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Cover: Good agricultural practices can benefit wildlife, such as this deer in an Iowa soybean field. Photo by Dan Schnepf. See page 263.

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 that 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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A proposed erosion control law

People involved in the conservation business over the past 50 years have made some major inroads in erosion control. This is good. But a drive through most agricultural states shows the job is far from done. Half done, in fact, by most estimates.

We have tried massive doses of cost-share money, and when funding cuts are proposed, lobby groups rise up in arms and defend the need. We give lip service to mandatory controls, such as the Iowa law, a system based on complaints and guaranteed cost-share assistance, and when a real test comes, the actual tons per acre of topsoil loss cannot be proved.

So it's time for a new approach. Consider these facts:

1. Equipment and technology are available; if applied to all cultivated land in the Great Plains, they could have protective amounts of cover by the fall of 1985.
2. Cover is the answer to the erosion problem, and it easily measured.
3. A 50 percent cover, though minimal, would, if applied to all cropland, significantly reduce our soil losses.
4. Most producers admit we have erosion problems, but one study showed 80 percent felt they had no problem on their units. On-site evaluations indicated otherwise.
5. Absentee landowners are a continuing problem; most want income with little or no requirement in their lease to protect the resource.
6. The land is a national heritage belonging to all generations; therefore, we all have stewardship responsibilities.
7. No one is in favor of compulsory conservation laws, so a lot of talking is done, but little is accomplished.

The new approach? Well, we are a society governed by laws for the common good. We no longer speed down the highway at 75 mph. If we do, we pay the penalty.

So let's have a law requiring that all cropland have 50 percent land cover at the end of a season, say, at freeze-up. The benefits are obvious:

1. Minimal erosion.
2. It's easy to determine cover versus soil loss.
3. The producer and society benefit.

The penalty for violating this law? Taxes double and continue to double every year until the required cover becomes a part of the producer's farming system. Then taxes revert back to the regular rate.

The funds generated by violators of the law would go into a revolving fund used to cost-share on a local basis for those who want to establish conservation practices beyond the cover requirement—waterways, diversions, terraces.

Questions immediately come up about how this law would be administered. I envision under this concept that at the time of paying real estate taxes the producer would certify his cropland does or does not have 50 percent land cover. False certifications would be a violation of the law. Those acres not having 50 percent cover would have the real estate tax doubled for that year. Spot checking would, of course, be required.

In addition to the penalty for violators, a reward system could be offered those maintaining, say, 75 percent cover, by reducing their taxes.

The reaction of some is impractical, a violation of my rights, unworkable! But the law would personalize the erosion problem. It's now costing the producer money. It would cost absentee landowners money, should they decide to allow land abuse to continue on their leased cropland.

The law would also inhibit the tillage of fragile or marginal lands that are incapable of producing the needed cover, yet not dictate no tillage. The owner is free to decide.

The law is not dictatorial because cover is easy to measure, not hard to obtain, and does not tell anyone how to farm. It merely states society's penalty for unacceptable behavior. For instance, a traffic fine for speeding, jail or arson.

We've lost much of our topsoil, lost it in the sense that it's not in position on the landscape where it should be. We've mined our organic matter, and now we are finding that we must use ever-increasing amounts of nitrogen and other fertilizers, even on fallow acres.

It's also a fact that protective residues reverse the effects of erosion and a decline in organic matter. Residues, therefore, directly benefit the producer, especially over time, as well as society and future generations.

It's time we get serious about the erosion problem. Lip service and impractical, eyewash legislation is ineffective. We have the know how, we have the equipment, we have the chemicals, but do we have the will? I hope so.

Since developing and sharing the idea, several comments have come forth, all of which prompt a logical response:

1. Sharing this idea with several people in political office, most agreed cover is the answer. However, a proposal of this type would be political suicide. My reaction: I don't believe it; a concerned public is beginning to demand action.

2. I've also shared this proposal with several good farmers. They have no problem with it; they all had 50 percent or more cover at the end of the season.

3. The proposal doesn't cover root crops where total soil disturbance occurs during harvest. Most of these crops are grown on soils that are flat and have a severe wind erosion hazard. A conservation plan with the local conservation district, applied to the land, could be their requirement because they do not have 50 percent cover. The penalty is still the same: no plan and/or active wind erosion and your taxes double and continue to do so.

Herb Mittelstedt
Mandan, North Dakota

Geographic limits of topsoiling

The article "Soil Handling for Surface Mine Reclamation" by Hargis and Redente in the September-October 1984 issue of the JSWC [p. 300] is informative and well documented. Readers should be aware, however, that conclusions by the authors refer to the semiarid western United States and are not necessarily applicable to more humid regions. A case in point lies in the use of topsoil versus mixed overburden in the lignite belt of central and eastern Texas.

