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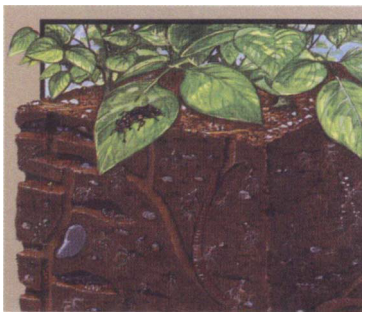
FEATURES



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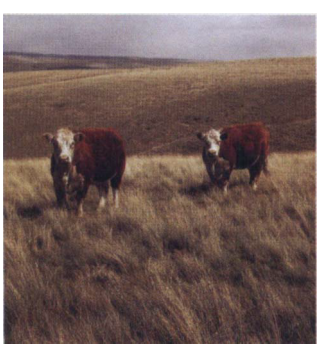

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DEPARTMENTS

Cover montage by Joann Schissel

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.

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PEN POINTS

To the editor:

The commentary "Reassessing Population Policy" by Brown and Kane [*JSWC*, 50 (2)] points out the fact that the human population of this planet will approximately double within the next 40 to 60 years or so. They continue in this article to point out some of the problems and conflicts that will result. One of their conclusions is an endorsement of policies to enhance literacy, especially among women, in developing nations as a means to control future population expansion. I would like to add another endorsement to address the problems they identify—enhanced research efforts world-wide to increase agricultural production without degrading the environment.

The effects of enhanced literacy will not be obvious for several decades, but in the meantime an increasing number of humans must be fed. This population growth means that we essentially need to double production per acre within the next 40 to 50 years. Presently, especially in developing nations, we see present population pressures resulting in degradation of our soil and water resources. How much more rapidly will this occur in the future as population increases? One major cause for this degradation is the fact that often most crop residues are removed from fields and used as forage and fuel. We have many examples of this and other practices resulting in catastrophic soil erosion and loss of productivity.

Problems such as these can be solved only through enhanced research and education on improved production methods. However, at the present time, we see a world-wide retrenchment of funds available for research to improve production while controlling resource degradation. Not only are funds for such research being reduced in the United States, but also international organizations such as USAID, World Bank, FAO, and others are reducing their efforts.

If we fail to increase our research efforts to address the production problems associated with an expanding population, and we continue to lose resources at the present rate, many of the dire predictions of Brown and Kane and others concerning quality of life for our children and grandchildren will indeed come true. We can give up and accept such a fate, or we as a society can work to solve this problem. What are our priorities?

J.F. Power,
Lincoln, Nebraska

Pen Points is a forum for readers to comment on material that has been published in the JSWC *or on land and water management issues in general. Readers are invited to express their views in a letter to the editor. Letters are judged on their clarity and pertinence to natural resource issues. Long letters may be shortened. Send letters to Editor,* JSWC, *7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764; fax (515) 289-1227—Editor.*

To the editor:

I am in a state of shock and disbelief after reading the part of *From the Chief—An interview with Paul Johnson* [*JSWC* 49(6)] where he was asked "What are the priorities for your agency for the rest of this decade?" His reply included the following: First, resource inventory and assessment; second, continue strengths in soil science; third, biological restorative work; and fourth, mind you, his fourth and last on the priority list was delivery system.

For heaven's sake, the first and foremost priority of the Natural Resources Conservation Service should be strengthening the delivery system, not the last priority. NRCS has an outstanding delivery system concept of working through locally governed soil and water conservation districts. This delivery system is the envy of many federal, state, and local government agencies. However, at present, the system is strained to the limit because of office closings, retirement, buy outs, personnel ceilings, hiring freezes, and so on. If NRCS is to continue to carry out its mission and purpose, then it seems to me the chief and all the top staff had better concentrate on strengthening the delivery system. Some proposed NRCS reorganization changes being circulated are, in my opinion, wrong, wrong, wrong. Or maybe those in charge of the agency merely want it to perform mainly resource inventory and assessments and not to provide onsite technical assistance to land owners and operators with the conservation and wise use of soil, water, air, and plant and animal resources.

