes.

#### Reviews

"This volume goes further and presents a number of insights into the way linked social and ecological systems can be understood, and their adaptive capacity for response to change enhanced. For those readers looking to increase their understanding of these linked systems, whether from an applied or a basic research point of view, I heartily recommend the book. Calls for multi-disciplinarity are frequently heard - seldom are they as well heeded as in this book, and seldom are they presented in such an accessible manner". Brian Starzomski, **Ecology and Society**.

<http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=9780521815925>

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**Berkes, Fikret and Carl Folke (editors) 1998. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge University Press, Cambridge UK. 459 pp. Pb edition in 2000.**

It is usually the case that scientists examine either ecological systems or social systems, yet the need for an interdisciplinary approach to the problems of environmental management and sustainable development is becoming increasingly obvious. Developed under the auspices of the Beijer Institute in Stockholm, this new book analyses social and ecological linkages in selected ecosystems using an international and interdisciplinary case study approach. The chapters provide detailed information on a variety of management practices for dealing with environmental change. Taken as a whole, the book will contribute to the greater understanding of essential social responses to changes in ecosystems, including the generation, accumulation and transmission of ecological knowledge, structure and dynamics of institutions, and the cultural values underlying these responses. A set of new (or rediscovered) principles for sustainable ecosystem management is also presented. *Linking Social and Ecological Systems* will be of value to natural and social scientists interested in sustainability.

- Book results from a research study at the world-renowned Beijer Institute
- Contains insights into building flexibility into institutions so they are capable of proper ecosystem management
- Interdisciplinary study that brings much-needed integration of the social and scientific disciplines contributing to resources management

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- **Linking social and ecological systems for resilience and sustainability** Fikret Berkes and Carl Folke;
- **Part I. Learning from Locally Devised Systems:** 2. People, refugia and resilience Madhav Gadgil, Natabar S. Hemam and B. Mohan Reddy; 3. Learning by fishing: practical engagement and environmental concerns Gísli Pálsson; 4. Dalecarlia in Central Sweden before 1800: a society of social and ecological resilience Ulf Sporrang;
- **Part II. Emergence of Resource Management Adaptations:** 5. Learning to design resilient resource management: indigenous systems in the Canadian subarctic Fikret Berkes; 6. Resilience and neotraditional populations: the caiçaras of the Atlantic forest and caboclos of the Amazon (Brazil) Alpina Begossi; 7. Indigenous African resource management of a tropical rain forest ecosystem: a case study of the Yoruba of Ara, Nigeria D. Michael Warren and Jennifer Pinkson; 8. Managing for human and ecological context in the Maine soft shell clam fishery Susan S. Hanna;
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- **Social mechanisms and institutional learning for resilience and sustainability** Carl Folke, Fikret Berkes and Johan Colding;

#### Reviews

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'Fikret Berkes and Carl Folke brought together a remarkable group of people and organized their scholarly work to produce a splendid volume that marries the best research on social and ecological systems that exists today.' Elinor Ostrom, **Ecological Economics**

'These volumes offer the basis of a synthetic view of environment and human decision-making. Such work is of the highest importance, both as a basis for policy and for its inherent intellectual challenge.' William M. Adams, **Trends in Ecology and Evolution**

Also reviewed in **Ecoscience** 6: 298, 1999 by Francois Tremblay

<http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=9780521785624>

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**Hanna, Susan, Carl Folke and Karl-Göran Mäler (eds.) 1996. Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment.** Island Press, Washington. 298 pp.

Property rights are a tool humans use in regulating their use of natural resources. Understanding how rights to resources are assigned and how they are controlled is critical to designing and implementing effective strategies for environmental management and conservation.

*Rights to Nature* is a non-technical, interdisciplinary introduction to the systems of rights, rules, and responsibilities that guide and control human use of the environment. Following a brief overview of the relationship between property rights and the natural environment, chapters consider: ecological systems and how they function; the effects of culture, values, and social organisation on the use of natural resources; the design and development of property rights regimes and the costs of their operation; cultural factors that affect the design and implementation of property rights systems; and co-ordination across geographic and jurisdictional boundaries.

The book provides a valuable synthesis of information on how property rights develop, why they develop in certain ways, and the ways in which they function. Representing a unique integration of natural and social science, it addresses the full range of ecological, economic, cultural and political factors that affect natural resource management and use, and provides valuable insight into the role of property rights regimes in establishing societies that are equitable, efficient and sustainable.