This belt roughly conforms to the Claypan Land Resource Area. Undisturbed soils on the uplands are ancient and highly weathered. The majority consist of the Axtell series (Udertic Paleustalfs, fine, montmorillonitic, ther-
that, while populations of bacteria, actinomycetes, and fungi were reduced in fresh spoil, recovery to premining levels in revegetated spoils occurred within one and a half years after disturbance. Algal populations failed to reach premining levels within 10 years after mining, but reached "normal" ranges for algae in arable land within three years after disturbance.

The following table compares selected chemical and physical properties of overburden to the principal materials available for topsoiling:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Overburden</th>
<th>Axtell Claypan</th>
<th>horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand (%)</td>
<td>15.0</td>
<td>16.0</td>
<td>88</td>
</tr>
<tr>
<td>Silt (%)</td>
<td>54.0</td>
<td>35.0</td>
<td>8</td>
</tr>
<tr>
<td>Clay (%)</td>
<td>31.0</td>
<td>49.0</td>
<td>4</td>
</tr>
<tr>
<td>pH</td>
<td>6.9</td>
<td>4.8</td>
<td>5.4</td>
</tr>
<tr>
<td>CEC (me/100g)</td>
<td>22.0</td>
<td>31.0</td>
<td>1.7</td>
</tr>
<tr>
<td>AWC (%)</td>
<td>17.6</td>
<td>12.2</td>
<td>2.5</td>
</tr>
<tr>
<td>N</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>P</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>K</td>
<td>high</td>
<td>medium</td>
<td>low</td>
</tr>
</tbody>
</table>

The overburden compares favorably to either of the topsoil materials. Furthermore, the data do not show the extremely poor physical features related to the high content of montmorillonite clay in the Axtell claypan.

At first glance the data in this response might appear to refute the conclusions reached by the authors of the published article. Not true—so long as each set of data is kept in a proper perspective. The simple fact is that each set of data represents circumstances peculiar to its environment. What applies for one particular circumstance does not necessarily apply to another. I spent considerable time in Arizona and New Mexico evaluating topsoil and overburden in areas that precisely match those described by the authors. Those conditions, however, do not represent the whole universe.

There exists a possibility that the unqualified conclusion by the authors that topsoil is usually a better growth medium than overburden might be interpreted by less qualified personnel as a general endorsement for topsoiling. Regulatory authorities in particular might use this as a reference for imposing blanket topsoiling at considerable cost in areas where such a practice could actually affect reclamation efforts adversely. The conclusions might best have been tempered with qualifying statements as to situations with which the authors were familiar.

Other than the danger of unqualified conclusions which could be misleading in some areas, the article is timely.

James A. DeMent
DeMent and Associates
Shreveport, Louisiana

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For Love of the Land is the story of the National Association of Conservation Districts, how it came into being, who shaped it, what it fought for over the years, and where it is today.

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Author Neil Sampson, Executive Vice President of the American Forestry Association, was Executive Vice President of NACD from 1978-1984. He is the author of Farmland or Wasteland: A Time to Choose, a comprehensive overview of soil conservation data and issues in the U.S.

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For Love of the Land

During the Reagan administration there has been a retreat by the federal government from its role in conservation, environmental, and land use matters. Walking around the hallowed corridors of the Agriculture Building in Washington these days, one seldom hears words such as "land use," "environment," "conservation," or, heaven forbid, "ecology." Such terms have been purged like so many air traffic controllers from the federal bureaucratic lexicon.

The responsibility for land resource management has been shifted to the states, which have, in any case, more regulatory power than is used. During the 1960s and 1970s several states made giant strides in land resource management. Given the federal climate, it is appropriate to appraise these state efforts. John DeGrove has made such an evaluation in his fine study of the land use policies of Hawaii, Vermont, Florida, California, Oregon, Colorado, and North Carolina.

For each state he first analyzes the context from which the policies emerged. DeGrove explores the major issue and concerns that created the interest for land resource-oriented legislation. He then reviews the politics of adoption in each state, "the forces, both public and private, that are involved in opposing or supporting a strong state initiative to improve land and growth management." Next, he describes the politics of implementation, analyzing how the state legislation was put into practice. Finally, he speculates on the politics of the future.

Politics is the focus of this book. Interestingly, however, the adoption of legislation was not a partisan political issue, except in Colorado. "It has tended to be both supported and opposed by Democrats and Republicans." Thus, some type of coalition was necessary to enact land use legislation. Individuals from one or the other political party took the initial leadership, and they were joined by the people from the other party in the adoption and implementation of legislation.