Sincerely yours,
Don F. Newman
Fort Worth, Texas

To the editor

Following is a brief criticism of *Holistic resource management: An approach to sustainable agriculture on Montana's Great Plains* by Sindelar, Montagne, and Kroos [*JSWC* 50(1)].

Like all holistic writings this commentary repeats their familiar dogma and is lacking in substance. "Fog count" is exacerbated by sentences of more than 70 words long. The authors suggest "growing legumes for hay production." Just what legumes would flourish in an arid land; and how would they replace fallowing to produce a subsidized grain crop? Without continuing subsidies dry land grain farming may fail. A viable solution would be aggregating the small holdings into vast grazing units. These units could be either public or private holdings.

William S. Brenneman
Laramie, Wyoming

To the editor

You Qun Li and Liu Ai-Ping ask [*JSWC* Pen Points 50(1)] "is soil and water conservation a sustainable mission?" As long as six billion humans have the natural hydrocarbon feedstocks to artificially fixate nitrogen from the atmosphere, little else but soil and water conservation is needed to assure adequate

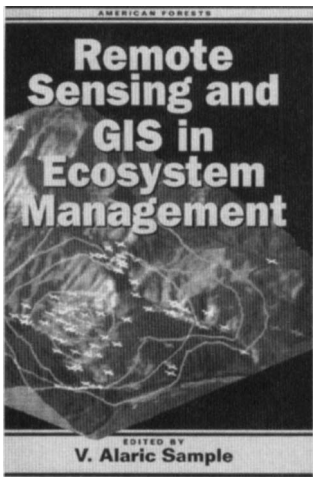
crops. Chemical farming has demonstrated that crops can be grown without organic matter and even without soil, if we can live with the resulting nitrogen eutrophication of our groundwater, estuaries, and seafood sources.

But when 10 billion 21st century souls face the increased demand for and rising cost of the depleting reserves of natural gas to fuel the Haber Catalytic Ammonia Synthesis process, then there will be a reckoning. Then, a century of destroying our soil's organic matter with all its nutrients, soil building invertebrates, and biota will come back to haunt humanity. Without nitrogen, nothing will be grown.

Prior to the implementation of the Haber method, near the beginning of this century, available plant nutrients could barely sustain one billion humans. Chilean sodium nitrate deposits staved off starvation throughout the western world at that time. Now we are totally addicted to 80 million tons (20 million in China) of ammonia fertilizer annually provided by this "bread from the sky" technology. The fossil-fuel-derived energy required to attain the high temperatures and pressures of the process is enormous. The explosion of a seven story high plant and the loss of life in Iowa in December 1994 was a terrible tragedy and demonstrated this high energy requirement.

U.S. natural gas reserves in 1992 will last 8.17 years at our 1993 rate of consumption using current recovery methods according to U.S. Department of Energy data. Early on in the 21st century we will come to understand that the true definition of sustainable agriculture is when each generation leaves the soil with more organic matter in it than the last generation. We can no longer "conserve" our soil. We must restore and replenish it with all available properly processed human and organic residuals. We must get started on alternatives now.

Sincerely,
Jeremy F. Criss
Sykesville, Maryland



Remote Sensing and GIS in Ecosystem Management. By V. Alaric Sample. 400 pp., 1994. Island Press, Washington, DC 20009. $49.95 hardbound, $29.95 softbound.

Remote Sensing and GIS in Ecosystem Management examines late successional forest ecosystem management at the landscape scale and the role remote sensing and geographic information systems (GIS) continue to play in supporting the data and information needs of decision makers in this arena. It is intended for resource managers, program administrators, and legislators who are confronted with complex, often confusing visual displays of data derived from remote sensing and GIS technology. The book is the result of a workshop held to examine issues related to emerging ecosystem management policies of the federal government, and recent advances in the use of remote sensing and GIS for characterizing ecosystem-level processes and for providing a mechanism for enhanced public participation in decision-making.

