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Cover

A map of the Ogallala Aquifer illustrates the wide range in groundwater availability throughout the High Plains of the central United States region— from zero in some sections to more than 1,000 feet in west central Nebraska. See page 310 for a discussion of the economic and social consequences of groundwater use in the High Plains. Artwork adapted from a U.S. Geological Survey map by John B. Weeks and Edwin D. Gutentag.

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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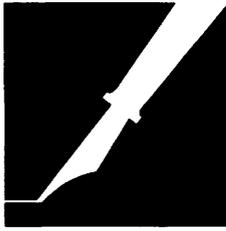
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PEN POINTS

On SCSA's "political affair"

Ken Cook's post mortem on SCSA's annual meeting in the September-October issue ("A political affair to remember") was as thoughtful and thought-provoking as any assessment I have yet encountered. As usual, Mr. Cook's sense for the jugular, as well as his grasp of the subtler shadings of the issues at hand, makes for compelling reading. That said, there are several points on which I differ with his conclusions.

In a discussion of public awareness of conservation issues, Mr. Cook rightfully deplores the tendency of the news media to sensationalize and exaggerate conservation problems in order to capture the attention of that "vast grazing herd," the general public. But at the same time, he states that nothing would kill public interest in conservation more than "that feeble lullaby, 'The Truth Lies Somewhere In Between'."

Unfortunately, in conservation, as in life, the truth usually does lie Somewhere In Between. And in the absence of that very subtle and difficult melody, what are conservationists left with, besides glaring headlines, to woo the supposedly attentive citizenry? And woo we must, for while it is true, as Mr. Cook points out, that public awareness cannot substitute for sensible policy, it can do much to further it, especially if someone has done a good job in illuminating the twilight zone In Between. To the extent that SCSA could fill the role of illuminator, Mr. Cook's proposal for an SCSA scientific review panel is a good one. That SCSA could or should take on the role of *objective* analyzer of conservation issues, however, is questionable.

As an illustration of how such a panel would function, Mr. Cook uses as an example the present dispute over the rate and significance of farmland conversion. Dartmouth economist William Fischel has recently argued that data used by the NRI [National Resource Inventory] and NALS [National Agricultural Lands Study] were intentionally slanted to promote the conservation cause. Under Mr. Cook's proposal, an SCSA review panel would enter this situation as a disinterested party, "cooly appraise each of the dissenting views," and issue a thorough and objective assessment of the conflict.

One can't help but wonder, however,

how disinterested an SCSA panel would be when sitting judgment on the dispute over NRI/NALS data—data that many SCSA'ers were involved in collecting and interpreting. And given that the express goal of SCSA is to further conservation, the ability of an SCSA panel to deliver a neutral analysis of Fischel's criticisms would be highly suspect.

To illuminate is one thing, to assume an objectivity that is not necessarily present or desirable is another. To quote the anonymous SCSA official whose observation appears in the middle of Mr. Cook's article, "you have to understand that these people (SCSA'ers) think they're doing the most important thing in the world." They aren't objective. They aren't disinterested. They shouldn't be. They can change the world. The way to change the world, however, is not to form a disinterested panel of reviewers, (even if that were possible), but to let the commitment, that passionate, almost religious commitment to conservation exhibited by so many SCSA members, leaven the rigorous professionalism of the organization and propel it forward into the political arena. That commitment is one of SCSA's strengths, and to restrict the Society's political involvement to a dispassionate review panel would be to waste that strength.

SCSA should be out there actively refuting the arguments of Mr. Fischel and others. But it should do so honestly, as a professional organization with an interest, a strong and profound interest, in promoting conservation.

Elizabeth B. Speer
National Audubon Society
New York, N.Y.

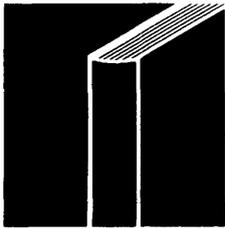
A readable journal

In working on a thesis dealing with social aspects of soil conservation, I have again and again found articles in your journal to be the most readable.

I've been editing technical and non-technical articles for the College of Forestry, Wildlife, and Range Sciences at the University of Idaho for seven years. I appreciate the approach your publication takes toward natural resources.

Thanks...for facts without jargon. It's most refreshing.

Susan B. Roberts
Moscow, Idaho



BOOKS, ETC.

