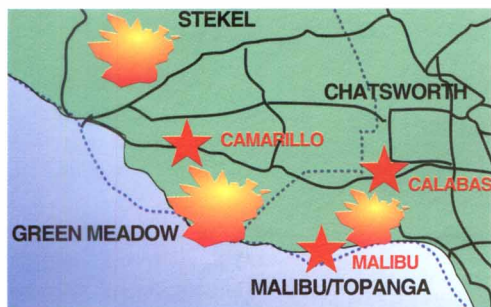


FEATURES



535

- 518 Interview with Paul Johnson**
521 1992 National Resources Inventory
Robert L. Kellogg, Gale W. TeSelle, and J. Jeffery Goebel
528 The Galloway Report: New floodplain management or business as usual?
Doug Snyder and Stephanie Polsley Bruner
535 Erosion and sediment control: Preventing additional disasters
Carol L. Forrest and Michael V. Harding
542 Soil penetrometer readings on flooded soils in west central Illinois
Duane Friend

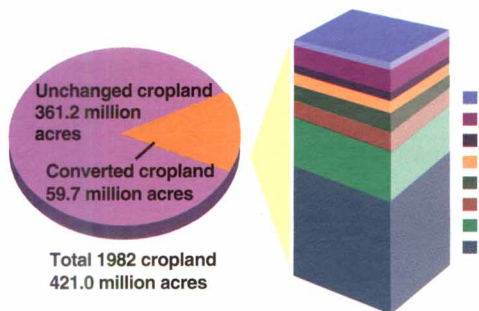
PERSONAL ENRICHMENT



546

- 546 Windbreaks for people: The wildlife connection**
Ron J. Johnson, Mary M. Beck, James R. Brandle

RESEARCH



521

- 570 Current research abstracts**
572 Estimating depths to claypans
J. A. Doolittle, K. A. Sudduth, N. R. Kitchen, and S. J. Indorante
576 Off-site impacts of soil erosion in recreation
Robert A. Robertson and Joe P. Colletti
582 Profitability of legume cover crops
Erik Lichtenberg, James C. Hanson, A.M. Decker, and A.J. Clark
586 Evaluation of methods to study soil erosion productivity relationships
R.R. Olson, R. Lal, and L.D. Norton
591 Quantification of soil loss from eroded soil
K.R. Olson, L.D. Norton, T. E. Fenton, and R. Lal
597 Effect of soil erosion on crop yield
G. A. Weesies, S. J. Livingston, W. D. Hosteter, and D. L. Schertz
601 Profit and risk for integrated conservation
Douglas L. Young, Tae-jin Kwon, and Frank L. Young
606 Economic impacts of erosion management
Ching-Cheng Chang, Jay D. Atwood, Klaus Alt, and Bruce A. McCarl
612 Survey of management practices
David R. Pike, Ellery L. Knake, and Jerry L. Hill
615 Different approaches for controlling sediment
S. Mostaghimi, T.M. Gidley, T.A. Dillaha, and R.A. Cooke

DEPARTMENTS



Cover

Regrowth of vegetation after a forest fire in Southern California. Photo courtesy of Carol L. Forrest and Michael V. Harding.

- 514 SWCS view**
517 Guest editorial
553 Technical commentary
556 Product news
560 Books
566 Upcoming

As a multidisciplinary membership organization, we advocate the protection, enhancement, and wise use of soil, water, and related natural resources. Through education and example, we promote an ethic that recognizes the interdependence of people and the environment.

OFFICERS

President

Gary C. Steinhardt, West Lafayette, Indiana

Vice President

John A. Knapp, La Junta, Colorado

Secretary-Treasurer

Anthony G. Burns, Shelbyville, Kentucky

Board Representative on Executive Committee

Calvin J. Perkins, Broadalbin, New York

Executive Vice President

Douglas M. Kleine, Des Moines, Iowa

DIRECTORS

Calvin J. Perkins, Broadalbin, New York, (1996)

Robert C. "Robbie" Robison, Athens, Georgia

(1995)

Anthony G. Burns, Shelbyville, Kentucky (1997)

Gary C. Steinhardt, West Lafayette, Indiana

(1995)