The book is organized into four parts. Part I focuses on articulating information needs and current challenges related to the effective application of remote sensing and GIS to the sustainable management of forest ecosystems. Part II focuses on case studies from four forested regions of the United States (Northwest, Southwest, Southern Appalachians, and the Lake States) that represent contrasting ecosystem-level processes, socio-economic conditions, and resource management objectives, and where application of remote sensing and GIS has provided pragmatic evaluations of these technologies for meeting the information needs of resource managers. Part III focuses on advanced remote sensing and spatial information technologies, models, communication networks, and defense-based systems that hold promise for advancing our understanding of environmental systems at multiple scales of observation and measurement. Part IV synthesizes the experiences of chapter authors with remote sensing and GIS and the role these technologies can play in advancing the goals of ecosystem management at the landscape scale, and for involving the public in management planning and decision making.

The book is well-organized and quite effective in reaching its audience. It includes focused, well-written, and reviewed papers, each with relevant summaries of the contemporary literature in their fields of study. The authors have taken care to provide a balanced view of the practical considerations and experiences of resource managers and forest ecosystem specialists with respect to the integration of remote sensing and GIS for meeting management information needs. The strength of the book lies in the presentation of both reviews and case studies by practitioners and specialists in resource management and decision-making at landscape scale. The book also provides honest assessments of ecosystem management as currently perceived and practiced on public lands and the advantages and limitations of remote sensing and GIS. It includes a focused perspective of where improvements are needed in management policy and the modeling of forested ecosystems and in the development and application of spatial information technologies.

Recurring themes in the book relate to the uncertainty and lack of experience in managing forest ecosystems at landscape scale. Many authors warn of potential misuse and abuse of remote sensing and GIS that may result from this uncertainty and inability to effectively communicate spatial data and information needs to remote sensing and GIS specialists; and, conversely, the inability of these specialists to understand the goals of ecosystem management and information needs of decision makers. This becomes somewhat repetitious to the informed reader, but should be enlightening to others to see the consistency with which ecosystem management views and experiences with remote sensing and GIS are expressed by administrators, practitioners, and scientists in the different forested regions of the United States.

Many authors express personal experiences with the well-worn information technology adage of 'garbage in-garbage out' which I feel has unfortunately become 'garbage in-gospel out' given the high 'glitter' factor of these technologies as perceived by the uninformed, the uncertainty of information requirements and dearth of spatial data for characterizing forest ecosystems, and the weakness of quality control measures that can be used at landscape scale.

The selection of chapter authors may cause concern for some in that most are with the federal government or research/academic institutions, with few authors from the private and non-governmental sectors. The book would have been strengthened by a greater diversity of authors—articulating the role of the private sector and public-private partnerships in advancing both landscape-scale management objectives and improvements in the integration of remote sensing and GIS in the management process. Another area of concern with the book is the blurring of distinctions between remote sensing and GIS by non-specialists in these fields of study. Though we can all agree that their integration provides the greatest benefit to society, we must not lose sight of the fact that the development and use of these technologies are governed by distinct sets of processes and principles.

In summary, *Remote Sensing and GIS in Ecosystem Management* accomplishes its goal of providing background information on the complexities of forest ecosystem management and the role remote sensing and GIS play in this process. The book represents an important contribution to the literature on the integration of ecosystem management, spatial information technologies, and public participation in decision making. I highly recommend this book, and strongly encourage its placement on required reading lists for students, practitioners, and policy makers involved in understanding and managing these ecosystems.

—Review by Stephen D. DeGloria, associate professor and GIS program leader, Cornell University, Ithaca, NY.

Mountains and Plains, The Ecology of Wyoming Landscapes. By Dennis H. Knight. 347 pp., 1995. Yale University Press, New Haven, CT 06520. $40 hardbound.

Dennis Knight's *Mountains and Plains, The Ecology of Wyoming Landscapes* is a fair and unbiased look at landscape history, geology, soils, climate, and various landscape modifications made by people. Knight successfully presents the often conflicting opinions of land users, conservationists, and preservationists.