More Profit with Less Tillage. By Ernest E. Behn. 132 pp., illus., tpls., 1982. Wallace-Homestead Book Co., Des Moines, Iowa 50309. \$7.95.

More Profit with Less Tillage was particularly interesting to me because I just started using the ridge-till system on my own farm last year. Also, prior to reading the book, I had heard Behn talk about his experiences at a public meeting. His enthusiasm is catching.

The book offers the reader an opportunity to understand Behn's tillage philosophy and stimulates thinking about the need to conserve soil and water. It also causes one to reflect on some of the fallacies of past farming techniques. Behn then leads the reader into the ridge-till system and his rationale for using it. One criticism may be that Behn spends too much time analyzing chisel plowing in the early portion of the book. This interferes somewhat with the transition from discussing his philosophy to considering the ridge-till system.

Behn's description of the ridge-till system is clear and understandable, considering that it is somewhat complicated compared with conventional tillage concepts. If the book is edited again for a future publication, I would suggest several changes, however:

First, ensure good reproduction quality of photographs. Some of the photographs now are quite poor. It would help too if all the photos were in color.

Also, Behn has a tendency to endorse Buffalo equipment, which is a trade name rather than a system name. At the same time, he is using a John Deere planter, according to the book. He never explains why. I would suggest he eliminate trade names.

Finally, I would like to see the author add a supplement to the book that considers the kinds of questions he most typically receives about his tillage ideas. This would be a valuable addition to what is already a good publication.—*JAMES E. LAKE, National Association of Conservation Districts, Ft. Wayne, Indiana 46815.*

Soils of the Great Plains: Land Use, Crops, and Grasses. By Andrew R. Aandahl. 282 pp., illus., 1982. University of Nebraska Press, Lincoln, 68588. \$28.50.

This book is the culmination of the author's decades-long research into soils of the Great Plains. The accompanying map

was first published in 1972. A series of slides, 70 of which are reproduced for the present volume, became available in 1979. Now the link that ties them together is published.

Aandahl begins with a sketchy description of the environment of the Great Plains. He settles down quickly to describe 195 mapping units grouped into 18 categories. Each of these categories is described in a separate chapter with a strong dose of soil taxonomic terminology. Only Chapter 18 has a heading—"Rock Land"—inconsistent with the modern U.S. soil classification system.

In each chapter, descriptions of the map units include a general description of the characteristics of the soils and the environments in which they formed, a list of the principal soil series occurring in each unit, and a discussion of land usage, principal crops or grasses, and potential production figures for those soils. The final chapter, "Range Use and Management of Great Plains Soils," unlike the preceding chapters, is not specific and therefore does not fit well into the text.

The book described thus far covers only the first 128 pages. The remaining pages, entitled Appendix A, provide the reader a visual/verbal impression of 70 soils and their setting in the landscape. Six of these soils are not found in the Great Plains, but are included to provide the reader with several examples of soils very different from those common to the Plains. For each of these soils, a color photo is provided showing the soil profile, and another color photo portrays the landscape in which each of the soils is likely to be found. A modified or abbreviated version of a detailed soil description follows each pair of color photos. These data also include the geographic distribution of the soils and describe their geomorphic setting.

The reader needs to take the time and the space required to spread out the map, open the book to the map unit descriptions, and then flip to the detailed series descriptions and photos in the appendix. In doing so, one soon develops an appreciation for the range of variability in soils characteristics over the Great Plains. This approach is, as Aandahl suggests, "a good, economical substitute for field trips." While neither this book, nor any other with which I am familiar, replaces field experience, Aandahl has made available an invaluable resource for the soil scientist, agronomist,

physical geographer, and others with a desire to learn about the soils in America's Great Plains.

A second aspect of this work, which deserves separate evaluation, is the map, also entitled "Soils of the Great Plains." At first view, the map looks terribly complex, but the use of color, pattern, and special symbols combine to make a map that is relatively easy to read and interpret. The key to understanding the map is the explanation of the legend. First, the map grades from blue in the North to orange in the South, reflecting soil temperature and moisture regimes. Second, some colors such as pink for sandy soils do not fit the color spectrum pattern and are so designated. Third, the patterns and symbols used on this map call attention to special cases, such as the wetlands in the glacial Lake Agassize region of Minnesota. Fourth, the individually numbered map units that are keyed to the text allow a great deal of specificity in an otherwise highly generalized map. Patterns such as the vertisols of the Texas Gulf Coastal Plain or the soils developed in loess in Kansas and elsewhere, are easily distinguishable.