Peter Nowak, Madison, Wisconsin (1996)

John A. Knapp, La Junta, Colorado (1995)

Donald G. Bartolina, Oklahoma City,

Oklahoma (1997)

Frederick Steiner, Tempe, Arizona (1996)

Thomas M. Kurtz, Thornhill, Ontario (1997)

James E. Smith, Jr., Bryan, Texas (1995)

Lloyd N. Mielke, Washington, D.C. (1995)

EDITORIAL BOARD

David B. Baker, Tiffin, Ohio

Alfred Birch, Edmonton, Alberta

Tommy Coleman, Normal, Alabama

M. Duane Nellis, Manhattan, Kansas

George Foster, Oxford, Mississippi

Dennis Keeney, Ames, Iowa

Linda K. Lee, Storrs, Connecticut

Jane Luzar, Baton Rouge, Louisiana

Don K. McCool, Pullman, Washington

David W. Moody, Jamestown, North Dakota

Peter Nowak, Madison, Wisconsin

Dave Schertz, Washington, D.C.

Joan I. Nassauer, Minneapolis, Minnesota

Ildefonso Pla Sentis, Maracay, Venezuela

David L. Schertz, Herndon, Virginia

T.F. Shaxson, Broadstone, U.K.

Diane E. Stott, West Lafayette, Indiana

EDITORIAL STAFF

Editor

Sue Ballantine

Book Review Editor

Doug Snyder

Research Editor

Warren J. Busscher

Production Assistant/Graphic Artist

Joann Schissel

Editorial Assistant

Stephanie Polsley Bruner

SWCS STAFF

Director of Public Affairs and Foundation

Activities

Max Schnepf

Director of Education and Professional

Development

Tim Kautza

Director of Management Information

Systems

James L. Sanders

Director of Marketing

Karen Howe

Washington, D.C. Representative

Norm Berg

Journal of Soil and Water Conservation (ISSN 0022-4561) is published six times a year in January, March, May, July, September, and November by the Soil and Water Conservation Society, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764. Second class postage paid at Ankeny, Iowa, and additional mailing offices. POSTMASTER: Send address changes to *Journal of Soil and Water Conservation*, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764. Copyright ©1993 by the Soil and Water Conservation Society. SWCS assumes no responsibility for statements and opinions expressed by contributors. Address all editorial and business correspondence to *Journal of Soil and Water Conservation*, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764; telephone (515) 289-2331; fax (515) 289-1227. Subscription is by membership in the Soil and Water Conservation Society or by subscription. Membership dues are \$46 a year (\$56 outside the United States and Canada); subscriptions are \$42 a year (\$52 outside the United States and Canada).



printed on recycled paper

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION

1A. Title of Publication: *Journal of Soil and Water Conservation*.
1B. Publication Number: 0022 4561. **2. Date of Filing:** September 30, 1994. **3. Frequency of Issue:** Bimonthly. **3A. No. of Issues Published Annually:** Six. **3B. Annual Subscription Price:** \$42.00. **4. Complete Mailing Address of Known Office of Publication:** 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764 (Polk County). **5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher:** 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764. **6. Names and Complete Addresses of Publisher, Editor and Managing Editor:** *Publisher:* Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764. *Editor:* Sue Ballantine, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764. *Assistant Editor:* Doug Snyder, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764. **7. Owner:** Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764. **8. Known Bondholders, Mortgages, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities:** None. **9.** The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes has not changed during the past 12 months. **10. Extent and Nature of Circulation:**

	Average No. Copies Each Issue During Preceding 12 months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies Printed—61,809	11,222	11,000
B. Paid Circulation		
1. Sales through Dealers and Carriers, Street Vendors, and Counter Sales	0	0
2. Mail Subscriptions—56,660	10,556	10,594
C. Total Paid Circulation	10,556	10,594
D. Free Distribution by Mail, Carrier, or Other Means, Samples, Complimentary, and Other Free Copies	200	186
E. Total Distribution	10,756	10,780
F. Copies Not Distributed		
1. Office Use, Left Over, Unaccounted, Spoiled After Printing	446	220
2. Returns from News Agents	0	0
G. Total	11,222	11,000

11. I certify that the statements made by me above are correct and complete.—Sue Ballantine, Director of Publications, Soil and Water Conservation Society



BOOKS, ETC.

