

The Environmentalist's Paradox

Author: Beardsley, Timothy M.

Source: BioScience, 60(8) : 567

Published By: American Institute of Biological Sciences

URL: <https://doi.org/10.1525/bio.2010.60.8.1>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

PUBLISHER

Richard T. O'Grady

EDITOR IN CHIEF

Timothy M. Beardsley

MANAGING EDITOR

Laura C. Sullivan

PEER REVIEW / EXTERNAL RELATIONS

Jennifer A. Williams

EDITOR

James Verdier

Editors: Eye on Education: Cathy Lundmark (educationoffice@aibs.org); Feature articles: Cathy Lundmark (features@aibs.org); Washington Watch: Robert E. Gropp (publicpolicy@aibs.org).

Editorial Board: Agriculture: Sonny Ramaswamy; Animal Behavior: Janice Moore; Animal Development: Paula Mabee; Botany: Kathleen Donohue; Cell Biology: Randy Wayne; Ecology: Scott Collins; Daniel Simberloff; Ecotoxicology: Judith S. Weis; Education: Gordon E. Uno; Environmental Microbiology: Rita R. Colwell; Environmental Policy: Gordon Brown, J. Michael Scott; Evolutionary Biology: James Mallet; Genetics and Evolution: Martin Tracey; History and Philosophy: Richard M. Burian; Human Biology: David L. Evans; Invertebrate Biology: Kirk Fitzhugh; Landscape Ecology: Monica Turner; Mammalogy: David M. Leslie Jr.; Microbiology: Edna S. Kaneshiro; Molecular Biology: David Hillis; Molecular Evolution and Genomics: David Rand; Neurobiology: Cole Gilbert; Plant Development: Cynthia S. Jones; Policy Forum: Eric A. Fischer; Population Biology: Ben Pierce; Professional Biologist: Jean Wylde; Remote Sensing and Computation: Geoffrey M. Henebery; Statistics: Kent E. Holsinger; Vertebrate Biology: Harvey B. Lillywhite.

BioScience (ISSN 0006-3568; e-ISSN 1525-3244) is published 11 times a year (July/August combined) by the American Institute of Biological Sciences, 1900 Campus Commons Drive, Suite 200, Reston, VA 20191, in collaboration with the University of California Press. Periodicals postage paid at Berkeley, CA, and additional mailing offices.

POSTMASTER: Send address changes to *BioScience*, University of California Press, Journals and Digital Publishing, 2000 Center Street, Suite 303, Berkeley, CA 94704-1223, or e-mail customerservice@ucpressjournals.com.

Membership and subscription: Individual members, go to www.aibs.org/individual-membership for benefits and services, membership rates, and back issue claims. Subscription renewal month is shown in the four-digit year-month code in the upper right corner of the mailing label. Institutional subscribers, go to www.ucpressjournals.com or e-mail customerservice@ucpressjournals.com. Out-of-print issues and volumes are available from Periodicals Service Company, 11 Main Street, Germantown, NY 12526-5635; telephone: 518-537-4700; fax: 518-537-5899; Web site: www.periodicals.com.

Advertising: For information about display and online advertisements and deadlines, e-mail adsales@ucpressjournals.com. For information about classified placements and deadlines, contact Jennifer A. Williams, AIBS (jwilliams@aibs.org).

Copying and permissions notice: Authorization to copy article content beyond fair use (as specified in sections 107 and 108 of the US Copyright Law) for internal or personal use, or the internal or personal use of specific clients, is granted by the Regents of the University of California on behalf of AIBS for libraries and other users, provided that they are registered with and pay the specified fee through the Copyright Clearance Center (CCC), www.copyright.com. To reach the CCC's Customer Service Department, call 1-978-750-8400 or e-mail info@copyright.com. For permission to distribute electronically, republish, resell, or repurpose material, and to purchase article offprints, use the CCC's Rightslink service on Caliber at <http://caliber.ucpress.net>. Submit all other permissions and licensing inquiries through the University of California Press's Rights and Permissions Web site, www.ucpressjournals.com/reprintinfo.asp, or e-mail journalspermissions@ucpress.edu.

Abstracting and indexing: For complete abstracting and indexing information, please visit www.ucpressjournals.com.

© 2010 American Institute of Biological Sciences. All rights reserved. Printed at Allen Press, Inc.

BioScience®

Organisms from Molecules to the Environment
American Institute of Biological Sciences

The Environmentalist's Paradox

Average human well-being is improving globally, despite resource depletion and degradation of ecosystems. Why?

So ask Ciara Raudsepp-Hearne and her coauthors in their article "Untangling the Environmentalist's Paradox," which begins on p. 576. Studies including the influential Millennium Ecosystem Assessment have concluded that the capacity of ecosystems to produce many ecosystem services is now low. Depletion of ecosystem services is expected to mean fewer benefits to humans, thus decreasing human well-being. Yet the composite Human Development Index, a widely used metric that incorporates measures of literacy, life expectancy, and income, has improved markedly since the mid-1970s in both rich and poor nations. The index correlates strongly with other measures of prosperousness. Some measures of personal security buck the upward trend, but the overall improvement in well-being cannot, it seems, be denied. Does this paradox mean that concern about ecosystem services is overblown?

Raudsepp-Hearne and her coauthors first examine the notion that the traditional measures of well-being are flawed—that average well-being is in fact declining despite the numbers suggesting otherwise. But they reject that idea.

They then examine three other ideas, derived from different academic traditions, that might reconcile improving human well-being with decreasing ecosystem services. The selection, as Raudsepp-Hearne and her coauthors acknowledge, does not exhaust the possibilities, but it encompasses some plausible ones. One idea is that food production (which has increased) is more important for human well-being than are other ecosystem services, another is that technology and innovation have decoupled human well-being from ecosystem degradation, and the third is that there is a time lag after ecosystem service degradation before human well-being is affected. The interested reader should consult the article to learn how the authors judge these hypotheses: All find some support, though with important qualifications.

The authors' conclusions are limited by the geographically aggregated nature of their data, and *BioScience* will publish commentary on aspects of their analysis in a future issue. Yet the article clearly strengthens the case for research that integrates human well-being, agriculture, technology, and time lags affecting ecosystem services. Raudsepp-Hearne and her colleagues urge more attention to how ecosystem services affect multiple aspects of well-being, ecosystem service synergies and trade-offs, technology for enhancing ecosystem services, and better forecasting of the provision of and demand for ecosystem services.

The recent oil calamity in the Gulf of Mexico, the biological impacts of which will take years to fully manifest and will persist for decades, should be reminder enough that although technology can insulate us from degrading ecosystem services locally, it often does so by creating problems elsewhere. As the human population grows, fewer places remain where the impacts can be absorbed without adversely affecting somebody. Aggregate global human well-being is, apparently, growing—though it is obviously declining in some places. Extending and defending the gains, particularly as the quest for energy becomes more intense, will require policymakers to understand the complicated relationship between ecosystem services and the humans who use them.

TIMOTHY M. BEARDSLEY
Editor in Chief

doi:10.1525/bio.2010.60.8.1