In Hawaii, which initiated statewide land use legislation in 1961, the original leadership was provided by an alliance within the Democratic party between an ethnic minority (Japanese-Americans) and labor leaders. In contrast, the impetus in Vermont came initially from rural, conservative Republicans. Republicans provided the early leadership in Florida and Oregon, as well. In Oregon the late Republican Governor Tom McCall was famous for his outspoken, unwavering support of land use planning. In California, Democrats provided the early political leadership. In North Carolina, a coalition between Democrats and Republicans was forged early in the legislative process.

Colorado was the exception where support and opposition ran along party lines. Democrats consistently have supported land use planning, and Republicans have opposed it, even though the first land use law in the state in 1970 had been supported by Republican Governor John Love.

There were similar issues in each state that led to the land use legislation. In Hawaii, there was concern about the conversion of agricultural land, the mainstay of the state's economy. Later, concerns included the importance of natural amenities, such as the coastline, to the tourist industry.

Conflicts between urban values (recreation-tourism) of new residents and rural values (dairy-lumber) of long-time residents precipitated Vermont's land use law. Rapid population growth has resulted in a variety of environmental problems in Florida—"wet/dry cycles that brought periodic water crises, muck fires in South Florida, saltwater intrusion threatening freshwater supplies on both the east and west coasts, and extensive pollution of practically every river and stream and other water body in the peninsula." Growth pressure and value conflicts between new and old residents were also the underlying issues in Colorado. Concerns about coastal areas led to legislation in California and North Carolina. A variety of issues, with farmland protection the most prominent, were present in Oregon.

In each example state leaders attempted to balance economic growth and environmental protection. There appears to be some recognition that the former need not conflict with the latter, rather than sustained economic prosperity is impossible without the conservation of natural resources.

Each of the states described in this book has experienced successes and failures. Much can be learned from these pioneering efforts. This is especially important during this period of reduced federal involvement. There is evidence that additional states are indeed assuming a greater commitment to land use. For instance, a new land use planning law has been proposed in Washington State, while a new sales tax has been enacted in Missouri for soil conservation and park development.

John DeGrove provides an excellent account of those first states that adopted land use laws. His study should help decision makers and planners in those states evaluate their efforts. It should also provide a helpful guide to leaders in other states—FREDERICK STEINER, Landscape Architecture and Regional Planning, Washington, State University, Pullman, 99164.


According to the front flap on this book's jacket, "Drawing insights and data from the fields of environmental science and technology, ecology, political science, physical geography, law, agriculture, forestry, and sociology, the author builds a complete geographical portrait of global water resources." I suspect that Professor Mather's objective was much more modest, but ambitious nevertheless—the creation of a useful textbook that brings together the physical and social studies aspects of water resources in the United States for courses in geography.

Mather states in his introduction: "Water is an ideal subject with which to unite the broad discipline of geography." With this in mind he appears to have developed the book from lectures prepared over the years and from efforts to fill the gaps and achieve an up-to-date book with extractions from various references that ostensibly are valid currently. Such an approach is inherently risky for any book on water resources management that attempts to be both comprehensive and up-to-date, especially with regard to the legal, political, and economic aspects. The results, as in this case, are likely to be only partially successful.

Changes in the fundamentals of these subjects are not so frequent, and the author’s personal expertise is apparent, especially in the “physical aspects section.”

Part D, “Management of Water: Legal, Political, Economic,” is the weakest portion of the book, especially Chapter 10, “Water Resources Legislation and the Management of Water Resources.” Chapter 10 includes an attempt to summarize in 12 pages a history of federal water resources legislation, a difficult task with great risks of significant omissions. For example, the National Environmental Policy Act of 1969 is described in six lines and omits reference to the act’s extremely significant requirement relative to federal water resources management activities, that is, the requirement for environmental impact assessments of major federal actions to “ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” Another example is the three-paragraph description of the Federal Water Pollution Control Act Amendments of 1972. No mention is made of Section 404, which requires permits from the U.S. Army Corps of Engineers for discharge of dredged or fill material into navigable waters, an important and controversial management issue of the past decade. Nor is Title II mentioned, under which billions of dollars have been appropriated for construction of municipal wastewater treatment facilities. Not only an important environmental program, it also has become the largest of the nation’s public works construction programs.