America's Water: Federal Roles and Responsibilities. By Peter Rogers. 285 pp. 1993. The MIT Press, 55 Hayward Street, Cambridge, Massachusetts 02142 USA. \$27.50 hardbound.

This book provides a highly informative, multidisciplinary approach to the wide array of federal water issues. Starting with an overview of public policy involved in water resources, the author proceeds to devote a number of chapters to water management from scientific, historical, and technical points of view. This excellent background is followed by chapters on economic and political intervention in water policy. Finally, the author provides his personal prescription for federal water policy. However, I disagree with his summary that "Reading through so much history, hydrology, technology, economics, and political science may seem a high price to pay for such mundane conclusions." But, he reminds us, serious analysts need a strong foundation, and "in a democracy no government policy is easy to explain or predict"! Thus, a textbook approach to the disciplines involved in federal water issues is broken up with refreshing insights and tidbits, including the origins of the term "pork barrel legislation."

In the author's opinion, the federal water bureaucracy needs to be downsized and streamlined, and he provides specific examples of how this might be done. He feels the basic emphasis needs to be on water management rather than water development, now that most of the necessary large projects have been completed. A market orientation to water pricing would alleviate shortages, he feels, although some regulation will almost always be necessary due to inherent externality problems and economies of scale.

The significant trend toward environmental protection as it affects water policy is discussed. He feels education of the public is needed in order to address unrealistically high expectations in terms of water quality, environmental protection, and water costs. Potential hazards need to be prioritized, "rather than pursuing hundreds of minor or even nonexistent hazards with scarce funds." For example, the costs of meeting the requirements of the two most recent federal laws dealing with water quality and drinking water standards is projected to cost \$167 billion between 1993 and 2000. However, his agenda of specific issues that still need federal attention include groundwater protection, nonpoint source pollution, and maintenance of in-stream flows for ecological reasons.

In the history chapter, Rogers reviews water policy under different administrations. Nixon was "surprisingly forward-looking," with the establishment of the Environmental Protection Agency and the 1972 Clean Water Act among his achievements. Carter advocated a stronger role for the states (as does the author), a policy which was extended under Reagan to include cost sharing and price reform. Bush as the self-proclaimed environmental president had a dismal record, with his response to the 1989 Alaskan oil spill and his defeat of wetlands protection by narrowing their definition. Quayle's euphemistic Competitiveness Council added to this record. The author feels Clinton has made an "auspicious start."

The author provides an excellent brief course on economics as applied to water issues, including resource and welfare economics. Whole semester courses are distilled to their essences in layman's terms, such as his presentation of the Coase theorem and the concept of marginal value being described as "if something is worth

doing, it's not worth doing well!" An excellent literature review describing the classical economic theory underlying benefit-cost analysis is presented, followed by a succinct debunking of this approach. He favors the neoclassical economics framework, rather than other theoretical underpinnings including natural resource policies based on property rights, scarcity, or an ecological approach. He feels the latter is "pieced together with a not altogether scientifically defensible idea of nature's balance...overlaid with a strong Protestant ethic of good stewardship...this is a powerful combination that allows for science worship, moral indignation, and venting otherwise disembodied frustrations!"

Overall, this book provides excellent grounding in issues and disciplines involved in water issues. The author presents his own insightful views of solutions to current failures and problems with federal water policy. In addition, several useful and informative appendices are provided, including a chronology of federal water policy, a history of nonfederal water policy, and listings of federal institutions and Congressional committees involved in water policy. The book educates the reader concerning the broad issues underlying water policy in a succinct, intelligent fashion. In addition, it is an excellent reference book on water legislation and federal agency involvement.—*Kathleen Painter is a Postdoctoral Research Associate in the Department of Agricultural Economics, Washington State University, Pullman.*

General

Tips and Tricks in Outdoor Education: Approaches to Providing Children with Educational Experiences in the Outdoors, Fifth Edition. Edited by Malcolm D. Swan. 260 pp., 1994. Interstate Publishers, Inc., P.O. Box 50,

Danville, IL 61834-0050; telephone (800) 843-4774. \$22.95 softbound.