The book covers not only Wyoming, but also its six sur-

rounding states and presents in-depth discussions of riparian ecosystems, grasslands, sagebrush steppes (do you know about "mima-mounds"?), desert shrublands, foot hills, mountain forests and meadows, and upper tree line and alpine tundra. Thoroughly explored are modifications of ecosystems by fire, insects, disease, exotics, and modern human intervention. Three chapters are devoted to the Yellowstone plateau, Jackson Hole-Tetons, and Black Hills ecosystems. The last chapter examines land use (i.e. water development, multiple use of public land, and ecosystem management). The books also includes appendices on scientific/common names, references, and a complete glossary.

Mountains and Plains, The Ecology of Wyoming Landscapes displays Knight's tremendous knowledge of ecology, which is backed up with complete references from other authorities. Easily understood, it should be read by ecologists, land managers, and of course, lay people.

—Review by William S. Brenneman, retired forester and life member of the Soil and Water Conservation Society.

General

Negotiating Climate Change: The Inside Story of the Rio Convention. Irving M. Mintzer and J. Amber Leonard, editors. 392 pp., 1994. Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211. $59.95 hardback, $22.95 paperback.

Let the People Judge: Wise Use and the Private Property Rights Movement. John Echeverria and Raymond Booth Eby, editors. 300 pp., 1995. Island Press, Box 7, Dept. 2PR, Covelo, CA 95428; 800-828-1302. $49.95 hardcover, $27.50 paperback.

Losing Ground: American Environmentalism at the Close of the Twentieth Century. By Mark Dowie. 281 pp., 1995. The MIT Press, 55 Hayward Street, Cambridge, MA 02142. $25 cloth.

Where the Sky Began: Land of the Tallgrass Prairie, Revised Edition. By John Madson. 340 pp., 1995. Originally published in 1982 by Houghton Mifflin Company. Rereleased by Iowa State University Press, 2121 S. State Avenue, Ames, IA 50014-8300; phone 800-862-6657. $24.95 hardcover.

International Erosion Control Association 1995-1996 Products and Services Directory. 400 company profiles, 1,000 individual listings, 94pp. IECA, P.O. Box 4904, Steamboat Springs, CO 80477; 800-455-4322. $15 for IECA members, $19 for nonmembers.

The State of the World 1995. By Lester Brown, et al. 248 pp., 1995. The WorldWatch Institute, 1776 Massachusetts Avenue NW, Washington, D.C. 20036-1904. $11.95.

Slope Stabilization and Erosion Control: A Bioengineering Approach. R.P.C. Morgan and R.J. Rickson, editors. 274 pp., 1995. E&FN Spon (an imprint of Chapman & Hall) 2-6 Boundary Row, London SE1 8HN.

Global Change Biology. A new bimonthly, international journal (ISSN 1354-1013). Published by Blackwell Scientific Publications. For more information contact Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, UK.

Agriculture

Sustainable Agriculture in the American Midwest: Lessons from the Past, Prospects for the Future. Gregory McIssaac and William R. Edwards, editors. 291 pp., 1995. The University of Illinois Press, 1325 South Oak Street, Champaign, IL 61820. $32.95 cloth.

Agricultural Resources and Environmental Indicators (AH-705). U.S. Department of Agriculture, Economic Research Service, Natural Resources and Environment Division. 205 pp., 1994. To order, contact: ERS-NASS, 341 Victory Drive, Herndon, VA 22070; phone 800-999-6779. $18 for U.S. addresses, $22.50 for non-U.S. addresses.

Forests

Report on forest health assessment for the Northeast and Midwest. Prepared by the USDA Forest Service. 1995. For a copy of the report contact Andy Gillespie or Bill Burkman, USDA Forest Service, Northern Forest Health Monitoring, 5 Radnor Corp. Ctr., Ste. 200, P.O. Box 6775, Radnor, PA 19087-8775.

