

The State of the Nation's Ecosystems

We all rely on a familiar set of indicators—interest rates, unemployment, inflation, the Dow Jones index, and GDP, for example—to gauge the performance of the national economy. No such measures are currently available to describe the environment.

The State of the Nation's Ecosystems lays out a blueprint for periodic reporting on the condition and use of ecosystems in the United States. Developed by experts from businesses, environmental organizations, universities, and federal, state, and local government agencies, it is designed to provide policymakers and the general public with a succinct and comprehensive—yet scientifically sound and nonpartisan—view of “how we are doing.” Participants and contributors represent a wide array of political perspectives and include experts from the fields of ecology, chemistry and toxicology, hydrology, oceanography, limnology, use of satellite remote sensing, forestry, farming, range management, and many others. The book identifies the major characteristics of ecosystems that should be tracked through time to provide this view, and where possible, provides information on both current conditions and historic trends. The book also highlights key gaps—situations where data do not exist or have not been assembled to support national reporting. Separate chapters report on coasts and oceans, farmlands, forests, fresh waters, grasslands and shrublands, and urban and suburban areas. These ecosystem-specific indicators are complemented by “core national indicators” that provide a highly aggregated view of overall conditions.

Who should be interested in reading this book?

- Decision makers in natural resource management and environmental policy in federal, state, and local government agencies, as well as in environmental organizations, businesses, and trade associations
- Academics with a research or teaching interest in environmental quality and ecosystem condition
- Interested laypersons
- Instructors for environmental studies and ecosystems courses, who may also wish to use the volume as a main or supplementary textbook for students to illustrate key aspects of ecosystems in the United States

The State of the Nation's Ecosystems provides a prescription for “taking the pulse” of America’s lands and waters. It identifies what should be measured, counted, and reported so that decision makers and the public can understand the changes that are occurring in the American landscape.

The State of The Nation's Ecosystems

Measuring the
Lands, Waters, and
Living Resources of
the United States

THE H. JOHN HEINZ III CENTER FOR
SCIENCE, ECONOMICS AND THE ENVIRONMENT

THE
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Coasts and
Oceans



Farmlands



Forests



Fresh Waters



Grasslands and
Shrublands



Urban and
Suburban Areas



About the Heinz Center

Established in December 1995 in honor of Senator John Heinz, The H. John Heinz III Center for Science, Economics and the Environment is a nonprofit, nonpartisan institution dedicated to improving the scientific and economic foundation for environmental policy through multisectoral collaboration. Focusing on issues that are likely to confront policymakers within two to five years, the Center fosters collaboration among industry, environmental organizations, academia, and government in each of its program areas and projects. It uses the best scientific and economic analyses to develop viable options to solving problems, and its findings and recommendations are widely disseminated to public and private sector decision makers, the scientific community, and the public.

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE

The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS

The Edinburgh Building, Cambridge CB2 2RU, UK

40 West 20th Street, New York, NY 10011-4211, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

Ruiz de Alarcón 13, 28014 Madrid, Spain

Dock House, The Waterfront, Cape Town 8001, South Africa

<http://www.cambridge.org>

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First published 2002

Printed in the United States of America

A catalog record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data

The state of the nation's ecosystems : measuring the lands, waters, and

living resources of the United States / The H. John Heinz III

Center for Science, Economics, and the Environment

p. cm.

Includes bibliographical references.

ISBN 0-521-52572-1 (pb.)

1. Environmental monitoring—United States—Methodology. 2. Ecosystem health—United States. I. H. John Heinz III Center for Science, Economics and the Environment.

QH104 .S73 2002

333.7'2—dc21 2002073890

Designed by Janin/Cliff Design, Inc., Washington, D.C.

Printed on recycled paper

The State of the Nation's Ecosystems is also available on line at www.heinzctr.org/ecosystems.

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Foreword

The State of the Nation's Ecosystems initiates a series of periodic reports on the lands, waters, and living resources of the United States.

The report has been prepared *for* decision makers, opinion leaders, and informed citizens who seek an authoritative, comprehensive, and succinct overview of what the nation most needs to know about the changing state of its ecosystems.