Power Surge: Guide to the Coming Energy Revolution. By Christopher Flavin and Nicholas Lenssen. 380 pp., 1994. Worldwatch Institute, 1776 Massachusetts Ave., NW, Washington, DC 20036-1904 USA; telephone (202) 452-1999. \$10.95 softbound.

Environmental Health Hazards: Recognition and Avoidance. By Donald E. Waite. 596 pp. 1994. Environmental Health Consultants, 933 South High Street, Columbus, Ohio 43206 USA. \$21.95 hardbound.

Kirk-Othmer Encyclopedia of Chemical Technology, Volume 12, Fourth Edition: Fuel Resources to Heat Stabilizers. Jacqueline I. Kroschwitz, executive editor, and Mary How-Grant, editor. 1,091 pp., 1994. John Wiley and Sons, Inc., 605 Third Avenue, New York, NY 10158 USA; telephone (212) 850-6336. \$295 hardbound.

Institutional Mechanisms Supporting Trade in Genetic Materials: Issues Under the Biodiversity Convention and GATT/TRIPs. By William Lesser. 72 pp., 1994. United Nations Environment Programme. Order from Environment and Trade, UNEP, 15, chemin des Anemones, CH-1219 Châtelaine, Geneva, Switzerland, Softbound.

The Biological and Environmental Chemistry of Chromium. By Sidney A. Katz and Harry Salem. 220 pp., 1994. VCH Publishers, Inc., 220 East 23rd Street, New York, NY 10010 USA; telephone (212) 683-8333. \$125 hardbound.

Environment Abstracts. Service provides access to more than 800 English-language scientific journals published in the United States and abroad; updated monthly. Congressional Information Services, 4520 East-West Highway, Bethesda, MD 20814-3389 USA. Available in

print, CD-ROM, magnetic tape, and microfiche. Prices range from approximately \$500-\$9,000.

People and the Environment: Resource Consumption, Population Growth, Women—World Resources 1994-1995: A Guide to the Global Environment. Prepared by the World Resources Institute. 400 pp., 1994. Oxford University Press, 200 Madison Avenue, New York, NY 10016. \$21.95 softbound.

Agriculture

Agricultural Ethics: Issues for the 21st Century. Edited by Peter G. Hartel, Kathryn Paxton George, and James Vorst. 70 pp., 1994. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. Order from ASA, CSSA, SSSA Headquarters Office, Book Order Department, 677 South Segoe Road, Madison, WI 53711-1086 USA. \$21 softcover.

The Future Use of Conservation Reserve Program Acres: A National Survey of Farm Owners and Operators. Prepared by C. Tim Osborn, Max Schnepf, and Russ Keim. 47 pp., 1994. Soil and Water Conservation Society, 7515 NE Ankeny Road, Ankeny, IA 50021; phone 1-800-THE-SOIL. \$19.50 softbound.

Fish and Wildlife

The Impacts of Climate on Fisheries. By Michael H. Glantz. 36 pp., 1994. United Nations Environmental Program (UNEP Environment Library No. 13), P.O. Box 30552, Nairobi, Kenya. Softbound.

Law, Legislation, and Politics

State Groundwater Regulation: Guide to Laws, Standards, and Risk Assessment. By Sally Benjamin and David Belluck. 654 pp., 1994. The Bureau of National Affairs, Inc. Order from BNA Books, P.O. Box 6036, Rockville, MD 20850-9914 USA; telephone (800) 372-1033. \$105.

Pesticides

New Directions in Pesticide Research, Development, Management, and Policy—Proceedings of the Fourth National Pesticide Conference. 850 pp., 1994. Publication Services, Virginia Water Resources Research Center, 617 N. Main Street, Blacksburg, VA 24060-3397; telephone (703) 231-8036. \$45 softbound.

Planning

The Transportation/Land Use Connection. By Terry Moore and Paul Thorsnes. 140 pp., 1994. APA Planning Advisory Service

Report No. 448/449. Order from APA Planners Press, 1313 E. 60th Street, Chicago, IL 60637; telephone (312) 955-9100. \$50 softbound.

