

## Table of Contents

### A SECTION

#### FEATURES

- 131A** **Drainage water management for water quality protection**  
Jeffrey S. Strock, Peter J.A. Kleinman, Kevin W. King, and Jorge A. Delgado

- 137A** **Variable source pollution: Turning science into action to manage and protect critical source areas in landscapes**  
Zeyuan Qiu

#### RESEARCH INTRODUCTION

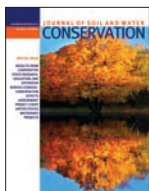
- 142A** **USDA water quality projects and the National Institute of Food and Agriculture Conservation Effects Assessment Project watershed studies**  
Deanna L. Osmond

#### STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION

**1. Publication Title:** Journal of Soil and Water Conservation. **2. Publication Number:** 0282-8800. **3. Filing Date:** September 30, 2010. **4. Issue Frequency:** Bimonthly (January/February, March/April, May/June, July/August, September/October, November/December). **5. Number of Issues Published Annually:** Six (6). **6. Annual Subscription Price:** \$95. **7. Complete Mailing Address of Known Office of Publication:** 945 SW Ankeny Rd., Ankeny, IA 50023-9764. **8. Complete Mailing Address of the Headquarters of General Business Offices of Publisher:** 945 SW Ankeny Rd., Ankeny, IA 50023-9764. **9. Full Names and Complete Addresses of Publisher, Editor, and Managing Editor:** Publisher: Soil and Water Conservation Society, 945 SW Ankeny Rd., Ankeny, IA 50023-9764. Editor: Oksana Gieseman, Soil and Water Conservation Society, 945 SW Ankeny Rd., Ankeny, IA 50023-9764. **10. Owner:** Soil and Water Conservation Society, 945 SW Ankeny Rd., Ankeny, IA 50023-9764. **11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities:** None. **12. Tax Status:** The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes has not changed during preceding 12 months. **13. Publication Title:** Journal of Soil and Water Conservation. **14. Issue Date for Circulation Data Below:** July/August 2010. **15. Extent and Nature of Circulation:**

	Average no. copies each issue during preceding 12 months	No. copies of single issue published nearest to filing date
A. Total No. Copies Printed (net press run)	4,294	4,152
B. Paid Circulation		
1. Mailed Outside-County Paid Subscriptions	3,883	3,736
2. Mailed In-County Paid Subscriptions	0	1
3. Paid Distribution Outside the Mailed Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS	411	415
4. Paid Distribution by Other Classes of Mail Through the USPS	0	0
C. Total Paid Distribution	4,294	4,152
D. Free or Nominal Rate Distribution	0	0
1. Outside-County	0	0
2. In-County	0	0
3. Other Classes Mailed Through USPS	0	0
E. Total Free or Nominal Rate Distribution	0	0
F. Total Distribution	4,294	4,152
G. Copies Not Distributed	0	0
H. Total	4,294	4,152
I. Percent Paid	100%	100%

**16. Publication of Statement of Ownership:** This publication is a general publication. Publication of this statement is required and will be printed in the November/December 2010 issue of this publication. **17. Signature and Title of Editor, Publisher, Business Manager, or Owner:** Oksana Gieseman, Editor, Soil and Water Conservation Society. I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).



**On the Cover**  
Beautiful yellow  
autumn landscape.  
Photo by Vlad61.



Printed on 100% post-consumer  
waste recycled paper with  
vegetable-based inks.