Also in Part D of the book are several pages on “The Potomac River: An Example of River Basin Planning and Problems,” which the author notes “was adapted in large measure from a comprehensive summary of the problem which appeared in The Johns Hopkins University Magazine (Anon., 1966).” Although accurate at the time, unfortunately for the book, the description became obsolete in the 1980s. The critical problem in the Potomac River Basin of adequate water supply for the Washington metropolitan area, as described in the book, has been solved for a period extending well into the 21st century. According to an article in Civil Engineering (June 1983, pp. 50-53), “This feat was accomplished by state-of-the-art water resources techniques that substantially increase the yield of existing supplies, including Bloomington Reservoir [completed by the Army Corps of Engineers in 1981], meet future water demands, and improve the aquatic environment.” More details are described in other publications, such as A 1980’s View of Water Management in the Potomac River Basin, a report for the Subcommittee on Governmental Efficiency and the District of Columbia, Committee on Governmental Affairs, U.S. Senate, November 12, 1981. The long-standing technical and institutional problems in the Potomac Basin, as described in the book, give cause for reader pessimism. But they were solved two years before the book was published, primarily by operating procedures that are, relatively speaking, almost costless. This should give cause for optimism on the part of a student or anyone else interested in water management.

Various programs and institutions mentioned in the book either have been changed substantially or terminated entirely, examples of the latter being the river basin planning commissions and the U.S. Water Resources Council. Other significant programs are not mentioned, for example, the National Flood Insurance Program, a giant step toward flood damage reduction by largely nonstructural methods. These and other examples lend justification to the view that any comprehensive textbook should make very clear that descriptions of legal, political, and economic aspects of water management have historical value but may be currently incomplete or incorrect when published. If this is made clear, the student or other reader is not so likely to be misled and would be stimulated to search for other sources for current information. — PAUL W. EASTMAN, Interstate Commission on the Potomac River Basin, Rockville, Maryland 20852.


The manual has several strengths, the major one being an in-depth, practical primer for students in beginning soil evaluation and interpretation courses. For this reason, the manual is applicable beyond the borders of Oregon. It can be used as an introductory text for the study of what Drs. Huddleston and Kling appropriately identify as “...this fascinating resource we call soil.”

The authors’ description of soils, soil horizons, and properties of soil horizons is both clear and understandable. Use of the revised soil horizon nomenclature is a definite plus. Appendix D compares the old and new procedure for naming soil horizons.

The manual includes four pages with 16 soil profiles in full color. The plates illustrate the six master soil horizons and many of the subordinate distinctions that may occur within a particular horizon. The $7.50 price of the manual probably relates to the inclusion of these color plates, but in my opinion the color plates are well worth the extra cost.

Overall, Huddleston and Kling have produced a first-class document. But if the manual is edited again for future publication, I suggest several changes:

First, the description of organisms on page 4 is archaic. Organisms include plants, animals, and microorganisms. And microbes include bacteria, actinomycetes, fungi, and protista.

Second, a depth scale drawn to the right or left of each profile in the color plates would be a marked improvement over tapes that are included in some but not all photographs.

Third, the color in the A horizon of plate 7 needs to be checked to ascertain if the brown color visible on the plate coincides with the black color mentioned in the plate caption.

And fourth, the authors’ statement on page 56 that “...severe erosion will ultimately ruin the productivity of soil resources,” seems at least mildly overstated.

My copy of Webster’s New Collegiate Dictionary defines “ruin” as “anything to destroy, or impair effectiveness, or destruction.” Perhaps such a phrase as “cause production to be unprofitable” or “degrade the productivity” or “impair effectiveness” would be more appropriate for most soils formed on unconsolidated parent material.

The Oregon manual could be adapted for use in soil judging in other states having a wide range of climatic conditions and parent materials, most likely in the western region of North America. But it could also serve well as a guide for writing soil judging materials for states and provinces in eastern North America. — GERALD A. MILLER, Department of Agronomy, Iowa State University, Ames, 50011.

I Do and I Understand. By Bruce Ause and Dan Dietrich. 227 pp., illus., maps, 1984. Red Wing Shoe Foundation, Red Wing, Minnesota 55066. $14.95.

The Environmental Learning Center (ELC) in Red Wing, Minnesota, has been conducting outdoor education programs for the past 15 years. I Do and I Understand is a representation of the ELC’s history and is an excellent source of information for the outdoor educator. I do and I understand is the philosophy of the ELC and is derived from a Chinese proverb that reads: I hear and I forget; I see and I remember; I do and I understand.

The first half of the book pertains to the development of local programs, while the second half pertains to national expeditions taken by ELC graduates, including kayaking the Rio Grand, backpacking in the Olympic National Park, and mountain climbing in Wyoming.