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Foreword \ Kenneth J. Arrow

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Chapter 13. Building Property Rights for Transboundary Resources - Scott Barrett

<http://www.islandpress.com/books/detail.html/SKU/1-55963-490-1>

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**Andersson, Thomas, Carl Folke, and Stefan Nyström. 1995. Trading with the Environment: Ecology, Economics, Institutions, and Policy.** Earthscan, London. 140 pp. Published February 1998 in Chinese by the Tsinghua University Press. Reprinted in the Earthscan Library Collection

Should there be firmer restrictions on trade, with more policies aimed at protecting its environmental impacts, or would the environment benefit most from unrestricted free trade? Do importing countries have a responsibility only to their local ecosystems, or are they also responsible for environmental degradation caused by the production of traded goods in exporting countries? Trading the Environment examines both the dependence and the effects of international trade on the earth's life support systems and looks at ways in which trading regulations could be adapted to promote ecologically sustainable economic development. It addresses the issues from a fully integrated approach, focusing on the interrelations between ecosystems, economic development and trade. The authors provide a carefully constructed ecological and economic analysis of trade and the environment, examine the existing legal and institutional frameworks and set out 16 recommendations to achieve environment beneficial trade at both national and international levels. Trading with the environment was originally commissioned by the Swedish government and is already regarded thereon essential reference. It makes an excellent introduction as well as constructive analysis, both for students and for policy-makers and professional economics and other scientists working on the issues.

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<http://www.amazon.com>

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**Perrings, Charles A., Karl-Göran Mäler, Carl Folke, C.S. Holling and Bengt-Owe Jansson (eds.) 1995. *Biodiversity Loss: Ecological and Economic Issues*. Cambridge University Press, Cambridge, UK. 332 pp. Pb edition in 1997.**

This volume reports key findings of the Biodiversity Program of the Royal Swedish Academy of Sciences' Beijer Institute. The program brought together a number of eminent ecologists and economists to consider the nature and significance of the biodiversity problem. In encouraging collaborative work between these closely related disciplines it sought to shed new light on the concept of diversity; the implications of biological diversity for the functioning of ecosystems; the driving forces behind biodiversity loss; and the options for promoting biodiversity conservation. The results of the program are surprising. It is shown that the core of the biodiversity problem is a loss of ecosystem resilience and the insurance it provides against the uncertain environmental effects of economic and population growth. This is as much a local as a global problem, implying that biodiversity conservation offers benefits that are as much local as global. The solutions as well as the causes of biodiversity loss lie in incentives to local users. Reveals important and surprising conclusions about the causes of biodiversity loss and potential solutions.

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## Reviews

"[The chapters] are solid contributions to the literature. They illuminate many of the core questions of biodiversity and its conservation. They have much to say to conservation biologists, resource economists, environmental strategists, and those concerned with the role of biodiversity in national land-use planning....would make excellent assignments for graduate classes." Norman Myers, *BioScience*

"This book may be the most significant contribution to the interdisciplinary literature on biodiversity....Well-coordinated group discussions and sharing of draft research papers, joint research projects and chapter co-authorship by ecologists and economists, and strong and thoughtful editing have resulted in a coherent volume of original and strong contributions." Richard B. Norgaard, **Journal of Wildlife Management**

Also reviewed in **Weltwirtschaftliches Archiv** H3:599-601, 1996 by F. Stähler



<http://www.cambridge.org/se/academic/subjects/economics/natural-resource-and-environmental-economics/biodiversity-loss-economic-and-ecological-issues>

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**Perrings, Charles A., Karl-Göran Mäler, Carl Folke, C.S. Holling and Bengt-Owe Jansson (eds.) 1995. *Biodiversity Conservation: Problems and Policies*. Kluwer Academic Publishers, Dordrecht. 404 pp.**

About this book

This book reports the more policy-oriented results of the Biodiversity programme of the Royal Swedish Academy of Sciences Beijer Institute. The programme brought economists and ecologists together to consider where the problem in biodiversity loss really lies, what costs it has for society, and how it might best be addressed. The results are strikingly different from those reported in other works on the subject. Biodiversity loss matters for all ecosystems -- not just the megadiversity tropical forests. And it matters because it compromises the resilience and so the productivity of those systems. Biodiversity conservation requires the development of policies that change the behaviour of resource use everywhere -- not just in parks and reserves. The book is required reading for researchers and policy makers alike. It canvasses options for the reform of park management, biodiversity conservation projects, property rights, tax, trade and price regimes that are within the reach of governments everywhere.