## RESEARCH SECTION

- 331 Long-term sediment loading trends in the Paradise Creek watershed**  
E.S. Brooks, J. Boll, A.J. Snyder, K.M. Ostrowski, S.L. Kane, J.D. Wulfhorst, L.W. Van Tassell, and R. Mahler
- 342 Targeting land-use change for nitrate-nitrogen load reductions in an agricultural watershed**  
M.K. Jha, K.E. Schilling, P.W. Gassman, and C.F. Wolter
- 353 Impacts of land-use change and best management practice implementation in a Conservation Effects Assessment Project watershed: Northwest Arkansas**  
M.W. Gitau, I. Chaubey, E. Gbur, J.H. Pennington, and B. Gorham
- 369 Impact of crop rotations on optimal selection of conservation practices for water quality protection**  
S.S. Rabotyagov, M.K. Jha, and T. Campbell
- 381 Conservation practice establishment in two northeast Iowa watersheds: Strategies, water quality implications, and lessons learned**  
P.W. Gassman, J.A. Tisl, E.A. Palas, C.L. Fields, T.M. Isenhardt, K.E. Schilling, C.F. Wolter, L.S. Seigley, and M.J. Helmers
- 393 Effects of long-term soil and crop management on soil hydraulic properties for claypan soils**  
A. Mudgal, S.H. Anderson, C. Baffaut, N.R. Kitchen, and E.J. Sadler
- 404 Determinants of the adoption of conservation practices by farmers in the Northwest Wheat and Range Region**  
N.S.P. Tosakana, L.W. Van Tassell, J.D. Wulfhorst, J. Boll, R. Mahler, E.S. Brooks, and S. Kane
- 413 Measuring conservation program best management practice implementation and maintenance at the watershed scale**  
D.B. Jackson-Smith, M. Halling, E. de la Hoz, J.P. McEvoy, and J.S. Horsburgh
- 424 Effectiveness of best management practices in improving water quality in a pasture-dominated watershed**  
I. Chaubey, L. Chiang, M.W. Gitau, and S. Mohamed
- 438 A multivariate analysis of covariance to determine the effects of near-stream best management practices on nitrogen and phosphorus concentrations on a dairy farm in the New York Conservation Effects Assessment Project watershed**  
F. Flores-López, Z.M. Easton, and T.S. Steenhuis
- 450 Unusually large loads in 2007 from the Maumee and Sandusky Rivers, tributaries to Lake Erie**  
R.P. Richards, D.B. Baker, J.P. Crumrine, and A.M. Stearns
- 463 Water quality effects of simulated conservation practice scenarios in the Little River Experimental watershed**  
J. Cho, G. Vellidis, D.D. Bosch, R. Lowrance, and T. Strickland

**EXECUTIVE DIRECTOR**

Jim Gulliford  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**EDITOR & DIRECTOR OF PUBLICATIONS**

Oksana Gieseman  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**RESEARCH EDITOR & CHAIR OF EDITORIAL BOARD**

Jorge A. Delgado  
Soil Plant Nutrient Research Unit  
USDA Agricultural Research Service  
Fort Collins, Colorado, USA

**EDITORIAL ASSISTANT**

Jacqueline Pohl  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**EDITORIAL BOARD**

Mahdi M. Al-Kaisi  
Department of Agronomy  
Iowa State University  
Ames, Iowa, USA

Francisco Arriaga  
National Soil Dynamics Laboratory  
USDA Agricultural Research Service  
Auburn, Alabama, USA

Meni Ben-Hur  
Institute of Soil, Water and Environmental Sciences  
Agricultural Research Organization, Volcani Center  
Bet-Dagan, Israel

Lorenzo Borselli  
Research Institute for Geo-Hydrological Protection and  
National Research Council  
Florence, Italy

Darrell J. Bosch  
Department of Agricultural and Applied Economics  
Virginia Polytechnic Institute and State University  
Blacksburg, Virginia, USA

Warren J. Busscher  
Coastal Plains Soil, Water, and Plant Research Center  
USDA Agricultural Research Service  
Florence, South Carolina, USA

Grant E. Cardon  
Extension  
Utah State University  
Logan, Utah, USA

Adrian Chappell  
Digital Soil Mapping Team  
Commonwealth Science & Industry Research Organisation  
Canberra, Australia

Zhibao Dong  
Key Laboratory of Desert and Desertification  
Chinese Academy of Sciences  
Lanzhou, Gansu Province, China

Moustafa A. Elrashidi  
National Soil Survey Center  
USDA Natural Resources Conservation Service  
Lincoln, Nebraska, USA

LeRoy Hansen  
USDA Economic Research Service  
Washington, DC, USA

Chunsheng Hu  
Center for Agricultural Resources Research  
Shijiazhuang, Hebei, China

Peter J.A. Kleinman  
Pasture Systems & Watershed Management Research Unit  
USDA Agricultural Research Service  
University Park, Pennsylvania, USA

Raúl S. Lavado  
College of Agronomy  
University of Buenos Aires  
Buenos Aires, Argentina

Birl Lowery  
Department of Soil Science  
University of Wisconsin—Madison  
Madison, Wisconsin, USA

Loretta M. Lynch  
Department of Agricultural and Resource Economics  
University of Maryland  
College Park, Maryland, USA

Maurice J. Mausbach  
Soil Survey and Resource Assessment  
USDA Natural Resources Conservation Service  
Fort Collins, Colorado, USA

Machito Mihara  
Faculty of Regional Environmental Science  
Tokyo University of Agriculture  
Tokyo, Japan

Tom Mueller  
Department of Plant and Soil Sciences  
University of Kentucky  
Lexington, Kentucky, USA