Applications of Biotechnology to Tree Culture, Protection, and Utilization. Proceedings of papers presented at the second international symposium. General Technical Report NC-175. Charles H. Michler, Michael R. Becwar, Daniel Cullen, Warren L. Nance, Ronald R. Sederoff, and James M. Slavicek, editors. 203 pp., 1994. USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108.

Pollution

Plutonium and the Rio Grande: Environmental Change and Contamination in the Nuclear Age. By William L. Graf. 329 pp., 1994. Oxford University Press, 200 Madison Avenue, New York, NY 10016. $49 cloth.

Nitrogen Fertilizer in the Environment. Peter Edward Bacon, editor. 608 pp., 1995. marcel dekker, inc., 270 Madison Avenue, New York, NY 10016; phone 212-696-9000. $185 hardbound.

Soils

Conserving Soil Resources: European Perspectives. R.J. Rickson, editor. 425 pp., 1995. Published by CAB International. Distributed in the U.S. by The University of Arizona Press, 1230 N. Park Avenue, Suite 102, Tucson, AZ 85719. $85 cloth.

Soil Water and Soils at Soil Water Sites, Jornada Experiment Range. By C.H. Herbel, L.H. Gile, E.L. Fredrickson, and R.P. Gibbens. In: L.H. Gile and R.J. Ahrens (editors) Supplement to the Desert Project Soil Monograph, Volume I. 592 pp., 1994. Order from R.J. Ahrens, National Soil Survey Center, 100 Centennial Mall North, Lincoln, NE 68508-3866. Softbound.

Edafologia para la agricultura y el medio ambiente. By J. Porta, M. Lopez-Acevedo, and C. Roquero. 807 pp., 1994. Ediciones Mundi-Prensa, Libros, s.a., Castello, 37 - 28001 Madrid SPAIN. Hardcover.

Soil Nutrient Bioavailability: A

Mechanistic Approach, Second Edition. By Stanley A. Barber. 414 pp., 1995. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158. $65 cloth.

Water Resources

Water Resources Management: In Search of an Environmental Ethic. By David Lewis Feldman. 247 pp., 1995. The Johns Hopkins University Press, 2715 N. Charles Street, Baltimore, MD 21218-4319. $16.95 paperback.

A Citizen's Streambank Restoration Handbook. By Karen Firehock. 111 pp., 1995. Izaak Walton League of America, 707 Conservation Lane, Gaithersburg, MD 20878-2983. $15.

Water: Our Next Crisis? Proceedings of the Fifth National Conference on Environmental Issues. Susan Durdu and Ruth Patrick, editors. 347 pp., 1995. Contact: Barry Lewis, The Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103-1195; phone 215-299-1108. $15 plus shipping and handling.

The Soil Conservation Service Responds to the 1993 Midwest Floods. By Steven Phillips. 167 pp., 1994. USDA—Soil Conservation Service's Economics and Social Sciences Division (since renamed the Resource Economics and Social Sciences Division of the Natural Resources Conservation Service. For information contact: Douglas Helms or Barbara Cook, Resource Economics and Social Sciences Division, NRCS, P.O. Box 2890, Washington, D.C. 20013.

1994 Field Demonstration of Best Management Practices to Protect Groundwater Quality. A mid-Nebraska water quality demonstration project. Prepared by the Natural Resources Conservation Service and the University of Nebraska Cooperative Extension. 83 pp., 1994. Contact: UNL South Central Research and Extension Center, P.O. Box 66, Clay Center, NE 68933-0066.

The Water Quality Incentives Program: The Unfulfilled Promise. By Elizabeth Mansager Higgins. 47 pp., 1995. Produced by the Sustainable Agriculture Coalition. To order, contact: WQIP Paper, Center for Rural Affairs, P.O. Box 406, Walthill, NE 68067. $7, paperback.

River of Promise, River of Peril: The Politics of Managing the Missouri River. By John E. Thorson. 282 pp., 1994. The University of Kansas Press, 2501 West 15th Street, Lawrence, KS 66049-3904. $29.95 cloth.