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<http://www.springer.com/west/home/generic/search/results?SGWID=4-40109-22-33719984-0>

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**Barbier, Edward B., Joanne C. Burgess and Carl Folke. 1994. *Paradise Lost? The Ecological Economics of Biodiversity*. Earthscan, London. 267 pp.**  
(Reprinted in Earthscan Library Collection)

"No naturalists who read and absorb *Paradise Lost?* need be concerned for a lack of cogent economic arguments. This is the best rigorous discussion of the ecological economics of biodiversity that I have read." Otto T. Solbrig, **Ecological Economics**

"The authors describe the dependence of society upon natural ecosystems, and emphasize the critical need to enhance understanding of the relationships between biodiversity, ecosystem function and human wellbeing. Special attention is given to the importance of possible discontinuities.....This book offers a refreshing view of imaginative, practical strategies that could be quickly applied in the decades remaining to protect Earth's biodiversity." Gretchen Daily, **Trends in Ecology & Evolution**

Also reviewed in; **New Scientist** by Fred Pearce; **European Review of Agricultural Economics** by P.B. Joly; **Economic Journal** by Clive Spash, **Environmental Politics** by Jan van der Straten

<https://www.abebooks.com/book-search/author/barbier-edward-burgess-joanne-folke-carl/>

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**Jansson, AnnMarie, Monica Hammer, Carl Folke, and Robert Costanza (editors) 1994. *Investing in Natural Capital: The Ecological Economics Approach to Sustainability*. Island Press, Washington. 450 pp.**

*Investing in Natural Capital* presents the results of a workshop held following the second biannual conference of the International Society for Ecological Economics. It focuses on the relation of human development to natural capital, and the relation of natural capital to environmental processes.

Because we are capable of understanding our impact on the environment and the importance of managing it sustainably, humans play a special role in our ecosystem. The book emphasizes the essential connections between natural ecosystems and human socioeconomic systems, and the importance of insuring that both remain resilient. Specific chapters deal with methodology, case material, and policy questions, and offer a thorough exploration of this provocative and important alternative to conventional economics.

**The International Society for Ecological Economics (ISEE)** is a not-for-profit organization concerned with integrating the study and management of nature's household (ecology) with humanity's household (economy). Ecological economics acknowledges that, in the end, a healthy economy can only exist in symbiosis with a healthy ecology.

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## Reviews

"The book offers convincing arguments for viewing "humans as a part of and not apart from the processes and functions of nature (p4)"... Consequently, the principal task of ecological economics is to find ways to maintain the scale of human economy within supportable bounds (i.e. sustainability). ... The book performs a valuable service in consolidating major developments in the relatively new field of ecological economics by giving scholars a convenient way to learn about them".... Ray Huffaker, **American Journal of Agricultural Economics** 77:224, 1995

I would also argue, in accord with the book's overall spirit, that we have unwittingly moved beyond a stage where we can legitimately mobilize the resources of the planet in support of the human cause. We should now mobilize the resources of humankind in support of the planetary cause—and thereby give ourselves our best and possibly only chance of worthwhile survival." ... Norman Myers **BioScience** 45:442-444, 1995

<https://islandpress.org/book/investing-in-natural-capital>

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**Folke, Carl and Tomas Kåberger (editors) 1991. *Linking the Natural Environment and the Economy: Essays from the Eco-Eco Group*.** Kluwer Academic Publishers, Dordrecht. 306 pp. Second, revised edition in 1992, 307 pp. DOI 10.1007/978-94-017-6406-3

There is a pervasive need to understand the interactions between the natural environment and human systems, and there is increasing research on the interface between ecology and economy. However, among scientists there are considerable differences in perspectives, in the approaches to environmental problems, and on what actions are required to approach sustainable development. With the purpose of bridging and increasing the understanding of the different perspectives among ecologists and economists and stimulating communication and cooperation concerning environmental issues, the Eco-Eco Group was founded in 1984. The initiative in the formation of the group was taken by Johan Åshuvud who, tragically, died in a car accident in 1988. To honour the memory of a skilful colleague and a dear friend we decided to write this book.

The book consists of three parts. Part one presents various perspectives on ecology and economy linkages. Part two consists of empirical analyses of the role and value of the natural environment for economic activity, and it provides examples from regional land use, agriculture, wetlands, and coastal and marine ecosystems. Part three deals with human impacts on the natural environment in developing countries, from a local to an international level. Finally, a synthesis outlines the major perspectives in ecology and economics dealing with the interaction between Man and Nature, and places the chapters of the book within these perspectives. It is our hope that the essays from the Eco-Eco Group will contribute to increased communication and reciprocal understanding and openness towards various approaches aimed at linking the natural environment and the economy, for the mutual benefit of all.

