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To advance the science and art of good land use

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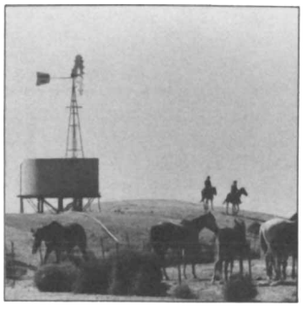

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Cover
Wheat, a universal symbol for food and fiber, brings to mind the task of protecting the soil resource base, thereby assuring an agricultural productivity sufficient to feed people in the decades ahead. See page 13. Photo by Jim Romo, Missoula, Montana.

The Soil Conservation Society of America is dedicated to promoting the science and art of good land use, with emphasis on conservation of soil, water, air, and related natural resources, including all forms of beneficial plant and animal life. To this end, SCSA seeks through the *Journal of Soil and Water Conservation* and other programs to educate people so that mankind can use and enjoy these natural resources forever.

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PEN POINTS

Misleading cover note

I feel strongly that the cover picture on the November-December 1980 number should have additional explanation. The implication that the area shown is part of the area devastated by the volcanic eruption is not the case.

The area shown is a logged area on which volcanic ash appears to have whitened the residue left after logging.

Mention should be made of the blossoming plants with the pink flowers, which belie the word "devastation." The flowers are undoubtedly fireweed, which naturally follows logging.

W. A. Rockie
Newberg, Oregon

You're right, Mr. Rockie. The photo was taken in the vicinity of Mount St Helens during reseeding operations, but the area pictured is not part of that devastated by the volcano's eruption.

In addition to the misleading cover note, we failed to mention that the photo was taken for the Soil Conservation Service by Photographer Tim McCabe.

Editor

More articles for farmers

I have been a member and subscriber for many years and have profited greatly by your publication.

However, I am a lawyer and have had considerable education in chemistry, physics, and mathematics. As a result, I can understand many of your articles, but some of my tenants have not been so fortunate in their education. Many of your articles and arguments "go over their heads." They are impressed by the written word but are unable to comprehend your explanations. I do my best to interpret your articles in their language but cannot just give them one of your issues and hope the ideas in it will be carried out.

For example, in your issue for July-August 1980...appear two fine articles, "Computing Soil Erosion by Periods Using Wind-Energy Distribution" on page 173 and "Costs of Alternative Policies for Controlling Agricultural Soil Loss and Associated Stream Sedimentation" on page 177. Both are over the heads of the average dirt farmer.

I am on the committee for soil erosion and sedimentation in Warren County, Illinois, and am deeply interested in the subject. Is it not possible to get articles understandable for the average dirt farmer who is naturally reluctant to change his methods and is only willing to do so when he understands the value and procedure of the new method?

Frederick H. Lauder
Monmouth, Illinois

Many factors affect loss of farmland

Protection of the nation's limited supply of prime farmland is sometimes given less serious attention than it deserves when we view only one or two of the many factors that indicate the potential future need for our highly productive cropland. There are at least 12 natural and man-made factors that contribute to the concern for conserving our limited supply of these lands.

These factors include:

1. Acid precipitation that is reducing productivity on some agricultural lands.
2. Surface mining industry that will inevitably reduce the area and productivity of agricultural land as it goes about the extraction of coal and other minerals.
3. Use of crops for fuel. The increasing popularity and demand for gasohol and similar mixtures as alternative fuels will increase the need for crop production.
4. Lower groundwater levels, particularly in the western plains, could cause land to go out of crop production and revert to grassland that can be sustained with the limited rainfall of that area.
5. Drought. Low rainfall and high temperatures during recent years have reduced production in major regions of the country. These cyclical weather patterns have been documented in the past and may be expected in the future.
6. Higher transportation costs, related to higher fuel costs, will encourage crop production as close as possible to the consuming market.
7. Spreading urbanization, with its accompanying facilities, airports, highways, and transmission lines, intrudes into our supply of farmland.
8. Soil erosion in many areas continues at a rate that inevitably will diminish our supply of productive farmland.
9. Higher cost fertilizer, insecticides, and irrigation power means higher cost agricultural products. This can only be counteracted by using our most productive land—that land that can produce food and fiber at least cost for the requisites of production and with least damage to the environment.
10. Reservoirs, needed to provide more dependable water supplies and flood control for urban and rural needs, will flood extensive areas of agricultural land.
11. New industrial crops to produce substitute materials for critical imports, such as rubber and waxes, could compete for available agricultural land.
12. Increasing export demand is predicted to help meet our international balance of trade and to feed the world's increasing population.