A final admonition to the potential reader: Don't attempt to interpret this map without reading the instructions. The Aandahl map appears formidable, but given the complexities of the soils he has mapped, the author has done an excellent job of simplifying and portraying the distribution of soils in the Plains region. The parallel incorporation of outstanding color photos in the text adds an extremely helpful tool.—*CURTIS J. SORENSON, Department of Geography-Meteorology, University of Kansas, Lawrence, 66045.*

California Coastal Access Guide. 240 pp., illus, maps, 1981. University of California Press, Berkeley, Calif. 94720. \$7.95.

This is a beautiful book that should prove interesting to several audiences. Its purpose is to provide a county-by-county access guide to California coastal areas for users. This is accomplished nicely. However, it should also be useful to all those interested or involved in environmental education.

On one level, each coastal county is presented in an atlas-like format. There is a well-drawn overall map of each county, and more detailed maps of coastal areas. Accompanying the maps are descriptions

of each county's sociocultural and biophysical environment. Included in the sociocultural description are pertinent historical highlights and a discussion of the county's key industries. There is an effort to link these industrial activities to the natural environment. For instance, the authors write, "Del Norte County's two principle industries reflect its predominant natural features: The timber industry utilizes its extensive redwood forests, and commercial fishing depends on the anadromous fish rivers." Similar linkages are made in the other counties.

This same mix of information is carried into the description of the more specific areas in the counties. Each area is listed in a matrix with such information as location, facilities provided, and environmental characteristics. There is also a written description of each area, which includes information about access by automobile, foot, and mass transit. Among these descriptions, maps, and matrices, are fine photographs and line drawings.

On another level the access guide is a resource book about the ecology, land use, and law of the California coast. Feature articles are included on topics such as tsunami, redwoods, salmon and steelhead trout, coastal landforms, facilities for persons with disabilities, fog, environmental camping, agriculture, zonation of salt marsh vegetation, coastal industry, and surfing. These features are well written and accompanied by helpful illustrations. There are also sections that explain the coastal access program; private and public rights; and hazards, safety, and liability.

Still on another level the access guide is an exemplary effort in linking land-use planning to environmental education. The California Coastal Commission received strong statutory mandates—beginning with Proposition 20 in 1972 and continuing in 1976 with the California Coastal Act and State Coastal Conservancy Act—to provide access to coastal areas. Legislation enacted in 1979 directs the California Coastal Commission and State Coastal Conservancy to establish a comprehensive program to maximize coastal access. The California Coastal Commission has aggressively pursued programs to implement these policies. This zeal has prompted controversy and opposition in several cases. The *California Coastal Access Guide* helps to respond to this criticism by showing the people of California the benefits that have been derived from their coastal laws.

The access guide helps Californians become more aware of their environment and culture. The importance of such knowledge has been noted by Wendell Berry, who has written that "the regionalism that I adhere to could be defined simply as local life aware of itself. It would tend to substitute for the myths and stereotypes of a region a particular knowledge of the life of the place one lives in and intends to

continue to live in." The California Coastal Commission starts to dispel myths about their state and starts to provide such an awareness admirably in the *California Coastal Access Guide*.—FREDERICK STEINER, *Washington State University, Pullman, Washington 99164*.

General

On Rational Grounds: Systems Analysis in Catchment Land Use Planning. David Bennett and John F. Thomas, editors. 362 pp., illus., indexes, 1982. Elsevier Science Publishing Co., Inc., New York, N.Y. 10017.

State of the Environment 1982. 439 pp., illus., refs., 1982. The Conservation Foundation, Washington, D.C. 20036.

Plants and People: Vegetation Change in North America. By Thomas R. Vale. 88 pp., illus., tpls., bibliog., 1982. Association of American Geographers, Washington, D.C. 20009.

U.S. Carrying Capacity: An Introduction. By Maryla Webb and Judith Jacobsen. 79 pp., illus., 1982. Carrying Capacity, Washington D.C. 20036.

The Art of Abstracting. By Edward T. Cremmins. 150 pp., refs., gloss., apps., index, 1982. ISI Press, Philadelphia, Pa. 19104. \$13.95.