Visions for a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities, 2nd Edition. By Anton C. Nelessen. 374 pp., 1994. APA Planners Press, 1313 E. 60th Street, Chicago, IL 60637; telephone (312) 955-9100. \$50 softbound.

A Better Place to Live: Reshaping the American Suburb. By Philip Langdon. 296 pp., 1994. University of Massachusetts Press, P.O. Box 429, Amherst, MA 01004 USA; telephone (413) 545-2219. \$29.95 hardbound.

Rangeland

Variability in Rangeland Water Erosion Processes. Edited by W.H. Blackburn, F.B. Pierson, G.E. Schuman, and R. Zartman. 106 pp., 1994. Soil Science Society of America, Book Order Department, 677 South Segoe Road, Madison, WI 53711-1086 USA. \$24 softbound.

Soils

Environmental Soil Science. By Kim H. Tan. 304 pp., 1994. Marcel Dekker, Inc., 270 Madison Avenue, New York, NY

10016 USA; telephone (212) 696-9000. \$65 Hardbound.

Waste Management

Waste Containment Systems, Waste Stabilization, and Landfills: Design and Evaluation. By Hari D. Sharma and Sangeeta P. Lewis. 588 pp., 1994. John Wiley and Sons, Inc., 605 Third Avenue, New York, NY 10158 USA; telephone (212) 850-6336. \$74.95 hardbound.

Water Resources

International Waters of the Middle East: From Euphrates to Nile. Edited by Asit K. Biswas. 221 pp., 1994. Oxford University Press, 200 Madison Avenue, New York, NY 10016 USA. \$19.95 hardbound.

Global Water Resource Issues. By Gordon J. Young, James C.I. Dooge, and John C. Rodda. 194 pp., 1994. Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211 USA. \$44.95 hardbound.

Hydrology and Water Supply for Pond Aquaculture. By Kyung H. Yoo and Claude E. Boyd. 483 pp., 1994. Routledge, Chapman Hall, 29 West 35 Street, New York, NY 10001 USA. \$82.50 Hardbound.

The Pollution of Lakes and Reservoirs (UNEP Environment Library No. 12). By the Interna-

tional Lake Environment Committee Foundation and Robin Clarke. 35 pp., 1994. United Nations Environment Programme, P.O. Box 30522, Nairobi, Kenya. Softbound.

Water Policy and Water Markets: Selected Papers and Proceedings from the World Bank's Ninth Annual Irrigation and Drainage Seminar, Annapolis, Maryland, December 8-10, 1992. Edited by Guy Le Moigne, K. William Easter, Walter J. Ochs, and Sandra Giltner. 115 pp., 1994. The World Bank, Washington, D.C. Order from World Bank Publications, P.O. Box 7247-8619, Philadelphia, PA 19170-8619 USA. \$8.95 softbound.

Drainage Principles and Applications, 2nd Revised Edition. 1,200 pp., 1993. International Institute for Land Reclamation and Improvement, P.O. Box 45, 6700 AA Wageningen, The Netherlands. Dfl. 175, U.S. \$100.

Wetlands

Effects of Section 404 Permits on Wetlands in North Dakota. U.S. Department of Interior, National Biological Survey. 16 pp., 1994. Order from Publications Unit, National Biological Survey, 1849 C. Street, N.W., Mail Stop 130, Webb Bldg., Washington, DC 20240 USA; telephone (800) 553-6847. No price given, softbound.

Ecology and Management of Invasive Riverside Plants. Edited by Louise C. de Waal, Lois E. Child, P. Max Wade, and John H. Brock. 217 pp., 1994. John Wiley and Sons, Inc., 605 Third Avenue, New York, NY 10158 USA; telephone (212) 850-6336. \$95 hardbound.

Farmer Perspectives on the Wetlands Reserve Program: A Series of Focus Groups. Prepared by Max Schnepf. 58 pp., 1994. Soil and Water Conservation Society, 7515 NE Ankeny Road, Ankeny, IA 50021; phone 1-800-THE-SOIL. \$19.95 softbound.