Other factors could be listed. These are some of the more obvious. The numbers of acres involved can also be quantified. However, debate over the preciseness of numbers only distracts us from the basic, undeniable fact that prime farmland is a limited valuable resource that should be conserved with great care.

There are other positive factors that will lead to greater productivity from the land—agricultural research will produce new strains of crops, improved tillage practices will reduce erosion and conserve moisture, biological controls will reduce dependence on pesticides. We can assume that technological progress will continue—but it is not prudent to assume that such progress will offset the many compounding factors at work on the negative side tending to reduce crop production and increase demand. Their cumulative effect will cause a crisis in the predictable future. Our children or grandchildren will certainly curse our stupidity if we do not act to protect our valuable resource, prime farmland.

Warren T. Zitzmann
Falls Church, Virginia

Conservationists' Pen Points" is a forum for comment on previously published material, land and water management controversies, and SCSA affairs. The JSWC invites readers to express their views on such items in a letter to the editor. Letters are judged on clarity of expression and pertinence. They should be brief. Long letters may be shortened.—Editor.

BOOKS, ETC.

New Roots for Agriculture. By Wes Jackson. 155 pp., refs., 1980. Friends of the Earth, San Francisco, Calif. 94105. $4.95.

In *New Roots for Agriculture*, Wes Jackson portrays soil erosion as the prime example of agriculture's failure to sustain itself. Moreover, soil erosion testifies to the unfulfilled mission of institutions and individuals to bring about significant conservation policies. Soil erosion, he contends, is symptomatic of the political unresponsiveness to agriculture's problems, which has resulted in policy shaped by short-run economics. Finally, according to Jackson, soil erosion symbolizes a spiritual failing in which human beings heedlessly exploit nature with their technology.

Jackson's objective in *New Roots* is to light the way to what he terms a sustainable agriculture. He begins dramatically, telescoping the earth's evolution into a few concise pages and borrowing a central metaphor for the earth's soil and water system: a placenta, "a tough elastic membrane which has given rise to many life forms and has watched the thousands of species for their first experiments at survival...."

The placenta is dying, Jackson contends, because human endeavor, chiefly through agriculture, has interfered with the process by which nature heals itself through plant succession. This tragedy lies behind the facade of agriculture's success story, which Jackson says has produced the paradox that each year less soil covers fields that increasingly support more production.

In unmasking the ostensible success of U.S. agriculture, Jackson covers the usual ground, the many problems now part of the public debate: soil losses, higher production costs, expensive energy, nonpoint pollution, lower water tables, salinization, etc. The brightness of Jackson's approach, though, is apparent in his fresh presentation of these dynamic facts, which he illustrates occasionally with anecdotes that often evoke pathos for the human beings entangled in agriculture's soil and water resource problems.

Another strength of *New Roots* is evident in Jackson's treatment of the history of conservation efforts. He pays some homage to the conservation establishment, the "selfless people and organizations dedicated to the principles and practices of conservation," but he believes that establishment is failing because it attempts to patch together an agricultural tradition "that is basically ruinous and consequently a tradition from which we must extricate ourselves."

The pivotal chapter 8 sows the seeds, so to speak, for new roots to agricultural production. A new approach, Jackson believes, must be underpinned with an intellectual, ethical, and spiritual commitment to a sustainable agriculture. He invokes past ethical and spiritual leaders, building his case on Aldo Leopold's observations about the failure of enlightened self-interest, to construct an effective foundation for conservation.

This is followed by a discussion of land use patterns, the political dimension of how the "good rural life has gone afoul." Land is the "birthright of the people," and people must be close to the land to be close to its ecological problems, Jackson contends. However, the reader gains little idea of how Jackson's proposed land use reform can be accomplished in the face of long tradition, vested interests, and even perhaps, as Jackson suggests, the influence on individuals of a kind of original sin.