How to Write and Publish a Scientific Paper. By Robert A. Day. 160 pp., illus., tpls., apps., index, 1982. ISI Press, Philadelphia, Pa. 19104. \$15.00, cloth; \$8.95, paper.

Communication Skills for the Foreign-born Professional. By Gregory A. Barnes. 198 pp., illus., apps., index, 1982. ISI Press, Philadelphia, Pa. 19104. \$18.95, cloth; \$13.95, paper.

Kodak Data for Aerial Photography. 136 pp., illus., tpls., 1982. Publ. No. M-29. Eastman Kodak Co., Aerial Markets, Rochester, N.Y. 14650. \$15.00.

Our Natural Resources (fifth ed.). By Harry B. Kircher and Donald L. Wallace. 426 pp., illus., refs., index, 1982. Interstate Printers & Publishers, Inc., Danville, Ill. 61832. \$12.50.

McGraw-Hill Encyclopedia of Science & Technology (fifth ed.) 827 pp., illus., 1982. McGraw-Hill Book Co., New York, N.Y. 10020. 15 volumes, \$850.00.

New England Prospects: Critical Choices in a Time of Change. Carl H. Reidel, editor. 206 pp., illus., 1982. University Press of New England, Hanover, New Hampshire 03755. \$18.00, cloth; \$8.95, paper.

A Documentation of the Resources Conservation Act's Assessment Model of Regional Agricultural Production, Land and Water Use, and Soil Loss. By Burton C. English, Klaus F. Alt, and Earl O. Heady. 158 pp., illus., refs., apps., 1982. CARD Report 107T. Center for Agricultural and Rural Development, Iowa State University, Ames, 50011.

Guide to Sources for Agricultural and Biological Research. Edited by J. Richard Blanchard and Lois Farrell. 735 pp., illus., refs., 1981. University of California Press, Berkeley, 94720. \$47.50.

Research, Investigations and Technical Developments National Mapping Program 1981. 85 pp., illus., refs., app., 1982. *Open File Rpt.* 82-236. U.S. Geological Survey, Denver, Colo. 80225.

Canadian Resource Policies: Problems and Prospects. By Bruce Mitchell and W. R. Derrick Sewell. 294 pp., illus., index, 1981. Methuen Publications, Agincourt, Ont., M1S 1P7. \$13.95.

Conservation of Water and Related Land Resources. By Peter E. Black. 209 pp., illus., refs., apps., index, 1982. Praeger, New York, N.Y. 10175. \$25.95.

Air

Air Quality Analysis for Urban Transportation Planning. By Joel L. Horowitz. 387 pp., illus., index, 1982. MIT Press, Cambridge, Mass. 02142. \$47.50.

Forests

Wildland Fire Management Economics: A State of the Art Review and Bibliography. By David C. Baumgartner and Albert J. Simard. 46 pp., 1982. General Tech. Rpt. NC-72. North Central Forest Experiment Station, St. Paul, Minn. 55108.

A Simulated Inventory Update: Wisconsin's 1979 Timber Resource. By Gerhard K. Raile and W. Brad Smith. 40 pp., tpls., 1982. North Central Forest Experiment Station, St. Paul, Minn. 55108.

Old Growth Forests: A Balanced Perspective. Proceedings, Conference sponsored by League of Women Voters of Central Lane County and Bureau of Governmental Research and Service, University of Oregon. 147 pp., 1982. Bureau of Governmental Research, University of Oregon, Eugene, 97403. \$15.00.

Forests and Forestry (third ed.). By David A. Anderson and I. I. Holland. 479 pp., illus., apps., gloss., index, 1982. Interstate Printers & Publishers, Inc., Danville, Ill. 61832. \$15.35.

Prescribed Burning and Oak Advance Regeneration in the Southern Appalachians. By M. J. Teuke and D. H. Van Lear. 11 pp., illus. 1982. Res. Paper 30. Georgia Forestry Commission, Macon, 31298-4599.

Ad Valorem Tax Posture on Forest Lands in Georgia, 1980. By R. W. Jones. 7 pp., illus., 1982. Res. Paper 32. Georgia Forestry Commission, Macon, 31298-4599.

Wildlands and Woodlots: The Story of New England's Forests. By Lloyd C. Ireland. 217 pp., illus., index, 1982. University Press of New England, Hanover, N.H. 03755. \$17.50.

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