The report has been prepared *by* experts from government, the private sector, environmental organizations, and academia through an intense five-year collaborative process. This involved hundreds of contributors and reviewers from all four sectors, publication of a prototype to solicit public commentary, and feedback on several drafts from a wide array of interested groups and experts.

The report emerging from this process presents a unique system of indicators that is simultaneously *relevant* to contemporary policy and decision making, *balanced* and *unbiased* in what it chooses to report on, and *scientifically credible* in the data it presents. We hope and believe that *The State of the Nation's Ecosystems* and its planned successors will help to strengthen the empirical foundation for American environmental policymaking in the same way that the emergence of solid data about changes in GDP, employment, and inflation helped to strengthen the country's economic policymaking in the last half-century.

The completion of this first report on *The State of the Nation's Ecosystems* shows that a sustained, multisector collaborative approach to environmental reporting can make inroads on many of the problems of parochialism, perceived bias, and variable quality that have plagued previous efforts. We believe that the articulation of a coherent framework for reporting, a clear-eyed assessment of the strengths and weaknesses of available data, and the identification of data gaps are important advances. Its strengths notwithstanding, however, we are well aware that this report is at best an early step on a long path toward realization of the comprehensive, mature, and well-grounded system of ecosystem and environmental reporting that the nation deserves.

A number of specific steps are needed over the next five years in preparation for a second full edition of *The State of the Nation's Ecosystems*. First, the Heinz Center will actively solicit feedback on this report, continuing the practice—begun with the 1999 prototype report—of using each completed step as the basis for future improvements. Second, we believe that a multisector effort is needed to address key gaps identified in this report. For almost half the indicators identified in this report as necessary to characterize the state of the nation's ecosystems, gaps in scientific understanding, operational monitoring, or data coordination have made it impossible to produce useful national data. Finally, we hope to foster a broad and inclusive dialogue on where and how a permanent effort to produce a continuing series of high-quality reports on the state of the nation's ecosystems could best be housed, administered, and funded. We pledge our own commitment to working with government at all levels, the private sector, environmental groups, and academia in ensuring that these issues are addressed in a timely and serious manner.

It is our pleasure to thank the extraordinary group of individuals and organizations that have worked together to realize this first report on *The State of the Nation's Ecosystems*.

The foundations of this effort are the countless professionals and supporting organizations involved in the exacting work of ecosystem monitoring. Without them, there would simply be nothing of quality to report. The sources of data drawn on in this report—sources from government, the private sector, environmental groups, and academia—are cited on the individual indicator pages and in the technical notes.

Despite the substantial donations of time and talent from the groups already described, this report would not have been possible without substantial financial support from more than twenty federal, private, and philanthropic sources. These funders are named—and thanked—on p. xvii, and we would like to add our grateful appreciation for their support.

The work of defining an overall indicator system, applying it to specific ecosystems, and identifying and evaluating candidate data sets fell largely on the backs of the Design Committee and Work Groups convened by the Heinz Center. These individuals—nearly 150 in all—are listed on pp. x–xvi. To a person, they took part with enthusiasm, openness, creativity, and dedication.

Oversight and review of the work of the Design Committee and Working Groups were provided at two levels. Strategically, the balance and relevance of the overall reporting effort was reviewed periodically by a small group of senior advisors (see p. x) and the Heinz Center Board of Trustees (see p. xvi). Quality assurance on more specific aspects of the report was provided through a rigorous process of peer review, involving nearly 100 experts from all four sectors (these reviewers are listed on the Heinz Center’s Web site, www.heinzctr.org/ecosystems).

At the Heinz Center itself, our first thanks go to the first president of the Center, Bill Merrell. Bill’s leadership of the Center in its formative years made a reality of the multisector, nonpartisan, science-based principles on which it was founded. He was instrumental in seeing “environmental reporting” as a key area for enhancing the contribution of science and economics to policy, in conceptualizing the present effort, in recruiting those who have led it over the past 5 years, and in putting together the broadly based funding package that has supported it.