Thanos Papanicolaou  
Department of Civil and Environmental Engineering  
The University of Iowa  
Iowa City, Iowa, USA

Kenneth N. Potter  
Grassland Soil and Water Research Laboratory  
USDA Agricultural Research Service  
Temple, Texas, USA

Felix Kolawole Salako  
Department of Soil Science and Land Management  
University of Agriculture  
Abeokuta, Nigeria

M.S. Srinivasan  
National Institute of Water and Atmospheric Research Ltd.  
Christchurch, New Zealand

Peter Strauss  
Institute for Land and Water Management Research  
Federal Agency for Water Management  
Pöchlarn, Austria

Mary E. Stromberger  
Department of Soil and Crop Sciences  
Colorado State University  
Fort Collins, Colorado, USA

R. Scott Van Pelt  
Wind Erosion and Water Conservation Research Unit  
USDA Agricultural Research Service  
Big Spring, Texas, USA

Anita Veihe  
Department of Environmental, Social and Spatial Change  
University of Roskilde  
Roskilde, Denmark

John Westra  
Department of Agricultural Economics and Agribusiness  
Louisiana State University  
Baton Rouge, Louisiana, USA

John D. Williams  
Columbia Plateau Conservation Research Center  
USDA Agricultural Research Service  
Pendleton, Oregon, USA

Wanhong Yang  
Department of Geography  
University of Guelph  
Guelph, Ontario, Canada

**BOARD OF DIRECTORS**

William W. Boyer, President & Northeastern Director  
Gary Steinhardt, Vice President & East North Central Director  
Clark Gantzer, Secretary & At-Large Director  
Dan Towery, Treasurer & At-Large Director  
Mark Berkland, Southeastern Director  
Peggie James, West North Central Director  
Danny Hughes, South Central Director  
Rich Kann, Student Director  
Melinda L. McClanahan, At-Large Director  
Anita Nein, Northern Plains Director  
Marsha L. Paley, Canada Director  
Jerry Pearce, Southwestern Director  
Don Wysocki, Western Director

The *Journal of Soil and Water Conservation* (print ISSN 0022-4561, online ISSN 1941-3300) is published bimonthly by the Soil and Water Conservation Society. © 2010 by the Soil and Water Conservation Society. All rights reserved.

For subscriptions or membership, please visit [www.swcs.org](http://www.swcs.org) or call 800-THE-SOIL. POSTMASTER: Send address changes to *Journal of Soil and Water Conservation*, 945 SW Ankeny Road, Ankeny, IA 50023 USA. Periodicals postage paid at Ankeny, IA, and additional mailing offices.

Submit comments, contributions, advertising queries, and requests for reprints and permissions to the editor at [pubs@swcs.org](mailto:pubs@swcs.org). Articles in the Research Section have undergone peer review. The Soil and Water Conservation Society assumes no responsibility for statements and opinions expressed by contributors.

**Soil and Water  
Conservation Society  
Corporate Membership**

**GOLD CORPORATE MEMBERS**

Agren Inc.  
[www.agren-inc.com](http://www.agren-inc.com)

Agri Drain Corporation  
[www.agridrain.com](http://www.agridrain.com)

**SILVER CORPORATE MEMBERS**

The Nature Conservancy  
[www.nature.org](http://www.nature.org)

**BRONZE CORPORATE MEMBERS**

Ag Business Consultants  
[www.van8.com](http://www.van8.com)

Agricultural Engineering Services PLLC  
[www.aes-office.com](http://www.aes-office.com)

Casey's General Store Inc.  
[www.caseys.com](http://www.caseys.com)

Conservation Technology  
Information Center  
[www.ctic.org](http://www.ctic.org)

EnSave Inc.  
[www.ensave.com](http://www.ensave.com)

Forrest Keeling Nursery  
[www.fknursery.com](http://www.fknursery.com)

Logiag Inc.  
[www.farmnutriadvisor.com](http://www.farmnutriadvisor.com)

Propane Education and Research Council  
[www.propanecouncil.org](http://www.propanecouncil.org)

Stock Seed Farms  
[www.stockseed.com](http://www.stockseed.com)

Thomas Carpenter, CPESC  
[www.scourstop.com](http://www.scourstop.com)

Validus Services LLC  
[www.validuservices.com](http://www.validuservices.com)

White River Irrigation District  
[www.whiteriverirrigation.com](http://www.whiteriverirrigation.com)

For information on becoming a  
corporate member, please contact

**Sue Ann Lynes**  
515-289-2331 ext. 112  
[sueann.lynes@swcs.org](mailto:sueann.lynes@swcs.org)