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Chapter 4. Measuring Instrumental Value in Energy Terms - *Tomas Kåberger*  
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### **PART II THE ROLE AND VALUE OF THE NATURAL ENVIRONMENT**

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Chapter 8. The Societal Value of Wetland Life-Support – *Carl Folke*  
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- Chapter 11. Use and Impacts of Chemical Pesticides in Smallholder Agriculture in the Central Kenya Highlands - *Carl Christiansson*  
Chapter 12. Multinational Firms and Pollution in Developing Countries - *Thomas Andersson*  
Chapter 13. Environmental Conservation for Development in Central America – *Johan Åshuvud*

### **PART IV SYNTHESIS**

- Chapter 14. Recent Trends in Linking the Natural Environment and the Economy - *Carl Folke and Tomas Kåberger*

## **Review**

"Linking the Natural Environment and the Economy, edited by two Swedish aficionados of the fields, is the more erudite and professional, dealing with "the dependence of socioeconomic systems on healthy environments and functional ecosystems". It seeks to demonstrate that "it is no longer possible to take environmental goods and services for granted". Instead they must be methodically taken into account by decision-makers at all levels. The book does a sound job, with much fine-grain analysis..... The final chapter provides an overview of the eight case studies and their findings. This is the most illuminating chapter because it attempts, with some success, to define operationally the key concept of environmental economics, sustainable development." Norman Myers, **Nature** 354:332 1991

<http://www.springer.com/cn/book/9780792312277>

**Carl Folke and Lars Hall. 2014. Reflections On People and the Biosphere** (Swedish - Speglingar Om Människan och Biosfären). Bokförlaget Langenskiölds, Stockholm, Sweden. 210 pp.

During a period of thirty years Lars Hall, legendary art director and in the 70's the initiator of Sweden's first gallery of fine art photography Camera Obscura, has taken photos from the very same spot on the island Grillskäret in the Baltic Sea. Three decades of persistence is documented here through the pictures, reflecting diverse impressions and changing environments. The book presents hundred images together with texts by Professor Carl Folke, leading scientist and pioneer in research on social-ecological systems, resilience thinking and sustainability science. Art photography, science and music quotes reinforce each other and reflect resilience – the capacity to live, persist and develop with changing conditions in a globally intertwined world of humans, societies and nature.

The book has been shown as an installation at the art venue Artipelag outside Stockholm in the summer 2014, and as exhibitions at the Raoul Wallenberg Square, Nybroplan, Stockholm April-May 2015, during the Transformations conference October 2015, Stockholm, in Freiburg, Germany, November 2015, for Nordic politicians January 2016 and at the Resilience Conference in Stockholm August 2017.

<https://www.adlibris.com/se/bok/reflections-on-people-and-the-biosphere-9789187007514>  
<http://bokshop.langenskiolds.se/en/reflections-on-people-and-the-biosphere>  
[http://www.bokus.com/cgi-bin/product\\_search.cgi?ac\\_used=yes&search\\_word=reflections+on+people+and+the+biosphere](http://www.bokus.com/cgi-bin/product_search.cgi?ac_used=yes&search_word=reflections+on+people+and+the+biosphere)  
[https://www.youtube.com/watch?v=Ke3O\\_N7S1qI](https://www.youtube.com/watch?v=Ke3O_N7S1qI)

Three examples from the book are presented on the next page.

#### Reconnecting to the Biosphere

This book is a reflection on the fundamental relationship between people and the Biosphere and the future of humanity on Earth. The photos provide images for contemplation about this relationship, spending to us from the same spot on an island in the northern Stockholm archipelago of the Baltic Sea, photos collected and selected by Lars Hall from a period of more than thirty years.





## Open the door for reflection

Humankind is integrated with the Biosphere - the thin sphere around the planet where life exists - and has evolved as part of it, shaping it, while simultaneously fundamentally dependent on its functions. The sense of place of the images is supported by short texts on the critical relationship for humankind. We hope to inspire and provide room for reflection on our unique place and situation in the amazing but still fragile Biosphere.



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## The Biosphere

The Biosphere - the sphere of life - is the living part of the outermost layer of our rocky planet, the part of the earth's crust, waters, and atmosphere where life dwells. It is the global ecological system integrating all living beings and their relationships. Life on earth interacts in myriad ways with the chemistry of the atmosphere, the circulation of the oceans, and the water cycle, including the solid water in polar and permafrost regions, to form favourable conditions on Planet Earth. There is curiosity and enchantment for the complex web of life, from the smallest quark to the operation of the entire Biosphere - for the way it has evolved and our opportunities and responsibilities as a living component of it.



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