New Roots parts from the mainstream of agricultural debate when the author defines the crucial element of his hope for shaping an ecological agriculture that is productive enough to feed the world. Jackson proposes a "bio-technical fix" involving the production of a polyculture of herbaceous perennials to replace monoculture annuals. He asks for a concerted effort to research the fundamental question of whether herbaceous perennialism and high yield are mutually exclusive. Such a system, in imitating natural ecosystems, Jackson thinks, could produce adequate yields while holding soil in place, renewing nutrients, and erasing the need for much tillage, weed control, and fertilizer.

Jackson believes it more than fantasy that high-yielding, seed-producing herbaceous perennials could be developed in the next 50 years. His survey of available literature and his own investigations reveal the promise of existing species. The weight of his hope, though, is based on precedents of new crop development and the fact that the required scientific principles and research capacity for future development are already in place.

In his concluding chapter, Jackson constructs a future scenario for an agriculture using "soft energy," a decentralized population, and crop production "based on the principles of nature." It is an appealing world he envisions, but how useful is this ideal?

New Roots intends to be no full-blown blueprint for social change, but more an exhortation. Many sections are inspiring in the tradition of eloquent conservation evangelists and imaginative agriculturalists. What Jackson adds to the tradition is a fresh interpretation of the facts and a provocative proposal—his "bio-technical fix."

Jackson's view of the future moves toward what some may perceive as a radical departure from reality. Yet the book should interest those who see the necessity for holistic thought in approaching land and water resource problems. Jackson quotes Lewis Mumford's description of the need for imaginative thinking in the 1940s. Perhaps one may use the same passage to set the context for Jackson's book: "This is one of those times when only the dreamers will turn out to be practical men."—*JOHN WALTER, Assistant Editor, SCSA.*

General

Environmental Impact Analysis: A New Dimension in Decision Making (second edition). By R. K. Jain, L. V. Urban, and G. S. Stacey. 416 pp., illus., 1980. Van Nostrand Reinhold, New York, N.Y. 10020. $27.50.

Federal-State Environmental Programs—The State Perspective. 95 pp., tbls., apps., 1980. CED-80-106. U.S. General Accounting Office, Washington, D.C. 20548.

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Global Resources: Perspectives and Alternatives. Edited by Clair N. McRostie. XIVth Nobel Conference. 112 pp., 1979. University Park Press, Baltimore, Md. 21202. $10.95.

World Environmental Directory (fourth edition). Edited by Beverly E. Gough. 1,088 pp., 1980. Ballinger Publishing Co., Cambridge, Mass. 02138. $67.50.

Environmental Biology for Engineers: A Guide to Environmental Assessment. By George Camougis. 214 pp., illus., 1980. McGraw-Hill Book Co., New York, N.Y. 10020. $19.95.

Soil and Water Conservation for Productivity and Environmental Protection. By

Frederick R. Troeh, J. Arthur Hobbs, and Roy L. Donahue. 718 pp., illus., refs., apps., index, 1980. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632. $24.95.

Life After '80: Environmental Choices We Can Live With. Edited by Kathleen Courrier. 280 pp., 1980. Brick House Publishing Co., Andover, Mass. 01810. $6.95.

Through the '80s: Thinking Globally, Acting Locally. Edited by Frank Feather. 431 pp., illus., 1980. World Future Society, Washington, D.C. 20014. $12.50.

Long-Range Environmental Outlook: Proceedings of a Workshop, November 14-16, 1979. 198 pp., illus., tbls., 1980. National Academy of Sciences, Washington, D.C. 20418. $10.50.

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America Grows on Trees...the Promise of Private Nonindustrial Woodlands. Prepared by the Private Woodlands Committee, National Forest Products Association. 62 pp., tbls., 1980. National Forest Products Association, Washington, D.C. 20036. $5.00.

The Supply and Energy Potential of Forest Resources in Northern Wisconsin and Michigan's Upper Peninsula. By Dennis P. Bradley, Eugene M. Carpenter, James A. Mattson, Jerold T. Hahn, and Sharon A. Winsauer. 21 pp., illus., tbls., bibliog., 1980. Res. Paper NC-182. North Central Forest Experiment Station, St. Paul, Minn. 55108.

Water

Review and Evaluation of Urban Flood Flow Frequency Procedures. By Walter J. Rawls, Virginia Stricker, and Ken Wilson. 63 pp., refs., app., 1980. Bibliog. and Lit. Agr. No. 9. Science and Education Administration, Beltsville, Md. 20705.

Rural Water Problems: An Overview. 37 pp., app., 1980. CED-80-120. U.S. General Accounting Office. Washington, D.C 20548.