On the Heinz Center staff, a wonderfully creative, adaptable, and dedicated group of professionals herded the multiple cats of the *State of the Nation’s Ecosystems* project to produce an integrated product. Robert M. Friedman, the Center’s Vice President for Research, guided the overall effort with a light hand and a keen, insightful mind. Kent Cavender-Bares, Research Associate and analyst par excellence, served as the project’s nerve center for data analysis and presentation and contributed in countless ways to every aspect of the report. Jeannette L. Aspden, the Center’s Research Editor, exhibited true flexibility and creativity in ensuring that the final product was of excellent quality and consistency, despite having been written in literally hundreds of separate pieces over several years. And Elisette Rivera, Kate Wing, and Heather Blough, Research Assistants, provided technical, logistical, and administrative support for the project, without which the data needed to produce this report would not have been obtained or analyzed, the meetings needed to reach agreement on what indicators were appropriate would not have been held, and the myriad other necessary details would not have been attended to. These individuals were aided in their work by the frequent and cheerful efforts of—at one point or another—every member of the Heinz Center staff, all of whom pitched in at critical points to lighten the load.

Finally, however, we must single out for thanks Robin O’Malley, the Project Manager of the *State of the Nation’s Ecosystems* project. He has been a consummate project manager, keeping an immensely complicated and dynamic process running on time with a reasonable degree of synchrony; alternately prodding, chiding, and soothing multiple contesting egos; writing not only the text that he promised, but also the text that others promised but forgot to complete; and delivering an uncounted number of ever-better briefings. Beyond these impressive managerial accomplishments, however, Robin has also played a central role in shaping the structure and content of this report, coming up with original analytical approaches, prescient criticism and comments, and original syntheses. He has, in fact, emerged as one of the nation’s foremost experts on the state of the nation’s ecosystems. It has been an honor and a pleasure to work with him in creating this report.

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Acknowledgments

This report would not have been possible without the support, encouragement, and patience of many, many individuals and institutions.

We would like to name—and thank—the many individuals who have assisted in some way, but we cannot. Besides those who participated as members of one of our many committees (and who are named on pages x–xv), there are literally hundreds who have contributed time and expertise, including many who work within our partner organizations, but with whom we have not worked directly.

We are also deeply grateful to the nearly 100 reviewers who commented on the draft of this report; your insightful contributions helped us immensely, and your names are listed on our Web site (www.heinzctr.org/ecosystems). Any list would inevitably miss someone, so, rather than provide an incomplete list, we offer our sincere thanks to each and every one of you—you know who you are!

Funding for this project was also provided by a diverse array of sources. We would like to thank our corporate and foundation funders: Chevron Company, Cleveland Foundation Special Fund No. 6, Foundation for Environmental Research, John Deere & Company, Electric Power Research Institute, Georgia-Pacific Corporation, Vira I. Heinz Foundation, Andrew W. Mellon Foundation, Richard King Mellon Foundation, Charles Stewart Mott Foundation, David and Lucile Packard Foundation, Procter & Gamble Company, and Royal Caribbean Cruise Lines.

We would also like to thank the federal agencies that provided financial support: the Department of Agriculture, the Department of Defense, the Department of Energy, the Department of the Interior, the Environmental Protection Agency, the Federal Emergency Management Agency, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and the National Science Foundation. The Office of Naval Research also provided grants administration support, for which we are grateful.

We worked with a host of public and private institutions in preparing this report. They provided data, enabled their staff to serve on committees, assisted with reviews, and made any number of other valuable contributions. We are deeply grateful for their help and support. There were, however, several institutions whose assistance went well beyond the norm: the U.S. Geological Survey, the USDA Forest Service, and NatureServe (which was a part of the Nature Conservancy when this project began) all provided insight, information, and expertise in amounts beyond what we could have asked for.

We are also grateful to Cynthia Cliff and James Durham of Janin/Cliff Design, Inc., for their skill, insight and patience—this volume would not be what it is without them.

Finally, we thank the members of The Heinz Center Board of Trustees, without whose support this project would not have come to fruition, and all of our present and former colleagues at The Heinz Center, whose patience and pitching in made it all possible.