Sourcebook of Hydrologic and Ecological Features: Water Resource Regions of the Coterminous United States. By R. M. Cushman, S. B. Gough, M. S. Moran, and R. B. Craig. 126 pp., tbls., 1980. Ann Arbor Science Publishers, Ann Arbor, Mich. 48106. $24.00.

Land Into Water—Water Into Land: A history of Water Management in Florida. By Nelson M. Blake. 344 pp., illus., index, 1980. The University Presses of Florida, Gainesville, 32603. $19.95.

Fish and Wildlife

Federal Aid in Fish and Wildlife Restoration, 1979. 83 pp., tbls., 1980. Wildlife Management Institute and Sport Fishing Institute, Washington, D.C. 20005.

An Annotated Bibliography on Planning and Management for Urban-Suburban Wildlife. By Daniel L. Leedy. 256 pp., refs., 1979. Urban Wildlife Research Center, Ellicott City, Md. 21043. $6.50.

Agriculture

Global Food Assessment, 1980. 119 pp., gloss., app., tbls., 1980. Foreign Agr. Econ. Rpt. No. 159. U.S. Department of Agriculture, Washington, D.C 20250.

U.S. Farm Numbers, Sizes, and Related Structural Dimensions: Projections to Year 2000. By William Lin, George Coffman, and J. B. Penn. 79 pp., illus., refs. apps., tbls., 1980. Tech. Bul. No. 1625. U.S. Department of Agriculture, Washington, D.C. 20250.

Soils

Applications of Soil Physics. By Daniel Hillel. 385 pp., illus., bibliog., index, 1980. Academic Press, New York, N.Y. 10003. $45.00.

Aircraft Remote Sensing of Soil Moisture and Hydrologic Parameters, Chickasha, Okla., and Riesel, Tex., 1978 Data Report. By T. J. Jackson, T. J. Schmugge, G. C. Coleman, C. Richardson, A. Chang, J. Wang, and E. T. Engman. 52 pp., illus., tbls., app., 1980. ARR-NE-8. Science and Education Administration-Agricultural Research, Beltsville, Md. 20705.

Soil Science Simplified. By Milo I. Harpstead, and Francis D. Hole. 121 pp., illus., 1980. Iowa State University Press, Ames, 50010. $7.75.

Energy

Toward a Solar Civilization. Edited by Robert H. Williams. 251 pp., illus., index, 1980. The MIT Press, Cambridge, Mass. 02142. $6.95.

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A Shortfall in Leasing Coal from Federal Lands: What Effect on National Energy Goals? 103 pp., gloss., 1980. EMD-80-87. U.S. General Accounting Office, Washington, D.C. 20548.

Gasohol for Energy Production. By Nicholas P. Cheremisinoff. 140 pp., illus., refs., tbls., 1979. Ann Arbor Science Publishers, Ann Arbor, Mich. 48106. $14.95.

Ecology

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The Recovery Process in Damaged Ecosystems. Edited by John Cairns, Jr. 167 pp., illus., refs., tbls., 1980. Ann Arbor Science Publishers, Ann Arbor, Mich. 48106. $29.50.

Land Use

Rural and Small Town Planning. Edited by Judith Getzels and Charles Thurow. 326 pp., illus., bibliog., index, 1980. American Planning Association, Chicago, Ill. 60637. $12.95.

Changes in Public Land Management Required to Achieve Congressional Expectations. 206 pp., app., 1980. CED-80-82. U.S. General Accounting Office, Washington, D.C. 20548.

The Politics of New Town Planning: The Newfields, Ohio, Story. By Frederick Steiner. 250 pp., 1980. Ohio University Press/Swallow, Athens, Ohio 45701. $15.00.

Energy-Conserving Development Regulations: Current Practice. Planning Advisory Service Rpt. No. 352. American Planning Association, Chicago, Ill. 60637. $12.00.

Law, Legislation and Politics

The Design of Public Decision Systems. By Robert J. Mowitz. 168 pp., 1980. University Park Press, Baltimore, Md. 21202. $11.95.

Pollution

Contaminants and Sediments, Vol. 1. Fate and Transport, Case Studies, Modeling, Toxicity. Edited by Robert A. Baker. 558 pp., illus., indexes, 1980. Ann Arbor Science Publishers, Ann Arbor, Mich. 48106. $39.95.